

CHAPTER 4

GROWTH INDUCEMENT POTENTIAL AND SECONDARY EFFECTS OF GROWTH

4.1 INTRODUCTION

4.1.1 CEQA DEFINITION OF GROWTH INDUCEMENT

The California Environmental Quality Act (CEQA) *Guidelines* require that an Environmental Impact Report (EIR) evaluate the growth-inducing impact of a proposed action. A growth-inducing impact is defined as follows:

The ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a water treatment plant might, for example, allow for more construction in service areas) ... It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.¹

The environmental effects of a proposed project's induced growth are secondary, or indirect, impacts. Secondary effects of growth can result in significant increased demand on community and public service infrastructures, increased traffic, noise, degradation of air and water quality, and the conversion of agricultural and open space land to urbanized uses.

4.1.2 OVERVIEW

GROWTH-INDUCEMENT POTENTIAL

Based on the CEQA definition above, assessing the growth-inducement potential of the South Bay Aqueduct (SBA) Improvement and Enlargement Project involves answering the question: Will implementation of the project directly or indirectly support economic expansion, population growth, or residential construction? Water supply is one of the chief, though not the only, public services needed to support urban development. A water service capacity deficiency could constrain future development, particularly if coupled with strong community policy. Adequate water supply, treatment, and conveyance would play a role in supporting additional growth in the Valley, but it would not be the single impetus to such growth. Factors such as the General Plans and policies of the cities and counties and/or the availability of wastewater disposal capacity,

¹ CEQA *Guidelines* Section 15126.2(d).

public schools, and transportation services also influence business and residential or population growth in the planning area. Economic factors, in particular, greatly affect development rates and locations.

Growth inducement may constitute an adverse impact if the growth is not consistent with the land use plans and growth management plans and policies for the area affected. Local land use plans provide for land use development patterns and growth policies that allow for the orderly expansion of urban development supported by adequate urban public services, such as water supply, roadway infrastructure, sewer service and solid waste service. A project that would induce “disorderly” growth that is in conflict with local land use plans could indirectly cause additional adverse environmental impacts and impacts to other public services. Thus, it is important to assess the degree to which the growth accommodated by a project would or would not be consistent with applicable land use plans. The SBA Improvement and Enlargement Project is designed to reflect growth management plans within the Zone 7 Water Agency (Zone 7) service area.

SCOPE OF ANALYSIS

The Department of Water Resources (DWR) proposes improvements to and expansion of the existing SBA facilities. The Proposed Project would make improvements to bring the existing capacity of the water conveyance system up to its design capacity (300 cubic feet per second [cfs]). The expansion portion of the project would add 130 cfs of conveyance capacity pursuant to the request of Zone 7 Water Agency (Zone 7) to meet its future conveyance capacity needs, thereby providing a total conveyance capacity of 430 cfs. In addition, the proposed facilities would allow DWR to reduce State Water Project (SWP) peak power consumption by providing for variation in pumping and delivery schedule.

Implementation of the Proposed Project would increase the conveyance capacity of the SBA system upstream of, and terminating at Alameda Canal Check 7. All facility improvements are located within the Zone 7 service area. Capacity in these reaches has been limited to approximately 270 cfs, or 30 cfs below the design capacity of 300 cfs, due to the lack of a 4th pumping unit at SBPP, and hydraulic constraints within the Brushy Creek Pipeline system. This is an existing peak capacity limit between SBPP and Del Valle Reservoir. Annual water deliveries from the SBA have increased steadily until DWR made deliveries of full annual entitlements to the SBA Contractors (210,000 af) in 2000. Because DWR is capable of meeting full entitlement requirements on an annual basis, this historical peak capacity constraint has not affected overall water deliveries, or planning and land use decisions within the SBA Contractor service areas. Therefore, restoring this peak design capacity to accommodate peak month demands by implementing the Improvements portion of the Proposed Project would not remove an impediment to growth, and would not affect the occurrence, rate or distribution of growth within the Zone 7, ACWD or SCVWD service areas. Potential impacts associated with the Enlargement portion of the Proposed Project, which would increase SBA capacity by 130 cfs to meet demands within the Zone 7 Service Area are discussed below.

4.2 RELATIONSHIP OF THE PROPOSED PROJECT TO ZONE 7 PLANNING

The *Zone 7 Water Supply Planning Program (WSPP) - Program EIR* (1999 WSPP EIR; ESA, 1999) examined the *Water Supply Planning Study Update* (Water Transfer Associates, 1999), which included a comprehensive review of projected water demands associated with buildout of the General Plans within the Zone 7 service area, and identified a program for water supply acquisition, and treatment and conveyance facility requirements necessary to meet these demands. Foremost among these was the need for increased conveyance capacity along the South Bay Aqueduct system. The *Water Supply Planning Study Update* identified a total conveyance capacity need of approximately 230 cfs to meet projected buildout demands. With Zone 7's available conveyance capacity of 78 cfs, a conveyance capacity need of approximately 152 cfs was established to meet buildout demands within the Zone 7 Service Area.

Growth potential and secondary impacts of growth associated with buildout under the approved General Plans within the Zone 7 service area were evaluated in detail in the 1999 WSPP EIR, which is incorporated herein by reference. In providing adequate water supply and infrastructure to meet demands at buildout, the EIR acknowledged that implementation of the WSPP would remove a potential impediment to growth, and that indirect, or secondary, effects would be associated with growth. The 1999 WSPP EIR identified the potential secondary environmental effects associated with growth under the approved General Plans within the Zone 7 service area, as well as the mitigation programs that local jurisdictions have adopted to reduce or avoid these effects. As a water agency, Zone 7 does not have the authority to make land use decisions, which lies with the local municipal agencies within its service area. However, acknowledging that the provision of adequate water supply removes one potential obstacle to growth, the Zone 7 Board of Directors adopted a Statement of Overriding Considerations regarding the potential secondary effects of growth within the Zone 7 service area.

The 1999 WSPP EIR examined both a Near Term Project and Long-Term Program for water supply acquisition and facility improvements to meet projected demands. To address conveyance capacity requirements, the Near-Term Project included the acquisition of 39 cfs of unallocated capacity in the South Bay Aqueduct, referred to as the Future Contractor Share. The Long-Term Program identified potential improvements to the SBA system to meet the additional conveyance capacity needs of approximately 100 cfs. Chapter 6 of the 1999 WSPP EIR examined at a program level the treatment and conveyance facilities identified under the Long-Term Program, including increase in the SBA conveyance capacity. Under the Modified Near-Term Project approved by the Zone 7 Board of Directors in 1999, Zone 7 acquired 9 cfs of usable conveyance capacity, leaving a capacity need of approximately 130 cfs to meet demands at buildout. The currently proposed SBA Improvement and Enlargement Project, which will increase capacity by 130 cfs, is consistent with the analysis contained in the 1999 WSPP EIR, including the analysis of growth inducement potential and secondary effects of growth.

The analysis in the *Zone 7 Water Agency Water Conveyance Study* (CDM, 2000) provided a more detailed review of conveyance capacity needs to meet projected buildout demands, and included a detailed evaluation of summer and winter capacity requirements at buildout for low, medium and

high demand scenarios. To calculate the additional conveyance needed, Zone 7's available conveyance capacity was subtracted from the maximum monthly demand. Under the high demand scenario, the maximum monthly demand of 205.9 cfs was identified in August. The *Water Conveyance Study* also established Zone 7's contractually available conveyance capacity at 78.6 cfs. Therefore, the total required conveyance capacity was identified at 127.3 cfs (205.9 - 78.6 cfs = 127.3 cfs). Rounded to the nearest 5 cfs, the total required conveyance capacity would be 130 cfs. Based on this monthly analysis of peak demands, Zone 7 formally requested that DWR prepare a feasibility report identifying the facilities and costs associated with enlargement of the SBA by 130 cfs.

The analysis in this chapter updates the treated water demand and growth projections in Chapter 7 of the 1999 WSPP EIR and is organized as follows:

- Updated Projections
- 1999 WSPP EIR Analysis of Growth and Secondary Effects
- Secondary Effects of Growth
- Conclusion

4.3 UPDATED PROJECTIONS

This section updates the treated water conveyance capacity and growth projections provided in the 1999 WSPP EIR. The updated projections are not intended to reevaluate the entire growth inducement and secondary effects of growth analysis presented in the 1999 WSPP EIR. Rather, the discussion presented in this section is intended to verify that actual growth since 1999 and verify that current projections are sufficiently within the scope of that analysis to allow this EIR to rely on the 1999 WSPP EIR. **Table 4-1** provides a comparison of the 1999 WSPP EIR treated water demand projections and current projected demands for Dublin San Ramon Services District (DSRSD) and the City of Pleasanton, and a low "vision" growth rate for the City of Livermore (maximum population of 95,800 by 2019, buildout population of 105,077). Based on updates to Zone 7 Retailer projections over the last five years, the total treated water demand at buildout is 68,364 afa, which is identified in the 1999 WSPP EIR. Additionally, ABAG and other jurisdictions have updated their projections to extend to 2030. The 1999 WSPP EIR identified a buildout year of 2020, which was considered buildout at that time. Therefore, the 68,960 afa projected at buildout under the 1999 WSPP EIR is shown on **Table 4-1** as projected for 2020, 2025, and 2030.

Population Projections

Population projections have been updated for both the Association of Bay Area Governments (ABAG) and Zone 7 Retailers since publication of the 1999 WSPP EIR. A comparison of these updated 2003 ABAG projections with those provided in the 1999 WSPP EIR is provided in **Table 4-2**. **Table 4-2** shows the updated ABAG population projections from 2000 to 2030, which are consistently five to eight percent less than the 1998 ABAG projections.

TABLE 4-1
ZONE 7 UPDATED 2003 TREATED WATER DEMAND PROJECTIONS VERSUS THE 1999 WSPP EIR PROJECTIONS^{1,2}

	DEMAND, acre-feet									
	Delivery Requested					Projected				
	2002	2003	2004	2005	2006	2010	2015	2020	2025	2030
Treated Demand										
Municipal & Industrial										
City of Dublin ³	8,206	9,301	9,775	10,199	10,624	11,999	13,263	13,946	14,291	14,451
Dougherty Valley	522	1,052	1,391	1,731	2,070	3,426	4,560	4,560	4,560	4,560
City of Livermore	14,704	15,179	15,637	16,155	16,675	18,380	19,881	21,214	22,387	22,387
City of Pleasanton	14,744	14,367	14,654	14,947	15,246	16,829	19,371	19,371	19,371	19,371
Other Treated Water Demand ⁴	315	289	286	287	313	350	350	350	350	350
Groundwater Pumping Quotas ⁵	7,245	7,245	7,245	7,245	7,245	7,245	7,245	7,245	7,245	7,245
Zone 7 Total Treated Water Demand	45,736	47,433	48,988	50,564	52,173	58,229	64,670	66,686	68,204	68,364
Subtotal from 1999 WSPP EIR ⁶	43,270	NA	NA	49,190	NA	57,530	64,440	68,960⁷	68,960⁷	68,960⁷
Percent Change from 1999 WSPP EIR	+6%	NA	NA	+3%	NA	+1%	0%	-3%	-1%	-1%

¹ Information provided by Zone 7 Water Agency, 2003.

² Treated water demands from 2003 to 2008 were obtained from the Retailers' five-year delivery requests.

³ Future treated water demands for the City of Dublin were obtained from DSRSD's Table D (Stan Kolodzie, 2003).

⁴ Other Treated Water Demand includes the DHA, the East Bay Regional Park District, the Livermore Area Recreation Parks District, Lawrence Livermore National Laboratory, Veteran's AMC and Wente (Treated).

⁵ Retailers' groundwater pumping quotas (645, 3,100, and 3,500 af for DSRSD, California Water Service Company, and Pleasanton, respectively).

⁶ Data obtained from Table 7-1 of the 1999 WSPP EIR (ESA, 1999).

⁷ Reflects extension of 1999 WSPP EIR buildout year from 2020 to 2030.

TABLE 4-2
ABAG 2003 POPULATION PROJECTIONS

Subregional Area	2000	2005	2010	2015	2020	2025	2030
Dublin ^{1,2}	29,973	39,400	47,500	52,900	59,100	65,900	74,500
Pleasanton ¹	63,654	70,900	77,200	80,100	83,100	85,900	87,900
Livermore ³	73,345	78,900	86,000	89,100	94,100	100,700	111,600
GRAND TOTAL	166,972	189,200	210,700	222,100	236,300	252,500	274,000
ABAG 1998 from 1999 WSPP EIR⁴	177,100	203,000	221,300	240,700	250,500	NA	NA
Percent change from ABAG 1998	-6%	-7%	-5%	-8%	-6%	NA	NA

¹ City sphere of influence.

² ABAG does not provide separate projections for Dougherty Valley, therefore Dougherty Valley was not included in this analysis.

³ Other Subregional Area.

⁴ The 1999 WSPP EIR refers to the ABAG 1998 Population Projections for the three cities and sphere of influence / other subregional area.

SOURCE: ABAG, 2003

Table 4-3 shows the updated Retailer population projections from 2002 through 2030, and provides a comparison to the ABAG 2003 projections. Retailer projections are within 1% of ABAG 2003 projections through 2020. Retailer projections for 2025 and 2030 are 5% and 12% below ABAG 2003 projections. ABAG is commonly used as a benchmark against which to compare growth accommodated by infrastructure projects. In general, ABAG projections are intended to represent the higher end of the potential range of growth for areas and “can also be defined as the upper bound of a forecast range.” It is intended that growth “is not likely to exceed the levels identified” in the report. The General Plan and city planning information used by Zone 7 Retailers is more current than the information used in Projections 2003, and reflects recent update of the City of Livermore General Plan, which revised buildout populations projections from 117,692 to 105,077, a reduction of approximately 12 percent. As such, retailer information is considered the more accurate of the two. Zone 7’s latest demand projections account for the updated Livermore General Plan. However, with slight increases in projected demands by the other two retailers, projected total demands are similar to those identified under the 1999 WSPP EIR.

This alteration of population projections among retailers within the Zone 7 service area is indicative of long-range planning, and is provided for in the phased nature of water supply acquisition identified under the Zone 7 Long Term Program. As noted in the 1999 WSPP EIR, the Long-Term Program is periodically reviewed by Zone 7 in light of updated population projections to address changes in population growth trends. With respect to the Proposed Project, this alteration in projected buildout growth does not alter the conveyance capacity need

TABLE 4-3
UPDATED ZONE 7 RETAILER POPULATION PROJECTIONS

Subregional Area	2002	2003	2005	2010	2015	2020	2025	2030
Dublin ¹	35,545	36,434	38,183	47,309	52,482	54,824	55,761	56,602
Dougherty Valley ²	5,130	6,696	8,350	15,840	22,500	22,500	22,500	22,500
Pleasanton ³	67,007	68,598	70,660	75,322	79,600	79,600	79,600	79,600
Livermore ⁴	78,045	79,060	81,128	86,541	92,314	98,473	105,077	105,077
GRAND TOTAL	185,727	190,788	198,321	225,012	246,896	255,397	262,938	263,779
1999 WSPP EIR Population	NA	NA	201,658	236,559	262,315	275,363	278,770	279,084
Percent Change	--	--	-2%	-5%	-6%	-7%	-6%	-5%
ABAG 2003 Total	NA	NA	189,200	210,700	222,100	236,300	252,500	274,000
GRAND TOTAL (less Dougherty Valley)	180,597	184,092	189,971	209,172	224,396	232,897	240,438	241,279
Percent change from ABAG 2003	NA	NA	+0.4%	-0.7%	+1%	-1%	-5%	-12%

¹ Future projected population data for the City of Dublin were obtained from DSRSD.

² Future population data for the Dougherty Valley were generated by taking the number of residential homes to be built and using a factor of 2.3 people per dwelling unit. As per the Dougherty Valley Specific Plan, it is projected that there will be the total buildout population of 29,000, with a total of 11,000 residential units. Of these units, DSRSD will serve 9,784 of them and (East Bay Municipal Utility District will serve the remainder) a population of 22,500.

³ Projected population data for 2001 to 2006 were obtained from the October 2001 City of Pleasanton Growth Management Report. The remaining population data was obtained from the City of Pleasanton Urban Water Management Plan.

⁴ Assumed buildout population of 105,077 per the City of Livermore General Plan Update, June 2003.

SOURCE: Zone 7 Water Agency, 2004

requested by Zone 7, which is established not by average annual demand, but by peak monthly delivery requirements associated with seasonal demands. Under its Long-Term Program, Zone 7 would continue to acquire water supplies consistent with population trends within its service area.

The analysis in the 1999 WSPP EIR represents the worst case scenario associated with secondary effects of growth. No new indirect growth impacts beyond those previously identified in the 1999 WSPP EIR are expected to occur. As a result, the potential for growth inducement associated with the Proposed Project has been addressed by Zone 7, and implementation of the SBA Improvement and Enlargement Project by DWR would not result in additional, significant impacts beyond those identified in the 1999 WSPP EIR.

4.4 1999 WSPP EIR ANALYSIS OF GROWTH AND SECONDARY EFFECTS

The 1999 WSPP EIR identified potentially significant secondary effects of growth based on the General Plans and EIRs prepared by the various municipalities located in Zone 7's service area. The 1999 WSPP EIR identified both significant and mitigable, and significant and unavoidable impacts in the issue areas of land use, air quality, traffic and transportation, visual and aesthetic resources, geology, biological resources, public services and utilities, hydrology and water quality, cultural resources, recreation, noise, and energy resources. Table 7-10 of the 1999 WSPP EIR (see also **Table 4-4**, below) identifies all potentially significant impacts identified as secondary effects of growth in Zone 7 water service. All significant impacts and mitigation measures identified in the EIRs are summarized in 1999 WSPP EIR Table 7-11 (see also **Table 4-5** at the end of this chapter).

As specified in the 1999 WSPP EIR, the city and county jurisdictions that have adopted the land use plans and approved the development projects within the Zone 7 service area and broader Tri-Valley Area have adopted statements of overriding considerations to address adopting plans with significant and unavoidable impacts. Table 7-12 of the 1999 WSPP EIR (see also **Table 4-6**, below), provides a list of social, economic, and other considerations found to outweigh the potential secondary effects of proposed growth and development.

In addition to the overriding considerations, each jurisdiction has identified policies and programs intended to limit or reduce the potential impacts of growth. Implementation of these measures is beyond the jurisdiction of Zone 7, which does not have the authority to regulate land use and growth within its service area, or the Department of Water Resources, which does not have the authority to regulate land use and growth within the service areas of individual State Water Contractors. The cities of Dublin, Pleasanton and Livermore, and Alameda and Contra Costa Counties have primary land use jurisdiction and responsibility to regulate growth through the land use planning and development approval process. Zone 7 has jurisdiction and service responsibility for water supply and service. It can mitigate identified significant and unavoidable impacts to water supply and service by providing the necessary facilities and services such that planned growth is not constrained by inadequate service. As a water wholesaler, Zone 7 does not provide service connections to individual development or residences. Rather, Zone 7 wholesales treated water to its Retailers (Livermore, Pleasanton, DSRSD, and California Water Services Company), who are responsible for its distribution through their local distribution systems to approved land uses. However, recognizing that implementation of the 1999 WSPP EIR would remove a potential obstacle to growth, the Zone 7 Board of Directors adopted findings and a statement of overriding considerations for secondary effects of growth associated with buildout under the approved General Plans within the Zone 7 service area (Resolution 99-0256, adopted July 21, 1999). DWR has previously relied on the 1999 WSPP EIR and adopted a statement of overriding considerations in approving water transfers analyzed in the 1999 WSPP EIR.

TABLE 4-4
SIGNIFICANT IMPACTS IDENTIFIED AS SECONDARY EFFECTS OF GROWTH
IN THE ZONE 7 SERVICE AREA

# of EIRs Identifying Impact			Impact Identified
Inside Zone 7 Service Area	Outside Zone 7 Service Area	Total # of EIRs	
Impacts Identified as Significant and Unavoidable			
9	1	10	Pollutant emissions exceeding (Bay Area Air Quality Management District (BAAQMD) significance thresholds
9	1	10	Unacceptable traffic conditions on local roadways
8	2	10	Conversion of farmland and/or prime agricultural soils to urban uses
8	1	9	Unacceptable traffic conditions on portions of I-580 and Interstate 680 (I-680)
7	0	7	A significant increase in traffic noise for existing residents
5	2	7	Conversion of undeveloped, agricultural or open space lands to urban uses
3	2	5	Substantial alteration of the Livermore-Amador Valley’s visual character
3	1	4	Water demand from cumulative urban development which could exceed local and state supply
3	0	3	Potential for damage or injury from an earthquake
3	0	3	Significant increase in energy consumption
2	1	3	Increase in urban runoff pollutants
2	1	3	Impacts to wildlife habitat from introduction of exotic species
2	1	3	Cumulative direct loss of wildlife habitat
2	0	2	Create growth pressures for land conversion to urban uses
2	0	2	Lack of wastewater disposal capacity
2	0	2	Cumulative increase in construction noise
1	1	2	Permanent changes from grading and excavation
1	0	1	Cumulative loss of wetlands
1	0	1	Cumulative impact to views in scenic corridor
1	0	1	Potential inundation from dam failure
1	0	1	Increase in energy use for wastewater treatment and disposal
1	0	1	Inadequate public transit
1	0	1	Cumulative increase in wildland fire hazard
1	0	1	Demand for new school facilities
1	0	1	Cumulative demand for new park and recreational facilities
1	0	1	Cumulative solid and hazardous waste generation
1	0	1	Increase in light and glare in currently undeveloped area
1	0	1	Cumulative increase in flooding potential
1	0	1	Cumulative degradation of groundwater quality
1	0	1	Affect viability of existing farming operations
1	0	1	Cumulative loss of special-status species habitat
1	0	1	Cumulative loss of mature vegetation and trees

(Continued)

TABLE 4-4 (Continued)
SIGNIFICANT IMPACTS IDENTIFIED AS SECONDARY EFFECTS OF GROWTH
IN THE ZONE 7 SERVICE AREA

# of EIRs Identifying Impact			Impact Identified
Inside Zone 7 Service Area	Outside Zone 7 Service Area	Total # of EIRs	
Impacts Identified as Significant but Mitigatable			
10	2	12	Increased demand for water and water service extensions
9	3	12	Requirement for additional law enforcement officers, equipment, and facilities
9	2	11	Requirement for additional fire fighters, equipment, and facilities
9	2	11	Need for new parks and recreational facilities
8	3	11	Demand for new school facilities
8	3	11	Damage or injury from landslide hazards
8	3	11	Increase in existing flood hazard
8	2	10	Permanent habitat loss, accompanying loss of dependent wildlife
7	3	10	Increase in urban runoff pollutants
7	3	10	Damage or injury from an earthquake
7	2	9	Increase in potential risk of wildfires
7	2	9	Alteration of visual character as a scenic route or viewshed
6	2	8	Significant increase in traffic noise for some existing residents
5	1	6	Compatibility of projects with existing land uses
5	1	6	Substantial increase in wastewater generation
4	2	6	Structural damage from soil properties
4	2	6	Removal of heritage/native trees
4	1	5	Increase in air pollutants, deterioration of regional air quality
4	1	5	Increased traffic volumes on local roadways - road improvements/upgrades required
4	1	5	Lack of wastewater disposal capacity
4	1	5	Loss of visually prominent open space
4	1	5	Lack of wastewater collection and treatment facilities and/or disposal capacity
3	2	5	Exposure of on-site and off-site land uses to construction noise
3	2	5	Substantial alteration of Valley’s visual character

SOURCE: Compiled by Environmental Science Associates, 1998. References are listed at the end of 1999 WSPP EIR Chapter 7 (Zone 7, 1999).

TABLE 4-6
KEY OVERRIDING CONSIDERATIONS FOR SIGNIFICANT, UNAVOIDABLE
IMPACTS OF PLANNED GROWTH AND DEVELOPMENT

-
- Accommodation of ABAG-projected growth^a
 - Provision for balanced jobs/housing balance^{a,b,d}
 - Furtherance of regional housing share objectives and provisions of affordable housing^{a,b}
 - Provision and maintenance of affordable housing: rental housing and attached housing near commercial and employment uses^e
 - Provision of housing near growing regional employment centers^{b,d}
 - Location of development where it can be efficiently served with public services and utilities^e
 - Job creation^{b,e}
 - Increased sales revenue^b
 - Enhancement of wine-producing image and creation of investment incentives and perpetuation of agricultural uses^e
 - Minimization of vehicle-miles traveled by providing housing near employment^c
 - Minimization of energy consumption and air pollution from automobile commuting^c
 - Minimization of traffic congestion^c
 - Establishment of an urban growth boundary^{a,e}
 - Establishment of policies to preserve agricultural lands^{a,e}
 - Establishment of policies to preserve open space lands^{d,e}
 - Comprehensive resource management^{a,b}
 - Comprehensive open space/recreation planning, implementation, and management^{a,b,d}
-

^a Alameda County Board of Supervisors, 1994.

^b City of Dublin City Council, 1993.

^c City of Pleasanton, 1996b.

^d City of Livermore, October 1993b.

^e City of Livermore, 1997d.

SOURCE: Compiled by ESA from sources listed at the end of 1999 WSPP EIR Chapter 7.

4.5 SECONDARY EFFECTS OF GROWTH

Impact 4.1: The SBA Improvement and Enlargement Project would support a level of growth that is consistent with the amount planned and approved by the planning agencies within Zone 7's service area. No appreciable growth in population or employment would occur as a direct result of construction or operation of the project facilities. However, the growth accommodated by the project would result in secondary environmental effects. Significant, unavoidable impacts could occur as a result of planned growth in the following areas: traffic and traffic congestion, air pollution, loss of agricultural land and open space, loss of wildlife habitat, alteration of the Valley's visual character, grading and permanent changes in topography, increased traffic noise, increased demand for solid waste disposal capacity, seismic hazards, impacts to wildlife habitat, growth pressures for land conversion,

lack of wastewater disposal capacity, cumulative demand for schools and parks, increased flooding potential, increased urban runoff pollutants, and increased energy demand. This impact is considered Significant and Unavoidable.

Implementation of the Proposed Project would allow the Department of Water Resources (DWR) to provide the level of peak conveyance capacity requested by its water service contractor, Zone 7. The Proposed Project would not result in a direct increase in population or employment, but would indirectly support growth that is consistent with the local General Plans and regional growth management projections within the Zone 7 service area. Therefore, some potentially adverse secondary effects could result from development of planned land uses in the cities and unincorporated county areas within the Zone 7 service area. DWR does not have any authority to make land use decisions within the Zone 7 service area, or to mitigate for the secondary effects of those land use decisions. The cities of Dublin, Pleasanton and Livermore, and Alameda County have primary land use jurisdiction and responsibility to regulate growth through the land use planning and development approval process.

UPDATE OF SECONDARY EFFECTS OF GROWTH

The 1999 WSPP EIR analyzed the secondary effects of growth for the broader region beyond Zone 7's immediate service area. This section describes the status of the projects, changes in General Plans, and changes to cumulative secondary effects of growth since the publication of the 1999 WSPP EIR. The cities of Dublin, Pleasanton and Livermore, and Alameda and Contra Costa Counties were contacted to determine whether there had been any significant general plan changes since 1999, or any new large residential or commercial projects that have been proposed since 1999 and not captured under their current General Plans. Since 1999, a number of projects discussed in the 1999 WSPP EIR have been constructed and new projects have been developed and implemented to address secondary effects of growth within the Zone 7 service area.

See **Table 4-7** for a summary of secondary effects of growth, mitigation programs, and current status of mitigation programs.

LAND USE

1999 WSPP EIR

The 1999 WSPP EIR identified that growth under the approved General Plans of the planning entities within the Tri-Valley area would result in the conversion of currently undeveloped areas to urban land uses. Based upon the gross change in land use acreage anticipated under the various general plans within the Tri-Valley (as defined by the upper Alameda Creek Watershed) approximately 22,000 acres of land would be converted from open space. In addition to development within the Tri-Valley area, additional development projects within Contra Costa County and San Joaquin Counties would contribute to regional conversion of undeveloped land to urban uses.

TABLE 4-7
SUMMARY OF SECONDARY EFFECTS OF GROWTH, MITIGATION PROGRAMS, AND CURRENT STATUS

Issue Area	Secondary Effects	Agencies/Jurisdiction	Mitigation Programs	Current Status
Land Use	Conversion of lands identified for development under adopted General Plans, estimated at approximately 22,000 acres	Livermore, Pleasanton, Dublin, Alameda County (Land Use Agencies)	General Plans and ECAP include policies and programs intended to prevent urban sprawl, establishing a framework for preservation of open space and agricultural lands.	Unchanged.
Hydrology	Conversion of undeveloped lands, increasing peak flows	Zone 7 Water Agency	Special Drainage Area 7-1 Drainage Fee Program	Zone 7 has prepared a Stream Management Master Plan and is preparing a Master EIR.
		Alameda County and Land Use Agencies	Flood Control Master Plan measures to be implemented on a project-by-project basis	
Water Quality / Non-Point Source Pollution	Increases in Non-Point Source pollution associated with urban uses	Alameda County	Alameda County Stormwater Management Program.	Unchanged.
		Land Use Agencies	Measures to be applied on a project-by-project basis.	
Salt Loading	Increased salt loading associated with use of imported water supplies	Zone 7 Water Agency and Water Retailers	Salt Management Plan, currently under development by Zone 7, identifies offset and management strategies to control loading.	Salt Management Plan has been developed and accepted by Zone 7 Board of Directors.
Wastewater Treatment and Conveyance Capacity	Increased wastewater generation associated with development	Livermore Amador Valley Water Management Authority	LAVWMA Export Pipeline Facilities Project.	LAVWMA Export Pipeline under construction. Completion date: 2005.
Air Quality	Continued non-attainment for Ozone	Alameda County and Land Use Agencies	Plans and Policies contained with General Plans.	Unchanged.
		Bay Area Air Quality Management District	Air Basin Plan	
Biological Resources	Conversion of grasslands, cultivated lands, and woodlands to urban uses	Alameda County and Land Use Agencies	ECAP Urban Growth Boundary. ECAP Resource Management Area Designations (Policy 72)	Unchanged. Additional species listed.
	Loss of riparian and seasonal wetlands	USACOE 404 Permit Program	USACOE, implemented on a project-by-project basis.	
			CDFG 1601/03 Streambed Alteration Agreement Program	
		Loss of individual special-status species	Alameda County and Land Use Agencies	
Traffic and Circulation	Increased traffic volumes and peak-period congestion	Alameda County and Land Use Agencies	Alameda County Capital Improvement Program	Various Capital Improvement Programs under implementation.
		Alameda County Congestion Management Authority	Alameda County Long-Range Transportation Plan	
		Tri-Valley Transportation Council	Tri-Valley Transportation Plan	

Updated Discussion

Land use planning for the City of Livermore and surrounding unincorporated areas has been revised since adoption of the 1999 WSPP EIR. In November 2000, the voters of Alameda County passed Measure D, which amended the County's *East County Area Plan* (ECAP). Measure D directed the County to withdraw from the North Livermore Joint Planning Agreement and remove urban land uses and Urban Reserve Areas from unincorporated areas of Alameda County. These conditions, combined with the agricultural and resource management designations applied in North Livermore, would tend to limit the potential for new residential uses in North Livermore under County jurisdiction. For the South Livermore Valley Vineyard Area, Measure D requires that expansion of residential uses occur within the South Livermore Urban Growth Boundary (UGB).

In December 2002, the Livermore City Council voted to adopt the North Livermore Urban Growth Boundary Initiative in order to extend the existing South Livermore UGB and form a UGB around the entire City. The initiative effectively eliminated the areas outside the current City limit for consideration for future development in the General Plan. Adoption of this initiative made the following major changes to the existing General Plan:

- Deleted the entire northside Area "A" General Plan Amendment, as well as the majority of the North Livermore General Plan Amendment, as parts of the General Plan. The lands within the City's sphere of influence in North Livermore were designated by the initiative as Large Parcel Agriculture.
- Established a North Livermore UGB that connects to the existing South Livermore UGB to form a UGB around the entire City.
- Required that development in areas outside the North Livermore UGB be consistent with provision in the ECAP (part of the Alameda County General Plan) or follow land uses and regulations established in the initiative, if ever annexed to the City.
- Placed restrictions on development affecting wetlands, riparian corridors and wildlife habitats, and on slopes.

On February 9, 2004, the City of Livermore adopted a comprehensive revision and update of the Livermore General Plan, and a new Downtown Specific Plan. The updated General Plan for the City of Livermore projects a population of 105,077 at buildout, which is projected to occur by 2025. The 1999 WSPP EIR projected a population of 117,692 for the City of Livermore under the General Plan Buildout Scenario (see 1999 WSPP EIR Table 7-8), which included development of the North Livermore Specific Plan. Under the currently approved Livermore General Plan, population projections at buildout are reduced by approximately 12%. As previously discussed, this reduction is reflected in the Zone 7 Updated 2003 Treated Water Demand Projections shown in **Table 4-1**, and does not substantially change projected buildout water demands from those previously identified in the 1999 WSPP EIR. As Measure D and the updated Livermore General Plan have reduced development within the North Livermore area, secondary effects of land use development would be slightly reduced from those previously identified in the 1999 WSPP EIR.

SURFACE WATER HYDROLOGY

1999 WSPP EIR

Development within the Tri-Valley Area under the General Plans of the Zone 7 service area would exacerbate existing flooding conditions within the Alameda Creek watershed. Development would include construction of impervious surfaces associated with roadways, school yards, parking lots, sidewalks, and driveways, thereby increasing the amount of stormwater runoff. Based upon the gross change in land use acreage anticipated under the various General Plans within the Alameda Creek Watershed, approximately 22,000 acres of land would be converted to urban uses from open space. This increase in impervious acreage, which represents approximately 15 percent of the total watershed acreage, would increase peak-flow volumes and velocities and could result in potentially significant impacts to Zone 7 drainage facilities as well as properties within the flood plains of watershed streams. In addition to impacts to flood-control facilities in the Tri-Valley Area, increases in peak flows would affect downstream areas, including Niles Canyon, and Alameda Creek facilities within Union City and Fremont. Existing flooding within Niles Canyon and effects to Route 84 could be exacerbated by buildout under the General Plans. Flood-control maintenance within these areas is provided by Alameda County Flood Control and Water Conservation District, Zone 5.

Updated Discussion

The potential for secondary effects to surface water hydrology associated with buildout under the approved General Plans within the Zone 7 service area remains similar to that described in the 1999 WSPP EIR. However, Zone 7 is developing a Stream Management Master Plan (SMMP) to meet several objectives related to the provision of flood control within its service area. The purpose of the SMMP is to develop a master plan that addresses flood protection and drainage issues, as well as other issues affecting management of the streams and arroyos. The SMMP focuses on a multi-disciplinary approach to management by looking not only at flood protection, but other resource areas affected by stream management. As such, the SMMP focuses on six resource areas:

- Flood Protection and Drainage
- Erosion and Sedimentation
- Water Supply
- Water Quality
- Habitat and Environment
- Recreation, Trails and Public Education

As part of the SMMP process, Zone 7 identified a specific goal for each of these resource areas, then identified multiple objectives for each goal. These goals and objectives were then used to guide the development of individual projects. Project development was coordinated with a stakeholder process that involved other agencies and interested parties within the upper Alameda Creek watershed. Through this process Zone 7 has identified a series of projects to meet the SMMP goals and objectives, thereby updating Zone 7's existing 1966 Flood Control Master Plan and subsequent Technical Memos. The SMMP study area includes 39 miles of improved flood

control channels located within the 430 square miles of the Alameda Creek watershed that encompasses the Zone 7 service area.

The SMMP will function as a program to be implemented by Zone 7 within the context of the approved General Plans of local municipalities in the Zone 7 service area. It is intended to meet the stream management needs of the Zone 7 service area through buildout of these General Plans. As such, individual projects will be developed and implemented over the course of the current planning horizon (2020-2030). Individual project implementation would be contingent upon funding sources and agency partnering. Design and permitting activities for individual projects are anticipated to be completed on a two-four year timeframe, with construction activities being implemented during dry season months.

Zone 7 will be the lead agency for preparation and circulation of a Master EIR which will examine potential impacts associated with implementation of the Zone 7 SMMP. Implementation of individual projects will be reviewed under the Master EIR for the need to complete additional project-specific environmental documentation. The Notice of Preparation for a Master EIR was published on May 12, 2004.

WATER QUALITY

1999 WSPP EIR

Development within the Tri-Valley area would increase generation of non-point source pollution within the upper Alameda Creek Watershed. The average increase in pollutant loading with the likely land use changes identified in the General Plans is estimated to be 49 percent.

Additionally, increased urban irrigation would contribute to increases in salt loading to surface waters within the watershed. Historical data indicates that salt loading is resulting in an increase in salinity within the Main Basin of approximately 10 mg/L per year. Based upon the salt balance model, the largest contributor to salt loading within the Main Basin is urban irrigation, which contributed approximately 33 percent of the salt loading calculated for the 1996 water year.

Updated Discussion

The potential for secondary effects to water quality associated with buildout under the approved General Plans within the Zone 7 service area remains similar to that described in the 1999 WSPP EIR. However, Zone 7 has developed and implemented a Salt Management Plan to address the issue of salt accumulation. The Salt Management Plan was prepared to identify and evaluate salt loading to the groundwater basin, and potential mechanisms for salt removal. Based upon the results of the Salt Management Plan analysis, Zone 7 adopted the following policy goals for salt management:

- Offset the current (1998) 2,200 tons per year salt loading plus approximately 200 tons per year projected annual increase;
- Maintain or improve groundwater mineral quality;

- Maintain or improve delivered water quality;
- Provide comparable delivered water quality to all Retailers (equalize the east-west water quality);
- Minimize total operational and maintenance costs through an adaptive management process.

To meet these goals, Zone 7 developed a salt management strategy with two immediate elements and one near-term element:

- Immediately increase recharge of imported low TDS surface water, and
- Immediately increase usage of groundwater storage to remove salt from the groundwater basin by increasing turnover.
- Near term: Implement well demineralization to increase salt removal, equalize east-west water quality

WASTEWATER CAPACITY

1999 WSPP EIR

Development within the Valley would increase demands for wastewater treatment and disposal capacity. If development occurs at a rate that exceeds the ability of local wastewater jurisdictions to provide services, potential impacts could occur. Because implementation of the Long-Term Program is not anticipated to support growth at a rate that would exceed the Livermore-Amador Valley Water Management Agency's (LAVWMA) ability to provide export capacity, growth-inducement impacts to wastewater services are not anticipated.

Updated Discussion

The potential for secondary effects to wastewater conveyance capacity associated with buildout under the approved General Plans within the Zone 7 service area remains similar to that described in the 1999 WSPP EIR. However, the LAVWMA Export Pipeline Facilities Project is nearing completion. The purpose of the project is to increase member agencies' wastewater disposal capacity in order to serve future planned growth in the incorporated cities of the LAVWMA service area (Dublin, Livermore, Pleasanton, and portions of San Ramon), to provide wet-weather flow capacity for up to 20 years after construction, and to rehabilitate the existing pipeline. The project is necessary because: 1) development planned under approved General Plan buildout scenarios requires additional wastewater disposal capacity; 2) the LAVWMA system is currently operating near capacity during major wet-weather events; and 3) much of the existing export pipeline requires repair.

The Export Pipeline Facilities Project would expand LAVWMA disposal capacity from 21 to 41.2 mgd through installation of a new 21 mgd pipeline, rehabilitation of the existing export pipeline, and construction of a new pump station. As part of an overall long-range Integrated Flow Management Program for managing wet-weather flows, LAVWMA will rely on water

conservation and the use of advanced treatment featuring reverse osmosis to assist in disposal of wet-weather flows. Completion of this project would provide the appropriate level of wastewater conveyance and disposal capacity to meet projected demands through approximately 2025.

AIR QUALITY

1999 WSPP EIR

Pollutant emissions from sources associated with new urban development, including indirect (mobile) sources, direct (stationary or point, such as commercial or industrial) sources, and area (home, such as heaters and small gas equipment) sources would exceed thresholds established by the BAAQMD for ozone precursors and PM-10.

Updated Discussion

The potential air quality impacts associated with planned growth have remained unchanged from those described in the 1999 WSPP EIR.

BIOLOGICAL RESOURCES

1999 WSPP EIR

Development within the Urban Growth Boundary of ECAP and the Dougherty Valley area could result in the loss of grasslands, cultivated lands, woodlands, riparian and seasonal wetlands, individual special-status species, portions of Significant Natural Communities, and would increase the area of urban/wildland interface.

Updated Discussion

The potential for secondary effects to biological resources associated with buildout under the approved General Plans within the Zone 7 service area remains similar to that described in the 1999 WSPP EIR. The ECAP was amended in November 2000 and the revised City of Livermore General Plan was adopted in February 2004. The amended ECAP did not make any changes to Biological Resources. Establishment of the Livermore Urban Growth Boundary, and reduced development within the North Livermore area, would potentially reduce the area of impact discussed in the 1999 WSPP EIR. Since 1999, the listings for certain plant and animal species have changed for Contra Costa and Alameda Counties (see **Tables 4-8** and **4-9**), including the recent listing of California tiger salamander as threatened.

TRAFFIC AND CIRCULATION

1999 WSPP EIR

The 1999 WSPP EIR assessment of traffic and circulation included a synopsis of relevant transportation plans, a description of the forecasting tools used to evaluate the regional transportation system, listings of programmed and planned transportation improvements, identification of congested facilities, and findings of, and mitigation measures for, the potential

**TABLE 4-8
SPECIAL-STATUS PLANT AND ANIMAL SPECIES
KNOWN TO OCCUR IN CONTRA COSTA COUNTY**

Common Name	Scientific Name	Status Federal/State/ CNPS 1999	Status Federal/State/ CNPS 2004
Plants			
Diamond-petaled poppy	<i>Eschscholzia rhombipetala</i>	FSC/--/1A	FSC/--/1B
Fragrant fritillary	<i>Fritillaria liliacea</i>	FSC/--/1B	FSC/--/1B
Contra Costa goldfields	<i>Lasthenia conjugens</i>	FPT/--/1B	FE/--/1B
Animals			
California tiger salamander	<i>Ambystoma californiense</i>	FC/CSC	FT/CSC
American peregrine falcon	<i>Falco peregrinus anatum</i>	FE/CE	FD/CE

STATUS CODES:FEDERAL: (U.S. Fish and Wildlife Service)

FE = Listed as Endangered (in danger of extinction) by the Federal Government.

FT = Listed as Threatened (likely to become endangered within the foreseeable future) by the Federal Government.

FP = Proposed for Listing as Endangered or Threatened.

FC = Candidate to become a *proposed* species.

FD = Delisted by the Federal Government

FSC = Federal Species of Concern. May be endangered or threatened, but not enough biological information has been gathered to support listing at this time.

STATE: (California Department of Fish and Game)

CE = Listed as Endangered by the State of California

CT = Listed as Threatened by the State of California

CR = Listed as Rare by the State of California (plants only)

CSC = California Species of Special Concern

* = Special Animals

3503.5=Protection for nesting species of Falconiformes (hawks) and Strigiformes (owls)

California Native Plant Society

List 1A=Plants presumed extinct in California

List 1B=Plants rare, threatened, or endangered in California and elsewhere

List 2= Plants rare, threatened, or endangered in California but more common elsewhere

List 3= Plants about which more information is needed

List 4= Plants of limited distribution

SOURCE: CNDDB, 1997, 2004; USFWS, 1997,2003; ESA, 1997-2004.

secondary cumulative growth impacts of the Near-Term Project and Long-Term Program. The portions of the Routes of Regional Significance (I-580, I-680, and State Route 84), located within the Zone 7 service area, north to Danville and Alamo-Blackhawk, and west to San Francisco Bay at the end of Lewelling Boulevard were included in the analysis. This analysis did not include impacts to local roadways.

System level performance measures showed that time spent in congestion will increase sharply in the future; however, the duration and length of the average peak-hour trip will increase only slightly. The 2010 Alameda County Congestion Management Agency model projects unacceptable conditions (Level of Service (LOS) E or F) on many of the regional facilities. This finding is supported by the Tri-Valley Transportation Plan / Action Plan for Routes of Regional Significance and the 1996 Tri-Valley travel model update forecasts. In particular, the effects of the Financially Constrained Network in the Tri-Valley Area are seen in the increased congestion

TABLE 4-9
SPECIAL-STATUS PLANT AND ANIMAL SPECIES
KNOWN TO OCCUR IN EAST ALAMEDA COUNTY

Common Name	Scientific Name	Status Federal/State/ CNPS – 1999	Status Federal/State/ CNPS – 2004
Plants			
San Joaquin Saltbush	<i>Atriplex joaquiniana</i>	FSC/--/3	FSC/--/1B
Santa Clara Red Ribbons	<i>Clarkia concinna</i> ssp. <i>automixa</i>	FSC/--/1B	--/--/4
Mt. Hamilton Thistle	<i>Cirsium campylon</i>	FSC/--/1B	--/--/1B
Hospital Canyon Larkspur	<i>Delphinium californicum</i> ssp. <i>Interius</i>		--/--/1B
Mt. Diablo Buckwheat	<i>Eriogonum truncatum</i>	FSC/--/1A	--/--/1A
Diamond-petaled California Poppy	<i>Eschscholzia rhombipetala</i>	FSC/--/1A	FSC/--/1B
Stinkbells	<i>Fritillaria agrestis</i>	--/--/4	FSC/--/1B
Talus Fritillary	<i>Fritillaria falcate</i>	FSC/--/1B	--/--/1B
Napa Western Flax	<i>Hesperolinon</i> sp. nov “serpentinum”	--/--/1B	FSC/--/1B
Rose-mallow	<i>Hibiscus lasiocarpus</i>	--/--/2	--/--/2
Mason’s Lilaeopsis	<i>Lilaeopsis masonii</i>	FSC/CR/1B	--/CR/1B
Showy Indian Clover	<i>Trifolium amoenum</i>	FSC/--/1A	FE/--/1B
Animal Species			
<u>Invertebrates</u>			
Ricksecker’s Water Scavenger Beetle	<i>Hydrochara rickseckeri</i>	FSC/--	FSC/--
California Linderiella	<i>Linderiella occidentalis</i>	*/--	FSC/--
Molestan Blister Beetle	<i>Lytta molesta</i>	FSC/--	FSC/--
<u>Amphibians</u>			
California Tiger Salamander	<i>Ambystoma californiense</i>	FSC/CSC	FT/CSC
Foothill Yellow-Legged Frog	<i>Rana boylei</i>	FSC/CSC	--/CSC
<u>Reptiles</u>			
Giant Garter Snake	<i>Thamnophis gigas</i>	FT/CT	FT/CT
California Horned Lizard	<i>Phrynosoma coronatum frontale</i>	FSC/CSC	--/CSC
<u>Birds</u>			
Peregrine Falcon	<i>Falco peregrinus anatum</i>	FE/CE	FD/CE
Bald Eagle	<i>Haliaeetus leucocephalus</i>	FT/CE	FPD/CE
Burrowing Owl	<i>Speotyto cunicularia</i>	FSC/CSC	--/CSC
<u>Mammals</u>			
Riparian woodrat	<i>Neotoma fuscipes riparia</i>	FPE/CSC	FE/CSC

STATUS CODES:FEDERAL: (U.S. Fish and Wildlife Service)

FE = Listed as Endangered (in danger of extinction) by the Federal Government.

FT = Listed as Threatened (likely to become endangered within the foreseeable future) by the Federal Government.

FP = Proposed for Listing as Endangered or Threatened.

FC = Candidate to become a *proposed* species.

FPD = Proposed for Delisting by the Federal Government

FD = Delisted by the Federal Government

FSC = Federal Species of Concern. May be endangered or threatened, but not enough biological information has been gathered to support listing at this time.

STATE: (California Department of Fish and Game)

CE = Listed as Endangered by the State of California

CT = Listed as Threatened by the State of California

CR = Listed as Rare by the State of California (plants only)

CSC = California Species of Special Concern

* = Special Animals

3503.5=Protection for nesting species of Falconiformes (hawks) and Strigiformes (owls)

California Native Plant Society

List 1A=Plants presumed extinct in California

List 1B=Plants rare, threatened, or endangered in California and elsewhere

List 2= Plants rare, threatened, or endangered in California but more common elsewhere

List 3= Plants about which more information is needed

List 4= Plants of limited distribution

SOURCE: CNDDDB, 1997, 2004; USFWS, 1997,2003; ESA, 1997-2004.

along I-580 and I-680 (due to projected demand exceeding capacity on I-580 between Tassajara and North Livermore, and on I-680 between Route 84 and the Sunol Grade). However, even with the addition of high occupancy vehicle lanes, I-580 throughout the study area would operate at LOS E or F in the peak direction during the peak periods under both scenarios.

If the projected growth at buildout in housing and jobs were to occur, the increase in traffic produced by the growth in jobs would tend to have the greatest impact upon peak-hour traffic increases along the regional transportation system. The location of the impacts would be difficult to determine, because the precise locations for the growth in housing and jobs has not been identified in sufficient detail to be modeled. However, the I-580 corridor between Livermore and Pleasanton would be significantly affected. Freeway widening and implementation of aggressive transit and Transportation System Management policies would be required to maintain acceptable LOS. At a minimum, the freeway improvements listed in the ECAP, such as providing ten travel lanes plus auxiliary lanes between Vasco Road and I-680, would be needed. In addition, eight lanes on I-680 throughout the Tri-Valley Area would be warranted. Finally, the expansion of Route 84 to expressway standards would be required. In short, the buildout of the Tri-Valley Area would require an extensive commitment to expanded regional automobile and transit facilities in addition to aggressive compliance to Transportation System Management goals and objectives.

Updated Discussion

The potential for secondary effects to traffic and circulation associated with buildout under the approved General Plans within the Zone 7 service area remains similar to that described in the 1999 WSPP EIR. Current transportation plans and forecasting tools used to evaluate the regional transportation system were reviewed to update programmed and planned transportation improvements within the Tri-Valley area. The following programs were reviewed:

- Traffic Congestion Relief Program (Caltrans, 2004)
- Countywide Transportation Plan, 2001-2026 (Alameda County Congestion Management Agency, 2001)
- Congestion Management Program (Alameda County Congestion Management Agency, 2003)
- Regional Transportation Plan for the San Francisco Bay Area (Metropolitan Transportation Commission, 2001)

Table 7-22 of the 1999 WSPP EIR listed projects and improvements within the Tri-Valley areas. **Table 4-10** updates these projects with more those identified in the above programs.

The Traffic Congestion Relief Program (Caltrans, 2004) was established by Chapters 9 (AB 2928 and 1662) of the Statutes of 2000. The new projects planned under the program are listed in **Table 4-10** below.

TABLE 4-10
PROGRAMMED AND FULLY FUNDED PROJECTS IN THE TRI-VALLEY AREA

Jurisdiction/ Sponsor	Roadway	Segment	Improvement Description	1999 WSPP EIR	2004 UPDATE
Caltrans/ACTA, Alameda County	I-580/I-680	Interchange	Southbound I-680 to eastbound I-580 flyover	X	X
Caltrans/ACTA	I-580	Tassajara Rd/Santa Rita Rd to Vasco Rd	Construct eastbound and westbound HOV lanes		X
Caltrans	I-580	Santa Rita to Hopyard	Meter HOV bypass	X	
Caltrans	I-680	Contra Costa County line to I-580	Operational improvements (metering, auxiliary lanes, and HOV lanes)	X	
Caltrans	I-238		Northbound widening		X
Caltrans	I-680		I-680 Sunol Grade improvements		X
Caltrans	Route 84		Route 84 improvements		X
Alameda County	Crow Canyon Road		Crow Canyon Road improvements	X	
Alameda County	Route 84 (Vallecitos)	Isabel to I-680		X	
Alameda County	Vasco Road		Vasco Road/ I-580 interchange improvements		X
Alameda County	I-580		I-580 connections to Hayward Bypass (Route 238) and interchange improvements: eastbound I-238 to southbound Hayward Bypass		X
Alameda County	I-580	I-580/ I-205	I-580 lane and interchange improvements		X
Alameda County	I-580		I-580 interchange improvements at Castro Valley Road, Redwood Road, and Center Street in Castro Valley		X
Alameda County	Altamont Pass		Altamont Pass rail service operating and station/track improvements		X
Alameda County	Isabel Route 84/I-580 Interchange and improvements		Construction initial phase of Isabel Route 84/ I-580 interchange.		X

TABLE 4-10 (Continued)
PROGRAMMED AND FULLY FUNDED PROJECTS IN THE TRI-VALLEY AREA

Jurisdiction/ Sponsor	Roadway	Segment	Improvement Description	1999 WSPP EIR	2004 UPDATE
Alameda County	I-238		Widen I-238 from 4 lanes to 6 lanes		X
Alameda County	North Canyons Parkway		Extend North Canyons Parkway		X
Alameda County	Las Positas Road		Extend Las Positas Road between First Street and Vasco Road		X
Alameda County	I-580	San Ramon Road/ Foothill Road	I-580/ San Ramon Road/ Foothill Road interchange improvements		X
Alameda County	I-580	Fallon Road/ El Charro Road	I-580/ Fallon Road/ El Charro Road interchange improvements		X
Alameda County	Scarlett Drive	Dublin Boulevard to Dougherty Road	Extend Scarlett Drive from Dublin Boulevard to Dougherty Road		X
Alameda County	I-580/I-680		I580/ I-680 Transportation Operations System (TOS)		X
Alameda County		Livermore Valley Center	Livermore Valley Center Parking Structure		X
Dublin/Caltrans	I-580	Schaefer Ranch Road	Construction of ramps	X	
Dublin/Caltrans	I-580	El Charro Road interchange	Modify interchange	X	
Livermore	E. Jack London Blvd.		Extension	X	
Livermore	Greenville Road	Paterson Pass Road to Las Positas Ave.	Widening	X	
Livermore	I-580	Airway Blvd. Interchange	Interchange improvements	X	
Livermore/ Alameda County	I-580	First St. Interchange	Interchange improvements, including a new bridge over I-580 and related ramp work	X	X
Livermore/ Alameda County	I-580	N. Livermore Avenue interchange	Interchange improvements	X	X
Livermore	I-580	Vasco Road interchange	Modify interchange to standard design	X	X

TABLE 4-10 (Continued)
PROGRAMMED AND FULLY FUNDED PROJECTS IN THE TRI-VALLEY AREA

Jurisdiction/ Sponsor	Roadway	Segment	Improvement Description	1999 WSPP EIR	2004 UPDATE
Livermore/ Alameda County	I-580	Greenville Road	Interchange improvements	X	X
Livermore	Greenville Road		Greenville Road widening- UPRR bridge replacement		X
Livermore	Isabel Avenue		Isabel Avenue Improvements	X	X
Livermore	Portola Avenue		Widening	X	
Livermore	S. Vasco Road		Widening	X	
Livermore	Stanley Blvd.		Signal coordination	X	
Pleasanton	Stanley Blvd.		Widening	X	
Livermore Amador Valley Transit Authority (LAVTA)			Transit operating and capital improvement program.		X
LAVTA			Satellite bus operating facility		X
Transit Operators	BART, AC Transit, and LAVTA	Tri-Valley Areawide	Transit operator ten-year CIPs	X	

ACTA = Alameda County Transportation Authority

LAVTA = Livermore-Amador Valley Transportation Authority

SOURCE: ESA, 1999; Caltrans, 2004; Alameda County Congestion Management Agency, 2001; Alameda County Congestion Management Agency, 2003; Metropolitan Transportation Commission, 2001.

The Alameda County Congestion Management Agency (CMA)'s Countywide Transportation Plan (2001) is the blueprint for transportation improvement through the year 2026 and contains a shared vision of the county's long term transportation needs. Some of the goals and performance objectives of the CMA are improved mobility, greater transit access and transit use, improved air quality, and effective management and operation. The CMA prepared a summary of applied performance measures such as LOS, average speed, travel time, and duration of congestion for future traffic conditions and has developed a capital investment program to maintain and enhance the county transportation system. The transportation investment program must be designed to fund projects that will improve the ability to travel freely, improve transit access and use, improve air quality, and contribute to the economic vitality of the Alameda County. **Table 4-10** includes 'committed' projects under the program for which funding has already been identified but construction has not yet completed.

The Congestion Management Program describes the strategies to address congestion problems. Alameda County works in cooperation with the Metropolitan Transportation Commission, transit agencies, local governments, Caltrans, and the BAAQMD. The 2003 Congestion Management Program recommends projects for funding in the 2004 State Transportation Improvement Program and the 2003 CMA Transportation Improvement Program. **Table 4-10** includes the projects proposed by Alameda County.

The 2001 Regional Transportation Plan (RTP) for the San Francisco Bay Area represents the transportation policy and action statement of the Metropolitan Transportation Commission for how to approach the region's transportation needs over the next 25 years. The 2001 RTP proposes a set of future transportation projects and programs that can be implemented with available funding as well as identifying projects that could be considered if new funding is obtained. The projects are listed in **Table 4-10** below.

The Tri Valley Transportation Council has not updated the 1995 Tri-Valley Transportation Plan/Action Plan for Routes of Regional Significance, but has amended traffic mitigation fees (Bobadilla, 2004).

The Livermore Amador Valley Transit Authority updates its Short Range Transit Plan every year, which functions as the primary planning document for the transit agency. The last Short Range Transit Plan was released in December 2002. Current planning efforts will result in the Short Range Transit Plan for Fiscal Years 2004 through 2013 (Livermore Amador Valley Transit Authority, 2002).

Alameda County and the local jurisdictions within the Tri-Valley Area must create adequate revenue to implement the transportation system improvements needed to accommodate the traffic projected for the year 2010 or buildout of the General Plans. Further, local jurisdictions that comprise the TVTC have adopted policies that restrict the widening of I-580 and I-680 at the gateways leading into the area in order to meet future traffic demand for single-occupant vehicles. Gateways, or entrances, to the Tri-Valley Area on I-580 and I-680 freeways serve two functions: They provide access from one geographic area to another, and they constrain—and thus meter—the flow of traffic as it enters metropolitan corridors. By setting policy limits on the capacity of

gateways and tolerating moderate congestion at these locations, a plan can prevent congestion at other locations where it would be more disruptive to the operation of the transportation system. Alameda County's plan embraces the use of geometric metering as a congestion management strategy in locations where it is necessary to constrain mainline traffic flows in order to shelter other, more critical, freeway segments from severe congestion. For the short term, it is the Alameda County CMA's intent that selected gateways be managed to offer priority treatment for buses, carpools, and commercial vehicles engaged in commercial service as long as safe operations under congested conditions can be maintained.

If funding cannot be secured to maintain acceptable levels of service within the Tri-Valley Area, changes in local General Plans or implementation of local growth-control ordinances may be warranted. In addition, the Counties of Alameda and Contra Costa may need to reduce the levels of potential development within their spheres of influence to reduce peak-period traffic levels. DWR does not have the authority to make local land use development or transportation improvement decisions, and therefore does not have the ability to mitigate the secondary effects of growth on local and regional traffic and transportation systems. Retail water suppliers within the Zone 7 service can implement growth control plans and/or limit water connections in order to match the rate of growth to transportation level of service and implementation of funded improvements.

4.6 CONCLUSION

Because the SBA Improvement and Enlargement Project is a component of Zone 7's WSPP, the growth analysis in the 1999 WSPP EIR is applicable to this project, and incorporated by reference. The 1999 WSPP EIR evaluated and disclosed the secondary effects of growth associated with acquisition and service of water supply to meet demands associated with buildout under the approved General Plans within the Zone 7 service area. Implementation of the Proposed Project would not result in additional impacts beyond those identified in Chapter 7 of the 1999 WSPP EIR. Therefore, the growth analysis and discussion of impacts and mitigation measures in the 1999 WSPP EIR remain accurate and adequate and continue to apply to this project.

Implementation of the Proposed Project would allow the DWR to provide the level of seasonal capacity requested by its water service contractor, Zone 7. The Proposed Project would not result in a direct increase in population or employment, but would indirectly support growth that is consistent with the local General Plans and regional growth management projections within the Zone 7 service area. Therefore, some potentially adverse secondary effects could result from development of planned land uses in the cities and unincorporated county areas within the Zone 7 service area. DWR does not have any authority to make land use decisions within the Zone 7 service area, or to mitigate for the secondary effects of those land use decisions. The cities of Dublin, Pleasanton and Livermore, and Alameda County have primary land use jurisdiction and responsibility to regulate growth through the land use planning and development approval process.

REFERENCES – Growth Inducement Potential and Secondary Impacts of Growth

- Alameda County, *East County Area Plan*, Adopted: May, 1994, Corrected: March, 1996, Amended: September, 1996, July, 1998, and November, 2000, Adopted: May 2002.
- Alameda County Congestion Management Agency, *Countywide Transportation Plan*, available online at: <http://www.accma.ca.gov/pages/county.shtml>, 2001.
- Alameda County Congestion Management Agency, *Congestion Management Program*, available online at: <http://www.accma.ca.gov/pages/congest.shtml>, 2003.
- Association of Bay Area Governments, *Projections 2003*.
- Bobadilla, Lisa, Transportation Planner, Tri Valley Transportation Council, personal communication, August, 2004.
- Caltrans, *Traffic Congestion Relief Program*, available online at: www.dot.ca.gov/tcrp, June 2004.
- Camp Dresser & McKee (CDM), *Zone 7 Water Agency Water Conveyance Study*, December 2000.
- Craven, Jennifer, Associate Planner, City of Livermore Community Development Department, personal communication, April 20, 2004.
- Environmental Science Associates (ESA), *Zone 7 Water Agency Water Supply Planning Program – Program Environmental Impact Report (SCH# 98041040)*, January 1999.
- Kolodzie, Stan, Assistant Engineer, *Dublin San Ramon Services District Table D*, Dublin, CA, 2003.
- Livermore Amador Valley Transit Authority, *Short Range Transit Plan*, available online at: <http://www.lavta.org/srtp/index.html>, 2002.
- Livermore, City of, *Livermore Draft General Plan and Downtown Specific Plan EIR*, June 2003, SCH#2003032038, and Findings, Statement of Overriding Considerations, and Adoption of the Mitigation Monitoring Plan for the General Plan Update and the Downtown Specific Plan, Resolution No. 2004-34, February 9, 2004.
- Livermore, City of, *City of Livermore General Plan 2003-2025*, adopted February 9, 2004.
- Metropolitan Transportation Commission, *Regional Transportation Plan for the San Francisco Bay Area*, available online at: <http://www.mtc.ca.gov/projects/rtp/rtpindex.htm#rtp>, 2001.
- Roche, Patrick, Contra Costa County Community Development Department, personal communication, May 14, 2004.
- Swift, Brian, Director, City of Pleasanton Planning and Community Development Department, personal communication, May 5, 2004.
- Water Transfer Associates, *Water Supply Planning Study Update*, January 1999.

Zone 7 Water Agency, *Alternative 3 Treated Water Demands*, 2002.

Zone 7 Water Agency, *Estimated Population & Treated Water Demands, Growth Scenario: DSRSD & City of Pleasanton at Planned Growth and Max City of Livermore Population at 105,077 by 2025*, data provided by Mary Lim (Zone 7) on August 19, 2004.

TABLE 4-5
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA											JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA				
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore							City of San Ramon	Contra Costa County/ Town of Danville			
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TVPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
IMPACT																
Land Use																
Impacts																
• Conversion of undeveloped, agricultural or open space lands to urban uses. (U)			•		•		•	•				•			•	•
• Compatibility with Growth Management Program. (S)								•								
• Project impact on adjoining agricultural lands. (S)					•											
• Conversion of land. (S)												•				
• Consistency with zoning and applicable General Plan Policies(s). (S)					•								•		•	•
• Compatibility of land uses with adjacent communities. (S)	•		•	•	•			•						•		
• Consistency with adopted countywide, subregional and/or regional policies. (S)	•				•											
• Incompatibility of residential land uses with existing electric transmission lines. (S)			•													
• Displacement of existing business. (S)		•							•							
Mitigation Measures																
• Amend plan for city.					•							•			•	•
• Expand the use of open space buffers & landscaping.			•					•					•	•		

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore								City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Annex project site to City.					●											
Specific Plan incorporates features to reduce impacts.													●			
Coordinate planning activities with the adjacent communities.			●	●				●								
Model electric and magnetic field strengths, advise residents of adverse health effects.			●													
Provide funding for management of open space.			●													
Compensate businesses for relocation.									●							
Permit managed grazing.												●				
Revise design guidelines.														●		
Amend GP to protect existing land uses.								●								
Phase growth to ensure adequate public services.								●								
Population, Employment & Housing																
Impact																
Result in jobs/housing imbalance. (S)								●								
Mitigation Measure																
Include policies to insure mix of housing types.								●								

U U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore								City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County-East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley-Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Agricultural Resources																
<u>Impacts</u>																
Cumulative conversion of prime agricultural soils to urban uses. (U)								●								
Convert farmland/prime agricultural soils to urban uses. (U)	●	●	●	●		●	●	●				●	●	●		
Affect viability of existing farming operations. (U)													●			
Create growth pressures for open space lands to be developed. (U)													●			
Create growth pressures for agricultural lands to be developed. (U)														●		
Convert Williamson Act Lands to urban uses. (S)												●				
Convert prime agricultural soils to urban uses. (S)		●						●								
Compatibility with adjacent land uses. (S)												●				
<u>Mitigation Measures</u>																
Implement agricultural mitigation program.												●				
Decrease density.														●		
Implementation of policies & programs within the General Plan.						●		●				●				

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore								City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Design buffers and setbacks, require disclosure statements in deeds.																
Require fee.																
Implement right-to-farm ordinance.																
None available.																
Traffic and Transportation																
Impacts																
Impacts to freeway and highway capacities which would result in segments of I-580 and/or I-680 exceeding the LOS E standard. (U)																
Impacts to local roadways and intersections which would result in unacceptable LOS. (U)																
Public transit capacities would be inadequate to meet increased traffic demand and transit demand. (U)																
Impacts to local roadways and intersections. (S)																
Unfilled demand for transit service. (S)																
Increased volumes on local roadways. (S)																
Construction activities increase truck traffic. (S)																
Road improvements, upgrades, or additions required. (S)																

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County		City of Dublin	City of Pleasanton		City of Livermore						City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County/ Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
No transit access. (S)					●							●		●		
Pedestrian/bicycle safety/mobility. (S)					●							●		●		
<u>Mitigation Measures</u>																
Implement Traffic Impact Fee Programs (as required by Measure C-88).		●	●							●		●		●		
Require transit improvements.					●							●			●	
Road improvements or additions, including reconfiguring or widening some roadways to accommodate more lanes.	●	●	●	●	●	●		●			●	●	●	●	●	
The project shall contribute a proportionate amount of regional transportation mitigation programs, including contribution of pro rata shares to transit improvements fund.			●	●	●		●					●		●		
Caltrans should widen I-580 and affected off- and on-ramps.		●		●								●				
Design trail crossings according to plan for pedestrian/ bicyclists.					●			●				●				
Implement an ongoing transportation demand management program during buildout of the project.			●													
Include a transit service plan with provisions for alternative transportation; e.g. efficient buses, BART connections, bikepaths/pedestrian walkways, ridesharing, telecommuting, etc.		●	●	●				●						●		
Require a Transportation System Management Plan (TSMP) in accordance with the City of Pleasanton TSM ordinance.							●									

U U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County		City of Dublin	City of Pleasanton		City of Livermore					City of San Ramon	Contra Costa County/ Town of Danville			
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Adopt regional/local land use plans which address jobs/housing imbalance.			●					●								
Coordinate with existing transit agencies.		●	●					●				●				
Air Quality																
<u>Impacts</u>																
Pollutant emissions from sources associated with new urban development would exceed thresholds established by the BAAQMD for some criteria pollutants including PM10 and ozone. (U)	●		●	●	●	●		●	●		●	●		●		
Pollutant emissions from sources associated with new urban development would exceed thresholds established by the BAAQMD for some criteria pollutants including PM10 and ozone. (S)							●		●							
Fugitive dust generated by construction. (S)								●				●			●	
New emissions generated by the project would increase air pollution and cause a deterioration in regional air quality. (S)		●		●	●			●					●			
Placement of sensitive land uses near commercial, agricultural or industrial uses could result in conflicts with regard to nuisance or health risk from pollutant emissions. (S)	●											●				
<u>Mitigation Measures</u>																
Specific plan incorporates features that reduce impacts.		●														

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore								City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County-East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley-Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Optimize the existing transportation system, including roadway and intersection improvements.				●	●			●					●	●		
Implement Transportation Demand Measures (carpooling, transit, etc.).	●	●		●			●	●	●		●			●		
Exercise interagency cooperation to integrate air quality planning efforts with transportation, transit, etc.		●		●												
Maintain consistency among specific development plans and regional transportation and growth management plans.		●		●												
Encourage mixed-use development.		●		●												
Reduce emissions related to residential land use.							●	●				●				
Require linkage between growth of housing and job opportunities.		●		●												
Employ particulate control measures, e.g., water all dirt and stockpile areas daily during construction and stabilize or cover all exposed soil areas.			●		●											
Prepare and implement a dust control plan.							●	●				●			●	
Maintain construction equipment, keep construction vehicle speeds under 25 MPH, substitute electric or gas power for diesel where feasible.			●													
Implement Traffic Impact Fee Programs.										●						
Develop off-street trail system.												●				

U U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore								City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Wire housing units to promote telecommuting.																
Provide disclosure statements to homebuyers.																
Provide setbacks/buffers between land uses.																
Noise																
Impacts																
Significant increase in noise for some existing residents from increased traffic. (U)	•		•	•			•	•			•	•				
Cumulative noise from construction activities. (U)								•				•				
Noise from new commercial development. (S)												•				
Significant increase in noise for some existing residents from increased traffic. (S)		•	•		•		•	•	•					•	•	
Exposure of on-site and off-site land uses to construction noise. (S)			•		•			•						•	•	
Mitigation Measures																
Limit construction to daytime hours.								•				•				
Noise control plan.					•											
Provide setbacks, sound attenuation barriers, & appropriate building designs.	•		•	•				•	•		•	•		•	•	

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County		City of Dublin	City of Pleasanton		City of Livermore					City of San Ramon	Contra Costa County/ Town of Danville			
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Specific Plan incorporates features that reduce impacts.		●														
The County shall require noise studies. Major development projects which exceed "normally acceptable" standards shall contribute their prorated share to the cost of noise mitigation measures.	●	●					●							●		
Locate sensitive land uses outside 60 dB-Ldn contour lines.		●	●													
Designate a noise disturbance coordinator.												●				
Employ noise-reducing construction practices		●	●		●			●				●				
Limit noise generating activities.							●							●	●	
Public Services																
<u>Law Enforcement</u>																
<u>Impact</u>																
Development would require additional law enforcement officers, equipment & facilities. (S)	●	●	●	●	●	●		●	●		●		●	●	●	
<u>Mitigation Measures</u>																
Prepare a budget strategy or establish a supplemental funding mechanism prior to project approval.				●	●			●					●			
Specific Plan incorporates features that reduce impacts.		●														

U U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County		City of Dublin	City of Pleasanton		City of Livermore						City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
CHP and/or Sheriff's Dept. should create additional patrol positions and provide substation space.			●													
Incorporate police dept. recommendations regarding design aspects of development that affect traffic safety & crime prevention.					●								●			
Increase police staff, equipment, and facilities.														●		
Annexation/Formation of police district.														●	●	
Require funding.														●	●	
<u>Fire Protection</u>																
<u>Impacts</u>																
Cumulative increase in wildland fire hazard. (U)								●								
Development in rural/hilly areas would increase the potential risk for wildland fires. (S)	●		●	●	●	●		●				●		●	●	
Need for additional fire fighters, equipment & facilities. (S)	●	●	●	●	●	●	●	●	●				●	●		
<u>Mitigation Measures</u>																
Require sprinkler systems in buildings.					●		●									
Specific Plan incorporates features that reduce impacts.		●														

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County		City of Dublin	City of Pleasanton		City of Livermore						City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Require all roads to be accessible/roads meet requirements of fire district and City.					•		•									
Project proponent should dedicate and/or construct additional fire stations to serve planning area.		•	•													
Locate fire stations at main route.							•									
Review of fire prevention measures and project design by applicable Fire district to ensure compliance with safety standards.		•		•		•		•	•		•					
Require funding.														•		
County should require the applicant to provide a wildland fire management plan.				•				•						•	•	
Establishing a supplemental funding mechanisms prior to project approval.			•	•				•					•			
Education/notice and programs.					•											
Prohibit development without adequate services.								•								
Adopt Wildland Hazard Reduction ordinance.								•								
Implement wildfire prevention measures during construction.												•				

U U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA											JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA				
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore							City of San Ramon	Contra Costa County/ Town of Danville			
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
<u>Schools</u>																
<u>Impacts</u>																
• Demand for school facilities may exceed capacity. (U)												•				
• Demand for school facilities may exceed available capacity. (S)	•	•	•	•	•	•		•	•				•	•	•	
• Cumulative demand for school facility may exceed available capacity. (S)							•					•				
• Increase in college students will result in requirement for a new community college. (S)			•													
• Increased need for childcare facilities. (S)			•											•		
<u>Mitigation Measures</u>																
• No mitigation.												•				
• Redefine school district boundary.				•												
• Specific Plan incorporates features that reduce impacts.		•														
• Pay school impact fees.							•							•	•	
• Require dedication of land for adequate school facilities.			•				•									
• School site designated by school district prior to plan approval.														•		
• Work with County and cities to identify and acquire a community college site.		•	•													

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore								City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAS ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Require childcare facilities in compliance with Contra Costa County childcare ordinance.		•	•											•		
Establishing a supplemental funding mechanism prior to project approval.	•		•	•	•			•								
Prohibit development unless adequate capacity exist.								•								
<u>Library Facilities</u>																
<u>Impact</u>																
Increased need for library facilities. (S)		•	•													
<u>Mitigation Measure</u>																
Require developer to dedicate land for and build library facilities.			•													
<u>Parks & Recreation</u>																
<u>Impacts</u>																
Cumulative need for park facilities. (U)								•								
Need for new parks & recreational facilities and/or managed open space. (S)	•	•	•	•	•	•		•	•		•		•	•		
<u>Mitigation Measures</u>																
Expand current park areas & establish and (collect <i>in-lieu</i> park fees for development and management of parks).		•	•	•	•	•			•					•		
Determine ownership & maintenance responsibilities prior to approving final development plans.					•			•					•	•		

U U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore								City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Require developer to dedicate land and build parks.			●													
Coordinate efforts to link existing & proposed trails and parks.	●		●	●	●			●								
Ensure that open space areas managed by EBRPD or other appropriate entity.		●	●													
Developer responsible for constructing storage areas for open space maintenance.			●													
Existing City of Livermore developer fees.											●					
Specific Plan incorporates features which reduce impacts.		●														
Agreement between project sponsor and the County on financing prior to project approval.																
<u>Water</u>																
<u>Impacts</u>																
Water demand from cumulative urban development in the state could exceed the local aquifer and/or state's limited water resources. (U)	●							●				●			●	
Increased demand for water supply & water service extensions. (S)	●	●	●	●	●	●	●	●	●		●			●	●	
Inconsistent with General Plan. (S)														●		

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore								City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
<u>Mitigation Measures</u>																
• Promote water conservation & recycling.		•	•	•	•	•	•									•
• Design golf course to minimize potable use.				•		•	•							•		
• Apply for annexation into an existing water service district.		•	•	•	•											•
• Investigate use of groundwater for irrigation of landscaped areas.							•									
• Pay all application fees to the water district for provision of potable and recycled water service/pay proportionate share.			•	•	•		•				•					•
• New water facilities/improve existing facilities.					•									•		
• Establish supplemental funding mechanisms prior to project approval.			•					•						•		
• Phasing of water system.					•											
• Implement Zone 7 improvements.	•			•												
• Specific Plan incorporates features which reduce impacts.		•														
• Ensure water supply is available prior to development.								•						•		
<u>Wastewater</u>																
<u>Impacts</u>																
• Lack of wastewater disposal capacity. (U)								•				•				

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore								City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Lack of wastewater collection and treatment facilities. (S)		●		●	●			●								●
Lack of wastewater disposal capacity. (S)		●			●		●	●						●		
Substantial increase in wastewater generation. (S)		●	●				●	●			●			●		
Distribution of capacity among various jurisdictions may not match development patterns. (S)	●															
<u>Mitigation Measures</u>																
Establishing supplemental funding mechanisms prior to project approval.			●					●						●		
Require payment of fees.							●							●		
Existing development fees.							●				●					
Upgrade collection system.				●	●											
Prohibit development unless adequate capacity exist.								●								
Secure reservations/guarantees for capacity to ensure availability as development occurs.							●							●		
Provide recycled water services to landscaped areas.					●											
Require water conservation measures.				●	●		●									
Connect to district's sewage disposal system.		●		●	●											
Apply for annexation into wastewater service area.			●	●	●									●		

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County		City of Dublin	City of Pleasanton		City of Livermore						City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Require systems to be built to District standards.					●									●		
Specific Plan incorporates features which reduce impacts.		●														
<u>Solid & Hazardous Waste Management</u>																
<u>Impacts</u>																
Cumulative generation of solid and hazardous waste. (U)								●								
Generation of significant amounts of solid waste. (S)		●	●		●											
Potential hazardous waste from construction equipment. (S)					●										●	
Additional burden on hazardous waste collection facilities. (S)	●	●				●		●								
<u>Mitigation Measures</u>																
Remove hazardous waste from site according to regulation.					●										●	
Require participation in curbside recycling and composting programs.			●		●			●								
Establish supplemental funding mechanisms prior to project approval.								●								
Prepare solid waste management plan.								●								
Preclude development without adequate capacity.								●								

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore								City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
<u>Utility Service</u>																
<u>Impacts</u>																
Increased demand for electrical, natural gas & telephone service. (S)		●		●	●			●								
<u>Mitigation Measures</u>																
Project approval conditional on establishing a supplemental funding mechanism for utilities.					●											
Specific Plan incorporates features which reduce impacts.		●														
Coordinate with utility services.								●								
Prohibit development without adequate services.								●								
Energy Resources																
<u>Impacts</u>																
Residential, commercial and industrial growth under the plan would significantly increase energy consumption. (U)	●	●		●												
Increase in energy use through increased wastewater treatment and disposal, and pumping required for the water distribution system. (U)				●												
<u>Mitigation Measures</u>																
The City shall require demonstration projects of cost-effective conservation techniques and conservation site planning, building design and landscaping.		●		●												

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore								City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Site planning for energy conservation.					•											
Lot orientation for energy conservation.					•											
Visual and Aesthetic Resources																
<u>Impacts</u>																
Cumulative impact to views on scenic corridor. (U)								•								
Substantial alteration of Valley's visual character. (U)	•	•		•									•		•	
Increase in light and glare in currently undeveloped area. (U)								•								
Incompatible with General Plan. (S)														•	•	
Substantial alteration of the Valley's visual character. (S)		•			•	•	•	•								
Loss of visually prominent open space. (S)		•	•			•		•						•		
Substantial alteration the character of the project area as a scenic route or viewshed. (S)		•	•	•	•	•	•					•		•	•	
Limited on-site views of open space. (S)	•	•		•										•	•	
Water tanks/pumping stations serving development would be easily seen. (S)					•							•	•	•	•	
Visual impacts to regional trail crossing project site. (S)					•											
An increase in light and glare could affect local residents. (S)					•										•	

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County		City of Dublin	City of Pleasanton		City of Livermore				City of San Ramon	Contra Costa County/ Town of Danville				
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Mitigation Measures																
• Approved grading & landscaping plans.		•			•			•						•	•	
• Require new development to be in compact form.								•								
• Screen development with trees.												•				
• Dedicate public open space to conservation organizations.			•											•		
• Emphasize retention of the prominent natural features on project sites.		•	•	•	•	•	•	•						•		
• None available.	•		•													
• Amend project site plan to eliminate development in certain scenic routes or areas.												•			•	
• Specific Plan incorporates features that reduce impacts.		•														
• Retain predominant natural features.				•												
• Avoid placement of opaque noise barriers along I-680.							•									
• Water tanks and other utilities should be located away from visually prominent areas & integrated with residential development wherever possible or built below grade.		•	•									•	•			

U U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA											JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA				
	Alameda County	Contra Costa County		City of Dublin	City of Pleasanton		City of Livermore				City of San Ramon	Contra Costa County/ Town of Danville				
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Geology, Soils and Seismicity																
<u>Earthquake Hazard</u>																
<u>Impacts</u>																
Potential for structural damage and injury or loss of life due to impacts from strong groundshaking, including liquefaction. (U)																
Potential for structural damage and injury or loss of life due to impacts from strong groundshaking, including liquefaction. (S)																
Surface/fault rupture could damage roads and utilities. (S)																
<u>Mitigation Measures</u>																
Submit a detailed geotechnical report including an analysis of the liquefaction potential for the area with applications for approval of final development plans.																
Investigation of faults.																
Specific Plan incorporates features which reduce impacts.																
Require construction of all structures in accordance with the State Uniform Building Code.																
Comply with Alquist-Priolo Zone requirements.																

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore								City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Establish setbacks near a fault trace judged to be capable of ground rupture.		●										●	●			
<u>Grading and Erosion</u>																
<u>Impacts</u>																
Grading and excavation will permanently change the existing physical condition of the site. (U)				●									●			
Inconsistent with General Plan. (S)														●		
Grading and excavation will permanently change the existing physical condition of the site. (S)			●		●											
Increased short-term and long-term erosion potential. (S)		●	●					●						●		●
Compaction & paving over of natural soils. (S)		●						●								
<u>Mitigation Measures</u>																
Prepare a grading & design plan which includes an erosion control and rehabilitation plan.		●	●	●	●								●	●	●	
Specific Plan incorporates features which reduce impacts.		●														
Use engineered retention structures & surface & subsurface drainage improvements.				●									●	●		
Design all cut & fill slopes, engineered fills, roads, structural foundations & underground utilities to accommodate estimated settlement without failure.		●		●	●			●					●	●		

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore								City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
<u>Landslide and Soil Hazard</u>																
<u>Impacts</u>																
Landslides on the site have the potential to cause significant damage to improvements &, in extreme cases loss of life. (S)	●	●	●	●	●	●		●				●	●	●	●	
Potential for injury in open space and park areas susceptible to landsliding. (S)			●													
Structural damage from soil properties. (S)			●		●			●				●		●	●	
<u>Mitigation Measures</u>																
The design-level geotechnical report must address the impacts of slope instability with respect to planned improvements.		●	●	●	●	●		●				●	●	●	●	
Prohibit development on existing landslides.												●				
Form or participate in Geologic Hazard Abatement District to establish funding mechanisms for remedial work.			●													
Include slope repair contingency plans for existing landslide areas.		●		●	●								●	●	●	
Require surface drainage control measures.				●	●								●	●	●	
Prohibit access to slide areas in open space.			●													
Clarify mitigation of landslide hazards.								●								

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County		City of Dublin	City of Pleasanton		City of Livermore					City of San Ramon	Contra Costa County/ Town of Danville			
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Use special design criteria to correct for shrink-swell, corrosivity, other soil properties.			●		●											
<u>Mineral and Aggregate Resources</u>																
<u>Impact</u>																
Buildout would preclude future exploitation of mineral and aggregate resources. (S)												●				
Hydrology and Water Quality																
<u>Impacts</u>																
Cumulative increase in flood hazard. (U)								●								
Cumulative degradation of groundwater quality. (U)								●								
Increase of urban runoff pollutants. (U)				●				●					●			
Inundation from Del Valle Dam failure. (U)												●				
Drainage patterns. (S)					●							●				
Increase of urban runoff pollutants and degradation of existing water quality. (S)	●		●		●	●	●	●				●	●	●	●	
Increase in erosion and sedimentation. (S)								●				●				
Increase in existing flood hazards. (S)	●	●	●	●		●	●	●				●	●	●	●	
Cumulative overdrafting of the groundwater basin. (S)							●	●								

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore								City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Degradation of groundwater quality. (S)								●								
<u>Mitigation Measures - Flood Control/Water Quality</u>																
Develop a Stormwater Quality Management Plan.							●									
Develop a Master Drainage/Flood Control Plan.		●	●	●	●	●	●	●								
Tentative map should include location & size of detention basins/grassy swales, and a maintenance & monitoring plan. Design and construct detention basins in coordination with Zone 7, ACFCD.			●	●	●	●							●	●	●	
Installation of storm drain.												●				
Hydrology analysis should include model runs for a family of storms.			●										●	●		
Flood control/erosion improvements.					●										●	
All drain outlets should be constructed with energy dissipation structures.			●										●	●	●	
Internal drainage facilities in neighborhoods sized to convey peak runoff from 10-year storm.													●		●	
Perform existing and on-going water quality investigation.		●												●	●	
Develop plan for regular cleaning of streets and parking lots.								●								
Maintain peak flows at existing levels.								●				●				

U U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County		City of Dublin	City of Pleasanton		City of Livermore						City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Develop community-based education programs on non-point sources of pollution.				●												
<u>Mitigation Measure – Overdraft</u>																
Provide compensation to Zone 7 for the increase in costs necessary to recharge the main groundwater basin.							●									
Biological Resources																
<u>Impacts</u>																
Cumulative loss of special-status species habitat. (U)								●								
Cumulative loss of wetlands. (U)								●								
Adverse effect on wildlife habitat from the introduction of exotic plant species and pets. (U)					●			●								
Cumulative direct loss of wildlife habitat. (U)					●			●						●		
Cumulative loss of mature vegetation and trees. (U)								●								
Loss/fragmentation of wildlife habitat. (S)												●		●	●	
Permanent direct habitat loss and accompanying reduction or elimination of dependent wildlife, including some special-status species.(S)	●	●	●	●	●	●		●				●	●	●		
Removal of heritage/native trees in the study area. (S)					●		●	●				●		●	●	

U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore								City of San Ramon	Contra Costa County/ Town of Danville		
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
Construction could result in impacts to block shouldered kite, burrowing owl, and loggerhead shrike. (S)																●
Filling and alteration of wetland. (S)								●				●				●
<u>Mitigation Measures</u>												●				
Adjust alignments and building sites to retain trees.												●				
Include erosion control plans with final project plans that provide for planting slopes with native plants appropriate for erosion control & revegetation of disturbed areas.			●	●		●							●	●		
Implement measures during any construction activity to preserve any species of oak tree.			●		●			●				●	●	●		
Create off-site habitat.												●			●	
Provide on-site replacement of habitat.	●	●	●	●	●	●		●						●		
Herbicide restrictions.					●											
The County shall encourage no net loss of riparian & seasonal wetlands.	●	●		●				●								
Conduct pre-construction nesting survey.															●	
The project should include a net reduction in grazing.		●	●													
Consult with USFS and California Department of Fish and Game.																●

U U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA												JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA			
	Alameda County	Contra Costa County		City of Dublin	City of Pleasanton	City of Livermore						City of San Ramon	Contra Costa County/ Town of Danville			
	Alameda County- East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley- Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵	Tassajara Meadows ¹⁶
The County should reduce habitat fragmentation, compensate for the loss of habitat and maintain large tracts of foraging and habitat.		●	●											●		
Master Landscape Plan and Tree Prevention Plan.							●									
Wildlife mitigation program (kit fox/southwestern pond turtle/ tricolor blackbird/California red-legged frog).															●	
Retain movement corridors for wildlife.												●				
Require preservation of critical habitat to maximum extent possible.								●								
Require avoidance of habitat or minimization of impacts.								●				●				
Landscape with native species.								●								
Cultural Resources																
Impacts																
Disturb or destroy prehistoric and cultural resources. (S)								●								
Destruction of historic sites. (S)								●								
Mitigation Measures																
Avoid resources where feasible.								●								
Restore, re-use, or preserve resources where avoidance infeasible.								●								

U U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE 4-5 (Continued)
SIGNIFICANT AND SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE ZONE 7 SERVICE AREA AND THE CUMULATIVE PROJECT AREA

IMPACT	JURISDICTIONS WITHIN ZONE 7 SERVICE AREA										JURISDICTIONS OUTSIDE OF ZONE 7 SERVICE AREA				
	Alameda County	Contra Costa County	City of Dublin	City of Pleasanton	City of Livermore						City of San Ramon	Contra Costa County/ Town of Danville			
	Alameda County-East County Area General Plan ¹	Contra Costa County General Plan ²	Dougherty Valley ³	Eastern Dublin GPA & Specific Plan ⁴	Schaefer Ranch Specific Plan ⁵	Pleasanton General Plan Update ⁶	Bernal Property Specific Plan ⁷	North Livermore GPA ⁸	City of Livermore General Plan ⁹	City of Livermore TIF Program Amendment ¹⁰	Livermore Redev. Plan & Urban Design Plan GPAs ¹¹	South Livermore Valley-Specific Plan and General Plan Amendment ¹²	Westside San Ramon Specific Plan ¹³	Tassajara Project (TUPOA) ¹⁴	Wendt Ranch ¹⁵

1 County of Alameda Planning Department, *Draft Environmental Impact Report, Alameda County East Area Plan*, June 1993, SCH# 92073034.

2 Contra Costa County, *Draft Environmental Impact Report for the Proposed Contra Costa County and General Plan*, December 1989, SCH# 88071904.

3 Contra Costa County, *Final Environmental Impact Report for Dougherty Valley General Plan Amendment, Specific Plan and Related Projects*, Volume 1, Comments, Responses, and Errata, November 1992, SCH# 91053014

4 City of Dublin, *Draft Environmental Impact Report, Eastern Dublin General Plan Amendment and Specific Plan*, August 28, 1992, SCH# 91103064.

5 City of Dublin, *Final Environmental Impact Report for Schaefer Ranch Project/General Plan Amendment*, Volume 1: Draft EIR with Revisions, April 1996.

6 City of Pleasanton, *Draft Environmental Impact Report for the 1996 City of Pleasanton General Plan Update*, January 31, 1996, SCH# 95103044.

7 City of Pleasanton, *Draft Environmental Impact Report*, San Francisco Water Department, Bernal Property, SCH# 96-013005, May 1997.

8 City of Livermore Planning Department, *Draft Environmental Impact Report, North Livermore General Plan Amendment*, June 1993, SCH# 93013065 and Draft Findings, Facts in Supporting Findings and Statement of Overriding Considerations regarding the EIR for the North Livermore General Plan Amendment, Resolution No. 93-300, October 11, 1993.

9 City of Livermore Planning Department, *Draft Environmental Impact Report, City of Livermore General Plan*.

10 City of Livermore, *Draft Environmental Impact Report, City of Livermore Traffic Impact Fee Program Amendment*, March 1993.

11 City of Livermore, *Draft Environmental Impact Report, Livermore Redevelopment Plan Amendment and Urban Design Plan Update*, June 1992.

12 City of Livermore, *Draft Environmental Impact Report, South Livermore Specific Plan and General Plan*, May 1997 and Findings and Adoption of the Mitigation Monitoring Plan for the South Livermore Valley Specific Plan and General Plan Amendment Project, Resolution No. 97-312, November 17, 1997.

13 City of San Ramon, *Draft Environmental Impact Report, Westside San Ramon Specific Plan*, July 17, 1989, SCH# 89022114.

14 Contra Costa County, *Draft Environmental Impact Report for the Tassajara Project*, County file #930008 and RZ #943022, Volumes I and II, March 1997.

15 Contra Costa County, *Draft Environmental Impact Report, Wendt Ranch General Plan Amendment and Related Actions*, County File #GP-95-0012, August 1996.

16 Contra Costa County, *Draft Environmental Impact Report, Tassajara Meadows General Plan Amendment and Related Actions*, County File #GP-95-0009, August 1996.

U U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

TABLE ●● (Continued)
SIGNIFICANT UNAVOIDABLE IMPACTS OF GROWTH IDENTIFIED BY GENERAL AND SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORTS FOR THE PROJECT AREA (CONTINUED)

U U - Significant Unavoidable Impacts; S - Significant or Potentially Significant Impacts

CHAPTER 5

CUMULATIVE IMPACTS

5.1 CEQA ANALYSIS REQUIREMENTS

A cumulative impact is created as a result of the combination of the project evaluated in an EIR together with other projects causing related impacts. The purpose of this analysis is to disclose significant cumulative impacts resulting from the South Bay Aqueduct (SBA) Improvement and Enlargement Project in combination with other projects or conditions, and to indicate the severity of the impacts and their likelihood of occurrence. The CEQA Guidelines require that EIRs discuss the cumulative impacts of a project when the project's incremental effect is "cumulatively considerable," meaning that the project's incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects.¹ CEQA Guidelines Sections 15130(a) and (b) state:

- (a) An EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in section 15065(c). Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.
 - (1) As defined in Section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR.
 - (2) When the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR. A lead agency shall identify facts and analysis supporting the lead agency's conclusion that the cumulative impact is less than significant.
 - (3) An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. The lead agency shall identify facts and analysis supporting its conclusion that the contribution will be rendered less than cumulatively considerable.

¹ CEQA Guidelines Section 15130.

- (b) The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact. The following elements are necessary to an adequate discussion of significant cumulative impacts:
- (1) Either:
- (A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or
 - (B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency.

The analysis of cumulative effects in this chapter focuses on the effects of concurrent construction of the Proposed Project with other spatially and temporally proximate projects. As such, this analysis will rely on a list of projects identified that have the potential to contribute to potential cumulative impacts along the SBA Project Corridor. The analysis also addresses the long-term cumulative effects of the above-ground facilities within the context of past, present and reasonably foreseeable future projects. As discussed in **Chapter 3**, the impacts associated with long-term routine operation of the SBA, including air quality, noise, traffic, hazardous materials and public services/utilities, are not considered significant, and are therefore not discussed per CEQA 15130(a)(1). For impacts related to secondary effects of growth potentially related to the project, refer to **Chapter 4**.

5.2 POTENTIAL PLANS AND PROJECTS WITH RELATED OR CUMULATIVE EFFECTS

5.2.1 GEOGRAPHIC SCOPE

The potential for project-generated impacts to contribute to a significant cumulative impact would arise if they are located within the same geographic area. This geographic area may vary, depending upon the issue area discussed and the geographic extent of the potential impact. For example the geographic area associated with construction noise impacts would be limited to areas directly affected by construction noise, whereas the geographic area that could be affected by construction related air emissions may include the larger airshed. In general, impacts associated with implementation of the SBA Improvement and Enlargement Project are limited to construction related impacts. Construction impacts associated with increased noise, dust, erosion, and access limitations tend to be localized and could be exacerbated if other development or improvement projects are occurring within the same or adjacent locations as the SBA

Improvement and Enlargement Project. The South Bay Aqueduct extends through two general geographic areas; 1) the Altamont Foothills, a range of generally undeveloped foothills separating the San Joaquin and Livermore Valleys, 2) the eastern edge of the Livermore Valley, where land uses are primarily agricultural, but may be affected by future capital improvement projects or development projects within the Livermore Valley. For the purposes of this analysis, these two geographic areas will be used to discuss cumulative effects. Additionally, the geographic scope of potential cumulative impacts varies by issue area, and is defined for each issue area.

5.2.2 PROJECT TIMING

In addition to the geographic scope, cumulative impacts are determined by timing of the other projects relative to the Proposed Project. Schedule is particularly important for construction-related impacts: for a group of projects to generate cumulative construction impacts, they must be temporally as well as spatially proximate. The projects described in **Section 5.2.3** may or may not occur simultaneously with the SBA Improvement and Enlargement Project, depending upon the schedule of each individual project. Although the timing of the projects described in **Section 5.2.3** is likely to fluctuate due to schedule changes or other unknown factors, this analysis assumes these projects would be implemented concurrently with construction of the SBA Improvement and Enlargement Project, between 2005 and 2008.

5.2.3 DESCRIPTION OF CUMULATIVE PROJECTS

A summary of individual projects considered in the Altamont Hills area, and their anticipated environmental impacts is provided below. Additionally, a description of the larger set of projects occurring within the Livermore Valley area is also provided.

ALTAMONT HILLS PROJECTS

Other past, present or reasonably foreseeable projects have been proposed in the area of the SBA Improvement and Enlargement Project are summarized in **Table 5-1**, including the Lead Agency, project status, and anticipated construction timeframe for each project. For the purpose of this cumulative analysis it is assumed that these projects would be constructed concurrently. Each of these projects is discussed below and shown in **Figure 5-1**. It should be noted that the pipeline alignment for the proposed CALFED Los Vaqueros Reservoir Expansion Project shown in **Figure 5-1** is only representative; final alignment of the pipeline has not been determined at this time.

Zone 7 Altamont Water Treatment Plant

The *Altamont Water Treatment Plant Final EIR* (SCH# 2000032009) was certified on June 20, 2001 and construction is scheduled to begin in 2007 with completion by 2009. Information about the project description and identified impacts was obtained from the *Altamont Water Treatment Plant Draft EIR* (EIP, 2001a) and the *Altamont Water Treatment Plant Response to Comments on the Draft EIR* (EIP, 2001b).

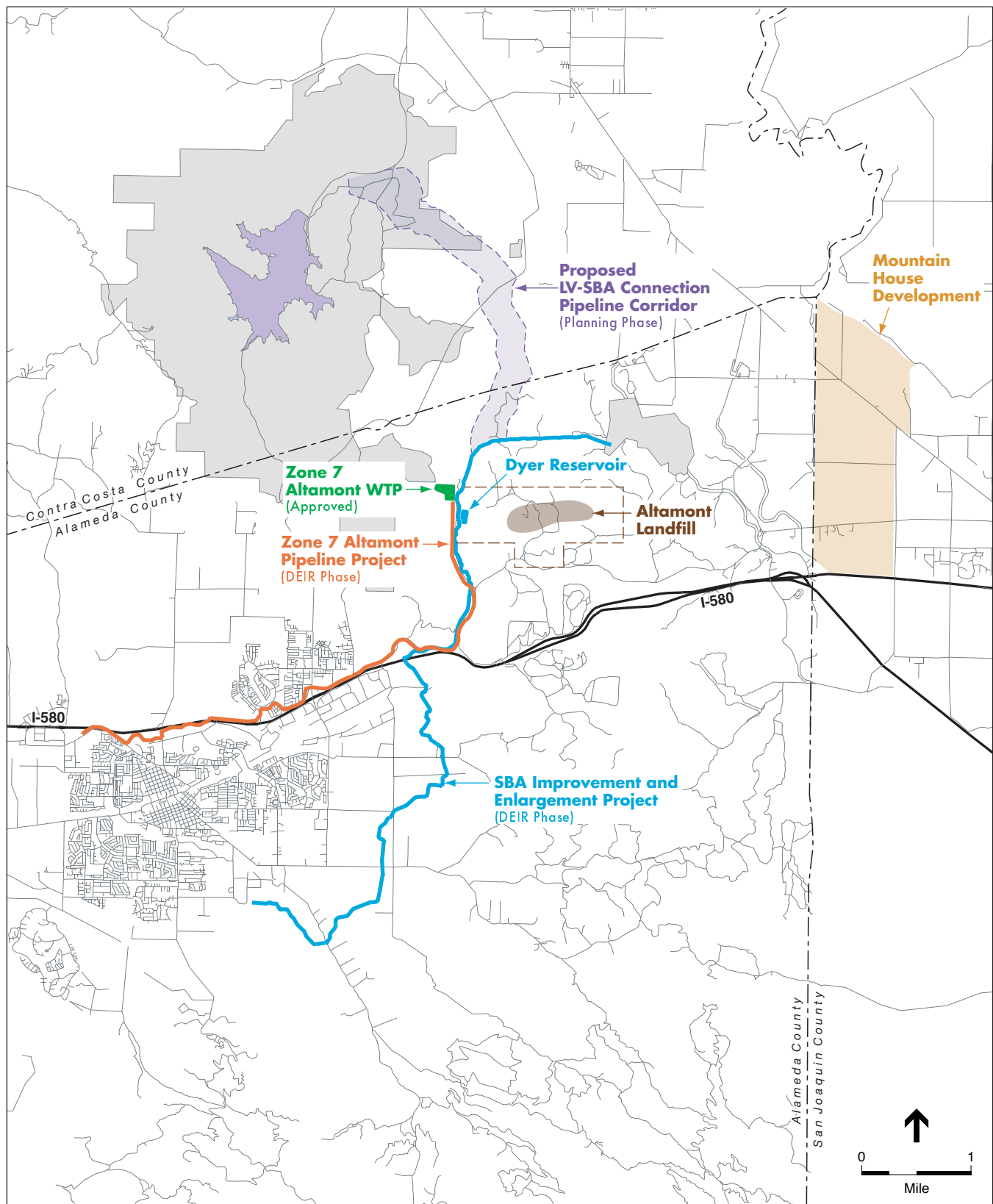
**TABLE 5-1
CUMULATIVE PROJECTS LIST – ALTAMONT FOOTHILLS REGION**

	Lead Agency	Project Status	Anticipated Construction Start Date	Anticipated Construction End Date
DWR South Bay Aqueduct Improvement and Enlargement Project	DWR	Draft EIR	2005	2008
Zone 7 Altamont Water Treatment Plant	Zone 7	EIR Certified 2000	2007	2009
Zone 7 Altamont Pipeline	Zone 7	Draft EIR	2007	2009
DWR SBA Maintenance Project – Altamont Pipeline Cover	DWR	MND, Permits Pending	2006	2006
Altamont Pass Wind Resource Area (APWRA) Repowering Program	Alameda County	Ongoing	1998	N/A
Altamont Landfill Expansion	Alameda County	EIR Certified 2000	2005	2020
Mountain House Development	San Joaquin County	EIR Certified 1994	Phases Ongoing	2020
Los Vaqueros Reservoir Planning Studies	CALFED	Planning Studies	2009	2013

The EIR focused on the acquisition of a site on which to build the plant and the construction of a water treatment facility. The water treatment facility would be implemented in phases to handle up to 24 million gallons per day (mgd), with the potential to increase to a maximum of 42 mgd. The construction of conveyance pipelines to and from the water treatment plant would be necessary to the operation of the facility.

The new water treatment plant would consist of the following facilities:

- An intake structure located on the SBA and a nearby pump station;
- Raw water conveyance pipeline to transport water from the SBA to the treatment facilities;
- A surface water treatment plant capable of producing, initially, up to 24 mgd of drinking water, with an increase to a maximum of 42 mgd, and ancillary facilities such as an operations and control building, chemical storage and feed systems, solids handling facilities that could include sludge drying beds and washwater recovery facilities, parking areas, pumping systems, process water storage tanks, and an access road to the site;
- Treated water storage reservoirs holding up to 10 million gallons of water; and
- Treated water conveyance pipelines to transport finished water from the new water treatment plant to existing or future Zone 7 transmission pipelines.



SOURCE: Compiled by Environmental Science Associates:
EIP, 2001a; Jones & Stokes, 2004; ESA, 2000; ESA, 2004;
Baseline Environmental Consulting, 1994

DWR SBA Improvement and Enlargement Project / 202456 ■

Figure 5-1
Cumulative Projects –
Altamont Foothills Area

The Zone 7 Board of Directors certified the Final EIR on June 20, 2001, and authorized construction of the Altamont WTP at the Dyer Road Site 5. Dyer Road Site 5 is a 50-acre site on the west side of Dyer Road, approximately 1.5 miles north of the intersection of Dyer Road and Altamont Pass Road, in Alameda County.

Impacts Identified

The Altamont Water Treatment Plant Final EIR identified the following environmental factors that would be potentially affected by the project: Land Use, Visual Quality, Recreational Resources, Cultural Resources, Traffic and Circulation, Biological Resources, Geology/Soils, Hydrology/Water Quality, Hazardous Materials/Public Safety, Air Quality, and Noise. See **Section 5.3** for a discussion of the Altamont WTP impacts and cumulative effects.

Zone 7 Altamont Pipeline Project EIR

The Altamont Pipeline Project Draft EIR is scheduled for public review in August 2004. Construction is scheduled to begin in 2007 with completion by 2009. Information about the project description and identified impacts was obtained from the *Altamont Pipeline Project EIR* (Jones and Stokes, 2004).

The project would involve construction and operation of a pipeline to convey potable water to portions of Alameda County by connecting the planned Altamont WTP to Zone 7's existing Cross Valley Pipeline near Kitty Hawk Road and I-580 in Livermore. The proposed pipeline would also connect with Zone 7's Vasco Pipeline at a tie-in point located near the intersection of North Vasco Road and Northfront Road in Livermore. The proposed Altamont Pipeline would increase Zone 7's ability to supply treated water to planned growth in its service areas of Dublin, Pleasanton, and Livermore, as well as improve overall reliability and operational flexibility of Zone 7's water transmission system.

The pipeline would be 36 to 48 inches in diameter, gravity driven, and sized to a normal capacity of 42 mgd and a peak flow capacity of 46 mgd (to accommodate peak hourly flows). Other facilities would include blowoffs, air valves, in-line valves, access manways, pressure reducing valves, emergency outage facilities, and maintenance access roads.

The pipeline alignment would follow Dyer Road south from the Altamont WTP, connecting to Altamont Pass Road. From Altamont Pass Road, the pipeline would proceed west along Northfront Road across North Vasco Road to Sunflower Court. The Altamont Pipeline would tie in to the existing Vasco Pipeline at the intersection of North Vasco Road and Northfront Road. The pipeline would then proceed along Bluebell Drive and continue west into undeveloped areas north of I-580. The pipeline would then continue south and cross I-580 west of Lorraine Road. From the I-580 crossing, the pipeline would proceed west along the Las Positas Bike Path, turn south adjacent to North Livermore Avenue and proceed west through undeveloped areas to Airway Boulevard. The pipeline would then continue west along Airway Boulevard, connecting to the Cross Valley Pipeline at the intersection of Airway and Kitty Hawk Road.

Impacts Identified

The *Altamont Pipeline Project EIR* identified the following environmental factors that would be potentially affected by the project: Aesthetics, Agriculture, Air Quality, Biology, Cultural Resources, Geology, Soils and Minerals, Hazardous Materials, Hydrology and Water Quality, Noise, Population and Housing, Public Services and Utilities, Traffic and Circulation, Land Use and Planning, and Paleontological Resources. See **Section 5.3** for a discussion of the Altamont Pipeline Project impacts and cumulative effects.

DWR SBA Maintenance and Improvements Project – Altamont Pipeline Cover

DWR certified the SBA Maintenance and Improvements Project Mitigated Negative Declaration in 2000, and implemented this series of maintenance projects along the SBA system in 2001-2003. However, the installation of approximately 175 linear feet of rock rip rap to provide adequate cover over the Altamont Pipeline within Altamont Creek was not implemented, due to environmental permitting requirements. DWR is currently in the process of acquiring permits for this project, and anticipates permit issuance and implementation to occur in late 2005-06.

The SBA Maintenance and Improvements Project MND identified the following environmental factors: Air Quality, Biological Resources, Cultural Resources, Hazards and Hazardous Materials, Hydrology/Water Quality; Noise, Recreation, and Traffic/Transportation. The SBA Maintenance and Improvements Project MND identified the following environmental factors that would be potentially affected this outstanding component of the project: Biological Resources, Water Resources.

Altamont Landfill Expansion

The Altamont Landfill and Resource Recovery Facility is located at 10840 Altamont Pass Road, in an unincorporated area of Alameda County, approximately 1.5 miles north of Interstate 580 and 3.5 miles east of the City of Livermore's eastern boundary. The entire Altamont Landfill and Resource Recovery Facility property is approximately 2,170 acres, of which 230 acres are used for the active landfill.

The *Conditional Use Permit C-5512 Altamont Landfill and Resource Recovery Facility Class II Expansion EIR* (SCH #92083047) was published in March 1996 (ESA, 1996). The proposed project would allow: 1) development of a Class II landfill adjacent to the existing landfill; 2) acceptance of municipal solid waste and designated wastes at the landfill; 3) expansion of the Altamont Landfill and Resource Recovery Facility service area to provide for additional waste import; and 4) increase in the tonnage received at Altamont Landfill and Resource Recovery Facility.

A lawsuit was filed against Alameda County and Waste Management Inc. of Alameda County (now known as Waste Management, Inc.) to challenge numerous inadequacies of the EIR. As a result of the lawsuit, the *Conditional Use Permit C-5512 Altamont Landfill and Resource Recovery Facility Class II Expansion Revised Final EIR* (ESA, 2000) was prepared to address the deficiencies of the EIR and to analyze the environmental impacts of an additional project

alternative proposed to be adopted pursuant to the settlement agreement in the court case. The footprint of the landfill expansion would be limited to approximately 250 acres, instead of the roughly 850 acres required for the originally proposed Class II Expansion.

Impacts Identified

The Conditional Use Permit C-5512 Altamont Landfill and Resource Recovery Facility Class II Expansion Final EIR identified the following environmental factors that would be potentially affected by the project: Land Use, Visual Quality, Historic/Archeological Resources, Biological Resources, Geology, Soils, and Seismicity, Hydrology and Water Quality, Public Health and Safety, Traffic and Circulation, Air Quality, and Noise. See **Section 5.3** for a discussion of the Altamont Landfill Expansion's impacts and cumulative effects.

Mountain House Master Plan and Specific Plan

The *Mountain House Master Plan and Specific Plan I Final EIR* (SCH #90020776) was certified in 1994. Information about the project description and identified impacts was obtained from the Mountain House Master Plan and Specific Plan I Draft EIR (Volume I) and the Response to Comments on the Draft EIR (Volume II; Baseline Environmental Consulting, 1994).

The Mountain House Master Plan and Specific Plan I EIR evaluates the environmental impacts associated with applications submitted to San Joaquin County for the construction of a new community in the western portion of the County along the Alameda-San Joaquin County border and north of Interstate 205. The new community would contain residential, commercial, industrial, open space, and public land uses. The applications reviewed in the EIR consist of:

- Draft Master Plan for the 4,784 acre project site;
- Draft Specific Plan I for development of three subareas on the site, totaling 1,345 acres;
- Amendments to the San Joaquin County General Plan 2010;
- Reclassification of the project site from General Agriculture to Agriculture-Urban Reserve and specific zoning for the Specific Plan I subareas; and
- Draft Development Agreement (limited to consistency with other plans).

Impacts Identified

The Mountain House Master Plan and Specific Plan I EIR identified the following environmental factors that would be potentially affected by the project: Land Use and Agricultural Issues, Public Services, Public Utilities, Cultural Resources, Geology, Soils and Seismicity, Hydrology and Water Quality, Visual Quality, Population and Housing, Public Health and Safety, Biological Resources, Transportation, Air Quality, and Noise. See **Section 5.3** for a discussion of the Mountain House Master Plan and Specific Plan I EIR impacts and cumulative effects.

CALFED Los Vaqueros Reservoir Expansion Studies

The *CALFED Los Vaqueros Reservoir Expansion Studies* addresses the potential expansion of the Los Vaqueros Reservoir, as part of the CALFED Bay-Delta Program. Information about the project description and potential impacts was obtained from the CALFED Bay-Delta program

Los Vaqueros Reservoir Expansion Studies Planning Report Final Draft, April 2004. The Los Vaqueros Reservoir is located in eastern Contra Costa County near the communities of Brentwood and Byron. The Contra Costa Water District owns and operates the existing Los Vaqueros Project, which is a 100,000-acre-foot reservoir with a system of pump stations and conveyance pipelines that connect the Delta water intakes to the reservoir and to the Contra Costa Water District distribution system. The studies are evaluating the expansion of the Los Vaqueros Reservoir up to a maximum capacity of 500,000-acre-feet. The new and expanded facilities would include:

- Delta intake facilities and fish screens
- Conveyance facilities from the Delta to expanded Los Vaqueros Reservoir
- New dam facilities and expanded reservoir
- Pipeline conveyance facilities from Los Vaqueros Reservoir to the SBA
- Recreation facilities

The CALFED Los Vaqueros Study Team is currently conducting an alternatives development and screening process as the project moves into the formal environmental review phase for both CEQA and NEPA compliance. A joint Environmental Impact Statement/EIR will be prepared and the Notice of Intent / Notice of Preparation (NOI/NOP) is scheduled for release in Fall 2004.

Although a NOI/NOP has not yet been published for the CALFED Los Vaqueros Project, for purposes of this cumulative impact analysis the Los Vaqueros Reservoir Expansion Project is included in the discussion as a reasonably foreseeable project as defined in Section 15130 of the CEQA Guidelines. Of the facilities proposed under the CALFED Los Vaqueros Project, the pipeline connection to the SBA, hereafter referred to as the LV-SBA Connection Pipeline, has the greatest potential to contribute to cumulative impacts within the Altamont Foothills area and Brushy Creek Watershed. Therefore, the LV-SBA Connection Pipeline, has been included in the cumulative impacts discussion to the degree that impacts can be identified at this time.

Impacts Identified

The CALFED Los Vaqueros Reservoir Expansion Studies Technical Memos and Planning Report (2004) identified the following environmental factors that would be potentially affected by the Los Vaqueros – SBA pipeline: Land Use, Cultural Resources, and Biological Resources as well as short-term construction effects of dust, noise, and traffic disruption in a few reaches of the alignment. In addition, the following resources would have short-term construction impacts: Geology and Seismicity, Water Resources and Water Quality, Biological Resources, Air Quality, Noise, public Services and Utilities, and Visual Resources. See **Section 5.3** for a discussion of the CALFED Los Vaqueros Reservoir Expansion Studies impacts and cumulative effects.

LIVERMORE VALLEY PROJECTS

In addition to the projects identified in the Altamont Foothills area, capital improvement and development projects occurring within the Livermore area would also have the potential to contribute to cumulative impacts if these development projects were implemented within the

same construction window as the proposed project, or other projects located within the Altamont Foothills. For this analysis, the following sources were reviewed to identify a list of projects that could occur within this time frame: State Highway Operation & Protection Program (Caltrans, 2004a); State Transportation Improvement Program (Caltrans, 2004b); Alameda County Conditional Use Permit Database (Alameda County Community Development Department, 2004); Alameda County Capital Improvement Plan (Alameda County Public Works, 2003); Alameda Countywide Transportation Plan (Alameda County Congestion Management Agency, 2004); 2000 Measure B Projects and Programs (Alameda County Transportation Improvement Authority, 2004); Contra Costa Community Development Department (Brockbank, 2004); Contra Costa Capital Road Improvement Program (Contra Costa County Public Works, 2001); San Joaquin County Project List (San Joaquin County Community Development Department, 2004); City of Livermore Summary of Major Projects (City of Livermore, 2004a); City of Livermore Capital Improvement Plan (City of Livermore, 2004b); [EBRPD Master Plan Proposed Trails \(EBRPD, 1997\)](#). Projects identified from these lists that could contribute to cumulative impacts within the vicinity of the South Bay Aqueduct are provided in **Table 5-2**, and include the following project types: roadway improvements; individual residential, commercial, and industrial development projects approved under the Livermore General Plan; and wind farm and other industrial uses consistent with land use and zoning ordinances of the East County Area Plan; [and proposed recreational trails](#). The timing and implementation of these projects is uncertain at this time. However, for certain issue areas such as air quality, traffic, and water resources, these projects would have the potential to contribute to cumulative impacts in the event they are implemented during the construction timeframe of the SBA Improvement and Enlargement Project, or the other identified projects within the Altamont Pass area.

5.3 CUMULATIVE EFFECTS

This section reviews the potential cumulative effects of constructing the SBA Improvement and Enlargement project concurrently with projects that may occur within the same timeframe. As previously discussed, two sets of projects are reviewed: projects located within the Altamont Foothills, and projects occurring within the Livermore Valley. Additionally, the geographic scope of potential cumulative impacts varies by issue area, and is defined for each issue area.

5.3.1 CONSTRUCTION-RELATED IMPACTS

Impact 5.1: Concurrent construction of several infrastructure projects within the SBA project corridor, and capital improvement and development projects within the Livermore Valley, could result in cumulative short-term impacts associated with construction activities. These include short-term impacts to water quality, land use, air quality, noise, traffic, hazardous materials, public services and utilities, and visual resources. In some areas, particularly along Dyer Road, these impacts, while individually short term in nature, would be potentially significant due to their aggregate effect; however, construction-related impacts would not result in long-term alteration of the environment. Significant, Cumulative, Unavoidable and Short-Term. Partially reduced with Mitigation.

Of the projects identified within the Altamont Foothill area with EIRs either certified or circulated for public review, all are currently scheduled to be implemented concurrently within

TABLE 5-2
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

Altamont Foothills

Zone 7 Altamont Water Treatment Plant
 Zone 7 Altamont Pipeline Project
 Altamont Pass Wind Resource Area (APWRA)
 Repowering Program
 Altamont Landfill Expansion
 Mountain House Master Plan and Specific Plan
 Los Vaqueros Reservoir Planning Studies

Other Projects*Caltrans*

District 4 Seismic Retrofit
 Highway 84 – Pigeon Pass
 Highway 84 Construct 2 Lane Roadway
 Highway 84 Roadway Rehabilitation
 I-580 HOV Lanes
 I-580 Install CM Signs
 I-580 Median Barrier Upgrade
 I-580 Pavement Rehabilitation
 I-580 Tassajara MOD
 Isabel Ave. Interchange
 Route 580 to Isabel Ave–Rehabilitate Roadway
 Truck Climbing Lane Near Greenville Road

Alameda County

Altamont Pass Road Rehab: Greenville Rd to
 Altamont Pass Landfill Entrance
 Altamont Pass Road Shoulder Improvements
 Grant Line Road Improvements
 I-580 Auxiliary Lanes Between Santa Rita
 Rd/Tassajara Rd and Airway Blvd Interchanges
 Mines Road Preliminary Realignment Study
 SR 84 – Intersection improvements
 Tesla Road Bicycle Lanes Project
 Tesla Road Improvements

Contra Costa County

Buena Vista Wind Energy Project
 Byron Highway Extension
 Byron Highway Shoulder Widening

City of Livermore

116 Condominiums – N. Vasco Road
 119 Townhomes – Railroad Avenue
 121 Single Family Homes – Charlotte Way
 15 Industrial Buildings – Hawthorne Place
 188 Single Family Homes – West of Wente St.

City of Livermore (cont'd)

21 Single Family Homes – N. Vasco Road
 22 Single Family Homes – Hayes Avenue
 24 Single Family Homes – Holmes Street
 25 Single Family Homes – Holmes St.
 33 Single Family Homes – South of East Ave.
 36 Single Family Homes – NE of Scenic Ave.
 40 Single Family Homes – S. of Alden Lane
 44 Single Family Homes – E. of S. Vasco Rd.
 49 Single Family Homes – N. Mines Road
 50 Single Family Homes – Marina Ave.
 50 Single Family Homes – S. of Alden Lane
 51 Single Family Homes – Stanley
 61 Single Family Homes – Vasco Road
 68 Townhouses – First Street
 69 Single Family Homes – N. of Tesla Rd.
 80 Single Family Homes – W. of Murdell Lane
 94 Single Family Homes – South Livermore
 96 Condominiums – Collier Canyon Road
 Arroyo Las Positas Stream Management Plan
 Arroyo Mocho Stream Management Plan
 BART to Livermore Extension
 Collier Canyon Road Widening
 Concannon Blvd. Undergrounding
 Downtown Arterial Improvements
 East Ave. Undergrounding
 First St. Widening
 Four Industrial Buildings – E. Airway Blvd
 Greenville Road Widening
 Gymnasium Expansion – North Canyons Pkwy
 I-580 Ramp Metering
 I-580/Airway Blvd Interchange
 I-580/El Charro Interchange
 I-580/First Street Interchange Improvements
 I-580/Isabel Ave Interchange
 I-580/Vasco Road Interchange
 Industrial Building – Independence Drive
 Industrial Building – Longard Road
 Inman Street Widening
 Isabel Ave Widening
 Isabel Extension/SR 4 Measure B Project
 Jack London Blvd Widening/Extension
 LARPD Community Center – East Avenue
 Las Colinas Roadway Extension
 Las Positas Road Connection
 Las Positas Road Widening
 Murrieta Street Improvements
 North “L” Undergrounding

TABLE 5-2 (Continued))
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA AND VICINITY

City of Livermore (cont'd)

Warehouse and Office – North Canyons Pkwy
 North Canyons Parkway Construction
 North Livermore Ave Underpass Renovation

North Livermore Ave Widening
 North Vasco Road Undergrounding
 Northfront Road Widening
 Office and Retail – Greenville Road/I-580

Olivina Avenue Widening
 P St. Underpass Renovation

Portola Ave Reconstruction

Portola Ave Undergrounding

Scenic Ave Roadway Extension

South L St Undergrounding – Fourth St-
 College Ave

South Livermore Ave Undergrounding

South Vasco Road Overpass Widening

Stanley Blvd Widening

State Route 84 Relinquishment and Transfer
 Project

Stream Channel Master Plans – Citywide

Two Industrial Buildings – Kittyhawk Road

Vallecitos Road and Holmes Street Bridge
 Widening

Vallecitos Road and Vineyard Avenue

Realignment

Vasco Road Widening

Water Reclamation Plant – Phase VI Expansion

Proposed Recreational Facilities

Brushy Peak to Bethany Reservoir Regional Trail

Brushy Peak to Del Velle Regional Trail

Iron Horse Trail – San Joaquin County to Shadow
 Cliffs

Iron Horse Trail Shadow Cliffs to Alameda County

Del Velle Dam Extension

Ohlone Wilderness Trail

Shadow Cliffs to Del Valle

Pleasanton Ridge to Shadow Cliffs Trail

Tesla Road Trail

Patterson Pass Road Trail

Other

Zone 7 Stream Management Master Plan

SOURCES: Compiled by Environmental Science Associates: Caltrans, 2004a; Caltrans, 2004b; Alameda County Public Works, 2003; Alameda County Congestion Management Agency, 2004; Alameda County Transportation Improvement Authority, 2004; Contra Costa County Community Development Department, 2004; Contra Costa County Public Works, 2001; City of Livermore Community Development Department, 2004a; and City of Livermore Public Works Department, 2004b; East Bay Regional Park Master Plan, 1997; and City of Livermore Bikeways and Trails Master Plan, 2002.

the 2005-2009 timeframe. As such, construction activities and their associated impacts along Dyer Road and Altamont Pass Road, would persist for approximately four years, and would result in the greatest level of construction activity. Additionally, other projects within the Altamont Foothills Area under development, and capital improvement and development projects within the Livermore Valley area may contribute to certain types of regional impacts, such as air quality and traffic, depending upon their implementation timing. The following discussion reviews construction related impacts, and the potential cumulative contribution of both SBA Improvement and Enlargement Project, and the other projects identified within the Altamont Foothills area.

Water Quality

Concurrent construction of all projects could result in increased erosion and subsequent sedimentation, with impacts to water quality in downstream water bodies and/or storm drain capacity. Additionally, discharge of groundwater, release of fuels, or release of other hazardous materials associated with construction activities could degrade water quality.

Within the Old River Watershed, the SBA Improvement and Enlargement Project would result in the temporary disturbance of approximately 106 acres occurring within the Brushy Creek sub-watershed during construction of the SBPP and Stage 3 Brushy Creek Pipeline. Within the larger Old River Watershed, other projects that may contribute to erosion and sedimentation include the Altamont Landfill Project, the Mountain House Specific Plan, development within the Byron area, and various windmill re-powering projects. In the event that the Los Vaqueros Expansion Project is implemented, construction of the LV-SBA Connection Pipeline would be also be located within the Brushy Creek Watershed.

Within the Alameda Creek Watershed, SBA Improvement and Enlargement Project would temporarily disturb approximately 72 acres within the Altamont Creek sub-watershed during construction of Dyer Reservoir, with an additional 2.3 acres of disturbance associated with Brushy Creek Pipeline installation and Dyer Canal improvements. Other projects that could contribute to short-term erosion and sedimentation within the Altamont Creek sub-watershed include the Zone 7 Altamont Water Treatment Plant (50 acre disturbance area) and approximately 26,000 linear feet of the Altamont Pipeline Project (30 acre linear disturbance). This would result in a total temporary disturbance of approximately 155 acres within the Altamont Creek sub-watershed.

Canal Improvements would occur along the Livermore and Alameda Canals south of Interstate 580, including installation of siphon crossings at Arroyo Seco and Arroyo Mocho. Disturbance activities outside of the canal channel that would have the potential to contribute to water quality impacts are limited to approximately 1 acre. Other projects that could contribute to water quality impacts within the Livermore Valley include approximately 34,500 linear feet of the Altamont Pipeline Project (39 linear acres), and construction of capital improvement and development projects within the Livermore Valley approved under the Livermore General Plans. Reviewing the Alameda Creek Watershed as whole, implementation of projects identified under Zone 7's Stream Management Master Plan would also have the potential to contribute to water quality

impacts if they are implemented within the same timeframe as the SBA Improvement and Enlargement Project.

The State Water Resources Control Board has issued a General NPDES Permit to address potential impacts related to construction activities. This General Permit has been issued to ensure that individual projects implement its fair share of mitigation measures designed to alleviate cumulative impacts to water quality. The General Permit mandates that projects disturbing greater than 1 acre develop and implement a Storm Water Pollution Prevention Plan (SWPPP) identifying BMPs to reduce erosion of disturbed soils and release of hazardous materials into water courses. Preparation of the SWPPP and compliance with the measures identified in the SWPPP would ensure compliance with state regulatory policies to minimize the potential for water quality impacts from construction activities associated with the proposed project. As such, the potential contribution to water quality impacts associated with the SBA Improvement and Enlargement Project would be rendered less than cumulatively considerable through implementation of **Measure 3.2-1a**.

Land Use

Concurrent construction of the SBA Improvement and Enlargement Project with the Altamont Foothill projects identified would temporarily generate noise, dust, visual intrusion, and construction traffic as well as street and access disturbance that could affect adjacent land uses. Within the Altamont Foothills area, the primary sensitive receptors are limited to 14 residential units along the west side of Dyer Road. Projects with the potential to contribute directly to temporary disturbance of these sensitive receptors include the Zone 7 Altamont Water Treatment Plant and Zone 7 Altamont Pipeline projects, which include construction activities on Dyer Road and Altamont Pass Road. Additional projects that could also contribute to land use disruption on Dyer Road may include various repowering projects within the AFWRA. The SBA Improvement and Enlargement Project's contribution to this disturbance includes approximately 2 years of construction activities associated with the Stage 3 Brushy Creek Pipeline installation, grading and construction of Dyer Reservoir, and improvements to Dyer Canal. As noted in **Section 3.4, Land Use, Planning and Recreation**, this construction related disturbance of surrounding land uses would not be considered significant on an individual project basis, due to the 2,000 foot buffer between proposed SBA facilities and sensitive receptors, the temporary nature of construction activities, and the mitigation measures identified in **Chapter 3** to minimize these impacts to the degree feasible. However, when considered in combination with the other Altamont Hills projects identified, particularly those that would use Dyer Road for construction activities and access, disturbance of residential land uses along Dyer Road are considered cumulatively significant, short-term, and unavoidable.

Construction of the SBA Improvement and Enlargement Project with projects within the Altamont Foothills are would also result in the temporary disturbance of grazing lands identified in the Farmland Mapping and Monitoring Program. Construction of the Stage 3 Brushy Creek Pipeline would disturb approximately 100 acres of grazing lands, and construction of Dyer Reservoir would disturb approximately 72 acres. Of this amount, 27 acres would be permanently lost to grazing. Other projects with the potential to contribute directly to temporary disruption of

agricultural lands include Zone 7 Altamont Water Treatment Plant (up to 50 acres) and Zone 7 Altamont Pipeline (7 acre linear acre corridor). Additional projects that could also contribute to temporary disruption of agricultural lands may include various repowering projects within the APWRA. Due to the temporary nature of this disturbance, and the ample availability of grazing land adjacent to the construction corridor of the SBA Improvement and Enlargement Project, as well as adjacent to the other projects within the Altamont Foothills, this cumulative impact is less than significant.

Air Quality

Concurrent construction of the SBA Improvement and Enlargement Project with projects within the Altamont Foothills and Livermore Valley, would generate short-term emissions of criteria pollutants, including suspended and inhalable particulate matter and equipment exhaust emissions. For construction-phase dust impacts, BAAQMD recommends that significance be based on a consideration of the control measures to be implemented (BAAQMD, 1999). If appropriate mitigation measures are implemented to control respirable particulate matter (PM₁₀) emissions, then the impact would be less than significant. BAAQMD Guidelines contain a list of feasible control measures for construction-related PM₁₀ emissions. The BAAQMD Guidelines also indicate that construction-related emissions of criteria pollutants are accounted for in the district's emission inventory that is the basis for regional air quality plans; thus, construction-related emissions are not expected to impede attainment or maintenance of ozone or carbon monoxide standards in the Bay Area. As such, the potential contribution to water quality impacts associated with the SBA Improvement and Enlargement Project would be rendered less than cumulatively considerable through implementation of these measures, as required in **Measure 3.6-1**.

Noise

Concurrent construction of the SBA Improvement and Enlargement Project with projects within the Altamont Foothills and Livermore Valley would temporarily generate noise associated with construction equipment and construction traffic. Within the Altamont Foothills area, the primary sensitive receptors are limited to 14 residential units along the west side of Dyer Road. Projects with the potential to contribute directly to temporary disturbance of these sensitive receptors include Zone 7's Altamont Water Treatment Plant and Altamont Pipeline projects, which include construction activities on Dyer Road and Altamont Pass Road. Implementation of the Altamont Pipeline may include nighttime construction on Altamont Pass Road. Additional projects that could also contribute to noise generation along Dyer Road may include various repowering projects within the Altamont Pass Wind Resource Area (APWRA). The SBA Improvement and Enlargement Project's contribution to noise generation includes approximately 2 years of construction activities associated with the Stage 3 Brushy Creek Pipeline installation, grading and construction of Dyer Reservoir, and improvements to Dyer Canal. As discussed in **Section 3.7, Noise**, the noisiest non-impact construction equipment would generate approximately 68 to 96 L_{eq} at 50 feet, assuming no noise mitigation features. At 2,000 feet (the distance between construction equipment and the nearest sensitive receptor) construction noise for the SBA Improvement and Enlargement Project would be reduced to 36 to 64 L_{eq} , and would be

considered significant unless the construction hours were limited to those outlined in the County's Noise Ordinance. The County's Noise Ordinance establishes construction noise hour limits to address the issue of short-term construction noise. With the exception of construction activities along Dyer Road, compliance with this ordinance would reduce the SBA Improvement and Enlargement Project's contribution to short-term noise impacts to less than cumulatively considerable.

As noted in **Section 3.7, Noise**, the construction related noise along Dyer Road would not be considered significant on an individual project basis, due to the 2,000 foot buffer between proposed SBA facilities and sensitive receptors, the temporary nature of construction activities, and the mitigation measures identified in **Section 3.7** to minimize these impacts to the degree feasible. However, when considered in combination with the other Altamont Hills projects identified, particularly those that would use Dyer Road for construction activities and access, noise impacts to residential land uses along Dyer Road are considered cumulatively significant, short-term, and unavoidable.

Traffic

Concurrent construction of the SBA Improvement and Enlargement Project with projects within the Altamont Foothills and Livermore Valley would intermittently and temporarily generate increases in vehicle trips by construction workers and construction vehicles on area roadways, increase potential traffic safety hazards for vehicles, bicyclists and pedestrians on public roadways, and may cause permanent damage to road pavement.

For the Altamont Hills projects identified, the SBA Enlargement and Improvement Project, Zone 7 Altamont Water Treatment Plant and Zone 7 Altamont Pipeline Project would directly contribute temporary construction traffic to I-580, Altamont Pass Road and Dyer Road. Significant and unavoidable impacts associated with construction of the Zone 7 Altamont Pipeline Project include: (1) Directional traffic control at Altamont Pass Road (1,000 feet west of Dyer Road to Carroll Road); (2) Potential closure Altamont Pass Road/Carroll Road intersection; (3) and closure of Altamont Pass Road up to 15 days. A Traffic Detour Plan would implemented, but the plan would not reduce this impact to less than significant. Additional projects that may contribute temporary construction traffic to these roadways, if implemented, include construction of the LV-SBA Connection Pipeline, and various repowering projects within the APWRA.

During construction of the above projects, I-580, Dyer Road, and Altamont Pass Road would be affected by an increase in temporary vehicle trips. **Table 5-3** provides a estimate of construction traffic trips by project. Along I-580, construction activities for these infrastructure projects are estimated to generate approximately 212 round trips (424 one-way trips) for construction workers and 281 truck haul round trips (562 one-way trips) per work day. Along Dyer Road and Altamont Pass Road, construction activities would generate approximately 187 round trips (374 one-way trips) for construction workers and 256 truck haul round trips (512 one-way trips) per work day. The percent increase in traffic volumes caused by project-generated construction traffic on the I-580 freeway would not be substantial (falling within the daily fluctuations of traffic volumes), nor would project traffic significantly disrupt daily traffic flow on that roadway.

**TABLE 5-3
CUMULATIVE VEHICLE TRIPS**

	Construction Worker		Truck Trips	
	Roundtrip	One-way	Roundtrip	One-way
I-580				
SBA – SBPP ^a	25	50	25	50
SBA – Brushy Creek Pipelines ^a	32	64	12	24
SBA – Dyer Reservoir	40	80	30	60
SBA – Canals	20	40	30	60
Altamont WTP ^b	20	40	30	60
Altamont Pipeline ^c	25	50	130	260
Los Vaqueros Reservoir Expansion ^d	50	100	24	48
Total	212	424	281	562
Dyer Road and Altamont Pass Road				
SBA – Brushy Creek Pipelines	32	64	12	24
SBA – Dyer Reservoir	40	80	30	60
SBA – Canals	20	40	30	60
Altamont WTP ^b	20	40	30	60
Altamont Pipeline ^c	25	50	130	260
Los Vaqueros Reservoir Expansion ^d	50	100	24	48
Total	187	374	256	512

^a Assumes worst case scenario of construction workers and trips generated in Livermore Valley. Construction trips for SBPP and western half of Brushy Creek Pipeline would likely access project corridor from Mountain House and Keslo Road, potentially reducing trips on I-580, Altamont Pass Road, and Dyer Road for some duration of construction schedule.

^b The Altamont WTP EIR did not provide construction worker trips. For this analysis, 20 round trips (40 one-way trips were estimated).

^c The Altamont Pipeline Project EIR did not provide construction worker trips. For this analysis, 25 round trips (50 one-way trips were estimated).

^d Project in Feasibility Planning Phase. Vehicle and truck trips for the LV-SBA Connection Pipeline estimated based on SBA Stage 3 Brushy Creek Pipeline vehicle and truck trips. Due to increased pipeline diameter, LV-SBA Connection Pipeline truck trips estimated at twice the level identified for SBA Brushy Creek Pipeline

SOURCE: Compiled by Environmental Science Associates

The primary impacts from construction traffic would include a temporary and intermittent reduction of roadway capacities on the two-lane roadways serving the construction sites, due to the slower movements and larger turning radii of the trucks compared to passenger vehicles. As noted in **Section 3.8, Traffic and Circulation**, construction-related truck traffic occurring on weekdays during the hours of 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m. would coincide with peak-period traffic volumes on area roadways, and would have the greatest potential to impede traffic flow. However, project-generated truck trips would take different routes depending on the location of each day's work site, and project traffic would be dispersed throughout the eight-hour

work day, lessening the effect on traffic conditions in any one hour. Therefore, the short-term increase in vehicle trips would not significantly affect LOS and traffic flow on area roadways, and this construction related traffic would not be considered significant on an individual project basis. However, when considered in combination with the other Altamont Hills projects identified, traffic impacts to residential land uses along Dyer Road are considered cumulatively significant, short-term, and unavoidable.

Hazardous Materials

Concurrent construction of the SBA Improvement and Enlargement Project with projects within the Altamont Foothills and Livermore Valley could cause an increase in risk of exposure (human and the environment) to hazardous materials from the potential discovery of contaminated material during excavation and the use of construction related hazardous materials, such as gasoline, oils, and solvents. The SBA Improvement and Enlargement Project would result in the temporary disturbance of primarily open space associated with construction of the Stage 3 Brushy Creek Pipeline (100 acres) and Dyer Reservoir (72 acres). Additional projects within the Altamont Hills area that could affect known or unknown hazardous materials include the Zone 7 Altamont Water Treatment Plant (up to 50 acres) and the Dyer Road reach of the Zone 7 Altamont Pipeline Project, as well as other projects within the Livermore Valley. Improvement to the SBA are located within or immediately adjacent to right-of-way controlled by DWR since 1968, and the potential for discovery of hazardous materials is low when compared to typical pipeline installation in urban environments. Therefore, the SBA Improvement and Enlargement Project's contribution to this impact is not cumulatively considerable.

In addition, projects within the Altamont Foothills would be constructed within open space areas susceptible to wildland fires, and could expose people or structures to risk of loss, injury, or death involving wildland fires. Additional projects that could affect grassland areas include the Zone 7 Altamont Water Treatment Plant (up to 50 acres) and the Dyer Road reach of the Zone 7 Altamont Pipeline Project along Dyer Road (approximately 7 acres along linear corridor). Additional projects that currently contribute to the risk of wildfire within the Altamont Foothills include activities within the Windfarm Resource Area, and Altamont Landfill. Both of these projects have incorporated specific fire control measures into Conditional Use Permits issued by Alameda County. Construction activities for the SBA Improvement and Enlargement project within the Altamont Foothills would be required to comply with the Fire Code and State Wildland Safety Regulations, as required by Alameda County Fire Department and the California Division of Forestry; as such, its contribution to cumulative impacts to fire safety would be not be cumulatively considerable.

Public Services and Utilities

For all projects, construction activities could result in temporary, planned or accidental disruption to utility services, and require short-term police and fire protection services to assist in traffic management or in the event of an accident.

Implementation of the SBA Improvement and Enlargement Project would take place within or adjacent to existing DWR rights of way, and are not anticipated to affect individual utilities, or the level of service for public utilities. All construction would be implemented in a manner that would continue service to SBA Contractors, or would be coordinated with SBA Contractors such that outages would be minimized and local water supplies would be utilized. No effects to utility customer service are anticipated; therefore, the SBA Improvement and Enlargement Project would not contribute to cumulative effects related to utilities.

Construction of the SBA Improvement and Enlargement Project concurrent with the other Altamont Hills Projects and Livermore Valley Projects would have the potential to contribute to service demands for police and fire services in the event of an accident. For the SBA Improvement and Enlargement Project, this need would be limited to safety inspection and fire-suppression during construction. No long-term public service needs would be associated with project implementation, and no road closures would be required. Other projects which may contribute to short term public service needs or impact the ability to provide these services include the Zone 7 Altamont Water Treatment Plant Project and Zone 7 Altamont Pipeline Project, as well as other projects within the Livermore Valley. Construction of the Altamont Pipeline would involve road closures, lane closures and other traffic controls that could interfere with an adopted emergency response plan or emergency evacuation plan. Construction of the SBA Improvement and Enlargement Project would be primarily limited to existing right of way, and would not require road closures. Therefore, the SBA Improvement and Enlargement Project's contribution to this impact is not cumulatively considerable.

Visual Resources

Concurrent construction of the SBA Improvement and Enlargement Project with the Altamont Foothill projects identified would result in short-term visual impacts during construction. Construction activities would require the use of heavy equipment and storage of materials at the construction zone. During construction, excavated trenches, stockpiled soils, and other materials within the construction easement would constitute negative aesthetic elements in the visual landscape that would directly affect the area. The SBA Improvement and Enlargement Project would result in the temporary disturbance of open space grassland areas during construction of the Stage 3 Brushy Creek Pipeline (100 acres) and Dyer Reservoir (72 acres). Additional projects that could affect visual resources along Dyer Road or from Brushy Peak Preserve include the Zone 7 Altamont Water Treatment Plant (up to 50 acres) and the Dyer Road reach of the Zone 7 Altamont Pipeline Project along Dyer Road (approximately 7 acres along linear corridor). Additional projects that could also contribute to land use disruption on Dyer Road may include various repowering projects within the APWRA. Areas impacted include scenic views of grassland open space and ridgelines from Dyer Road, Altamont Pass Road, and scenic views from Brushy Peak Preserve. Additional roadways that could be affected in the Livermore Valley include Patterson Pass Road, Greenville Road, Tesla Road, and Mines Road, which have limited views of Livermore and Alameda Canals.

Excavated trenches, stockpiled soils, and other materials within the construction easement would constitute negative aesthetic elements in the visual landscape. As noted in **Section 3.11, Visual**

Resources, these effects would be temporary during project construction, and would not be considered significant on a project basis. However, when considered in combination with the other Altamont Hills projects identified, particularly those that include construction along Dyer Road and are located within the Brushy Peak viewshed, these impacts are considered significant, short-term, and unavoidable.

Mitigation Measures

Measure 5.1: Zone 7 and DWR shall coordinate construction activities along selected alignments to identify overlapping pipeline routes, project areas, and construction schedules. To the extent feasible, construction activities shall be coordinated to consolidate the occurrence of short-term construction-related impacts.

Impact Significance After Mitigation: Significant, Cumulative, Unavoidable. Short-Term, partially reduced with Mitigation.

5.3.2 LONG-TERM IMPACTS

Impact 5.2: Concurrent construction of projects within the Altamont Foothills, and capital improvement and development projects within the Livermore Valley, could result in cumulative long-term risk of upset impacts related to groundshaking and surface fault rupture during major earthquakes. Less than Significant.

Groundshaking and surface fault rupture during major earthquakes on nearby active faults could cause structural damage or collapse of facilities. Ground failure, including slope failure, differential settlement, loss of bearing strength, could occur beneath facilities, resulting in structural or mechanical damage and secondary effects related to water release. The SBA Improvement and Enlargement Project would include new facilities that could potentially be affected during an seismic event, including Stage 3 Brushy Creek Pipeline, Dyer Reservoir, as well as improvement to existing facilities that are currently subject to seismic events, such as the SBPP, Patterson Reservoir, and Dyer, Livermore, and Alameda Canals. From a conveyance standpoint, the current risk of upset along the SBA corridor is approximately 270 cfs from the SBA system. Project implementation would incrementally increase this conveyance capacity to 430 cfs, and would include the Dyer Reservoir storage capacity of 500 af (425 af active storage; 75 af inactive storage).

For this impact, the other projects in the Altamont Hills or Livermore Valley with the potential to contribute to this effect are limited to the Zone 7 Altamont Water Treatment Plant, Zone 7 Altamont Pipeline Project, and if implemented, the LV-SBA Connection Pipeline. Both Zone 7 projects are located within the upper portion of the Altamont Creek subwatershed. Implementation of the Zone 7 Altamont Water Treatment Plant would not substantially increase storage or conveyance capacity along Dyer Road or Altamont Pass Road. Implementation of the Altamont Pipeline would increase the conveyance capacity, and therefore, potential upset scenario along Dyer Road and Altamont Pass Road, with the additional storage of 500 af of water

at Dyer Reservoir. As previously noted in **Section 3.1, Geology, Soils and Seismicity**, no faults have been identified within the Dyer Road area.

Under a worst case scenario, and assuming each pipeline would be taken out of service within an hour, failure of both Dyer Reservoir (500 af) and Dyer Canal (35 af), as well as the Zone 7 Altamont Pipeline (5 af) would have the potential to release approximately 534 acre-feet of water within the Altamont Creek watershed. It should be noted that most likely failure locations for both the SBA and the Altamont Pipeline would be where each facility crosses the Marsh-Greenville Fault. This occurs within the Livermore Valley where the two facilities are located approximately 2 miles from each other. At this distance, releases from these facilities would not be anticipated to contribute to cumulative flooding effects.

As noted in **Section 3.1, Geology, Soils and Seismicity**, Dyer Reservoir design and construction is under DSOD jurisdiction, and must comply with DSOD standards. As such, these retention structures are designed to withstand the effects of expected seismic events and the secondary ground failures associated with ground shaking. The DSOD would require a dam design that would withstand a seismic event with an earthquake magnitude considerably higher than the maximum magnitude of the active regional fault closest to the dam site. This results in a conservative design criteria for ground shaking. During the design phase, DSOD determines appropriate soil exploration methods and protocols, reviews results of soil and bedrock investigations, requires fault investigations when deemed necessary, and oversees each phase of dam construction. Although a regional earthquake would subject the Dyer Reservoir site to moderately to strong ground shaking, compliance with DSOD seismic design criteria would ensure that impacts associated with localized or catastrophic dam failure would remain less than significant. Similar design measures are established by American Water Works Association (AWWA) for treatment and conveyance infrastructure design and construction. Compliance with these standard design practices would reduce cumulative impacts to a less than significant level.

Mitigation Measures

No mitigation measures are required.

Impact 5.3: Concurrent construction of projects within the Altamont Foothills, and capital improvement and development projects within the Livermore Valley, could result in cumulative long-term impacts to water resource, water quality, and flooding impacts associated with alteration of drainage patterns and increases in impervious surface areas. Less than Significant.

Implementation of the SBA Improvement and Enlargement Project concurrent with the other Altamont Hills Projects and Livermore Valley Projects would have the potential to contribute to water resource, water quality, and flooding impacts due to alterations of drainage patterns and increases in impervious surface areas.

Old River Watershed

Within the Old River Watershed, the SBA Improvement and Enlargement Project would result in the permanent alteration of local drainage patterns at the SBPP and vault structures along the Stage 3 Brushy Creek Pipeline. Within the Old River Watershed, other projects that may contribute to water resource, water quality, or drainage impacts include the Altamont Landfill Project, the Mountain House Specific Plan, development within the Byron area, and various windmill re-powering projects. In the event that the Los Vaqueros Expansion Project is implemented, construction of the LV-SBA Connection Pipeline would be also be located within the Brushy Creek Watershed. These projects would include the conversion of open grassland to industrial or residential land uses, with subsequent increases in stormwater runoff and flooding potential, as well as reductions in water quality.

Implementation of the SBA Improvement and Enlargement Project would include regrading and impervious surface installation on approximate 6 acres adjacent to the existing SBPP. These areas drain to Bethany Reservoir, and would not affect the larger Brushy Creek or Old River Watersheds. New vault structures and the new surge tower along the Stage 3 Brushy Creek Pipeline would result in the placement of concrete structures at high and low points of the pipeline, totaling 3,254 square feet of impervious surface area. Individual facilities are not contiguous, and comprise a total area of 0.07 acres within the 54 acre Brushy Creek sub-watershed. As such, these facilities would not substantially contribute to runoff within the watershed during storm events. Therefore, the SBA Improvement and Enlargement Project's contribution to cumulative impacts to water resources, water quality, and flooding are not cumulatively considerable.

Alameda Creek Watershed

Within the Alameda Creek Watershed, the SBA Improvement and Enlargement Project would result in the permanent alteration of local drainage patterns at Dyer Reservoir, which would have a footprint of approximately 27 acres. Within the Altamont Creek Watershed, other projects that may contribute to permanent water resource, water quality, or drainage impacts include the Zone 7 Altamont Water Treatment Plant Project, the Zone 7 Altamont Pipeline Project (vault access structures), various riprap channel repair projects along Altamont Creek, and development within the Livermore Valley. The two Zone 7 projects would be expected to up to 51 acres associated with impervious surfaces at the Altamont Treatment Plant site and vault structures along the Altamont Pipeline. Development projects within the Livermore Valley would include residential, commercial or industrial land uses, with subsequent increases in stormwater runoff and flooding potential, as well as reductions in water quality. The 100-year floodplain within the Livermore Valley is mapped as occurring within the Chain of Lakes and Valley Trails areas, as well as locally along flood control channels. As noted in **Section 4, Growth Inducement Potential and Secondary Effects of Growth**, Zone 7 Water Agency is currently preparing a Stream Management Master Plan (SMMP) to address floodplain management issues within the greater Livermore Valley.

The Alameda Creek Watershed encompasses approximately 630 square miles (403,200 acres) and includes areas of both Alameda and Santa Clara Counties, with the Altamont Creek sub-watershed. Implementation of the SBA Improvement and Enlargement Project would result in minor modifications to drainage patterns at Dyer Reservoir. As noted in **Section 3.2, Water Resources and Water Quality**, drainage from the reservoir site would continue to be routed to be routed across the SBA Dyer Canal to Altamont Pass Road similar to existing conditions. Although some increase in impervious surfaces would be associated with reservoir construction, the capture of rainfall falling on the approximately 27-acre surface area of the reservoir is expected to offset drainage flow increases associated with compacted or impervious surfaces associated with the reservoir structure. Within the context of the larger Altamont Creek and Alameda Creek watersheds, this minor alteration of drainage patterns is not considered cumulatively considerable.

Mitigation Measures

No mitigation measures are required.

Impact 5.4: Concurrent construction of projects within the Altamont Foothills, and capital improvement and development projects within the Livermore Valley, would result in cumulative long-term impacts to sensitive grassland, wetland and vernal pool habitats, with secondary effects to special-status species, including: San Joaquin kit fox, burrowing owl, California red-legged frog, and California tiger salamander, fairy shrimp and fragrant fritillary and nesting sensitive birds. Less than Significant with Mitigation.

GRASSLAND HABITAT

San Joaquin Kit Fox

For the SBA Improvement and Enlargement Project, temporary disruption of upland habitats at the SBPP (7.5 acres), Stage 3 Brushy Creek Pipeline (63 acres) and Dyer Reservoir (45 acres) would have the potential to affect San Joaquin Kit Fox (SJKF) denning and foraging habitat, burrowing owl nesting and foraging habitat, and upland aestivation habitat for California red-legged frog and California tiger salamander. Permanent impacts to grassland habitat would occur at the SBPP (7.5), Stage 3 Brushy Creek Pipeline (0.67) and Dyer Reservoir (27 acres).

Other projects within the Altamont Hills area that may contribute to the permanent or temporary loss of grassland habitat include the include the Zone 7 Altamont Water Treatment Plant (up to 50 acres); Zone 7 Altamont Pipeline (approximately 7 acres along a linear corridor); Altamont Landfill (up to 250 acres); and Mountain House Subdivision (up to 4,784 acres). Additional projects that could also contribute to grassland disruption or loss within the Altamont Foothills include various re-powering projects within the APWRA, and the LV-SBA Connection Pipeline, if implemented. These project have completed or will be required to complete the appropriate

level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of grassland habitat.

As noted in **Section 3.3, Biological Resources**, the historic range of SJKF includes most of the San Joaquin Valley from southern Kern County north to Contra Costa County and eastern Stanislaus County. Contra Costa, Alameda, and San Joaquin Counties comprise the far northern portion of its range, with an estimated 60 square miles, or 38,000 acres, located within Alameda County. Since 1967, fifty-three occurrences of San Joaquin kit foxes have been documented within an area between the Black Diamond Mines area and Lone Tree Valley to the north and Brushy Creek to the south. Kit fox have been observed within the past couple years at Brushy Peak in 2002 (CDFG, 2003) and Vasco Caves in 2001 and 2002 (CDFG, 2003).

With respect to the loss or fragmentation of grassland habitat within the San Joaquin kit fox range, the USFWS issued the Recovery Plan for Upland Species of the San Joaquin Valley, which covers 34 species of plants and animals that occur in the San Joaquin Valley (USFWS, 1998). The recovery plan identifies the protection of existing kit fox habitat in the northern portion of its range and protection of existing connections between habitat in Contra Costa County and habitat farther south as primary recovery actions.

Project implementation would result in the permanent loss of approximately 35 acres of grassland habitat, with 27 acres at Dyer Reservoir. This facility would incrementally reduce the current corridor available between Dyer Canal and active areas of Altamont Landfill by approximately 2,500 feet, to an area approximately 1 mile in width. The proposed facility would be sited adjacent to the canal and is not anticipated to restrict or substantially alter kit fox movement through the area. As noted in **Section 3.3, Biological Resources**, USFWS considers all annual grasslands in the vicinity of Altamont Pass and Brushy Peak as suitable habitat for SJKF. Surveys for SJKF were conducted in the SBA project corridor by ESA biologists in December 2003. Only one burrow was identified that met den requirements for this species. No direct evidence of SJKF was observed and the direct SBA project corridor is considered to provide low quality denning habitat for kit fox due to lack of large burrows and to hard clay soils. However, this loss of habitat would be mitigated through provision of compensatory mitigation at a ratio established by regulatory agencies. Due to the loss of grassland habitat, implementation of the SBA Improvement and Enlargement Project would contribute to the cumulative loss of potential denning and foraging habitat throughout the San Joaquin kit fox range. However, when considered within the context of this range, the ability of the kit fox to migrate through the area, and current and future land uses within Altamont Foothills, this 35 acre loss, is not cumulatively considerable.

Burrowing Owl and other Sensitive Bird Species

Grasslands within the Altamont Hills also provide nesting and foraging habitat for burrowing owl and other sensitive bird species. Temporary and permanent acreage impacts would be identical to those identified above for San Joaquin kit fox. As noted in **Section 3.3, Biological Resources**, the proposed Dyer Reservoir footprint is in or adjacent to known burrowing owl breeding and non-breeding habitat. Four burrowing owls (*Athene cunicularia*) were observed on and adjacent

to the proposed Dyer Reservoir site during the October and November 2003 site visits. In 2004, ESA conducted a more extensive survey, visiting the site twice weekly from February 5 until April 18 and documenting up to 14 pairs of burrowing owls in the area exposed to direct or indirect project impact, most of them located on the steeper canyon slopes and hillsides immediately east of the reservoir footprint.

The burrowing owl is a federal Species of Concern and California Species of Special Concern. While there are relatively few ground squirrel burrow associations in the actual project footprint (and only one occupied owl burrow in 2004) due to the high water table, a colony of 12-14 nesting pairs of burrowing owls is a significant biological resource in the context of Bay Area burrowing owl populations, where the species has been declining over the past 15 years (DeSante et al. 1997). During 2 years of local burrowing owl monitoring for another project approximately 5 miles east of Dyer Reservoir, up to seven pairs of owls were recorded around the perimeter of a 140 acre site (J. Barclay, 2004). There are no records in the CNDDDB of any burrowing owl colonies or aggregations this large in the surrounding four USGS topographic triangles.

Other projects within the Altamont Hills area that may contribute to the permanent or temporary loss of grassland habitat include the include the Zone 7 Altamont Water Treatment Plant (up to 50 acres); Zone 7 Altamont Pipeline (approximately 7 acres along a linear corridor); Altamont Landfill (up to 250 acres); and Mountain House Subdivision (up to 4,784 acres). Additional projects that could also contribute to grassland disruption or loss within the Altamont Foothills include various repowering projects within the APWRA, and the LV-SBA Connection Pipeline, if implemented. These project have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of grassland habitat.

Project implementation would result in the permanent loss of approximately 31 acres of grassland habitat, the majority at Dyer Reservoir, located adjacent to the existing Dyer Canal. However, this loss of habitat would be mitigated through provision of compensatory mitigation at a ratio established by regulatory agencies (**Measures 3.3-6b** and **3.3-6c**). Due to the loss of grassland habitat, implementation of the SBA Improvement and Enlargement Project would contribute to the cumulative loss of potential nesting and foraging habitat within the Altamont Hills and the Livermore Valley. However, when considered within the context of the burrowing owl nesting and foraging range, the availability of this habitat adjacent to Dyer Reservoir, and the provision of compensatory mitigation, this 31 acre loss, is not cumulatively considerable.

Sensitive Plant Species

For the SBA Improvement and Enlargement project, construction of the Stage 3 Brushy Creek Pipeline would impact 1.0 acre of fragrant fritillary habitat and estimated at approximately 400 individual plants. Other projects within the Altamont Hills area that may contribute to the permanent or temporary loss of wetland habitats, with subsequent impacts to sensitive amphibian species, include the Zone 7 Altamont Water Treatment Plant (up to 50 acre disturbance area); Zone 7 Altamont Pipeline (7 acre linear disturbance corridor); Altamont Landfill (up to

250 acres); and Mountain House Subdivision (up to 4,784 acres). Additional projects that could also contribute to temporary or permanent wetland impacts within the Altamont Foothills include various repowering projects within the APWRA, and the LV-SBA Connection Pipeline (126 acre linear corridor), if implemented. These project have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of sensitive plant species.

As noted in **Section 3.3, Biological Resources**, fragrant fritillary (*Fritillaria liliacea*) is a federal species of concern and a CNPS List 1B plant. Implementation of **Measure 3.3-1**, which includes the harvesting, transplanting and long-term maintenance of this population at a suitable mitigation site, would reduce potential impacts to a less than significant level. Due to this impact, implementation of the SBA Improvement and Enlargement Project would contribute to the cumulative loss of habitat supporting fragrant fritillary. However, due to the limited loss, and the mitigation measures established in **Section 3.3, Biological Resources**, the contribution of the SBA Improvement and Enlargement Project is not considered cumulatively considerable.

WETLAND HABITAT

For the SBA Improvement and Enlargement Project, temporary disruption of wetland habitats (3.41 acres) and permanent loss of wetlands (3.35 acres) would be associated with construction of individual facilities. Permanent wetland loss is primarily associated with seasonal wetlands at Dyer Reservoir (2.41 acres). In terms of sensitive aquatic species habitats, permanent loss is limited to 0.001 acres of potential California red-legged frog breeding habitat located at individual drainages along the canals. No loss of California tiger salamander breeding habitat is anticipated.

Other projects within the Altamont Hills area that may contribute to the permanent or temporary loss of wetland habitats, with subsequent impacts to sensitive amphibian species, include the Zone 7 Altamont Water Treatment Plant (up to 50 acres); Altamont Landfill (up to 250 acres); and Mountain House Subdivision (up to 4,784 acres). The Zone 7 Altamont Pipeline would avoid impacts to wetland areas through trenchless installation. Additional projects that could also contribute to temporary or permanent wetland impacts within the Altamont Foothills include various repowering projects within the APWRA, and the LV-SBA Connection Pipeline (1.52 acres), if implemented. These project have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of wetlands and sensitive amphibian habitats.

Due to the loss of wetland habitat, implementation of the SBA Improvement and Enlargement Project would contribute to the cumulative loss of wetlands (3.35 acres) and associated breeding habitat for California red-legged frog (0.001 acres). As required by **Measure 3.3-2b**, compensatory mitigation would be established as part of the Corps 404 Individual Permit process. Due to the limited wetland loss, and the mitigation measures established in **Section 3.3, Biological Resources**, the contribution of the SBA Improvement and Enlargement Project is not considered cumulatively considerable.

Vernal Pool Habitat

Construction of the SBA Improvement and Enlargement project would result in the permanent loss of 0.04 acres of habitat capable of supporting listed vernal pool invertebrates, including longhorn fairy shrimp and vernal pool fairy shrimp. Vernal pools capable of supporting listed invertebrate species occur at the Dyer Reservoir site and along the Brushy Creek Pipeline alignment near Dyer Canal.

Other projects within the Altamont Hills area that may contribute to the permanent or temporary loss of vernal pool habitats, with subsequent impacts to sensitive vernal pool habitat, include the Zone 7 Altamont Water Treatment Plant (up to 50 acres); Altamont Landfill (up to 250 acres); and Mountain House Subdivision (up to 4,784 acres). Additional projects that could also contribute to temporary or permanent vernal pool impacts within the Altamont Foothills include various repowering projects within the APWRA, and the LV-SBA Pipeline, if implemented. Vernal pools and wetland impacts along the Zone 7 Altamont Pipeline Project route are anticipated to be avoided through the use of trenchless technology, or the preliminary routes for the LV-SBA Pipeline. The remaining project have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize or offset loss of wetlands and sensitive amphibian habitats.

Due to the loss of wetland habitat, implementation of the SBA Improvement and Enlargement Project would contribute to the cumulative loss of wetlands (3.35 acres) and associated breeding habitat for California red-legged frog (0.001 acres). As required by **Measure 3.3-2c**, compensatory mitigation would be established as part of the Corps 404 Individual Permit process. Due to the limited wetland loss, and the mitigation measures established in **Section 3.3, Biological Resources**, the contribution of the SBA Improvement and Enlargement Project is not considered cumulatively considerable.

Mitigation Measures

Measure 5.4: Implement **Measures 3.3-1** and **3.3-2c**.

Impact Significance After Mitigation: Less than significant.

Impact 5.5: Concurrent construction of projects within the Altamont Foothills, and capital improvement and development projects within the Livermore Valley, could result in cumulative long-term impacts to land use. Less than Significant with Mitigation.

For the SBA Improvement and Enlargement project, Dyer Reservoir would be constructed on lands designated by Alameda County as a buffer area between the Altamont Landfill and the residential development along Dyer Road. As noted in **Section 3.4, Land Use, Planning and Recreation**, the facility would be located adjacent to the existing Dyer Canal, approximately 2,000 feet east of residential uses along Dyer Road, would be limited to a surface water reservoir, and would not conflict with this area's use as a buffer between residential uses and operation of

the Altamont Landfill. DWR would coordinate the implementation of the reservoir with Waste Management Incorporated and Alameda County.

Other projects within the Altamont Hills area that have or may contribute to permanent impacts to surrounding land uses, include the Zone 7 Altamont Water Treatment Plant (up to 50 acres); Altamont Landfill (up to 250 acres); and Mountain House Subdivision (up to 4,784 acres) and repowering projects within the APWRA. These projects have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize impacts to surrounding land uses.

Within the context of these past, present and future projects, the agricultural nature of land use within the Dyer Road corridor has been altered by several types of infrastructure projects, including the installation of the original South Bay Aqueduct facilities in 1968, the implementation of the Altamont Pass APWRA in the 1981, and implementation of Altamont Landfill in the mid 1970's. Implementation of the SBA Enlargement and Improvements Project will continue to contribute to this intensification through the installation of a 500 af reservoir along Dyer Road. While not specifically conflicting Alameda County land use designations for this area, or the identification of Section 17 as potential buffer between residential uses and landfill operations, the facility would contribute to the long-term cumulative intensification of uses in the area. However, as the facility is limited to inert water storage, would be set back from both Dyer Road and residences west of Dyer Road, and would include compensatory mitigation in the form of additional conservation easement to offset the use of land within a proposed conservation easements, the long-term contribution of the SBA Improvement and Enlargement project is not cumulatively considerable.

Mitigation Measures

Measure 5.5: Implement Measures 3.4-2a and 3.4-2b.

Impact Significance After Mitigation: Less than significant.

Impact 5.6: Concurrent construction of projects within the Altamont Foothills, and capital improvement and development projects within the Livermore Valley, could result in cumulative long-term impacts to cultural resources. Less than Significant with Mitigation.

For the SBA Improvement and Enlargement project, 18 potential sites are known to occur within ¼ mile of proposed facilities. However, no direct impacts to these known resources are anticipated. Potential impacts to unknown cultural resources that may occur within construction footprints would be reduced to the degree feasible by implementation of **Measures 3.5-1 and 3.5-2**, which include data collection and recordation in the event of a find. Other projects within the Altamont Hills area that may contribute to cultural resource impacts include the Zone 7 Altamont Water Treatment Plant (up to 50 acres, 1 historic and several prehistorical sites identified); Zone 7 Altamont Pipeline (1 cultural resource site identified); Altamont Landfill (up to 250 acres); and Mountain House Subdivision (up to 4,784 acres, 4 cultural resources identified).

to date). Additional projects that could also contribute to temporary or permanent wetland impacts within the Altamont Foothills include various repowering projects within the APWRA, and the LV-SBA Connection Pipeline (7 cultural resource sites identified), if implemented. These project have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to avoid or minimize disturbance of cultural resources.

Due to the potential for impacts to unknown cultural resources, implementation of the SBA Improvement and Enlargement Project could contribute to the cumulative loss of cultural resources within the Altamont Foothills area. However, due the low potential for this to occur, and the inclusion of **Measures 3.5-1 and 3.5-2**, which require cultural resource monitoring in potentially sensitive areas and data collection and recordation of any finds, the contribution of the SBA Improvement and Enlargement Project is not considered cumulatively considerable.

Mitigation Measures

Measure 5.6: Implement **Measures 3.5-1 and 3.5-2**.

Impact Significance After Mitigation: Less than Significant

Impact 5.7: Concurrent construction of projects within the Altamont Foothills, and capital improvement and development projects within the Livermore Valley, could result in cumulative long-term impacts to visual resources. Less than Significant with Mitigation.

For the SBA Improvement and Enlargement project, new above-ground facilities that would contribute to visual impacts include the SBPP, the Stage 3 Surge Tower, and Dyer Reservoir. As discussed in **Section 3.11, Visual Resources**, construction of the SBPP and Stage 3 Surge Tank would not significantly alter the existing landscape, and views from Brushy Peak Regional Preserve would not be significantly impacted. Construction of Dyer Reservoir would remove vegetation and change existing land contours. The reservoir would be visible from public vantage points along Dyer Road and Brushy Peak Regional Reserve. Since the reservoir would be located on open grazing land, no vegetative screening is available to help integrate the structure with the surrounding area. However, reservoir embankments would be vegetated with native seed mixes to provide consistency with the surrounding landscape.

Other projects within the Altamont Hills area that have or may contribute to permanent impacts to surrounding visual resources located within the viewshed of Dyer Reservoir, include the Zone 7 Altamont Water Treatment Plant (up to 50 acres) and repowering projects within APWRA. These projects have completed or will be required to complete the appropriate level of CEQA compliance and permitting, including the establishment of mitigation measures to minimize visual impacts to surrounding land uses.

Implementation of the SBA Enlargement and Improvements Project would include the installation of a 500 af reservoir along Dyer Road. However, in terms of short-range views, the

facility is limited to inert water storage, would be set back from both Dyer Road and residences west of Dyer Road, and would include revegetation of embankments for visual consistency with the surrounding area. As discussed in **Section 3.11, Visual Resources**, the proposed facility would not substantially alter existing short-range views from Dyer Road. In terms of long-term views, as shown in visual simulations contained in **Section 3.11**, the facility does not represent a significant cumulative impact to views from Brushy Peak, due to distance, intervening topography, and revegetation of facility embankments. Further, open water storage is a common element in long-range vistas within agricultural areas, and such a facility is not inconsistent with the existing visual characteristics of the area, which currently includes Dyer Canal. As such, the potential cumulative impact associated with this facility are not considered significant.

Mitigation Measure

Measure 5.7: Implement **Measures 3.11-1** and **3.11-2**.

Impact Significance After Mitigation: Less than Significant.

REFERENCES – Cumulative Impacts

Alameda County Community Development Department, *Alameda County Conditional Use Permit Database*, 2004.

Alameda County Congestion Management Agency, *Alameda Countywide Transportation Plan*, 2004.

Alameda County Public Works, *Alameda County Capital Improvement Plan*, November, 2003.

Alameda County Transportation Improvement Authority, *2000 Measure B Projects and Programs*, available online at http://www.acta2002.com/2000_MEASURE_B/2000_MEASURE_B.html, 2004.

Barclay, J. 2004b. Department of Water Resources Proposed Dyer Reservoir Burrowing Owl Monitoring Report. Prepared for Environmental Science Associates.

Baseline Environmental Consulting, *Mountain House Master Plan and Specific Plan I Final EIR*, September, 1994.

Bay Area Air Quality Management District (BAAQMD), *BAAQMD CEQA Guidelines, Assessing the Impacts of Projects and Plans*, available online at http://www.baaqmd.gov/pln/ceqa/ceqa_guide.pdf, April 1996, Revised December 1999.

Brockbank, David, Planner, Contra Costa Community Development Department, personal communication, 2004.

California Department of Fish and Game (CDFG), Special Animals List. Online resource of the Wildlife and Habitat Data Analysis Branch available online at: <http://www.dfg.ca.gov/whdab/spanimals.pdf>, 2003.

- Caltrans, *State Highway Operation & Protection Program*, available online at <http://www.dot.ca.gov/hq/transprog/state/2004%20SHOPP%20Approved%204-8-2004.pdf>, 2004a.
- Caltrans, *State Transportation Improvement Program*, available online at <http://www.dot.ca.gov/hq/transprog/stip.htm>, 2004b.
- City of Livermore Community Development Department, *Summary of Major Projects*, 2004a.
- City of Livermore Public Works Department, *City of Livermore Capital Improvement Plan*, 2004b.
- Contra Costa County Public Works, *Contra Costa Capital Road Improvement Program*, 2001.
- DeSante, D.1997. Distribution and abundance of burrowing owl in California. Paper presented at *Sensitive Biological Resources of the Sacramento Valley: The Science and the Politics*. A Technical Conference Presented by the Swainson's Hawk Technical Advisory Committee and Center for Natural Lands Management, Sacramento State University.
- East Bay Regional Park District (EBRPD), *Master Plan*, 1997.
- East Bay Regional Park District (EBRPD), *Brushy Peak Regional Preserve Land Use Plan*, June, 2002.
- Environmental Science Associates (ESA), *CALFED Los Vaqueros Reservoir Expansion Studies Draft Project Concept Report*, August 2002.
- Environmental Science Associates (ESA) and William Self Associates, *CALFED Los Vaqueros Reservoir Expansion Studies – Phase 2 Final Draft Cultural Resources TM*, January 2004.
- Environmental Science Associates (ESA), *CALFED Los Vaqueros Reservoir Expansion Studies – Phase 2 Final Draft Planning Report*, April 2004.
- Environmental Science Associates (ESA), *CALFED Los Vaqueros Reservoir Expansion Studies – Phase 2 Final Draft Terrestrial Biological Resources Draft TM*, May 2004.
- Environmental Science Associates (ESA), *Conditional Use Permit C-5512 Altamont Landfill and Resource Recovery Facility Class II Expansion EIR* (SCH #92083047), March 1996.
- Environmental Science Associates (ESA), *Conditional Use Permit C-5512 Altamont Landfill and Resource Recovery Facility Class II Expansion Revised Final EIR*, January 2000.
- EIP Associates, *Altamont Water Treatment Plant Draft Environmental Impact Report*, prepared for Zone 7 of Alameda County Flood Control and Water Conservation District, January 22, 2001a.
- EIP Associates, *Altamont Water Treatment Plant Response to Comments on the Draft Environmental Impact Report*, prepared for Zone 7 of Alameda County Flood Control and Water Conservation District, May 4, 2001b.
- Jones and Stokes, *Altamont Pipeline Project EIR*, prepared for Zone 7 of the Alameda County Flood Control and Water Conservation District, August, 2004.

San Joaquin County Community Development Department, *San Joaquin County Project List*, 2004.

U.S. Fish and Wildlife Service. 1998. Recovery plan for upland species of the San Joaquin Valley, California. Region 1, Portland, OR. 319 pp.

CHAPTER 6

ANALYSIS OF ALTERNATIVES

6.1 INTRODUCTION

6.1.1 CEQA REQUIREMENTS FOR ALTERNATIVES ANALYSIS

The California Environmental Quality Act (CEQA) Guidelines require EIRs to describe and evaluate a reasonable range of alternatives to a project, or to the location of a project, that would feasibly attain most of the basic project objectives and avoid or substantially lessen significant project impacts. The Guidelines set forth the following criteria for alternatives:¹

- *Identifying Alternatives.* The range of alternatives is limited to those that would avoid or substantially lessen any of the significant effects of the project, are feasible, and would attain most of the basic objectives of the project. Factors that may be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site. An EIR need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote and speculative. The specific alternative of ‘no project’ shall also be evaluated along with its impact.
- *Range of Alternatives.* An EIR need not consider every conceivable alternative, but must consider a reasonable range of alternatives that will foster informed decision-making and public participation. The “rule of reason” governs the selection and consideration of EIR alternatives, requiring that an EIR set forth only those alternatives necessary to permit a reasoned choice. The lead agency, Department of Water Resources (DWR) is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives.
- *Evaluation of Alternatives.* EIRs are required to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project. Matrices may be used to display the major characteristics of each alternative and significant environmental effects of each alternative to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be discussed but in less detail than the significant effects of the project.

In general, there are two types of alternatives that may be reviewed in an EIR: (1) alternatives to the project that are other projects entirely, or other approaches to achieving the project objectives rather than the project or modified project; and (2) alternatives *of* the project that include

¹ CEQA Guidelines Section 15126.6.

modified project components, such as alternative project sites or processes and/or modified facilities, layout, size, and scale. This alternatives analysis phase of the project evaluated both types of alternatives in order to develop a reasonable range of alternatives for evaluation in this EIR.

In accordance with the CEQA Guidelines, the alternatives considered in this EIR include those that 1) could accomplish most of the basic objectives of the project, and 2) could avoid or substantially lessen one or more of the significant effects of the project. To provide the appropriate context for this alternatives analysis, the project objectives and key significant effects are summarized below.

6.1.2 PROJECT OBJECTIVES

The Proposed Project would allow the existing SBA to function at its design capacity of 300 cfs, as well as meet the conveyance capacity identified to meet seasonal demand projections associated with buildout under the approved general plans within the Zone 7 Water Agency service area. Implementation of the Proposed Project would remedy the existing deficiency in peak flow capacity and allow DWR to meet operational criteria by maintaining a backup pump unit for use during emergencies and maintenance. The proposed facilities would also allow DWR to reduce SWP peak power consumption by providing for variation in pumping and delivery schedule. Project implementation would increase the overall reliability and flexibility of the system during normal operation and emergency events. Project implementation would not alter pumping limits established for Harvey O. Banks through agreements with regulatory agencies. The project would also meet several operational objectives, which are identified below:

- Provide Conveyance Capacity Necessary to Meet Treated and Untreated Demands Associated with Buildout under the Approved General Plans within the Zone 7 service area. Water demands associated with buildout under the approved General Plans in the Zone 7 service area were estimated in the *Water Supply Planning Study Update* (Water Transfer Associates, 1999). This analysis identified a long-term annual water demand of 100,300 af to meet buildout demands. Conveyance capacity necessary to meet this annual demand was identified in the *Water Conveyance Study*, prepared by Camp, Dresser and McKee (CDM, 2000). This analysis identified a conveyance capacity need of 430 cfs within the SBA to meet projected demands at buildout. From this analysis, Zone 7 requested a capacity increase of 130 cfs. No additional capacity has been identified for the other two SBA Contractors (ACWD and SCVWD).
- Increase Operational Reliability for SBA Contractors. The Proposed Project would construct the 3rd Stage of the SBPP and Brushy Creek Pipeline system, providing adequate conveyance capacity and redundancy to continue a substantial portion of SBA operations in the event that one of the three pipelines is taken out of service for either maintenance or under an emergency scenario. Currently, maintenance requires substantial reductions in delivery capacity. Additionally, provision of storage in the upper reaches of the SBA would provide operational flexibility for future and existing treatment facilities.

- Provide Adequate Freeboard Along Canals. DWR requires a 3- to 4-foot freeboard criteria for canal facilities, which is not currently available at design capacity along the SBA due to canal degradation and design deficiencies.
- Provide Off-Peak Power Efficiency. Within the context of recent power shortages, design facilities to minimize power demands during peak power periods. Current design of the SBA system does not provide for diurnal variation of pumping rates. Dyer Reservoir provides an opportunity to increase daily off-peak pumping at the SBPP, thereby reducing power demand during peak load periods.
- Provide Water Quality Benefits. Project implementation would provide additional conveyance capacity, allowing Zone 7 to import and recharge water with lower total dissolved solids during spring months. This is a key objective for Zone 7's groundwater management. Additionally, control of drainage currently entering the SBA canals and Bethany Forebay Inlet Channel would reduce sediment loads.

6.1.3 KEY IMPACTS OF THE PROPOSED PROJECT

Chapter 3 identifies the short-term and long-term impacts associated with the Proposed Project on an issue area basis. Based on the analysis presented in **Chapter 3**, implementation of the Proposed Project would result in impacts related to construction of individual facilities, including short-term impacts to geology and soils, water quality, noise, traffic, dust generation, and visual resources. These impacts are limited to the duration of the construction schedule, and would reduce to a less than significant level through implementation of mitigation measures identified in **Chapter 3**. Project implementation would also result in the temporary disturbance of approximately 3.41 acres of jurisdictional wetlands and "other waters," as well as the temporary disturbance of approximately 115 acres of upland areas that may provide habitat to sensitive species.

Project implementation would result in the following permanent impacts: loss of 3.35 acres of wetlands or "other waters"; loss of 35 acres of sensitive species upland habitat; loss of 0.001 acres of sensitive aquatic species habitat; alterations of existing drainage patterns at existing facilities, and alteration of the existing visual character along Dyer Road. Project implementation would result in the establishment of a 500 af reservoir (425 af active storage; 75 af inactive storage), and associated inundation area, approximately 800 feet east of Dyer Road, within property that has been previously identified as mitigation land for the Altamont Landfill. These impacts are potentially significant, but would be reduced to a less than significant level through mitigation measures identified in **Chapter 3**. No impacts have been identified that are significant and unavoidable. A discussion of impacts by project component is provided below.

SOUTH BAY PUMPING PLANT

Impacts associated with the SBPP include short-term construction related impacts to geology and soils, water quality, dust generation, temporary disturbance of other waters of the U.S., traffic, noise, and visual resources. These impacts would be reduced to a less than significant level by implementation of measures established in **Chapter 3**.

Implementation of the SBPP would result in the permanent loss of 0.05 acres of wetland associated with recontouring of the Bethany Reservoir inlet for intake installation. Additionally, the expansion would result in the temporary disturbance of 7.5 acres of upland habitat during grading activities, and the permanent loss of 7.5 acres of upland habitat associated with the expanded facility foot print and the proposed drying basin.

Construction of the SBPP expansion would slightly change the existing visual appearance of the pumping plant from recreational uses along Bethany Reservoir. As post-project views would be consistent with the current visual nature of the site, these impacts are considered less than significant. Implementation of measure established in **Chapter 3** would ensure impacts are reduced to a less-than-significant level.

STAGE 3 BRUSHY CREEK PIPELINE

Impacts associated with pipeline construction would include short-term impacts to geology and soils, water quality, water quality, dust generation, traffic, noise, and visual resources. These impacts would be reduced to a less than significant level by implementation of measures established in **Chapter 3**.

Installation of the pipeline will result in the temporary impacts of 0.09 acres and permanent impacts to 0.01 acres to potential jurisdictional features. Construction of the pipeline would result in the temporary disturbance of 63 acres of upland habitat suitable for use by sensitive species, including San Joaquin kit fox, CRLF, CTS, and burrowing owl. Permanent loss of habitat associated with vault structures and the Stage 3 Surge Tank would be limited to 0.67 acres of upland habitat.

STAGE 3 SURGE TANK

Construction of the Stage 3 Surge Tank would not significantly alter the existing landscape, which contains Stage 1 and Stage 2 tanks and wind turbine operations. Views from Brushy Peak Regional Preserve and recreational uses along Bethany Reservoir would not be significantly impacted. Therefore, visual impacts would be considered less than significant.

DYER RESERVOIR

Impacts associated with Dyer Reservoir construction would include short-term impacts to geology and soils, water quality, water quality, dust generation, traffic, noise, and visual resources. These impacts would be reduced to a less than significant level by implementation of measures established in **Chapter 3**.

Implementation of Dyer Reservoir would result in the establishment of a 500 af reservoir along Dyer Road. In the event of a catastrophic failure, downstream areas along Dyer Road would be affected. Compliance with DSOD and OES requirements regarding dam design, construction, and inundation area mapping would reduce potential impacts to less than significant.

Implementation of Dyer Reservoir would reroute drainage to the south of the reservoir, and would alter current drainage patterns onsite. These impacts would be mitigated to a less than significant level through measures identified in **Chapter 3**.

Implementation of Dyer Reservoir would result in permanent loss of 2.41 acres of potentially jurisdictional wetland features. Construction would result in the temporary disturbance of approximately 45 acres of upland habitat suitable for use by sensitive species, including San Joaquin kit fox, CRLF, CTS, and burrowing owl. Permanent loss of habitat associated with reservoir structures and associated facilities would be approximately 27 acres of upland habitat.

Implementation of the Dyer Reservoir would result in potential conflicts with identified mitigation lands for the Altamont Landfill. Additionally, long-term impacts to visual resources would occur. These impacts would be mitigated to a less than significant level through measures identified in **Chapter 3**.

CANAL IMPROVEMENTS

Impacts associated with canal improvement construction would include short-term impacts to geology and soils, water quality, dust generation, traffic, noise, and visual resources. These impacts would be reduced to a less than significant level by implementation of measures established in **Chapter 3**. Raising of the canal linings and embankments, and improvement of cross drainages facilities would temporarily impact 0.12 acres of associated upland habitat for CRLF and 0.12 acres of potential aquatic habitat for CTS. Improvements to Patterson Reservoir would result in the permanent loss of 0.30 acres of associated upland habitat for CRLF. Additionally, improvements would slightly modify the existing visual nature of the structure. These impacts would be reduced to a less than significant level by implementation of measures established in **Chapter 3**.

Alteration of drainage infrastructure would result in the permanent loss of 0.82 acres of wetland features within the DWR right of way. Additionally, drainage patterns would be slightly altered. These impacts would be reduced to a less than significant level by implementation of measures established in **Chapter 3**.

6.2 ALTERNATIVES TO THE PROJECT

6.2.1 NO PROJECT ALTERNATIVE

Discussion of the No-Project Alternative must examine the existing conditions and reasonably foreseeable future conditions that would exist if the project were not approved (CEQA §15126.6(e)). Under the No Project Alternative, DWR would not implement construction of facilities identified under the Proposed Project to increase design capacity to 430 cfs. As such, impacts identified in **Chapter 3**, and summarized above in **Section 6.1.2**, would be avoided. Implementation of the No Project Alternative would not meet any of the stated project objectives, and would not address conveyance capacity shortfalls associated with the SBA system. Zone 7 would be unable to meet service demands associated with development under the approved

General Plans within its service area, operational flexibility associated with new facilities in the upper reaches of the SBA would not be improved, and the energy saving benefits associated with off-peak pumping would not occur. This alternative is not considered superior to the proposed project, because it would not meet the stated project objectives.

Under the No Project Scenario, reasonably foreseeable future condition, Zone 7 would continue to face a shortfall in the conveyance capacity necessary to meet buildout demands under the approved General Plans within the Zone 7 service area. As demands increase over time, Zone 7 would continue to review other conveyance options, and would likely select for implementation one of alternatives identified in the *Zone 7 Water Conveyance Study* (CDM, 2000). These alternatives, and their potential environmental impacts, are further discussed in **Section 6.2.3**, below. As noted in this discussion, these alternatives were screened for economics/capital costs, reliability/flexibility, implementation, and environmental factors, and were not identified as superior to the Proposed Project from either an overall, or purely environmental, standpoint.

6.2.2 IMPROVEMENTS PROJECT ONLY ALTERNATIVE

Under this alternative, DWR would implement the Improvements component of the Proposed Project to meet the SBA facility design capacity of 300 cfs. These facilities would be limited to those improvements necessary for DWR to meet its contractual obligation of 300 cfs to the SBA Contractors. DWR has a contractual obligation under its Water Service Agreement to provide a delivery capacity of 300 cfs to the three SBA Contractors, and the 3 SBA Contractors have a contractual obligation to pay for maintenance of the SBA system through their annual State Water Contractor billings. These improvements would be limited to improvements at the SBPP pumping plant to install a spare (45 cfs) pumping unit and connect it to the Stage 2 mainfold, improvements to the Stage 2 surge tank, and raising of the Dyer, Livermore, Patterson Reservoir and Alameda canal lining approximately 1.0 foot.

Impacts related to this alternative would be limited to minor short-term construction effects at SBPP and the Stage 2 Surge Tanks. Impacts associated with construction of the Stage 3 Brushy Creek Pipeline and Dyer Reservoir would be avoided. Construction impacts along the Dyer, Alameda, and Livermore Canals would be similar to, but incrementally reduced, from those associated with raising of the canal lining under the Proposed Project. No improvements to check structures, siphons or drainage overchutes would be implemented; therefore, impacts identified for the Proposed Project related to these facility improvements would be avoided.

Although the level of impacts associated with this alternative would be less than those identified for the Proposed Project, implementation of this alternative would not meet any of the stated project objectives, other than the re-establishment of the SBA system design capacity of 300 cfs. Zone 7 would be unable to meet service demands associated with development under the approved General Plans within its service area and operational flexibility associated with Stage 3 Brushy Creek Pipeline and provision of storage in the upper reaches of the SBA would not be improved. In addition, the energy saving benefits associated with the ability to shift 38,000 MW

hours annual to off peak periods would not occur. Therefore, this alternative is not considered superior to the proposed project because it would not meet the stated project objectives.

6.2.3 ZONE 7 UNTREATED WATER CONVEYANCE ALTERNATIVES ANALYSIS OVERVIEW

In 2000, following completion of the *Water Supply Planning Study Update* (Water Transfer Associates, 1999) and the *Zone 7 Water Supply Planning Program – Program EIR* (1999 WSPP EIR; ESA, 1999), Zone 7 conducted an extensive analysis of potential conveyance mechanisms for delivery of SWP water into its service area. The objective of this analysis was to identify Zone 7's conveyance capacity needs to meet municipal and other demands at buildout under the approved General Plans within its service area, and to examine potential alternatives to provide this necessary capacity. This analysis, the *Water Conveyance Study* prepared by Camp Dresser and McKee (CDM, 2000), identified a conveyance capacity need of an additional 130 cfs to meet demands within the Zone 7 service area at buildout under the approved General Plans within its service area. In order to meet this conveyance capacity need, Zone 7 examined a wide range of project types, including increased storage within its service area, increased conveyance capacity, and a combination of these two primary options. Specific alternatives reviewed are summarized in **Table 6-1**, and are more thoroughly discussed in **Section 6.2.3** below. After screening the individual facility alternatives, these facilities were then combined to meet the system-wide needs for Zone 7. In order to evaluate these combined facilities, five operational scenarios were developed. The scenarios identify different ways to meet the future system requirements. Each of the scenarios includes different sizes and combinations of the storage and transmission facilities. The five scenarios include:

- A. Maximize the SBA utilizing the existing capacity and enlargement of specific sections, as necessary.
 - A-1. No Zone 7-owned or operated In-Valley Conveyance System
 - A-2. Partial In-Valley Conveyance System. In Valley Conveyance from SBA to the vicinity of Lake A.
 - A-3. Full In Valley Conveyance System. SBA to Lake I.
- B. Reduce South Bay Aqueduct enlargement by shifting the South Livermore untreated water demands to In-Valley Conveyance. Untreated supply for summer peaking could be from groundwater, the Chain of Lakes, or recycled supply.
- C. Reduce SBA enlargement and use of Del Valle Reservoir Storage for summer peaking.
- D. Reduce SBA enlargement using other local storage.
 - D-1. Upper Del Valle Reservoir
 - D-2. Doolan Canyon Reservoir
- E. Increased use of main groundwater basin to meet summer peak demands.

TABLE 6-1
STORAGE AND TRANSMISSION FACILITIES EXAMINED - UNTREATED WATER CONVEYANCE ALTERNATIVES STUDY

Proposed Facilities	Location	Description
<i>Storage Alternatives</i>		
Del Valle Reservoir Storage	South Bay Aqueduct and Del Valle Reservoir	Use the 11,000 acre-feet provided by storage in Del Valle Reservoir.
Upper Del Valle Reservoir	Upstream of Del Valle Reservoir	10,500 af or 15,000 af storage reservoir. - Winter storage of SWP water, for release during peak summer months
Doolan Canyon Reservoir	Along Doolan Road, Alameda County	9,000 af or 15,000 af storage reservoir to store SBA water for release to SBA in summer. - Raw water pipeline connection from SBA to reservoir; - Convey water from SBA to In-Valley Conveyance
Main Basin Conjunctive Use Well Master Plan	Groundwater basin within Zone 7 service area	- Storage of treated or untreated water. - Supplies injected and extracted from the Aquifer Storage and Recovery (ASR) wells and pumped into Zone 7 transmission / distribution systems. - Construction of wells within the Main Basin, primarily within the City of Pleasanton
Chain-of-Lakes	South of I-580 between Tassajara Rd/Vallecitos Rd	- Seasonal storage of natural inflow, Del Valle Reservoir water, SBA water, Doolan Reservoir water, or recycled water if acceptable to community. - Provides both storage for agricultural uses with In-Valley Conveyance, and groundwater recharge.
<i>Transmission Alternatives</i>		
SBA Parallel Pipeline		
Brushy Creek Pipeline	Parallel to SBA between Bethany Res. and Dyer Road	- Construction of a pump station in the vicinity of Bethany Reservoir - Construction of an approximately 3.73 mile pipeline between Bethany Reservoir and Dyer Road
Dyer-Alameda Canal	Parallel to SBA from Dyer Road to Del Valle Turnout	Construction of approximately 13.5 miles of new pipeline parallel to the existing SBA.
SBA Intermediate Improvements	Specific sections of the SBA between Bethany Reservoir and Del Valle Reservoir	Increase freeboard of canal sections, modify siphon at canal/pipe transitions, or replace of smaller diameter pipelines at specific locations.
In-Valley Conveyance	Livermore and unincorporated Alameda Co.	- Construction of 6 to 13 miles of new pipeline and 2 Pump Stations - Provide capacity for delivery of recycled water, groundwater, or Chain-of-Lakes storage to agricultural customers.

Source: CDM, 2000

These Scenarios were then screened for economics/capital costs, reliability/flexibility, implementation, and environmental factors. The results of this screening analysis are presented in **Table 6-2**. A summary of potential environmental impacts for individual facility components is provided in **Table 6-3**. Based on the comparison of the different scenarios, Scenario A, which includes maximizing the use of the SBA through enlargement, was recommended as the most effective scenario to meet the future conveyance requirements for Zone 7. Scenario A provides the best approach to meeting long-term Zone 7 needs based on the level of reliability and flexibility provided by these facilities, the overall cost of both capital costs and maintenance costs, the ability to phase Scenario A facility improvements as necessary, and the level of environmental effects. Therefore, this alternative was considered superior for implementation.

6.2.4 ZONE 7 UNTREATED WATER CONVEYANCE STUDY - FACILITY DESCRIPTIONS

This section provides a more detailed description of the facilities included within the Scenarios examined in the *Untreated Water Conveyance Study*, and discussion of the environmental impacts associated with each of these facilities. There are two general types of alternatives that could be used, either alone or in combination, to meet Zone conveyance requirements. The first alternative type is associated with new or alternative storage facilities that would provide the winter storage necessary to provide supplies during peak summer demands. The second alternative type is associated with new or improved transmission facilities, which would increase the amount of water that could be conveyed during summer months. **Table 6-1** summarizes the facilities that been identified within each of these alternative types. These facilities were then examined both independently and/or in combination, to provide the conveyance capacity to meet projected water demands within its service area under existing General Plans. **Figure 6-1** and **Figure 6-2** present the regional location of proposed facilities or improvements.

STORAGE ALTERNATIVES

Storage facility alternatives were developed to reduce conveyance requirements and minimize or avoid summer peaking from Del Valle Reservoir. Storage facility alternatives capable of 15,000 af that were identified for consideration include:

- Acquisition and Use of the SBA Unallocated Capacity, including the storage provided at Del Valle Reservoir.
- Construction of an alternative surface water reservoir at Upper Del Valle Reservoir;
- Construction of an alternative surface water reservoir at Doolan Canyon, located north of Interstate 580;
- Conjunctive Use of the Main Basin, coordinated with future operations of the Chain of Lakes for either storage or groundwater recharge.

TABLE 6-2
SUMMARY COMPARISON OF SCENARIOS – UNTREATED WATER CONVEYANCE ALTERNATIVES STUDY

Scenario	Description	Economics	Reliability/Flexibility	Implementation	Environmental Impacts/Benefits
A. Maximize the use of the South Bay Aqueduct					
A-1	No District In-Valley Conveyance System	- Capital Cost \$39.8 million - Lowest Capital and O&M Costs - Allows Amendment 20 Opt Out	Fair- does not allow use of Chain-of-Lakes, groundwater or recycled supply for South Livermore	Good	Good- Minimal environmental Impacts
A-2	Partial In-Valley Conveyance System, SBA to Lake A	- Capital Cost \$50.7 million - Second Lowest Capital and O&M Cost - Allows Amendment 20 Opt Out	Good- does not allow use of Chain-of-Lakes, groundwater or recycled supply for South Livermore	- Good - Possible Near-term Phasing option	Good- Minimal environmental Impacts
A-3	Full In-Valley Conveyance System, Chain-of-Lakes to SBA	- Capital Cost \$77.6 million - Highest Cost for Scenario A - Allows Opting Out of Amendment 20	Very Good- allows potential use of Chain-of-Lakes, groundwater and recycled supply	- Good- allows potential flexibility in timing for full construction of In-Valley Conveyance System - Could be combined w/A-2 for Phasing of In-Valley Conveyance	Good- Minimal environmental Impacts
B. Reduce South Bay Aqueduct Enlargement by Using the In-Valley Conveyance System					
B-1	Using In-Valley Conveyance System, Chain-of-Lakes to SBA	- Capital Cost \$70.8 million - Reduces costs for SBA Improvements by approximately \$4 million - Allows Amendment 20 Opt Out	Good- reduced SBA capacity	Good	Good- Minimal environmental Impacts
C. Reduce South Bay Aqueduct Enlargement by Using Peaking Storage in Del Valle Reservoir					
C-1	Use of Amendment 20 summer storage (20 cfs July)	- Capital Cost \$73.1 million - Costs \$5 million lower than A-3 - Does not allow Amendment 20 Opt Out	Fair- reduced SBA capacity with question of future operation of Lake Del Valle	Poor- anticipated objections from community and recreation	Poor- Significant impacts to Lake Del Valle operation
D. Reduce South Bay Aqueduct Enlargement by Using other Storage					
D-1	Upper Del Valle Reservoir (15,000 af)- 45 cfs in July and August	- Capital Cost \$137.8 million - Highest Capital Cost	Good	- Poor- DWR lead agency on acquiring additional land and approving project. - Long CEQA process	Fair- Impacts some Lake Del Valle recreation areas
D-2	Doolan Canyon Reservoir (15,000 af)- 45 cfs in July and August	- Capital Cost \$117.5 million - Second Highest Cost	Good	- Poor- acquisition of property - Long CEQA process	Poor
E. Increased Use of Main Groundwater Basin to Meet M&I Summer Peaking					
E-1	Increase Maximum Day Groundwater Use from 15 percent to 25 percent	- Capital Cost \$69.1 million - Lower Cost than A-3	Fair- reduced capacity for SBA and increased reliance on groundwater basin	Good	Good¹
E-2	Increase Maximum Day Groundwater Use from 15 percent to 40 percent	- Capital Cost \$51.4 million - Lower Cost than A-3	Poor- additional reduction in SBA capacity and significantly increase reliance on groundwater basin	Good	Good¹

¹ Subsequent analysis as part of the Well Master Plan indicates that this alternative is constrained within the context of Zone 7’s historical low policy.

Source: CDM, 2000

TABLE 6-3
SUMMARY OF ENVIRONMENTAL CONSTRAINTS – UNTREATED WATER ALTERNATIVE STUDY FACILITIES

Location	Land Use	Biological Resources		Geology and Soils	Cultural Resources	Water Resources	Visual Resources	Haz Mat
		Sensitive Species	Permits/Authorizations					
Del Valle Storage	SU Cumulative Recreational Impact	LS impact to species supported at reservoir	DWR Agreement	No constraints	No Impact	Impact to EBRPD Intake	Seasonal Fluctuation	Low. No construction
Upper Del Valle Reservoir	259 acres inundated 3 Private Parcels Williamson Act State Park Lands EBRPD Facility Relocation	Significant riparian habitat loss CRLF CTS SJKF Alameda Whipsnake Raptors	~2.5 mi. of Waters of US Individual USACOE 404 USFWS Section 7 HCP Requirement - CDFG 1601 RWQCB 401	DSOD Design Requirements Groundshaking Landslides Liquefaction	Low to Moderate Disturbance Potential	~2.5 miles of riparian corridor Downstream Construction Impacts	160 foot High Dam upstream of rec. uses	Low. No recorded sites.
Doolan Canyon Reservoir	367 acres inundated 20 Private Parcels 2 Williamson Act Parcels	Significant upland habitat loss CRLF CTS SJKF BUOW Raptors	Individual USACOE 404 USFWS Section 7 - HCP Requirement CDFG 1601 RWQCB 401	DSOD Design Requirements Groundshaking Landslides Liquefaction	Low to Moderate Disturbance Potential	Downstream Construction Impacts	Limited views of dam location	Low. No recorded sites.
Main Basin	Limited well compatibility issues	Potential CRLF effects addressed through siting	None	Groundshaking	Low to Moderate Disturbance Potential	Water Quality Maintenance	Low impacts associated with ASR wells	Impacts avoided through siting
Chain of Lakes	No compatibility issues. Competition for other uses	Disturbed Area, reduced habitat value	Unknown	Groundshaking	Low to Moderate Disturbance Potential	Water Quality Maintenance	No visible facilities	Low. No recorded sites.

SU = Significant and Unavoidable
 LS = Less than Significant
 CRLF = California red-legged frog
 CTS = California tiger salamander
 SJKF = San Joaquin kit fox
 BUOW = Burrowing owl

CDFG = California Department of Fish and Game
 USFWS = U.S. Fish and Wildlife Service
 RWQCB = Regional Water Quality Control Board
 HCP = Habitat Conservation Plan
 EBRPD = East Bay Regional Park District
 USACOE = U.S. Army Corps of Engineers

Source: CDM, 2000

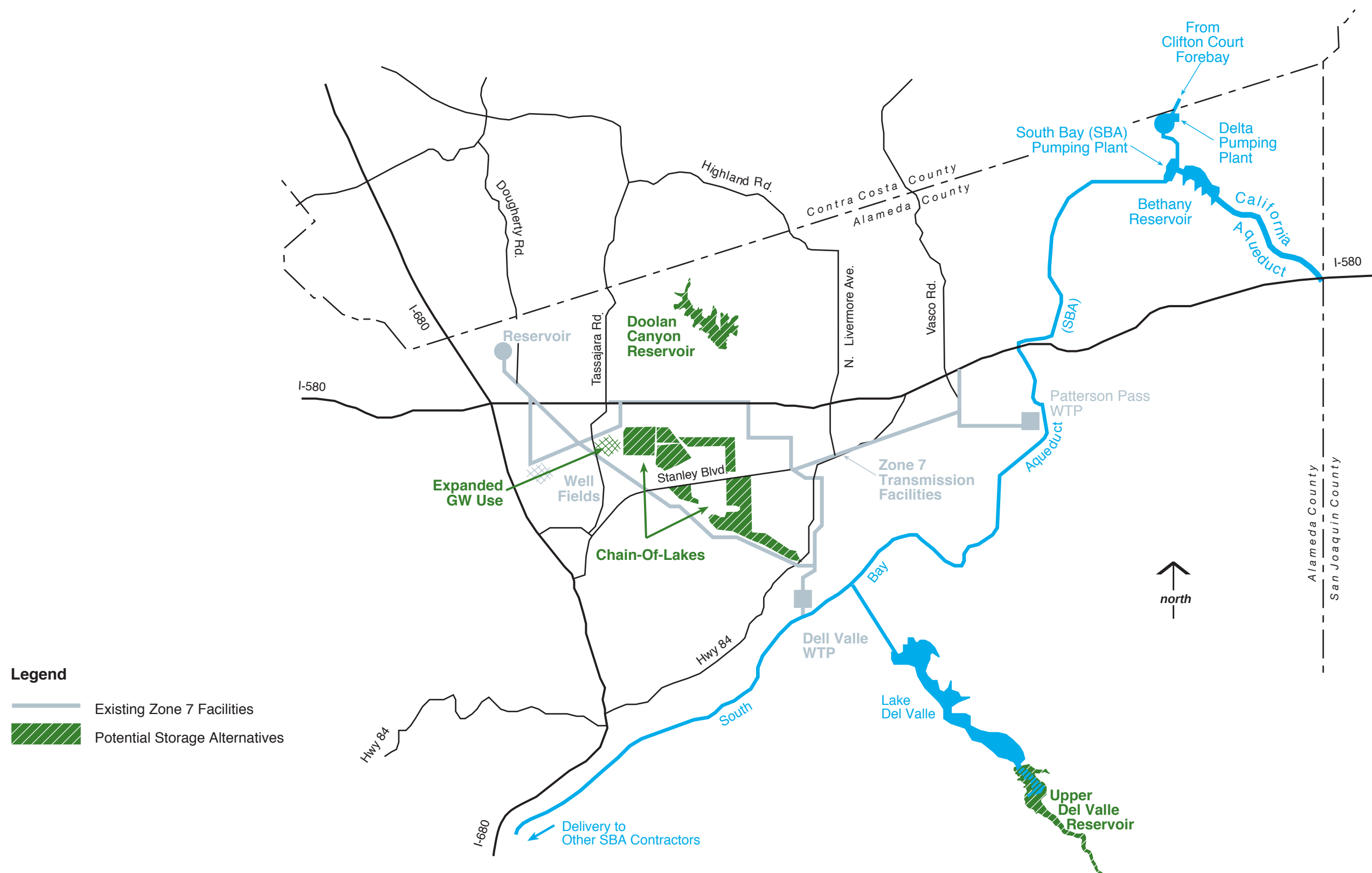
TABLE 6-3 (Continued)
SUMMARY OF CONSTRAINTS

Location	Land Use	Biological Resources		Geology and Soils	Cultural Resources	Water Resources	Visual Resources	Haz Mat
		Sensitive Species	Permits/Authorizations					
SBA Parallel Pipeline								
Brushy Creek Pipeline	Short-term construction impacts, limited receptors	~3 Mile Disturbance San Joaquin Kit Fox 1 Intermittent Drainage Burrowing Owl Alkali Wetlands	If Trench Stream Crossings: USACOE 404 Nationwide 12 USFWS Section 7 – Authorization CDFG 1601 RWQCB 401	Two small landslides Groundshaking	Low to Moderate Disturbance Potential 1 Site Identified for avoidance.	1 Drainage Temporary Disturbance or Avoidance	Below grade facilities	Low. No recorded sites.
Dyer-Alameda Canal	Short-term construction impacts, limited receptors	San Joaquin Kit Fox Borrowing Owl Alkali Wetlands	If Trench Stream Crossings: USACOE 404 Nationwide 12 USFWS Section 7 – Authorization CDFG 1601 RWQCB 401	Fault Rupture Groundshaking	Low to Moderate Disturbance Potential	5 Drainages Temporary Disturbance Permits or Avoidance	Below grade facilities	Low. No recorded sites.
SBA Intermediate Improvements	Short-term construction impacts, limited receptors	Reduced Impact Area	At Stream Crossings: USACOE 404 Nationwide 12 USFWS Section 7 – Authorization CDFG 1601 RWQCB 401	Groundshaking	Low to Moderate Disturbance Potential	Temporary Disturbance Permits or Avoidance at Siphon Locations	Below grade facilities	Low. No recorded sites.
In Valley Conveyance	Short-term construction impacts, limited receptors	CRLF CTS BUOW Raptors	If Trench Stream Crossings: USACOE 404 Nationwide 12 USFWS Section 7 – Authorization CDFG 1601 RWQCB 401	Fault Rupture Groundshaking	Low to Moderate Disturbance Potential	3 Drainages Temporary Disturbance Permits or Avoidance	Below grade facilities	Moderate. Recorded sites in vicinity

SU = Significant and Unavoidable
LS = Less than Significant
CRLF = California red-legged frog
CTS = California tiger salamander
SJKF = San Joaquin kit fox
BUOW = Burrowing owl

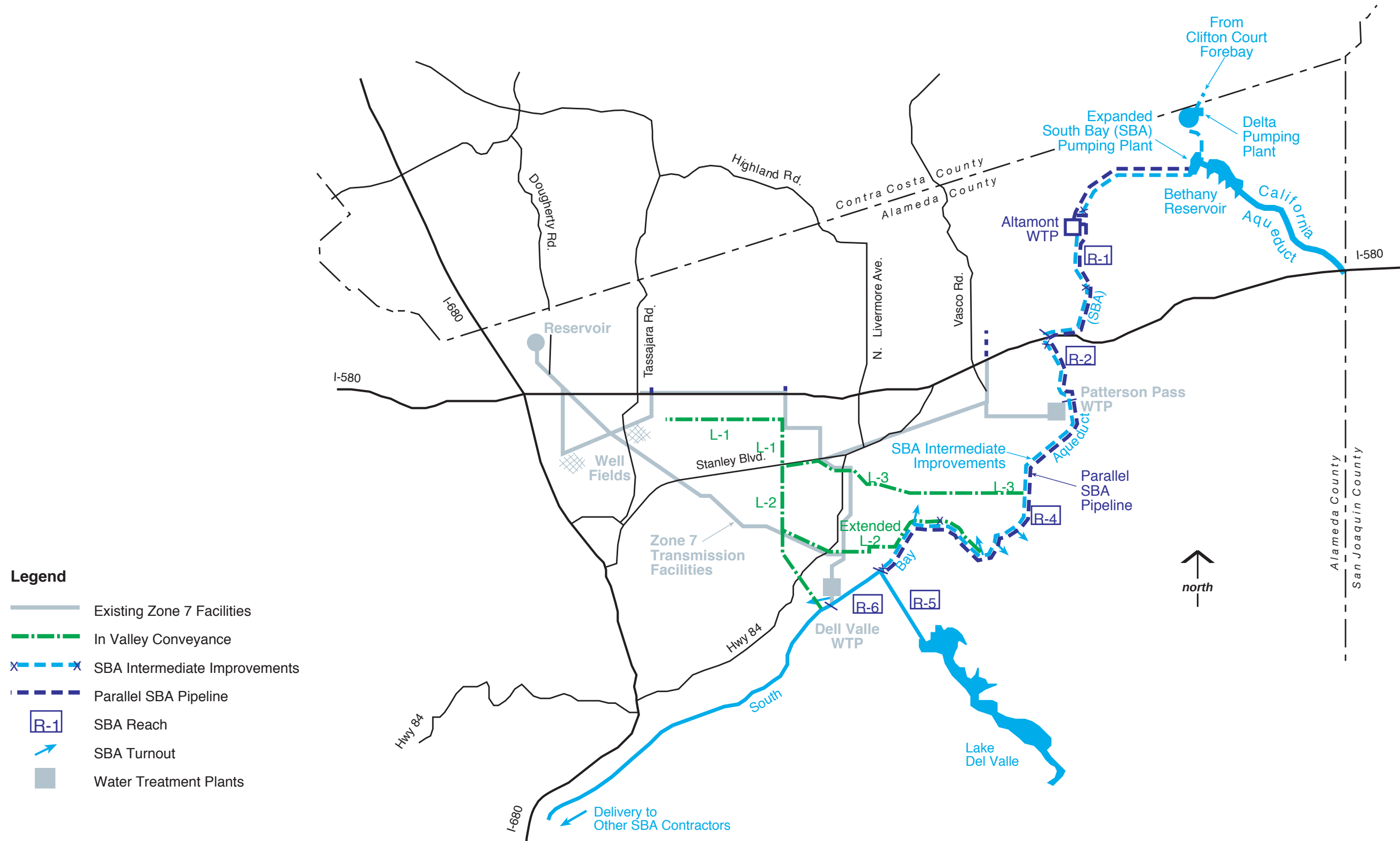
CDFG = California Department of Fish and Game
USFWS = U.S. Fish and Wildlife Service
RWQCB = Regional Water Quality Control Board
HCP = Habitat Conservation Plan
EBRPD = East Bay Regional Park District
USACOE = U.S. Army Corps of Engineers

Source: CDM, 2000



SOURCE: Camp Dresser & McKee, 2001

DWR SBA Improvement and Enlargement Project / 202456 ■
Figure 6-1
 CDM Untreated Water Conveyance Analysis—
 Potential Storage Alternatives



SOURCE: Camp Dresser & McKee, 2001

DWR SBA Improvement and Enlargement Project / 202456 ■

Figure 6-2
CDM Untreated Water Conveyance Analysis—
Potential Transmission Alternatives

STORAGE REQUIREMENT

CDM evaluated several reservoir capacities using Del Valle Reservoir storage as a basis, and modifying this amount for different contract and site conditions. For the purpose of this environmental analysis, the maximum reservoir capacity examined was used. A storage volume of 15,000 afa was used, based upon the combined delivered storage for Zone 7 Contract Amendment Nos. 19 and 20 (11,000 af), and an allowance of up to 4,000 afa for operational and dead storage. The reservoir storage facilities considered in this analysis did not include storage for increased flood control operation, or for increased storage of local stream or precipitation flow. Inclusion of other multiple use components such as stream diversion and storage, or increase flood control storage would significantly delay implementation of these alternatives, and would increase facility size requirements.

DEL VALLE RESERVOIR STORAGE

Alternative Description. Del Valle Reservoir is a primary component of the SBA, and serves three primary purposes; water supply, flood control and recreation. Del Valle Dam, located at the northern end of the reservoir, provides a total capacity of 74,000 acre feet. The reservoir is designed to meet peaking requirements for delivery of 210,000 acre-feet per annum, but DWR contracted for only for delivery of 188,000 acre-feet per annum. Facilities at the reservoir have been developed for recreational use under a three party agreement between DWR, State Parks, and East Bay Regional Park District (EBRPD), and Lake Del Valle Regional Park is operated by EBRPD.

Water elevations at the reservoir are regulated according to *Report of Reservoir Regulation, Del Valle Dam and Reservoir Alameda Creek, California (October 1978)*, prepared by the U.S. Army Corps of Engineers, which establishes a maximum water surface elevation of 703 feet above mean sea level (msl) on April 1, providing a storage pool of 40,000 acre feet. Approximately 30,000 af of this storage pool is allocated to water supply, with the remaining 10,000 serving as dead storage. Del Valle Reservoir is designed as a seasonal peaking reservoir to deliver supplies during summer months, when demands are increased. Approximately 19,000 af of this storage was allocated for funding purposes between the existing 3 SBA Contractors, and approximately 11,000 acre-feet remained as unallocated for a Future Contractor. The 1999 WSPP EIR referred to this unallocated capacity as the “Future Contractor Share”, and considered the effect of using the full 11,000 af of storage capacity associated with the Future Contractor Share.

Operation of the SBA to deliver its current allocation of 188,000 afa to the 3 SBA Contractors includes the drawdown of Del Valle Reservoir to meet peak summer water demands. However, until 2000, water demands within the service areas of the 3 SBA Contractors had not yet reached levels that required substantial drawdown during summer months. DWR has operated the reservoir such that water surface elevations are maintained near 703 feet msl, minus operational and evaporative losses, through Labor Day (September 7). In order to maximize the capture of local inflow, the reservoir is drawn down in fall approximately 25 feet between Labor Day and December 1. However, DWR has periodically drawn the reservoir down during summer months

for maintenance, and Del Valle Reservoir remains an emergency and drought supply that could be used at any time by DWR.

As demands within the service areas of the 3 SBA Contractors increase over time, drawdown of Del Valle Reservoir will be required during summer months. The delivery of 188,000 afa to the 3 SBA Contractors would result in a drawdown of approximately 25 feet between April and October. This is roughly equivalent to the drawdown that is currently experienced during fall months. As a result, a seasonal shift in drawdown conditions will occur at Del Valle Reservoir in the future, regardless of actions taken by Zone 7.

Reasons Alternative Was Not Considered Further. Zone 7's 1999 WSPP EIR examined both the project and cumulative impacts associated with acquisition and use of the unallocated SBA capacity, identified in the 1999 WSPP EIR as the Future Contractor Share (22,000 afa). The use of the 11,000 af of storage equates to a drawdown of slightly less than the 25-foot drawdown currently allocated to the 3 SBA Contractors, and is equivalent to the drawdown generally experienced in fall months. However, because Del Valle Reservoir is designed as a peaking reservoir to meet demands during summer months, the use of the Future Contractor share storage would result in a seasonal shift of when drawdown conditions currently occur.

The 1999 WSPP EIR also examined the cumulative effect of acquisition of the Future Contractor Share, and its use in conjunction with the conveyance capacity currently allocated to the 3 SBA Contractors. This would result in operation of the SBA at its design capacity, depending upon the timing of demands within each contractors service area. In order to deliver the design capacity of the SBA (210,000 afa), the full storage capacity of Del Valle Reservoir would be used. This would result in a drawdown of approximately 63 feet between April and October, with subsequent refilling of the reservoir by April 1. Due to potential effects to recreational facilities operated by EBRPD and public input during the CEQA process, this alternative was not considered feasible. Zone 7 agreed to forego use of storage that would affect DWR's operation of the reservoir. It should be noted that DWR retains ownership and the right to operate the reservoir to deliver water to meet its water supply contracts, and to maintain flood control as provided under its agreement with the USACOE.

This alternative was again reviewed as part of the CDM Water Conveyance Study. Due to the cumulative drawdown effect, Land Use constraints, which included effects to recreational resources, were considered high. Potential mitigation measures, including the construction of new facilities on the north shore to maintain access to the water supply pool, would result in secondary environmental effect, additional costs, and would not fully mitigate for drawdown conditions. Therefore, this alternative was not considered feasible for implementation by Zone 7.

UPPER DEL VALLE RESERVOIR

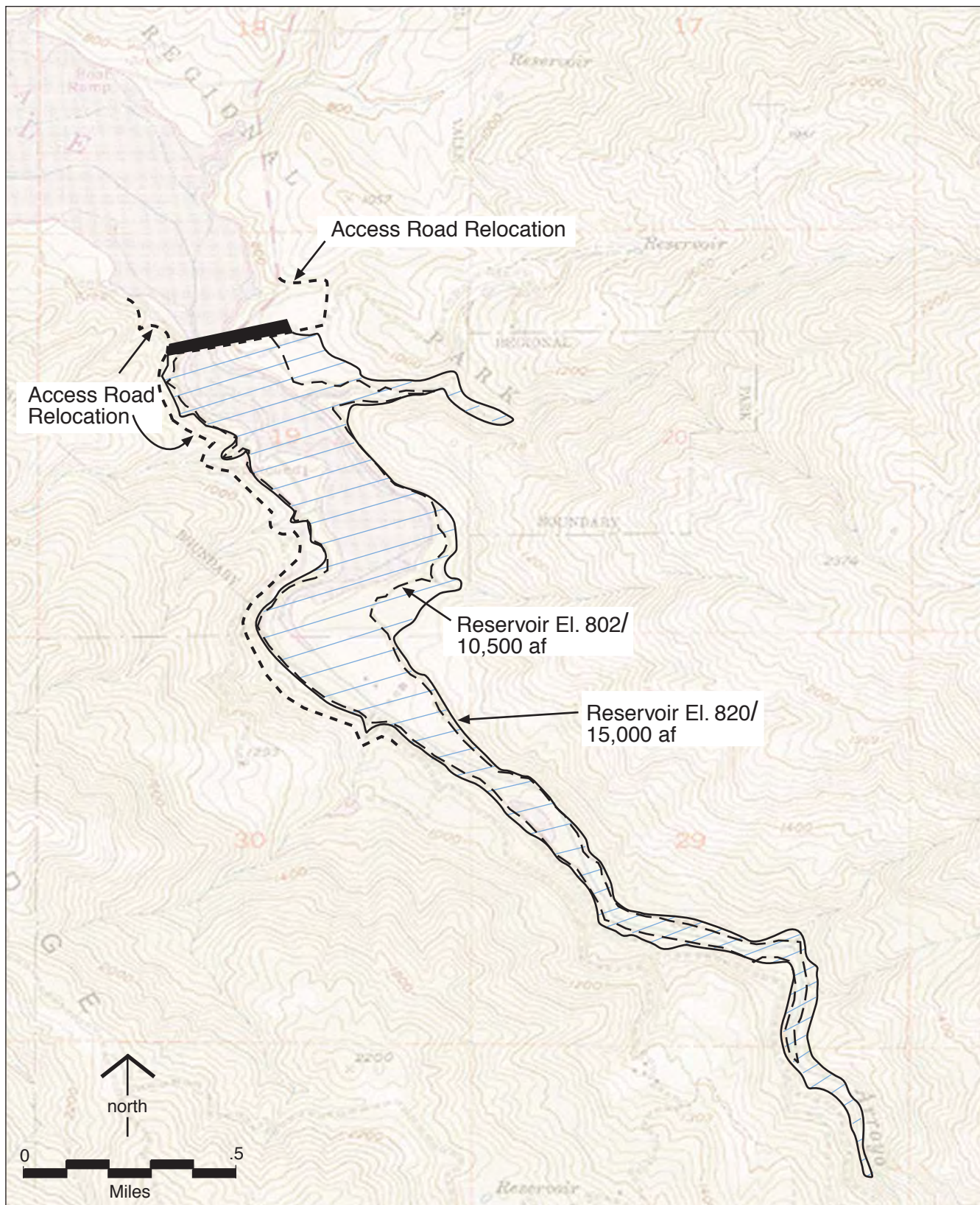
Alternative Description. This storage alternative would consist of construction of a new "upper" reservoir upstream of the existing Del Valle Reservoir. The dam site would be located at the existing bridge spanning Arroyo Valle. The reservoir would be designed to retain 15,000 af of storage, and would include installation of a roller compacted, concrete dam. The created

inundation area would be approximately 259 acres, and is shown in **Figure 6-3**. **Table 6-4** identifies the characteristics of the Upper Del Valle Reservoir. Conceptual design of the dam includes a downstream slope of 0.8 horizontal:1 vertical, (H:V) with a crest elevation of 845 feet msl, resulting in a dam height of approximately 160 feet. Crest length would be approximately 2,100 feet. Design would include a spillway to allow discharge of excess runoff from the 135 square mile drainage area upstream. The spillway elevation would be set at 820 feet msl to provide appropriate release rates to maintain 5 feet of freeboard. Design would also include an outlet works on the left abutment to allow for seven day drainage of the reservoir capacity, as per Division of Safety of Dams (DSOD) criteria. Two access roads would be constructed; one paved road across the dam to provide access to EBRPD facilities on the western shore, and a second unpaved access road from the western abutment south along the western edge of the resulting inundation area.

Reasons Alternative Was Not Considered Further. This alternative identified as having high constraints in the issue areas of Land Use, Biological Resources, and Visual Resources, and was identified as having the highest environmental constraints of the alternatives considered. Implementation of this storage alternative would require relocation of EBRPD's Arroyo Valle Campground, which would be inundated. Inundation would also affect three parcels owned by the N3 Ranch. Implementation of this alternative would require acquisition of these parcels by Zone 7 through either purchase or eminent domain. Implementation would result in the inundation of approximately 259 acres, including habitat for San Joaquin kit fox, California red-legged frog, California tiger salamander, and potentially Alameda whipsnake (critical habitat designation). From a Land Use perspective, this alternative would require relocation of EBRPD's Arroyo Valle Campground facilities, acquisition of land from State Parks and private property owners (3 parcels), and rerouting of Del Valle Road. Finally, establishment of a 160 foot high dam would alter the visual character of Del Valle Recreational area. Due to these environmental constraints, and other cost and feasibility issues, this alternative was not considered feasible for implementation.

DOOLON CANYON RESERVOIR

Alternative Description. This storage alternative would construct a storage reservoir within Doolon Canyon, located between Livermore and Dublin north of Interstate 580, within unincorporated Alameda County. The dam site would be located on Doolan Canyon Road, approximately 1.3 miles north of Interstate 580, at a narrow point in the canyon. The reservoir would be designed to retain 15,000 af of storage, and would include installation of an earthfill dam. The created inundation area would be approximately 367 acres, and is shown in **Figure 6-4**. **Table 6-4** identifies the characteristics of the Doolan Canyon Reservoir. Conceptual design of the dam includes a downstream slope of 3H:1V, with a crest elevation of 630 feet msl, resulting in a dam height of approximately 140 feet. Crest length would be approximately 1,200 feet. Design would include a spillway to allow discharge of excess runoff from the relatively small 3.3 square mile drainage area upstream. The spillway elevation would be set at 615 feet msl providing 10 feet of freeboard. Design would also include an outlet works on the left abutment to allow for drainage of the reservoir capacity in seven days (DSOD criteria). Fill requirements for



SOURCE: Camp Dresser & McKee, 2001

DWR SBA Improvement and Enlargement Project / 202456 ■

Figure 6-3
CDM Untreated Water Conveyance Analysis—
Upper Del Valle Reservoir Alternative

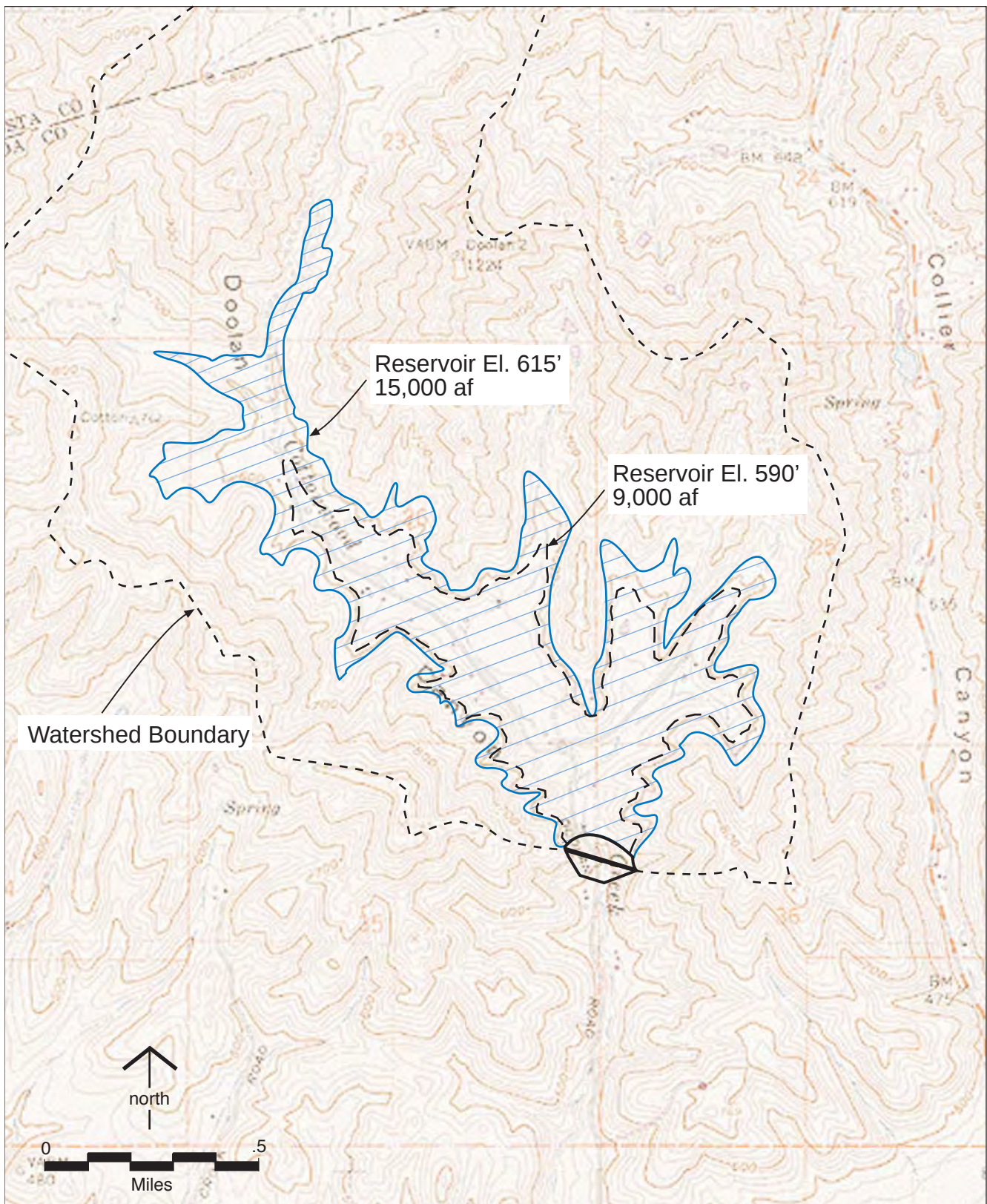
**TABLE 6-4
RESERVOIR SITE CHARACTERISTICS**

	Upper Del Valle Reservoir		Doolan Canyon Reservoir	
Storage (af)	10,500	15,000	9,000	15,000
Streambed Elevation (ft)	685	685	490	490
Height of Dam (ft)	142	160	115	140
Elev. Crest of Dam (ft)	827	845	605	630
Spillway Crest Elev. (ft)	802	820	590	615
Type of Dam	Roller Compacted Concrete	Roller Compacted Concrete	Earth Fill	Earth Fill
New Pipeline	Approximately 1,000 ft.	Approximately 1,000 ft.	SBA to Reservoir To In-Valley Conveyance	SBA to Reservoir To In-Valley Conveyance
New Pump Station	1 at SBA	1 at SBA	Gravity feed from SBA Gravity feed to In Valley Conveyance	Gravity feed from SBA Gravity feed to In Valley Conveyance

the dam are estimated at 1.7 million cubic yards of material. Suitable materials for the dam's impervious core and shell are available onsite and in the immediate vicinity of the reservoir. Additional materials for the dam filter, drain, and riprap base will be obtained from offsite rock quarries.

Implementation of this alternative would result in the inundation of 20 parcels under private ownership, and would also inundate the paved alignment of Doolan Canyon Road, which extends approximately 1 mile north of the dam site, and terminates at a private property gate within the reservoir inundation area. Access to the unpaved road that continues to upper Doolan Canyon could be provided from Collier Canyon Road. Access to the crest of the dam would be provided from Doolan Canyon Road by an access road traversing the downstream dam face. Implementation of the Doolan Canyon Reservoir would require installation of a raw water pipeline from the South Bay Aqueduct as a supply source. Distribution of stored supplied could occur through either the SBA or through connection to the In-Valley Conveyance System, which is further discussed under the Transmission Alternatives.

Reasons Alternative Was Not Considered Further. This alternative has high constraints for the issue areas of Land Use and Biological Resources, and had the second highest constraint total. Implementation would result in the inundation of approximately 367 acres, including habitat for San Joaquin kit fox, California red-legged frog, and California tiger salamander. From a Land Use perspective, this alternative would required acquisition of approximately 20 private parcels, many of which are developed with single family ranchettes. Therefore, constraints for these two issue areas are considered high. Due to these environmental constraints, and other cost and feasibility issues, this alternative was not considered feasible for implementation.



SOURCE: Camp Dresser & McKee, 2001

DWR SBA Improvement and Enlargement Project / 202456 ■

Figure 6-4
CDM Untreated Water Conveyance Analysis—
Doolan Canyon Reservoir Alternative

CONJUNCTIVE USE

Main Basin Storage

Alternative Description. In addition to surface water storage, the provision of storage within the Main Basin using increased conjunctive use and/or Aquifer Storage and Recovery (ASR) wells was examined. Zone 7 manages the Main Basin through regulation of pumping and recharge via in-stream recharge. The groundwater basin is used to store water for long term, seasonal peaking for municipal and industrial (M&I). Under this alternative, increased conjunctive use of the Main Basin would off-set surface water storage requirements through provision of approximately 11,000 af of storage. Storage and recovery of supplies would be implemented under Zone 7's Well Master Plan, which at the time of the CDM analysis, was under development.

Reasons Alternative Was Not Considered Further. Analysis was completed under the Well Master Plan, which modeled the amount and geographic distribution of groundwater recovery necessary to meet Zone 7's Reliability Policy while maintaining groundwater levels above historical low. Zone 7's operational policy has been to maintain groundwater levels above historical lows in order to maintain an emergency groundwater supply, and to minimize the potential for subsidence. Results of this analysis indicated that conjunctive use practices to meet Zone 7's Reliability Policy goals would maintain conformance with this policy, but that additional storage within the Main Basin to meet the objectives of the Proposed Project is not available within the context of this historical low policy. Therefore, this alternative in and of itself would not meet the objectives of the proposed project.

Chain-of-Lakes

Alternative Description. The Chain of Lakes are a series of gravel quarries in the central portion of the Livermore-Amador Valley, west of Livermore and east of Pleasanton. As required by the *Specific Plan for Livermore-Amador Valley Quarry Area Reclamation* (Alameda County, 1981) a program has been adopted to reclaim these existing gravel quarries and grant these facilities to Zone 7 for use to conduct groundwater recharge and water storage operations.

The use of the Chain-of-Lakes has been incorporated into previous water demand and conveyance capacity analysis, with the facility identified to provide both groundwater recharge and storage to meet untreated agricultural supplies within the Livermore Area. As such, this facility could be used in conjunction with other facilities. Due to its central location, treated or untreated water could be conveyed into the Chain-of-Lakes from several sources and by several transmission alternatives. Supply sources include: natural inflow, releases from Del Valle Reservoir or one of the storage reservoir alternative, untreated supplies from the SBA, and treated supplies from the proposed Altamont WTP. If acceptable to the community, recycled water could also be used as a supply source for the Chain of Lakes. Improvements to the Chain of Lakes would be primarily associated with installation of transmission facilities to and from the Chain of Lakes, as identified by the In-Valley Conveyance System, discussed in the Transmission Alternative Section, below.

Reasons Alternative Was Not Considered Further. This alternative had a lower level of environmental impact compared to the other storage reservoirs reviewed, but would still require implementation of conveyance capacity improvements to the SBA capacity to meet long-term service demands within the Zone 7 service area. However, because this alternative would not meet the stated objectives of the proposed project, it was not considered further. Rather, this facility alternative was identified as a potential future option for implementation under Scenario A, SBA Enlargement.

6.2.5 TRANSMISSION ALTERNATIVES

In addition to storage alternatives, increased conveyance capacity to the Zone 7 service area could serve as an alternative to storage. Additional conveyance capacity would allow Zone 7 to meet its peak summer demands directly through conveyance capacity, rather than through the use of storage. Used alone or in combination with additional storage, these alternatives have been developed to provide the equivalent storage capacity provided by Del Valle Reservoir storage. Three transmission alternatives were identified and include:

- Parallel SBA Pipeline
- Intermediate SBA Improvements
- In-Valley Conveyance System

SBA PARALLEL PIPELINE

Alternative Description. Additional conveyance capacity could also be provided through construction of a conveyance facility parallel to the entire existing SBA system. This concept has been previously examined by Zone 7 as part of its long-term facility planning, and parallel facility alternatives were identified in both the *Water Treatment Facilities Master Plan* prepared by CDM (CDM, 1998) and the 1999 WSPP EIR. A parallel pipeline would be used to convey raw water for treatment at Zone 7's future Altamont WTP, and could be extended south along the SBA to meet untreated agricultural demands within the Livermore Valley. Implementation of this alternative would include a new pump station at Bethany Reservoir adjacent to the existing South Bay Pumping Plant. Assuming a parallel pipeline is constructed from Bethany Reservoir to Reach 5 of the SBA, an approximately 17 mile pipeline would be constructed within the existing SBA right of way. However, for Reach 1, it is likely that the pipeline would be routed along Altamont Pass Road between Dyer Road and the Altamont Tunnel, due to the high topographic relief of the area and the presence of Alameda Creek along the existing Altamont Pipeline alignment. The final terminus location along the SBA would be dependant upon the location of agricultural demands in the south Livermore area. Similarly, the pipeline diameter depends on the level of the untreated demands, and the specific size and location of the storage alternative selected for implementation.

Reasons Alternative Was Not Considered Further. This alternative had the highest cumulative constraint point total of the transmission alternatives, but was identified as have a lower overall constraint level than the Upper Del Valle and Doolan Canyon Storage Alternatives. Constraints associated with construction of a parallel SBA pipeline were generally rated moderate

to low across all issue areas. However, biological resources issues are associated with the overland segment of the Brushy Creek pipeline, due to the presence of San Joaquin kit fox, burrowing owl, and alkali wetlands along the route. Biological resource constraints for the remainder of the pipeline route would be moderate, assuming installation within the SBA easement and existing roadways. Constraints in other issue areas are considered moderate or low. If access to the SBA easement were not provided, constraints associated with an overland route would be significantly increased. Implementation of this alternative represented the highest level of impact of the transmission alternatives, due to the level of pipeline installation along the SBA. Therefore, this alternative was not considered further.

SBA INTERMEDIATE IMPROVEMENTS

Alternative Description. In order to improve conveyance capacity within the SBA system, potential structural improvements or modifications to the SBA canal and pipeline sections that could provide additional capacity with a relatively minor change in the facilities or their operation were identified. Under the CDM *Water Conveyance Study*, these improvements included specific reaches of the SBA, and include increasing the liner free board within some canal sections, modifying transition sections, and replacing smaller diameter pipelines. These improvements would not provide the same potential capacity compared to the SBA Parallel Pipeline discussed above; however, at the time of analysis, they provided a lower cost alternative for specific capacity improvements along the SBA. **Table 6-5** identifies the individual modification and resulting capacity increase. Improvements would be primarily associated with increasing the liner and freeboard along 56,900 linear feet, or approximately 10.7 miles, of canal section. Therefore, this Intermediate Improvements Alternative now represents a “reduced” project alternative when compared to the Proposed Project.

**TABLE 6-5
POTENTIAL INTERMEDIATE SBA IMPROVEMENTS**

SBA Reach	Modification	Quantity	Increased Capacity to (cfs)
1	Modify pumping units to increase efficiency	-	360
1	Modify siphons and check structures	2 each	300
1	Raise lining. Modify siphons and check structures	10,200 lf	410
2	Replace 54-inch pipeline with 72-inch at Highway 580 undercrossing	1,100 lf	350
2,4	Modify siphons and check structures.	5 each	300
2,4	Raise lining. Modify siphons and check structures.	46,700 lf	410
4	Add 42-inch pipeline parallel to 84-inch	13,100 lf	350

Note: lf = linear feet

Reasons Alternative Was Not Considered Further. No high constraints were identified for this alternative. Constraints associated with intermediate improvements were moderate to low across all issue areas, due to the limited nature of construction activities within the SBA easement. However, biological resources and permitting issues are associated with improvements to siphon locations crossing streambeds. Constraints in other issue areas are considered moderate or low. Impacts associated with the alternative, which does not include the SBPP expansion, Stage 3 Brushy Creek Pipeline or Dyer Reservoir, would be limited to those associated with the canal lining and siphon improvements. Although this alternative would improve capacity within the SBA, it would not provide the 130 cfs capacity increase requested by Zone 7, and this alternative would not provide the off-peak pumping benefits associated with Dyer Reservoir. Therefore, although impacts associated with these facility improvements would be reduced compared to the Proposed Project, this alternative would not meet the stated project objectives. Therefore, it was not considered further.

IN-VALLEY CONVEYANCE

Alternative Description. The In-Valley Conveyance pipelines would provide transmission capacity for delivery of untreated water from several potential water supply sources to the agricultural customers in the southern and southeastern portions of the Zone 7 system. The system would include two pump stations, one located at Lake I in the Chain of Lakes, and one at a midpoint in the system. Approximately six to 10 miles of new pipeline would be constructed. The sizing of these transmission lines and associated pumping facilities depends on the specific storage and transmission alternative selected for implementation, as well as the level of future untreated water demands within the Zone 7 service area.

Reasons Alternative Was Not Considered Further. Analysis of this facility concept indicated that it does not provide a stand alone alternative that would meet project objectives, as improvements to the SBA to increase conveyance capacity would still be necessary to meet long-term service demands within the Zone 7 service area. However, this concept could be implemented in combination with other alternatives, including Scenario A, SBA Enlargement. Constraints associated with the In-Valley Conveyance pipelines were moderate to low across all issue areas, due to the general routing of pipelines within existing paved and unpaved roadways or roadway shoulders. However, biological resources and permitting issues were identified at streambed crossings. Constraints in other issue areas are considered moderate or low. However, because this alternative would not meet the stated objectives of the proposed project, it was not considered further.

6.2.6 ZONE 7 UNTREATED WATER CONVEYANCE ALTERNATIVES STUDY CONCLUSIONS

Following screening of individual facilities for environmental impact and implementation, facilities were combined into Scenarios which were then screened for economics/capital costs, reliability/flexibility, implementation, and environmental factors. The results of this screening analysis were previously presented in **Table 6-2**. A summary of potential environmental impacts were previously presented in **Table 6-3**. Based on the comparison of the different scenarios,

Scenario A, which includes enlargement of the SBA, was recommended as the most effective scenario to meet the future conveyance requirements for Zone 7. Scenario A provides the best approach to meeting long-term Zone 7 needs based on the level of reliability and flexibility that these facilities would provide, the overall alternative costs, and the identified environmental effects.

Following completion of the Untreated Water Conveyance Study, Zone 7 requested DWR to perform an Engineering Feasibility Study to identify the facilities necessary to increase the conveyance capacity of the SBA by 130 cfs. In response to this request, DWR prepared the *SBA Improvement and Enlargement Study (December 2003)*, which reviewed various facility options for meeting this service request. A discussion of individual facility alternatives examined as part of this analysis, as well as additional alternatives developed as part of the CEQA process, is provided in **Section 6.3**, below.

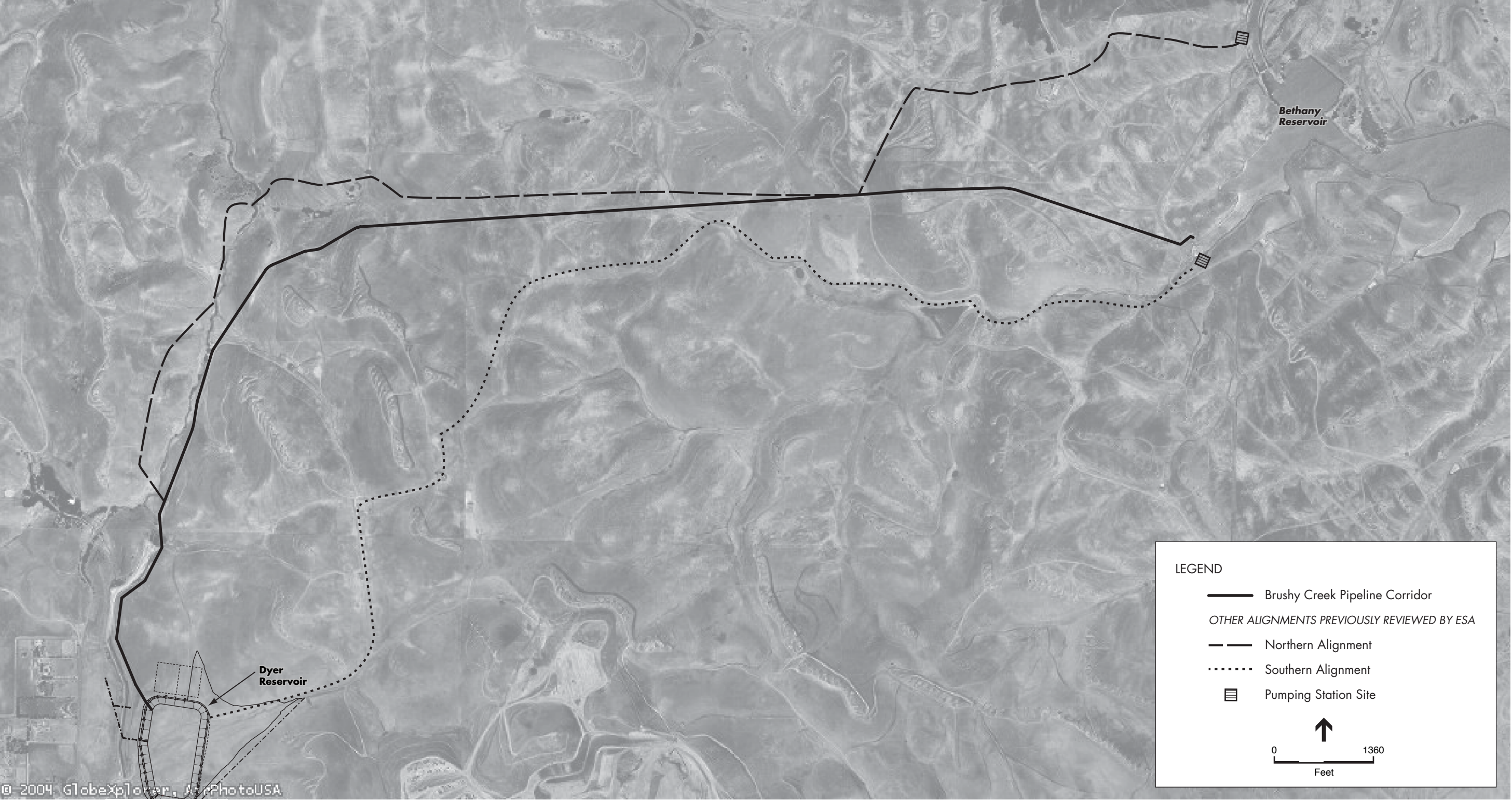
6.3 SBA FACILITY ALTERNATIVES

The following constitute facility alternatives to the Proposed Project, and have been reviewed to identify which facility alternatives can avoid or reduce the environmental impacts of the Proposed Project and still meet the basic project objectives. Impacts for individual facilities associated with the Proposed Project were previously summarized in **Section 6.1.2** above.

6.3.1 SOUTH BAY PUMPING PLANT AND BRUSHY CREEK PIPELINE ALTERNATIVES

BRUSHY CREEK PIPELINE NORTHERN ALIGNMENT

This alternative would include construction of a pumping station on the west side of the California Aqueduct upstream of the Bethany Reservoir (see **Figure 6-5**). This pump station location is located on an approximately 5 acre area approximately 7,200 feet upstream of the current SBPP Bethany Reservoir inlet. The pipeline route would extend west from this location approximately 4.2 miles to the Dyer Reservoir site, which is approximately 0.5 miles longer than the Proposed Project. From the pump station, the pipeline would extend 1,700 feet across undeveloped land to an existing access road for wind power facilities, continuing along this roadway alignment approximately 3,000 feet. The pipeline would then continue up the eastern face of a small foothill approximately 1,700 feet to meet the existing SBA easement. From this point the pipeline would extend west parallel to and north of the existing SBA approximately 6,800 feet to the dirt road extension of Dyer Road. The pipeline would follow this alignment for approximately 1,600 feet to Brushy Creek, where it would trench across Brushy Creek. The pipeline would extend upslope approximately 800 feet west of the Brushy Creek to avoid lateral installation on high slope areas along the creek, and then would extend south approximately 7,500 feet for a second trench crossing of Brushy Creek to route the pipeline back to the eastern side of Dyer Canal for access to Dyer Reservoir.



SOURCE: Department of Water Resources, 2004; Camp Dresser & McKee, 2001

DWR SBA Improvement and Enlargement Project / 202456 ■

Figure 6-5

Stage 3 Brushy Creek Pipeline
Alternative Alignments

Implementation of this alignment alternative would require construction of a new pumping plant adjacent to the California Aqueduct. The site is located on the west side of the California Aqueduct, and consists of an alluvial area that receives drainage from upslope areas, and includes a siphon for conveyance of flows under the California Aqueduct. The site is visible from the recreational areas on the east side of Bethany Reservoir. Construction would require redirection of existing drainage patterns at the site, would include the loss of upland habitat for sensitive species, and would result in long-term visual effects to adjacent recreational areas.

Implementation of this alignment would include additional costs related to increased diameter pipe or additional pumping to deal with the increased length of the pipeline. Ten additional vault structures would be required along this route due to terrain, resulting in additional operations and maintenance costs. These factors result in an estimated cost increase of \$2-3 million for implementation for this alternative alignment.

Implementation of the Northern Alignment Alternative would result in construction related impacts similar to those identified for the proposed alignment. However, due to its increased length, total disturbance area associated with the Northern Alignment Alternative would be incrementally increased by 0.8 acres. Habitat conditions along the northern alignment are identical for sensitive species, and the alignment would cross the same number of ephemeral drainages. Due to the increased disturbance area, impacts to biological resources would be slightly increased. This alignment would be installed within upland area west of Brushy Creek, but would require two trench crossings of the stream channel, as jack and bore installation would be constrained by topography.

Implementation of the Northern Alignment Alternative would result in potentially significant impacts to cultural resources identified along this alignment. The Northern Alternative route was surveyed on February 4, 2004, and resulted in the discovery of two previously unidentified historic structures (Brushy Creek Ranch, Brushy Creek Corral), and one Archaeological High Probability Area (Brushy Creek stream terrace). This alternative route passes directly within the site boundaries of the previously described CA-ALA-437 and the Brushy Creek Ranch sites.

CA-ALA-437 is a prehistoric archaeological site should be considered significant under criterion 'D' of the California Register, pending future subsurface testing. This site is located directly in the path of the Northern Alternative route. Additionally, this alignment would impact Brushy Creek Ranch. This historic farm settlement is directly in the path of the Northern Alternative pipeline route. The site does not appear to be significant; however additional archival research would be necessary to investigate historic property ownership prior to a final assessment of site significance.

Implementation of this alternative would increase the total disturbance area, and therefore, the total amount of sensitive species habitat, associated with implementation. This alternative would also result in similar disturbance impacts to Brushy Creek. Implementation of this alternative would result in potentially significant impacts to known cultural resources. Implementation of this pump station and alignment would result in substantial new easement acquisition by DWR, and would not consolidate facilities along the existing SBA corridor, which has been previously

disturbed. As such, this alternative would not reduce or avoid any of the impacts identified for the Proposed Project, and would likely result in equivalent impacts to biological and significant impacts to known cultural resources. Therefore, although this alternative would meet the project objectives, it is not considered environmentally superior to the Proposed Project.

BRUSHY CREEK PIPELINE SOUTHERN ALIGNMENT

This alternative would include construction of a pump station south of the Bethany Forebay Inlet Channel, south of the SBPP (see **Figure 6-5**). The pumping plant would be constructed on an existing 2 acre site that appears to have been established as part of the grading for the SBPP. From this location, the pipeline would extend approximately 3.5 miles west to the Dyer Reservoir. From the pump station site, the pipeline would extend west overland along a narrow drainage approximately 3,500 feet to an existing stock reservoir. The pipeline would then follow a jeep trail alignment west approximately 3,900 feet along a drainage, turning south to follow an access road alignment approximately 5,700 feet over the foothill crest (900 feet msl) to an existing access road associated with wind power facilities. The pipeline would then extend west along this access road alignment approximately 5,600 feet to the Dyer Reservoir site.

Implementation of this alignment would include additional costs of approximately \$1 million related to pipeline length; however, due to the increase elevations, an additional 150 feet of head would be required. This would result in an annual pumping cost increase of approximately \$3-5 million. Additionally, due to the increased distance to the alignment high point, a surge chamber would be required near the pump station, with an estimated cost of approximately \$2-4 million. These factors result in an estimated capital cost increase of \$5 million for implementation of this alternative alignment and an annual pumping cost increase of \$3-5 million.

Implementation of the Southern Alignment Alternative would require construction of a new pumping plant on the southern side of the SBPP inlet. Although a graded pad does exist at this location, substantial grading would be required both to establish an adequate building pad, and to provide intake access to water elevations. The site is directly visible from the recreational areas west of the reservoir. Construction would require redirection of existing drainage patterns at the site, would include the loss of upland habitat for sensitive species, and would result in long-term visual effects to adjacent recreational areas.

Implementation of the Southern Alignment Alternative would result in construction related impacts similar to those identified for the proposed alignment. However, due to its increased length, total disturbance area associated with the Southern Alignment Alternative would be incrementally increased. This alignment extends up a narrow unnamed ephemeral drainage to Bethany Reservoir. Project implementation would result in the loss of wetlands, including 3 stock ponds, along this alignment.

This alignment alternative would avoid potential impacts to Brushy Creek, as the pipeline would approach the Dyer Reservoir site from the east. However, impacts to wetland areas and

associated sensitive species are anticipated to be equivalent or greater for this alignment, due to its location within approximately 3,000 linear feet of drainage and stock pond complex.

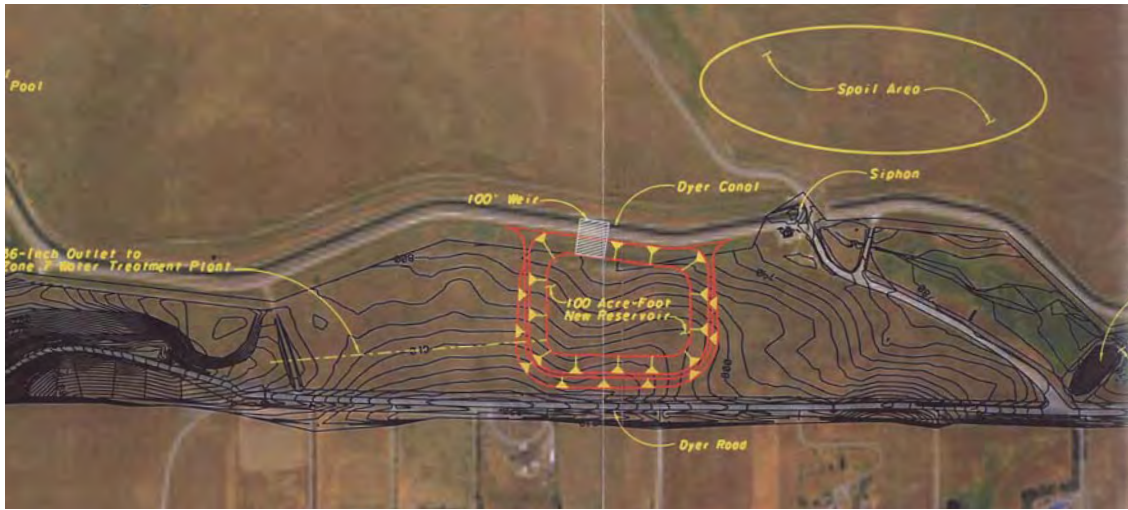
Implementation of this alternative would disturb an equivalent construction area, and therefore, an equivalent amount of sensitive species habitat. Although this alignment would avoid impacts to Brushy Creek, equivalent or greater impacts to wetland area and potential sensitive species habitat would be associated with installation within the unnamed drainage tributary Bethany Reservoir. Implementation of this pump station and alignment would result in substantial new easement acquisition by DWR, and would not consolidate facilities along the existing SBA corridor, which has been previously disturbed. As such, this alternative would not reduce or avoid any of the impacts identified for the Proposed Project, and would likely result in equivalent or greater impacts to biological resources. Therefore, although this alternative would meet the project objectives, it is not considered environmentally superior to the Proposed Project.

6.3.2 ALTERNATIVE DYER RESERVOIR SITES

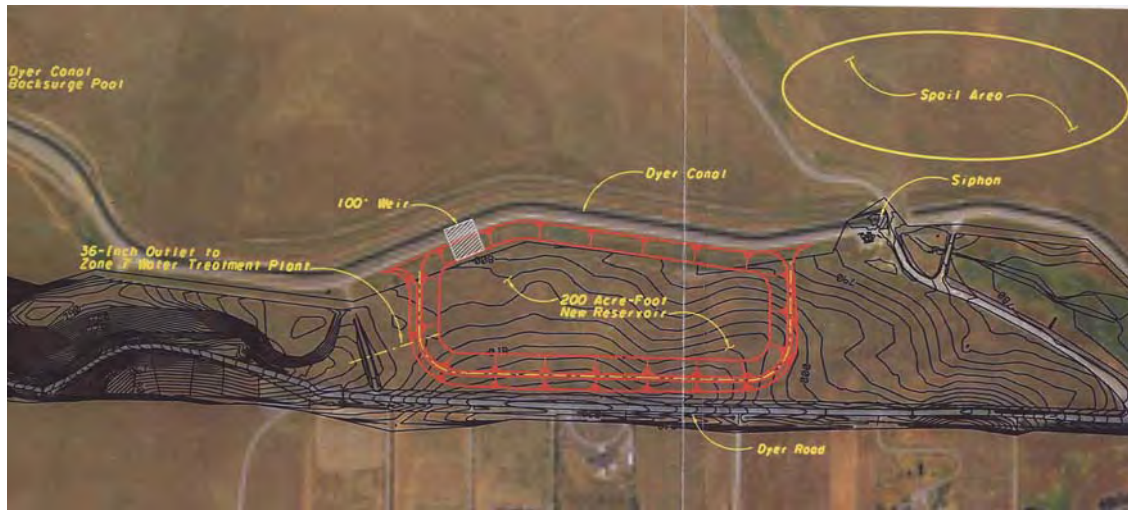
NO OFF PEAK PUMPING ALTERNATIVE - 100 ACRE-FOOT STORAGE WEST OF DYER CANAL

Under this alternative, a smaller Dyer Reservoir with a capacity of 100 af would be constructed on the western side of Dyer Canal immediately east of and adjacent to Dyer Road. Water would be supplied to the reservoir from Dyer Canal by means of an overflow weir, and operation of the reservoir would be similar to that of the existing Patterson Reservoir. The reservoir would be sized to provide a continuous supply to Zone 7's Altamont Water Treatment Plant. The reservoir size would not be adequate to provide off-peak pumping. The reservoir would be centered on this parcel. The western edge of the reservoir would front Dyer Road for approximately 800 feet. Excavation for this reservoir alternative is estimated at 440,000 cubic yards. Spoils generated by this alternative would be re-contoured onsite or at areas east of Dyer Canal. Access to the facility would be via the existing Dyer Canal access road to the south. Hydrologic connection to Dyer Canal would be via a 100-foot wide weir structure located on the eastern embankment. Reservoir location and layout are shown in **Figure 6-6**.

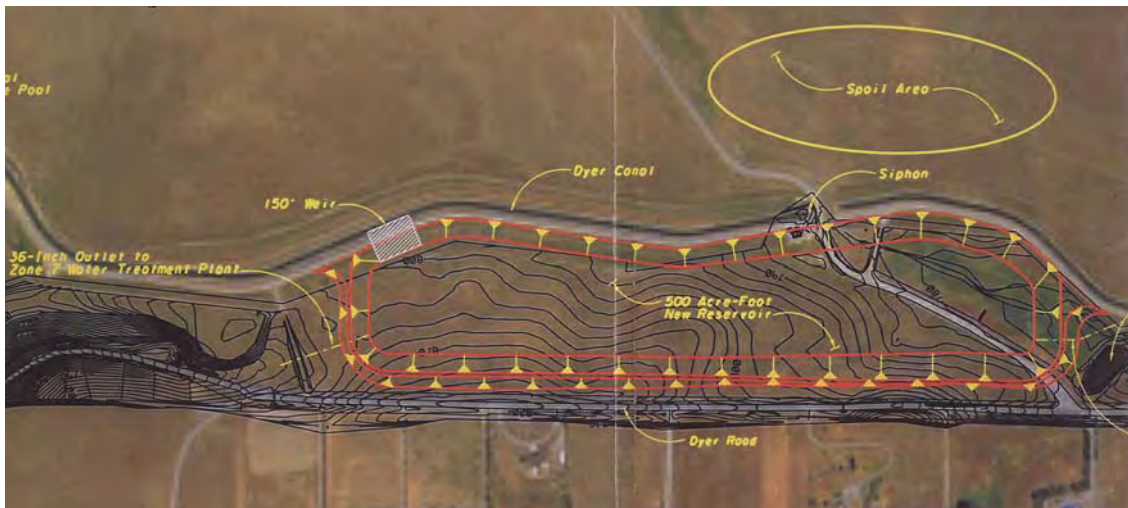
Implementation of this alternative would reduce the overall size of the reservoir, thereby reducing overall footprint and excavation requirements. The reservoir embankment would directly front Dyer Road, and could be perceived as have a more direct visual impact on this roadway. Implementation at this location would also have the potential for effects to wetland areas along the eastern edge of the site, which provide potential breeding habitat for California Tiger Salamander. A major detriment to this reservoir location is its elevation below Dyer Canal. Although passive flow to the reservoir is possible, flow back to Dyer Canal would require a pump station to lift stored supplies back to the canal. This would require construction and operation of a pumping plant at the reservoir facility. This would result in above ground facilities visible from Dyer Road, and potential operational noise associated with return flow pumping. The additional capital cost for construction of a pumping facility at this location is estimated at \$6.7 million.



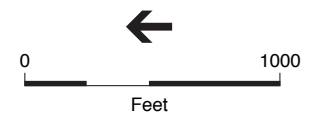
No Off Peak Pumping Alternative- 100 AF Reservoir



West of Dyer Canal- 200-AF Alternative



West of Dyer Canal- 500-AF Alternative



SOURCE: Camp Dresser & McKee, 2001

DWR SBA Improvement and Enlargement Project / 202456 ■

Figure 6-6

Dyer Reservoir Alternatives
No Off Peak Pumping and
West of Dyer Canal

Implementation of this alternative would not provide for off-peak pumping, as the reservoir would not be adequately sized. Therefore, this alternative would not meet one of the stated objectives of the Proposed Project, and benefits associated with the shifting of 38,000 MW hours to off-peak periods annually would not occur. As this alternative would result in potential impacts to biological resources, visual resources, and operational noise, and would not meet all of the stated project objectives, it is not considered environmentally superior to the proposed project.

NO PEAK PUMPING ALTERNATIVE - 200 ACRE FOOT STORAGE WEST OF DYER CANAL

This alternative would include construction of a 200 af reservoir on the same site immediately east of and adjacent to Dyer Road. This increased capacity would not be sufficient to provide for off-peak capacity, but would provide for storage at Zone 7's Altamont WTP. The reservoir would be situated, between the roadway and Dyer Canal, and due to its size, would encompass the majority of the parcel. The western edge of the reservoir would front Dyer Road for approximately 1,500 feet. Excavation for this reservoir alternative is estimated at 730,000 cy.

Spoils generated by this alternative would be recontoured onsite or at areas east of Dyer Canal. Access to the facility would be via the existing Dyer Canal access road to the south. Hydrologic connection to Dyer Canal would be via a 100-foot wide weir structure located on the eastern embankment. Reservoir location and layout are shown in **Figure 6-6**.

Implementation of this alternative would reduce the overall size of the reservoir, thereby reducing overall footprint and excavation requirements. The reservoir embankment would directly front Dyer Road for approximately 1,500 feet, and could be perceived as have a more direct visual impact on this roadway. Setback advantages of the proposed Dyer Reservoir site, which is located approximately 800 feet east of Dyer Road, would be lost. Implementation at this location would also have the potential for effects to wetland areas along the eastern edge of the site, which provide potential breeding habitat for California Tiger Salamander. A major detriment to this reservoir location is its elevation below Dyer Canal. Although passive flow to the reservoir is possible, flow back to Dyer Canal would require a pump station to lift stored supplies back to the canal. This would require construction and operation of a pumping plant at the reservoir facility. This would result in above ground facilities, and potentially operational noise associated with return flow pumping. This would be in addition to the pumping plant proposed by Zone 7 for the Altamont WTP. The additional cost for construction of a pumping facility at this location is estimated at \$6.7 million.

Implementation of this alternative would not provide for off-peak pumping, as the reservoir would not be adequately sized. Therefore, this alternative would not meet one of the stated objectives of the Proposed Project, and benefits associated with the shifting of 38,000 MW hours to off-peak periods annually would not occur. As this alternative would result in potential impacts to biological resources, visual resources, and operational noise, and would not meet all of the stated project objectives, it is not considered environmentally superior.

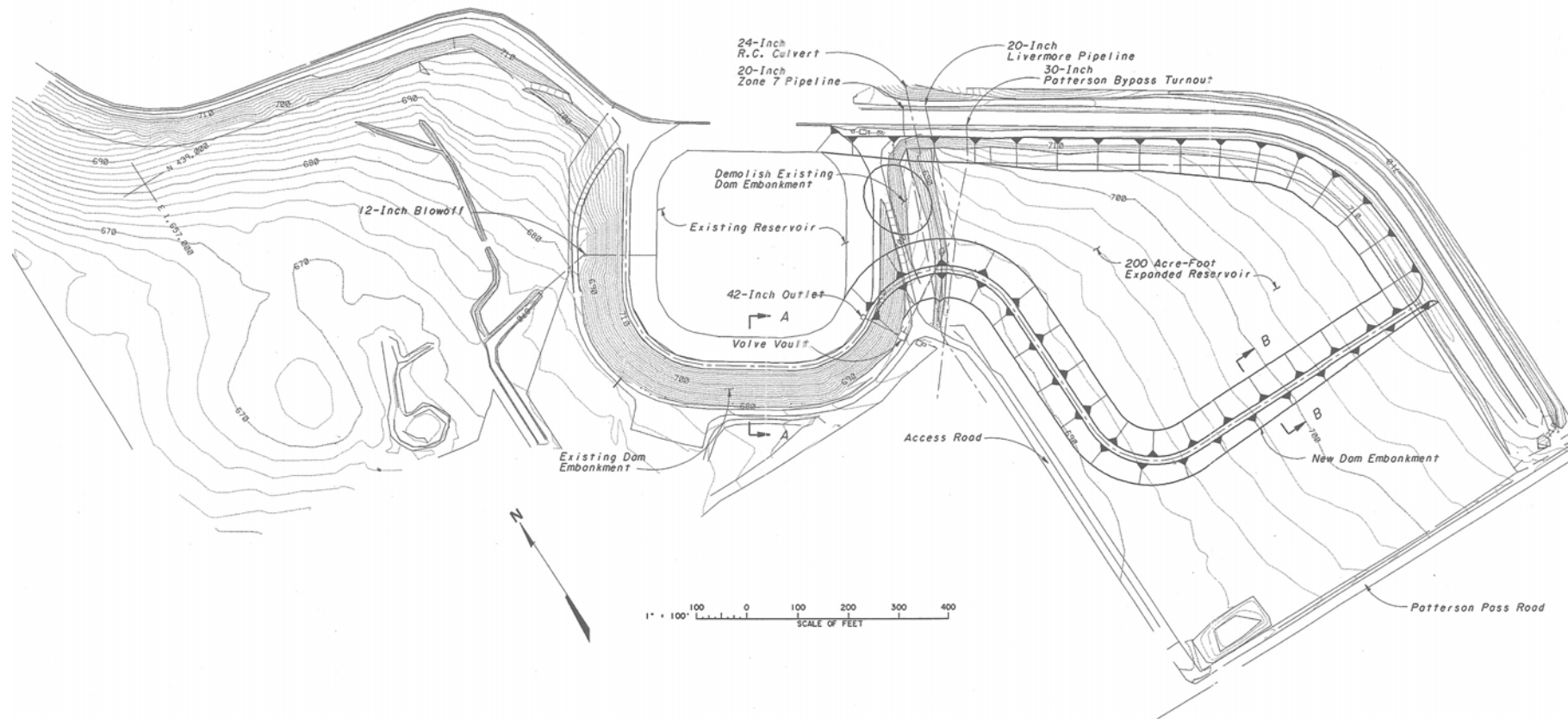
500 ACRE FOOT STORAGE – WEST OF DYER CANAL

This alternative would include construction of a 500 af reservoir on the same site immediately east of and adjacent to Dyer Road. This increased capacity would provide for off-peak pumping to the reservoir. The reservoir would be situated, between the roadway and Dyer Canal, and due to its size, would encompass the entire parcel. The reservoir would be formed by open cut excavation and embankments with a maximum height of approximately 15 feet above current grade. The western edge of the reservoir would front Dyer Road for approximately 3,100 feet. Excavation for this reservoir alternative is estimated at 1,220,000 cy. Spoils generated by this alternative would be recontoured onsite or at areas east of Dyer Canal. Access to the facility would be via the existing Dyer Canal access road to the south. The access road would be re-aligned to provide access to Dyer Canal and the private lands to the east of Dyer Canal. Hydrologic connection to Dyer Canal would be via a 150-foot wide weir structure located on the eastern embankment. Reservoir location and layout are shown in **Figure 6-6**.

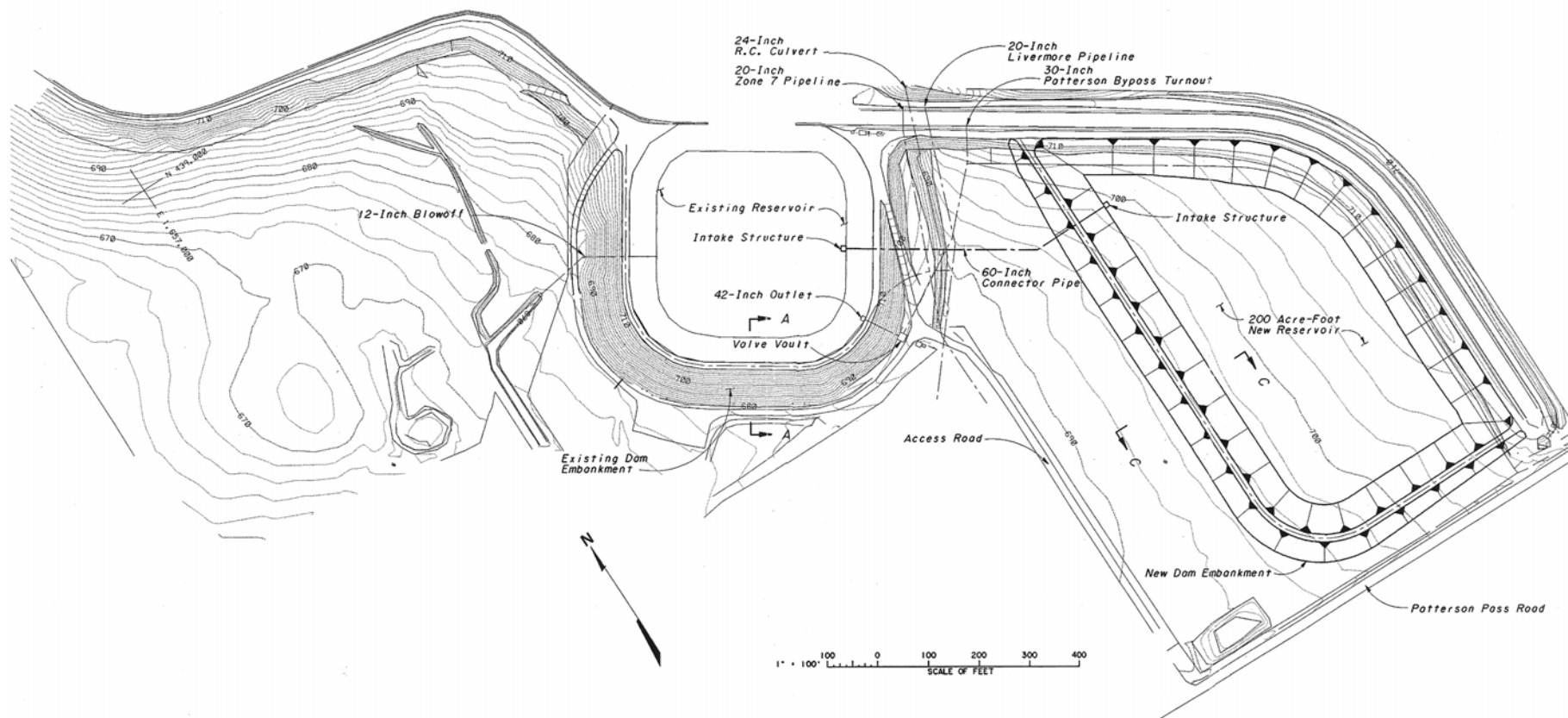
Implementation of this alternative would have an equivalent footprint to the Proposed Project, and would have similar excavation requirements. Embankment size would be equivalent to the Proposed Project. The reservoir embankment would directly front Dyer Road for approximately 3,100 feet, and could be perceived as have a more direct visual impact on this roadway. Setback advantages of the proposed Dyer Reservoir site, which is located approximately 800 feet east of Dyer Road, would be lost. Implementation at this location would also have the potential for effects to wetland areas along the eastern edge of the site, which provide potential breeding habitat for California Tiger Salamander. A major detriment to this reservoir location is its elevation below Dyer Canal. Although passive flow to the reservoir is possible, flow back to Dyer Canal would require a pump station to lift stored supplies back to the canal. This would require construction and operation of a pumping plant at the reservoir facility. This would result in above ground facilities, and potentially operational noise associated with return flow pumping. This would be in addition to the pumping plant proposed by Zone 7 for the Altamont WTP. The additional cost for construction of a pumping facility at this location is estimated at \$6.7 million. As this alternative would result in potential impacts to biological resources, visual resources, and operational noise, and would not meet all of the stated project objectives, it is not considered environmentally superior.

PATTERSON RESERVOIR

This alternative would involve expansion of the existing Patterson Reservoir to provide an additional 200 acre-feet of storage further downstream in the SBA system, at Zone 7's Patterson Reservoir. Two design configurations for this expansion were reviewed, both involving construction of new embankment to the east on lands currently owned by DWR. Embankments would be similar to the 30-foot high embankments of the existing facility. Under the first configuration, the existing southeastern embankment of the reservoir would be demolished, and the new embankment would extend across the existing DWR access road for Patterson Reservoir to the adjacent parcel. Under the second configuration, a self contained reservoir would be constructed on the adjacent parcel, with a pipeline connection to the existing reservoir. A layout for both configurations is provided in **Figure 6-7**. Excavation and embankment quantities for



Alternative 1A



Alternative 2

both reservoir alternatives is estimated at 190,000 and 80,000 cy, respectively. Expansion of storage at Patterson Reservoir would result in short-term construction impacts at this reservoir site equivalent to those identified for the Proposed Project. The expansion area under either configuration would directly affect known CRLF breeding and aestivation habitat. Visual impacts at this location would also be similar to those associated with the Proposed Project, as implementation would result in reservoir embankments directly fronting Patterson Pass Road.

Implementation at this location would increase the storage level in proximity to the Greenville Fault. Implementation of this alternative would not provide for off-peak pumping, due to the storage location within the South Bay Aqueduct system. Therefore, the benefits of shifting approximately 38,000 MW hours annually to off-peak periods would not occur. Additionally, operational flexibility associated with provision of storage within the upper reaches of the SBA, including provision of storage for Zone 7's proposed Altamont WTP, would not occur. This storage need is consistent with storage provided to each of the treatment plants on the SBA system (Zone 7's Patterson Pass WTP, Del Valle WTP and SCVWD's Penetentia WTP) by existing reservoir facilities.

Implementation of this alternative would result in impacts related to visual resources, biological resources, and would place additional storage within the Greenville Fault zone. Because this alternative would result in similar impacts to the Proposed Project, and would not meet the stated objectives of the Proposed Project, it is not considered environmentally superior.

6.4 FACILITY ALTERNATIVES CONCLUSIONS

A comparison of the Proposed Project and individual facility alternatives with respect to their ability to meet the objectives of the Proposed Project is provided in **Table 6-6**. For the Pump Station and Pipeline Alternatives, both the Northern and Southern Brushy Creek Pipeline alternatives would have the ability to meet all of the Proposed Project objectives. For the Dyer Reservoir Alternatives, only the 500 af West of Dyer Canal Alternative would have the potential to meet all of the project objectives. However, this reservoir configuration would require an additional pumping station to pump stored supplies back to Dyer Canal.

A comparison of the Proposed Project and individual facility alternatives with respect to their environmental impact is provided in **Table 6-7**. For the Pump Station and Pipeline Alternatives, impacts are anticipated to either equivalent or higher for both pipeline alternatives, due to their route through steeper topography and along drainages. Therefore, these alternatives would not reduce or avoid impacts associated with the Proposed Project, and are not considered environmentally superior. Implementation of the Proposed Project with mitigation measures identified in **Chapter 3** would reduce potential impacts to a less than significant level.

For the Dyer Reservoir Alternatives, implementation of the 100 and 200 acre-foot reservoir sizes on the west side of Dyer Canal would incrementally reduce the disturbance area and reservoir structure, but these alternatives would not provide for off-peak pumpage, would place the reservoir structure directly fronting Dyer Road, would have similar site specific biological resource impacts, and would require an additional pumping station to pump supplies back to Dyer Canal, resulting in

**TABLE 6-6
FACILITY ALTERNATIVES – ABILITY TO MEET PROJECT OBJECTIVES**

Project Objectives	Proposed Project	No Project	Improvements Only	Pump Station and Pipeline Alternatives		Dyer Reservoir Alternatives			
				Northern Alignment	Southern Alignment	West of Dyer Canal 100 af	West of Dyer Canal 200 af	West of Dyer Canal 500 af	Patterson Reservoir
<i>Objectives and Policies</i>									
Provide Conveyance Capacity Necessary to Meet Treated and Untreated Demands Associated with Buildout under the Approved General Plans within the Zone 7 service area.	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Increase Operational Reliability for SBA Contractors.	Yes	No	No	Yes	Yes	No. Does not provide additional SBA Storage	Reduced	Yes	Yes
Provide Adequate Freeboard Along Canals.	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provide Off-Peak Power Efficiency.	Yes	No	No	Yes	Yes	No. Does not provide storage for off-peak pumping.	No. Does not provide storage for off-peak pumping.	Yes. Requires additional pump station back to canal.	No
Provide Water Quality Benefits.	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No

SOURCE: Environmental Science Associates

TABLE 6-7
FACILITY ALTERNATIVES – SUMMARY OF ENVIRONMENTAL IMPACTS

Project Objectives	Proposed Project	No Project	Improvements Project	Pump Station and Pipeline Alternatives		Reservoir Alternatives			
				Northern Alignment	Southern Alignment	West of Dyer Canal 100 af	West of Dyer Canal 200 af	West of Dyer Canal 500 af	Patterson Reservoir
Geologic Impacts	Impacts similar to existing SBA Facilities	None	Impacts similar to existing SBA Facilities	Similar	Increased due to topography	Similar, but reduced size of reservoir.	Similar, but reduced size of reservoir.	Similar	Increases storage in fault zone
Water Resource Impacts	Dyer Reservoir effect to drainage/groundwater	None	Reduced.	Similar	Increased due to alignment in drainage	Similar, but reduced size of reservoir.	Similar, but reduced size of reservoir.	Similar	Similar
Flooding/Inundation Area-Risk	500 af reservoir	Reduced. 100 af storage for Altamont WTP still required	Reduced. 100 af storage for Altamont WTP still required.	Similar	Similar	Similar, but reduced size of reservoir.	Similar, but reduced size of reservoir.	Same	Similar.
Impacts to Wetlands	Yes	None	Reduced.	Similar	Increased due to alignment in drainage	Similar, but reduced size of reservoir.	Similar, but reduced size of reservoir.	Reduced	Reduced
Impacts to Sensitive Species Habitat	Yes	None	Reduced	Reduced	Reduced	Reduced	Reduced	CTS Habitat	CRLF Habitat Loss
Impacts to Cultural Resources	Yes	None	Reduced	Increased	Similar	Similar, but reduced size of reservoir.	Similar, but reduced size of reservoir.	Similar	Similar
Impacts to Land Uses	Yes	None	Reduced	Increased due to ROW acquisition	Increased due to ROW acquisition	Similar, but reduced size of reservoir.	Similar, but reduced size of reservoir.	Same	Reduced
Impact Related to Construction: Short Term Noise, Dust, Traffic	Yes	None	Reduced	Similar	Slightly reduced due to shorter corridor	Similar, but reduced size of reservoir	Similar, but reduced size of reservoir.	Similar	Similar
Impacts to Visual Resources	Yes	None	Reduced	Similar.	Similar. Isolated Surge Tank	Similar; smaller reservoir fronting road	Similar, smaller reservoir fronting road	Increased. Same size reservoir fronting road.	Reduced

SOURCE: Environmental Science Associates

subsequent visual and noise related impacts. All four reservoir alternatives on Dyer Road would result in similar visual impacts. The only reservoir option that would avoid this impact in the vicinity of Dyer Road is implementation of the Patterson Reservoir. However, due to the need for operational storage in the upper reaches of the SBA system to provide for future treatment facilities, one of the reservoir configurations identified above would likely be implemented at Dyer Road; therefore, this impact would not be avoided completely. Implementation at Patterson Pass Road would not provide for off-peak pumping, and would increase the amount of storage in proximity to the Greenville Fault. Therefore, implementation of this alternative is not considered environmentally superior to the proposed Dyer Reservoir.

REFERENCES – Analysis of Alternatives

Alameda County, *Specific Plan for Livermore-Amador Valley Quarry Area Reclamation*, 1981

Camp Dresser & McKee (CDM), *Treatment Facilities Expansion Master Plan*, December 1998.

Camp Dresser & McKee (CDM), *Zone 7 Water Agency Water Conveyance Study*, December 2000.

Department of Water Resources, *South Bay Aqueduct Improvement and Enlargement Study*, December 2003.

Department of Water Resources, *CAD Drawings*, 2004.

Environmental Science Associates (ESA), *Zone 7 Water Agency Water Supply Planning Program – Program Environmental Impact Report (SCH# 98041040)*, January 1999.

Environmental Science Associates (ESA), *Zone 7 Water Agency Well Master Plan, Draft Environmental Impact Report*, 2004.

United States Army Corps of Engineers, *Report of Reservoir Regulation, Report of Reservoir Regulation, Del Valle Dam and Reservoir Alameda Creek, California*, 1978.

Water Transfer Associates, *Water Supply Planning Study Update*, January 1999.

CHAPTER 7

REPORT PREPARERS

7.1 PROJECT SPONSOR / LEAD AGENCY

CALIFORNIA DEPARTMENT OF WATER RESOURCES

1416 9th Street
Sacramento, CA 95814

7.2 EIR AUTHORS AND CONSULTANTS

ENVIRONMENTAL SCIENCE ASSOCIATES

225 Bush Street, Suite 1700
San Francisco, California 94104

- Leslie Moulton, Project Director
- Jim O'Toole, Senior Project Manager - Project Description, Alternatives
- Peter Hudson – Geology and Soils
- Kim Kinna – Water Resources and Water Quality
- Emily Silverman – Water Resources and Water Quality
- Lee Miles – Biological Resources
- Chris Rogers – Biological Resources
- Richard Sykes – Land Use, Public Services and Utilities
- Anjie Latta – Air Quality, Noise
- Jack Hutchison – Traffic and Circulation
- Heidi Vonblum – Hazardous Materials
- Lisa Nunes – Visual Resources, Growth Inducement, Cumulative Impacts
- Perry Jung – Graphic Artist
- Linda Uehara – Graphic Artist
- Ron Teitel – Graphic Artist
- Lisa Crossett – Graphic Design and Production
- Bill Boynton – GIS, Visual Simulations
- Lisa Bautista – Word Processing
- Anthony Padilla – Production
- Bryan Diger – Production

CONSULTANTS

William Self Associates, Inc.
P.O. Box 2192
61d Avenida de Orinda
Orinda, CA 94563

CALIFORNIA DEPARTMENT OF WATER RESOURCES

1416 9th Street
Sacramento, CA 95814

- Terry Becker
- Paul Strusinski
- Jose Alvarado
- John Squires
- Ted Craddock
- Rob Barry

CHAPTER 8

ACRONYMS

8.1 ACRONYMS

ABAG	Association of Bay Area Governments
ACWD	Alameda County Water District
af	acre-feet
afa	acre-feet per annum
APE	Areas of Potential Effect
APWRA	Altamont Pass Wind Resource Area
ASR	Aquifer Storage and Recovery
ASTs	aboveground storage tanks
BA	Biological Assessment
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BMPs	Best Management Practices
BUOW	Burrowing owl
CA FID	Facility Inventory Database
CA WDS	Waste Discharge System
Cal EPA	California Environmental Protection Agency
CalARP	California Accidental Release Prevention Program
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDM	Camp, Dresser and McKee
CDMG	California Division of Mines and Geology
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act

cfs	cubic feet per second
CGS	California Geological Survey
CHMIRS	California Hazardous Material Incident Report System
CHP	California Highway Patrol
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CRLF	California red-legged frog
CTS	California tiger salamander
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
cy	cubic yards
dB	decibel
dBA	A-weighted decibels
DEIR	Draft Environmental Impact Report
DHS	Department of Health Services
DOT	Department of Transportation
DSOD	Division of Safety of Dams
DSRSD	Dublin San Ramon Services District
DTSC	California Department of Toxic Substances Control
DWR	Department of Water Resources
EBRPD	East Bay Regional Park District
ECAP	East County Area Plan
EDR	Environmental Data Resources
EIP	EIP Associates
EIR	Environmental Impact Report
EMI	Emissions Inventory Data
EPA	Environmental Protection Agency
ESA	Environmental Science Associates
ESU	Evolutionary Significant Unit
FESA	Federal Endangered Species Act
FINDS	Facility Index System
FMMP	Farmland Mapping and Monitoring Program

FRHZ	Fault Rupture Hazard Zone
ft	feet
g	gravity
H:V	horizontal-to-vertical
HAZNET	A California Department of Toxic Substances Control database that records annual hazardous waste shipments, as required by RCRA. All businesses that use and dispose of hazardous materials are entered into the database.
HIST UST	Contains a list of registered historical USTs
hp	horsepower
HWCL	Hazardous Waste Control Law
I-580	Interstate 580
I-680	Interstate 680
ICBO	International Conference of Building Officials
ICC	International Code Council
km	kilometers
kV	kilovolt
LARPD	Livermore Area Parks and Recreation Department
LAVWMA	Livermore-Amador Valley Water Management Agency
L _{dn}	day-night average noise level
L _{eq}	energy-equivalent noise level
lf	linear feet
LOS	Level of Service
LUST	Leaking Underground Storage Tank Incident Report
M	Richter magnitude
M&I	municipal and industrial
mg	milligrams
mg/L	milligrams per liter
mgd	million gallons per day
MMI	Modified Mercalli Intensity
MP	milepost
mph	miles per hour (not defined in Section 3.8)
msl	mean sea level
M _w	Moment magnitude
MW	megawatt
NBBR	Nesting Breeding Birds and Raptors

NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NOP	Notice of Preparation
NPDES	National Pollution Discharge Elimination System
NPL	National Priority List
O & M	Operations and Maintenance
OES	California Office of Emergency Services
OHW	ordinary high water
PBO	Programmatic Biological Opinion
PG&E	Pacific Gas & Electric Company
PGA	peak ground acceleration
PM 10	particulate matter $\leq$ 10 microns
PM 2.5	particulate matter $\leq$ 2.5 microns
PM	particulate matter
ppm	parts per million
PPV	peak particle velocity
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
rms	root mean square
RWQCB	Regional Water Quality Control Board
SBA	South Bay Aqueduct
SBPP	South Bay Pumping Plant
SCVWD	Santa Clara Valley Water District
SJKF	San Joaquin kit fox
SMMP	Stream Management Master Plan
SOI	Sphere of Influence
SRA	State Recreational Area
SWF/LF	Solid Waste Facilities/Landfill Sites
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	California State Water Resources Control Board
TDS	total dissolved solids
TVPC	Tri-Valley Planning Committee

UBC	Uniform Building Code
UGB	Urban Growth Boundary
USACOE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank system
USTs	underground storage tanks
WMI	Waste Management Incorporated
WMUDS/SWAT	Waste Management Unit Database System
WRP	Water Reclamation Plant
WSPP	Water Supply Planning Program
WTP	Water Treatment Plant
Zone 7	Zone 7 Water Agency

APPENDIX 2.0

CANAL IMPROVEMENTS BY MILEPOST

General Notes:

1. Pre-existing drainage conditions
2. Overchutes and culverts convey flow across the canal from the secondary road side to the operating road side
3. Inlet structure is located on the secondary road side
4. Outlet structure is located on the operating road side
5. Unlined Freeboard is the height between canal lining and road surface

17-Aug-04

Location	Milepost	Description	Raise Canal Lining	Existing Unlined Freeboard	Operating Road			Distance from Canal Lining to Edge of Road	Existing Conditions	Comments
					Raise Embankment	Width	Shoulder			
Dyer Canal	3.22	Backsurge Pool								
	3.34	24" Culvert (Fill)	3'-3"	2'-6"	2'-3"	12'	No	6'	Secondary Road/Inlet Structure	Raise head wall 6' and regrade embankment approx. 30'. Fence is 35' from culvert headwall.
	3.34	24" Culvert	3'-3"	3'-6"	1'-3"	12'	4'	6'	Operating Road/Outlet structure	Extend existing culvert. Re-grade area, improve approx. 30' of Operating road condition along the embankment.
	3.39	18" Drain inlet (Cut)	3'-3"	Over 5'	0	9'	2'	7'	Secondary Road	Remove existing 18" drain inlet and replace with new overchute or regrade road (embankment) such as to drain runoff to culvert MP 3.34
	3.39	18" Drain inlet (Cut)	3'-3"	4'-3"	3'	12'	4'	6'	Operating Road	Remove existing 18" drain inlet and replace with new overchute or regrade road (embankment) such as to drain runoff to culvert MP 3.35
	3.49	8" Drain Inlet	3'-3"	10'	0				Secondary Road	Remove and regrade embankment such as to drain into new overchute MP 3.39
	3.83	Dyer Check 1							One-bay check and single siphon	Add second bay and siphon
	4.14	24" Culvert (Fill)	3'-3"	2'-6"	2'-3"	9'	2'	8'	Secondary Road/Inlet structure	Extend culvert inlet and raise headwall. Existing HW is close to edge of road and no drop. Fence is 30' from culvert headwall.
	4.14	24" Culvert	3'-3"	3'-6"	1'-3"	12'	4'	6'	Operating Road/Outlet structure	Extend existing culvert. Regrade area and improve approx. 30' of Operating road condition along the embankment.
	4.31	24" Overchute	3'-3"	6'	0	11'	2'	11'	Secondary Road/Inlet Structure	Raise overchute 4'
	4.31	24" Overchute	3'-3"	3'-6"	2'-6"	12'	4'	8'	Primary Road is wide enough	Raise overchute
	4.40	18" Drain inlet	3'-3"	3'-0"	4'-3"	9'	2'	7'	Secondary Road	Remove existing 18" drain inlet and replace with new overchute or regrade road and drain runoff to MP 4.14
	4.47	24" Culvert (Cut & Fill)	3'-3"	2'-6"	2'-3"	11'	0	6'-6"	Secondary Road/Inlet structure	Raise headwall 6' and regrade embankment 100'. Existing headwall is 6.5' away from edge of road and 2.5' drop. Fence is 45' from culvert headwall.
	4.47	24" Culvert	3'-3"	4'	9"	12'	5'	6'	Operating Road/Outlet structure	Extend existing culvert. Regrade area and improve approx. 30' of Operating road condition along the embankment.
	4.55	Timber bridge	3'-3"	4'	9"	12'	5'	6'	Old timber bridge	Remove existing bridge and replace with concrete bridge.
	4.57	24" Culvert (Cut & Fill)	3'-3"	3'	1'-9"	9'	0	9'	Secondary Road/Inlet structure	Raise headwall 3' and regrade embankment. Existing headwall is 3' from edge of road and fence is 25' from culvert headwall
	4.57	24" Culvert	3'-3"	4'	9"	12'	4'	6'	Operating Road/Outlet structure	Extend existing culvert. Regrade area and improve approx. 30' of Operating road condition along the embankment.
	4.64	18" Drain inlet (Cut & Fill)	3'-3"	4'	3'-3"	10'	3'	8'	Secondary Road	Remove existing 18" drain inlet and regrade road such as to drain runoff to overchute MP 4.57
	4.75	24" Culvert (Cut & Fill)	3'-3"	4'-6"	6"	9'	0	10'	Secondary Road/Inlet structure	Raise headwall 4'-6', regrade embankment, and mound around headwall approx. 20'. Existing HW is 10' from edge of road and 5' drop. Fence is approx. 15' from headwall
	4.75	24" Culvert	3'-3"	4'	9"	14'	0	6'	Operating Road/Outlet structure	Extend existing culvert. Regrade area and improve approx. 30' of Operating road condition along the embankment.
	4.95	24" Culvert (Cut & Fill)	3'-3"	3'	1'-9"	8'	0	9'	Secondary Road/Inlet structure	Extend existing culvert and replace headwall, regrade embankment. Existing HW is 3' from edge of road. Fence is approx. 30' from culvert headwall
	4.95	24" Culvert	3'-3"	4'	9"	14'	0	6'	Operating Road/Outlet structure	Extend existing culvert. Regrade area and improve approx. 30' of Operating road condition along the embankment.
	5.00	Fugure 24 of 48 (see ESA Report May 24)	3'-3"	4'	9"	N/A	N/A	N/A	Operating Road	Outside of embankment improvements
	5.09	18" Drain inlet (Cut & Fill)	3'-3"	4'-6"	2'-9"	10'	3'	9'	Secondary Road	Remove existing 18" drain inlet and replace with new overchute. Fence is very close to inlet
	5.15	Dyer Altamont Check 2							One-bay check and single pipeline	No modifications required
Livermore Canal	7.61	Timber bridge	1'-9"	1'-9"	1'-6"	14'	8'	6'	Old timber bridge	Remove existing bridge and replace with concrete bridge.
	7.61	18" Drain inlet (Cut & Fill)	1'-9"	1'-9"	4'	10'	2'	6'	Secondary Road	Remove existing 18" drain inlet and replace with new overchute.
	7.61	18" Drain inlet (Cut & Fill)	1'-9"	1'-9"	4'	14'	10'	6'	Operating Road	Remove existing 18" drain inlet and replace with new overchute.
	7.69	24" Overchute (Cut & Fill)	1'-9"	1'-9"	4'	9'	0	6'	Secondary Road/Inlet Structure	Raise overchute approx. 2'
	7.78	24" Overchute	1'-9"	1'-9"	4'	12'	4'	6'	Primary Road is wide enough	Raise overchute approx. 2'
	7.87	18" Drain inlet	1'-9"	1'-9"	4'	10'	2'	6'	Secondary Road	Remove existing 18" drain inlet and replace with new overchute.
	7.87	18" Drain inlet	1'-9"	1'-9"	4'	14'	10'	6'	Operating Road	Remove existing 18" drain inlet and replace with new overchute.
	8.03	Timber bridge	1'-9"	1'-9"	1'-6"				Removed	Timber bridge was removed and new bridge was built approx. MP 8.20
	8.05	24" Overchute (Cut & Fill)	1'-9"	1'-9"	4'	9'	0	6'	Secondary Road/Inlet Structure	Raise overchute approx. 2'
	8.05	24" Overchute	1'-9"	1'-9"	4'	12'	4'	6'	Primary Road is wide enough	Raise overchute approx. 2'
	8.15	24" Culvert (Cut & Fill)	1'-9"	1'-2"	2'-1"	9'	0	5'	Secondary Road/Inlet structure	Extend culvert and raise headwall. Headwall is 5 from edge of road and 14" drop. Improve approx.30' of operating road condition along the embankment. Fence approx. 30' from inlet
	8.15	24" Culvert	1'-9"	1'-9"	1'-6"	14'	4'	6'	Operating Road/Outlet structure	Extend existing culvert. Regrade area and improve approx. 30' of Operating road condition along the embankment.
	8.20?	New Concrete Bridge	1'-9"	1'-9"	1'-6"	16'	10'	6'	New Concrete Bridge	New bridge has already been built here. 36" from sofit of deck to top of lining.
	8.26	18" Drain inlet (Cut & Fill)	1'-9"	1'-9"	4'				Secondary Road	Remove existing 18" drain inlet and replace with new overchute.
	8.26	18" Drain inlet (Cut & Fill)	1'-9"	1'-9"	4'	16'	6'	6'	Operating Road	Remove existing 18" drain inlet and replace with new overchute.
	8.44	24" Culvert (Fill)	1'-9"	1'-0"	2'-6"	10'	0	5'	Secondary Road/Inlet structure	Raise headwall 6' and regrade embankment 100'. Existing headwall is 17' away from edge of road and 8' drop. Fence is 15' from culvert headwall
	8.44	24" Culvert	1'-9"	1'-6"	1'-9"	14'	4'	6'	Operating Road/Outlet structure	Extend existing culvert. Regrade area and improve approx. 30' of Operating road condition along the embankment.
	8.59	18" Drain inlet (Cut & Fill)	1'-9"	1'-6"	4'-3"				Secondary Road	Remove existing 18" drain inlet and replace with new overchute.
	8.59	18" Drain inlet (Cut & Fill)	1'-9"	1'-6"	4'-3"	16'	10'	6'	Operating Road	Remove existing 18" drain inlet and replace with new overchute.
	8.70	Fugure 25 of 48 (see ESA Report May 24)	1'-9"	1'-6"	1'-6"				Operating Road	Outside of embankment improvements
	8.75	Rail Flatbed Timber Bridge	1'-9"	1'-6"	1'-9"	16'	10'	6'	Timber bridge	Remove existing bridge and replace with concrete bridge
	8.80	24" Culvert (Cut & Fill)	1'-9"	1'	2'-3"	9'	0	5'	Secondary Road/Inlet structure	Raise headwall 4'-6" and regrade embankment. Existing HW is 12' from edge of road and 6' drop. Fence is approx. 18' from culvert headwall
	8.80	24" Culvert	1'-9"	1'-6"	1'-9"	13'	3'	6'	Operating Road/Outlet structure	Need major improvement. Extend culvert if possible and improve approx. 100' Operating road along the embankment.
	8.91	18" Drain inlet (Cut & Fill)	1'-9"	1'-9"	4'-3"				Secondary Road	Remove existing 18" drain inlet and replace with new overchute.
	8.91	18" Drain inlet (Cut & Fill)	1'-9"	1'-9"	4'-3"	16'	10'	6'	Operating Road	Remove existing 18" drain inlet and replace with new overchute.
	?	New 20" Water Pipe (City of Livermore)	1'-9"	1'-9"	1'-6"	14'	10'	6'	New Pipeline	New Pwater line owned by the city of Livermore. Pipeline sofit is 3'-6" above exisiting canal lining
	9.22	18" Drain inlet (Cut & Fill)	1'-9"	1'-6"	4'-3"				Secondary Road	Remove existing 18" drain inlet and replace with new overchute.
	9.22	18" Drain inlet (Cut & Fill)	1'-9"	1'-9"	4'-0"	14'	8'	6'	Operating Road	Remove existing 18" drain inlet and replace with new overchute.
	9.41	24" Culvert ?	1'-9"	1'-9"	1'-6"				Operating Road/Outlet structure	No improvement needed. Both sides are paved roads.
	9.41	24" Steel Pipe	1'-9"	1'-6"	1'-9"	12'	0	7'	Operating/Secondary Road	Raise pipe and replace asphalt
	9.44	Patterson Check 3							Two-bay check strucuture	Modifications required; raise existing radial gate
	9.70	Fugure 30 of 48 (see ESA Report May 24)	N/A		N/A				Patterson Pass Siphon	Between Patterson Pass Road and Siphon Outlet
	9.77	Patterson Pass Road Siphon							Single Siphon	Add second siphon

Location	Milepost	Description	Raise Canal Lining	Existing Unlined Freeboard	Operating Road			Distance from Canal Lining to Edge of Road	Existing Conditions	Comments
					Raise Embankment	Width	Shoulder			
Alameda Canal	9.79	Timber bridge	1'-3"	2'	1'	14'	6'	6'	Old timber bridge	Remove existing bridge and replace with concrete bridge.
	9.95	18" Drain inlet (Fill)	1'-3"	2'	3'-3"				Secondary Road	Remove existing 18" drain inlet and replace with new overchute or regrade embankment such as to drain runoff to culvert MP 10.12
	9.95	18" Drain inlet (Fill)	1'-3"	2'	3'-3"	14'	8'	6'	Operating Road	Remove existing 18" drain inlet and replace with new overchute or regrade embankment such as to drain runoff to culvert MP 10.13
	10.12	36" Culvert (Cut & Fill)	1'-3"	1	1'-9"	9'	0	5'	Secondary Road/Inlet structure	Raise head wall approx. 3'. Existing HW is 7' from edge of road and 2.5' drop. Fence is 23' from culvert headwall
	10.12	36" Culvert	1'-3"	2'	1'	13'	3'	6'	Operating Road/Outlet structure	Raise head wall approx. 4'. Mount around head wall, slope improvement approx. 30' along the embankment.
	10.23	42" Culvert (Cut & Fill)	1'-3"	1'	1'-9"	9'	0	7'	Secondary Road/Inlet structure	Raise head wall approx. 3' and regrade embankment approx. 100'. Existing HW is 7' from edge of road and no drop. Fence is 23' from culvert headwall
	10.23	42" Culvert	1'-3"	2'	1'	14'	4'	6'	Operating Road/Outlet structure	Raise head wall approx. 6'. Mount around head wall, slope improvement approx. 40' along the embankment.
	10.28	Lupin Way Bridge	1'-3"	2'	N/A				Concrete bridge	No Improvement needed
	10.31	18" Drain inlet (cut)	1'-3"	4'-6"	6"	10'	2'	6'	Secondary Road	Remove existing 18" drain inlet and replace with new overchute.
	10.31	18" Drain inlet (cut)	1'-3"	4'-6"	6"	14'	6'	6'	Operating Road	Remove existing 18" drain inlet and replace with new overchute.
	10.60	24" Culvert (Cut & Fill)	1'-3"	1'	1'-9"	13'	0	4'	Secondary Road/Inlet structure	Raise head wall approx. 3' and regrade embankment approx. 100'. Existing HW is 7' from edge of road and 4' drop. Fence is 43' from culvert headwall
	10.60	24" Culvert	1'-3"	2'	1'	14'	5'		Operating Road/Outlet structure	No improvement needed.
	10.62	Lupin Check 4							Two-bay check strcuture	Modifications required; raise existing radial gate
	10.72	36" Culvert (Cut & Fill)	1'-3"	1'	1'-9"	14'	0	4'	Secondary Road/Inlet structure	Regrade embankment approx. 100'. Existing HW is 30' from edge of road and 15' drop. Fence is 75' from culvert headwall.
	10.72	36" Culvert	1'-3"	2'	1'	14'	10'		Operating Road/Outlet structure	No improvement needed.
	10.87	24" Culvert (Cut & Fill)	1'-3"	1'	1'-9"	10'	0	4'	Secondary Road/Inlet structure	Raise Headwall 4'-6" and regrade embankment approx. 100'. Existing HW is 15' from edge of road and 10' drop. Fence is 23' from culvert headwall.
	10.87	24" Culvert	1'-3"	2'	1'	14'	7'		Operating Road/Outlet structure	No improvement needed.
	11.07	24" Culvert (Cut & Fill)	1'-3"	1'	1'-9"	11'	0	4'	Secondary Road/Inlet structure	Raise Headwall 3' and regrade embankment approx. 100'. Existing HW is 7' from edge of road and 5' drop. Fence is 30' from culvert headwall.
	11.07	24" Culvert	1'-3"	2'	1'	14'	10'		Operating Road/Outlet structure	No improvement needed.
	11.18	24" Culvert (Cut & Fill)	1'-3"	1'	1'-9"	13'	0	3'	Secondary Road/Inlet structure	Raise Headwall 4' and regrade embankment approx. 100'. Existing HW is 15' from edge of road and 10' drop. Fence is 23' from culvert headwall.
	11.18	24" Culvert	1'-3"	2'	1'	14'	8'		Operating Road/Outlet structure	No improvement needed.
	11.29	24" Culvert (Cut & Fill)	1'-3"	1'	1'-9"	11'	0	4'	Secondary Road/Inlet structure	Raise Headwall 2' and regrade embankment approx. 50'. Existing HW is 0' from edge of road and 0' drop. Fence is 30' from culvert headwall.
	11.29	24" Culvert	1'-3"	2'	1'	14'	10'		Operating Road/Outlet structure	No improvement needed.
	11.48	42" Culvert (Cut & Fill)	1'-3"	1'-6"	1'-3"	12'	0	3'-6"	Secondary Road/Inlet structure	Raise Headwall 2' and regrade embankment approx. 100'. Existing headwall is 25' from end of road and 16' drop. Fence is 100' from culvert headwall.
	11.48	42" Culvert	1'-3"	2'	1'	14'	10'		Operating Road/Outlet structure	No improvement needed. Land owner is building a house & swimming pool, and it was so close to the exit end of the culvert.
	11.57	Greenville Road Bridge	1'-3"	4'-6"					Concrete bridge	No Improvement needed
	11.61	18" Drain inlet	1'-3"	4'-6"	6"	10'	2'	6'	Secondary Road	Remove existing 18" drain inlet and replace with new overchute
	11.61	18" Drain inlet	1'-3"	4'-6"	6"	14'	6'	6'	Operating Road	Remove existing 18" drain inlet and replace with new overchute
	11.67	24" Culvert (Cut & Fill)	1'-3"	2'-8"	6"	13'	0	7'	Secondary Road/Inlet structure	Raise Headwall 1' and regrade embankment approx. 20'. Existing HW is 6' from edge of road and 0' drop. Fence is 30' from culvert headwall.
	11.67	24" Culvert	1'-3"	4'					Operating Road/Outlet structure	No improvement needed.
	11.73	24" Culvert (Cut & Fill)	1'-3"	4'	0	12'	0	10'	Secondary Road/Inlet structure	Headwall is approx. 100' from road. Re-do culvert inlet.
	11.73	24" Culvert	1'-3"	4'					Operating Road/Outlet structure	No improvement needed.
	11.83	18" Drain inlet (Left)	1'-3"	4'-6"	6"	10'	2'	6'	Secondary Road	Remove existing 18" drain inlet and regrade road such as to drain runoff to overchute MP 11.90
	12.83	18" Drain inlet (Left)	1'-3"	4'-6"	6"	14'	6'	6'	Operating Road	Remove existing 18" drain inlet and regrade road such as to drain runoff to overchute MP 11.91
	11.90	24" Culvert (Cut & Fill)	1'-3"	1'	1'-9"	10'	0	4'	Secondary Road/Inlet structure	Raise Headwall 5', regrade road embankment approx. 100', mound around headwall approx. 30'. Existing HW is 10" from edge of road and 9" drop. Fence is 60' from culvert headwall.
	11.90	24" Culvert	1'-3"	2'-6"	6"	16'		6'	Operating Road/Outlet structure	No head wall, may need minor improvement for embankment.
	11.94	24" Gas pipe	1'-3"	10'	0				Operating/Secondary Road	Raise Pipeline approx. 1 foot
	12.12	12" Oil pipe	1'-3"	3'	1'	16'	6'	4'	Operating Road	Raise Pipeline approx. 2'-3" foot.
	12.14	24" Overchute (Cut & Fill)	1'-3"	5'-4"	1'	11'	0	1'	Secondary Road	Raise overchute approx. 2'. May consider increasing size of overchute. Headwall is very close to the edge of the road and fence is 30' from edge of road. Winery behind fence
	12.14	24" Overchute	1'-3"	3'	2'-3"	16'	6'	6'	Operating Road	Raise overchute approx. 2'. Raise road to provide overchute cover. Water pond beyond fence.
	12.29	Arroyo Seco Check 5 Siphon							One-Bay check and Siphon	Add second bay and siphon
	12.57	Tesla Road Siphon							Single Siphon	Add second siphon
	13.07	5'x2'-6" box culvert (Fill)	1'-9"	1'-6"	1'-9"	11'	0	5'	Secondary Road/Inlet structure	Raise Headwall 5'. Existing HW is 6' from edge of road and 4' drop. Fence ends at toe of culvert inlet. Ditch across grape fields
	13.07	5'x2'-6" box culvert	1'-9"	1'-9"	1'-6"	14'	4'	6'	Operating Road/Outlet structure	Raise head wall approx. 6'. Mount around head wall, slope improvement approx. 30' along the embankment.
	13.08	12" Steel Pipe	1'-9"	1'-9"	2'-6"				Operating/Secondary Road	Raise Pipeline approx. 1'-3" foot.
	13.13	(2) 4'x2'-6" box culvert (Fill)	1'-9"	1'-6"	1'-9"	11'	0	5'	Secondary Road/Inlet structure	Raise Headwall 5'. Existing HW is 6' from edge of road and 5' drop. Fence ends at toe of culvert inlet. Ditch across grape fields
	13.13	(2) 4'x2'-6" box culvert	1'-9"	1'-9"	1'-6"	14'	4'	6'	Operating Road/Outlet structure	Raise head wall approx 6'. Mound around headwall, slope improvements approx. 30' along embankment. Stagnant water was presence in the creek and head walls were wet.
	13.15	12" Steel Pipe	1'-9"	1'-9"	2'-6"				Operating/Secondary Road	Raise Pipeline approx. 1'-3" foot.
	13.21	Fugure 40 of 48 (see ESA Report May 24)	1'-9"	1'-9"	1'-6"				Operating Road	Outside of embankment improvements
	13.37	10" Water pipe	1'-9"	1'-9"	2'-6"				Operating/Secondary Road	Raise Pipeline approx. 1'-3" foot.
	13.38	18" Drain inlet (Fill)	1'-9"	2'-6"	3'-3"	11'	0	10'	Secondary Road	Remove existing 18" drain inlet and regrade road embankment such as to drain runoff at culvert MP 13.53
	13.38	18" Drain inlet (Fill)	1'-9"	2'-6"	3'-3"	16'	4'	6'	Operating Road	Remove existing 18" drain inlet and regrade road embankment such as to drain runoff at culvert MP 13.54
	13.53	(3) 4' x 3' box culvert (Fill)	1'-9"	1'-6"	1'-9"	8'	0	6'	Secondary Road/Inlet structure	Raise Headwall 3'. Existing HW is 8' from edge of road and 3' drop. Fence ends at toe of culvert inlet. Ditch across grape fields.
	13.53	(3) 4' x 3' box culvert	1'-9"	2'	1'-6"	16'	4'	6'	Operating Road/Outlet structure	Raise head walls approx. 6'. Moond around headwall, slope improvement approx. 30' along embankment. Approx. 8' drop from road surface to top of culvert
	13.55	10" Water pipe	1'-9"	2'	2'-9"				Operating/Secondary Road	Raise Pipeline approx. 2'-3" foot.
	13.60	Timber bridge	1'-9"	2'	1'-6"				Old timber bridge	Remove existing bridge and replace with concrete bridge.
	13.82	36" Culvert (Cut & Fill)	1'-9"	1'	1'-6"	10'	0	6'	Secondary Road/Inlet structure	Raise Headwall 4'. Existing HW is 3' from edge of road and 3' drop. Fence is next to culvert inlet. Ditch along grape vines
	13.82	36" Culvert	1'-9"	1'-9"	1'-6"	14'		6'	Operating Road/Outlet structure	Raise head wall 6', remove & re-install hand rail. Mound around headwall, slope improvement approx. 30' along embankment or shotcrete embankment. 10' drop from road surface to top of cu
	14.07	30" Overchute (Cut & Fill)	1'-9"	5'-3"	1'-6"	11'	0	12'	Secondary Road	May raise overchute. Raising inlet and headwall may have to regrade tributary area. Leave it as it is.
	14.07	30" Overchute	1'-9"	5'	1'-9"	14'	6'	6'	Operating Road	Raise overchute
	14.17	Turn Out	1'-9"						No Improvements	Metal bridge with wood deck across canal, 4' wide walkway, and deck is 40" above top of lining.
	14.24	4'x 6' Overchute (Cut & Fill)	1'-9"	3'	6"	9'			Secondary Road	Do not raise overchute. Anchor if necessary)
	14.24	4'x 6' Overchute	1'-9"	3'	6"	16'	6'	6'	Operating Road	Do not raise overchute.
	14.57	Arroyo Mocho Check 6							One-Bay check and Siphon	Add second bay and siphon
	14.88	Small Drain Inlet (Cut & Fill)	1'-9"	2'	3'-9"	9'	2'	6'	Secondary Road	Remove existing 18" drain inlet and replace with new overchute.
	14.88	Small Drain Inlet (Cut & Fill)	1'-9"	3'	2'-9"	14'	2'	6'	Operating Road	Remove existing 18" drain inlet and replace with new overchute.

Location	Milepost	Description	Raise Canal Lining	Existing Unlined Freeboard	Operating Road			Distance from Canal Lining to Edge of Road	Existing Conditions	Comments
					Raise Embankment	Width	Shoulder			
	15.01	30" Overchute (Cut & Fill)	1'-9"	6'-3"	0	14'	0	14'	Secondary Road	Raise overchute
	15.01	30" Overchute	1'-9"	4'	1'-9"	14'	2'	6'	Operating Road	Raise overchute
	15.18	Timber bridge	1'-9"	2'	3'				Old timber bridge	Replace with concrete bridge. House at right side of the canal.
	15.19	18" Drain inlet (Cut & Fill)	1'-9"	2'	3'-9"	10'	0	9'		Remove existing 18" drain inlet and replace with new overchute.
	15.19	18" Drain inlet (Cut & Fill)	1'-9"	2'	3'-9"	16'	6'	6'	Operating Road	Remove existing 18" drain inlet and replace with new overchute.
	15.27	18" Drain inlet (Cut & Fill)	1'-9"	3'-8"	2'	10'	0	9'	Secondary Road	Remove existing 18" drain inlet and replace with new overchute.
	15.27	18" Drain inlet (Cut & Fill)	1'-9"	3'-8"	2'	16'	6'	6'	Operating Road	Remove existing 18" drain inlet and replace with new overchute.
	15.39	24" Culvert (Cut & Fill)	1'-9"	1'-9"	1'-6"	11'	0	4'-6"	Secondary Road/Inlet structure	Raise Headwall 3'. Regrade around head wall approx. 30'. Existing HW is 5' from edge of road and 3' drop. Fence is approx. 50' from culvert headwall
	15.39	24" Culvert	1'-9"	2'	1'-3"	16'	2'	6'	Operating Road/Outlet structure	No improvement needed.
		Two small (6"?) Drain inlet (Right)	1'-9"	2'	3'-9"					Remove existing 6" drain inlets.
	15.61	24" Culvert (Cut & Fill)	1'-9"	1'	2'-3"	12'	0	4'	Secondary Road/Inlet structure	Raise Headwall 4'. Regrade around head wall approx. 30'. Existing HW is 5' from edge of road and 3' drop. Fence is approx. 50' from culvert inlet
	15.61	24" Culvert	1'-9"	1'-9"	1'-6"	14'	2'	4'	Operating Road/Outlet structure	Extend existing culvert. Regrade area and improve approx. 100' of Operating road condition along the embankment or shotcrete slope approx. 100'
	15.72	Timber bridge	1'-9"	1'-6"	1'-9"				Old timber bridge	Remove existing timber bridge & concrete pier, replace with concrete bridge.
	15.73	54" Culvert (Cut & Fill)	1'-9"	1'	2'-3"	11'	4'	6'	Secondary Road/Inlet structure	Raise Headwall 6'. Regrade around head wall approx. 30'. Existing HW is 16' from edge of road and 12' drop. Fence is approx. 45' from culvert headwall
	15.73	54" Culvert	1'-9"	1'-6"	1'-9"	14'	2'	4'	Operating Road/Outlet structure	Raise culvert head wall approx. 6' . Stabilize slope with shotcrete along the embankment approx. 100'. No need to widen the Operating road.
	15.82	18" Drain inlet (Cut & Fill)	1'-9"	3'	2'-9"	12'	0	8'	Secondary Road	Remove existing 18" drain inlet and replace with new overchute.
	15.82	18" Drain inlet (Cut & Fill)	1'-9"	3'	2'-9"	16'	4'	6'	Operating Road	Remove existing 18" drain inlet and replace with new overchute.
	15.90	Fugure 48 of 48 (see ESA Report May 24)	1'-9"	2'	1'-3"				Operating Road	Outside of embankment improvements
	15.93	Timber bridge	1'-9"	2'	2'-3"				Old timber bridge	Remove existing timber bridge & concrete pier, replace with concrete bridge.
	15.94	18" Drain inlet (Cut & Fill)	1'-9"	4'	1'-9"	16'	0	2'	Secondary Road	Remove existing 18" drain inlet and replace with new overchute.
	15.94	18" Drain inlet (Cut & Fill)	1'-9"	3'-3"	2'-6"	16'	4'	6'	Operating Road	Remove existing 18" drain inlet and replace with new overchute.
	16.10	Chevron Oil pipe (12"-16" ?)	1'-9"	10'					Needs improvement	Raise Pipeline
	16.20	18" Drain inlet (Right)	1'-9"	10'	0				Primary Road	Remove existing 18" drain inlet. Grade existing ground and provide drain along side of operating road from Del Valle Check 7 (MP 16.30) to Siphon Spillway (MP 15.88).
	16.20	18" Drain inlet (Right)	1'-9"	10'	0				Operating Road	Remove existing 18" drain inlet. Grade existing ground and provide drain along side of operating road from Del Valle Check 7 (MP 16.30) to Siphon Spillway (MP 15.88).
	16.27	22" Oil Pipe	1'-9"	10'	0				May need improvement	Raise pipeline
	16.28	36" Water Pipe	1'-9"	10'	0				May need improvement	Raise pipeline

APPENDIX A

ALIGNMENT MAPS

APPENDIX B

NOTICE OF PREPARATION AND COMMENT LETTERS
RECEIVED