

Appendix 8.8

SB 610 Water Supply Analysis



**WATER SUPPLY ASSESSMENT
FOR
ROUTE 238 BYPASS LAND USE STUDY
(Land Use Alternative A - Mid-Range Residential Development)**

**PREPARED BY
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CITY OF HAYWARD
WATER SUPPLY ASSESSMENT FOR ROUTE 238 BYPASS LAND USE STUDY

SECTION 1.0 BACKGROUND

The City of Hayward is preparing a Route 238 Bypass Land Use Study to evaluate the redevelopment potential of State-owned properties acquired as right-of-way for the planned Foothill Bypass Freeway, which will not be constructed. Most of the Study area receives water service from the City of Hayward; however, Clusters 1-6 and portions of Clusters 7-8 and 9-10 are served by East Bay Municipal Utility District (EBMUD). This assessment addresses only water supplied by the City of Hayward to parcels within Hayward's service boundaries.

The City is preparing a Program Environmental Impact Report (PEIR) for the Study, under the requirements of the California Environmental Quality Act (CEQA). The environmental review includes an assessment of the water available to serve the Study area, required as a result of the enactment of Senate Bill 610 in 2002. SB 610 reflects the growing awareness that water supply and demand analysis is critical at the early stages of major land use planning projects. The basic premise of the legislation is to determine whether "total projected water supplies, available during normal, single dry, and multiple dry years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system existing and planned future uses, including agricultural and manufacturing uses," as described in Water Code Section 10910, Paragraph C.3.

SB 610 requires agencies to build on information contained in Urban Water Management Plans (UWMP) regarding water demand and supply projections. The UWMP and water assessment planning processes are similar. The UWMP is the basic planning tool used by agencies to document current and future water use, describe water supplies that will be available to meet the demand, in both normal and dry years, and to verify that adequate supplies will be available to meet the demand over a 20-year planning period. UWMPs are updated every five years, most recently in 2005. Water supply assessments, on the other hand, are required only when qualifying projects are being considered.

SECTION 2.0 PROJECT DESCRIPTION

The Route 238 Bypass Land Use Study analyzes the opportunities and constraints for future redevelopment of a number of State-owned vacant and/or underutilized parcels of land totaling approximately 355 acres, of which approximately 80% are vacant. About 240 single-family residences exist in the Study area, as well as a number of multi-family dwelling units and commercial buildings. Many of these properties are currently vacant. The Study area extends in an "arc" north-south direction from the east side of Foothill Boulevard just south of the I-580 freeway to the north and to Industrial Boulevard in the south. The properties were acquired by Caltrans as right-of-way for the planned Foothill Bypass Freeway (Route 238), which will not be constructed. The Study will result in development of a Concept Design Plan that could lead to amendments to the City of Hayward General Plan and Zoning Ordinance.

The Study includes evaluation of three alternatives to guide the long-term, future potential development and redevelopment for properties within the Project area. While there are some features common to all three alternatives, each includes a different land use pattern, including various types and densities of residential uses, commercial and office uses, open spaces and public/quasi-public uses. The PEIR will address future potential development and redevelopment of the Project area under the three alternative land use scenarios/concepts as described below.

2.1 Land Use Alternative A

This alternative represents the highest intensity land use of the three Alternatives. It includes a mix of medium and higher density housing on flatter properties adjacent to or near Foothill Boulevard, E Street, Second Street, Carlos Bee Boulevard, Tennyson Avenue and along Mission Boulevard. General Commercial sites would be located along other portions of Foothill and Mission Boulevards, with lower density residential and parks and open space uses assigned to steeper properties more remote from major access roads. Also, Alternative A includes a new General Plan land use designation to accommodate a proposed high-density mixed use, transit-reliant conceptual development that minimizes reliance on the automobile, called "Quarry Village," at the Carlos Bee quarry site. This new designation is entitled, "Sustainable Mixed Use" and requires residential densities of 27-55 units per net acre. Buildings can be solely residential, such as townhomes, condominiums or apartments, or mixed use. This land use designation is located along major transit corridors, near transit stations or in close proximity to the University. To facilitate transit-oriented development in these areas, developments are required to meet minimum net densities and to have reduced parking requirements. Neighborhood serving retail uses are highly recommended for reduction of car trips where commercially feasible.

At buildout, this Alternative would allow up to 234,872 square feet of commercial and office use, a mid-range residential development potential of 3,220 units, with a dwelling unit range of 2,222 to 4,450 dwellings, approximately 23 acres of public and quasi-public land uses, approximately 75 acres of limited open space, and approximately 27 acres of parks and recreation open space uses. This Alternative is based primarily on a market and fiscal analysis prepared by the City's fiscal consultant for the Project, Strategic Economics, Inc., dated February 15, 2008.

2.2 Land Use Alternative B

This alternative includes the lowest land use intensity of the three Alternatives, based on input received primarily during community meetings. Land uses would include lower overall density, primarily Limited Medium Density Residential (8.7-12.0 units per net acre), and more parks and open space on steeper properties. Land uses near the South Hayward BART station would include higher density residential development, commercial development and parks. As part of the June community meeting, a new General Plan land use designation was identified for lands to the northeast of the A and Fourth Streets intersection, entitled "Preservation Park." The "Preservation Park" designation is proposed as a land use that is designed to accommodate relocation of historic structures that are required to be removed as part of other developments.

Alternative B would provide for up to 219,920 square feet of commercial and office land use, a mid-range residential development potential of 1,182 dwellings, with a dwelling unit range of between 874 to 1,615 dwellings, primarily higher density, attached types, approximately 23 acres of public and quasi-public land use, approximately 102 acres of limited open space, and approximately 49 acres of parks and recreation open space.

2.3 Land Use Alternative C

This alternative is based on input from local and State regulatory agencies, including Alameda County, and existing City of Hayward General Plan and applicable Neighborhood Plan policies. This Alternative would maximize land use density and intensity on the properties comprising the Project area and would include General Commercial and Medium Density Residential (8.7-17.4 units per net acre) designations along Foothill Boulevard, Medium Density Residential (8.7-12.0 units per net acre) designations along A Street, B Street, Carlos Bee Boulevard, Tennyson Road and adjacent to Mission Boulevard near the South Hayward BART station. Properties interior from major roads and located on steeper properties would be designed for Low and Limited Medium Density Residential (up to 12.0 units per net acre) designations, and Parks and Open Space designations. Unlike the other two Alternatives, Alternative C includes designations for unincorporated lands that reflect recommendations of the County's Eden Area and Castro Valley Draft General Plans, which are anticipated to be adopted by early 2009.

Land uses proposed as part of Alternative C at buildout would include approximately 245,653 square feet of commercial and office land use, a mid-range residential development potential of 2,126 dwellings, with a range of 1,497 to 2,903 dwellings with a mix of Residential Estate (less than 1.0 unit per net acre), Low (1.0-4.3 units per net acre), Medium (8.7-17.4 units per net acre) and High (17.4-34.8 units per net acre) density housing types, approximately 26 acres of public and quasi-public land uses, approximately 75 acres of limited open space, and approximately 32 acres of parks and recreation open space.

2.4 Development Potential Summary

The number of square feet designated for commercial and retail development is comparable among the three alternatives and the existing General Plan, ranging from about 219,000 to 257,000 square feet. Alternative A would result in a higher number of dwelling units, while Alternatives B and C would result in a lower number of dwelling units, than reflected in the General Plan. Table 2.1 summarizes the total development potential for the three land use alternatives, as well as the General Plan potential, including sites served by EBMUD.

*Table 2.1
Development Potential Including Sites Served by EBMUD*

	Commercial (Sq. Ft.)	Parks, Public Space (Acres)	Dwelling Units (High)	Dwelling Units (Low)	Dwelling Units (Mid)
Current General Plan	257,707	32	3,701	1,833	2,669
Alternative A (Market Potential)	234,872	125	4,450	2,222	3,220
Alternative B (Community Sentiment)	219,920	175	1,615	874	1,182
Alternative C (Public Agencies)	245,653	133	2,903	1,497	2,126

Source: Route 238 Bypass Land Use Study Summary

Table 2.2 summarizes the estimated development potential for properties served by the City of Hayward Water System, adjusted to exclude development that would be served by EBMUD. (Note that the numbers in Table 2.2 are estimates, prepared by City of Hayward Utilities staff and based on an examination of the properties outside of the Hayward water service boundaries and associated densities. While the square footage and number of dwelling units are considered reasonable, they are not intended for any purpose other than water use projections.)

*Table 2.2
Development Potential Excluding Sites Served by EBMUD*

	Commercial (Sq. Ft.)	Parks, Public Space (Acres)	Dwelling Units (High)	Dwelling Units (Low)	Dwelling Units (Mid)
Current General Plan	170,252	19	2,714	1,420	2,061
Alternative A (Market Potential)	142,028	86	3,788	1,931	2,738
Alternative B (Community Sentiment)	177,778	128	1,210	652	886
Alternative C (Public Agencies)	171,463	119	1,634	906	1,497

Source: Route 238 Bypass Land Use Study Summary and Utilities Staff Calculations

SECTION 3.0 REQUIREMENT FOR SB 610 WATER SUPPLY ASSESSMENT

An SB 610 water assessment is required if the following three conditions exist:

The project is subject to CEQA.

The Route 238 Bypass Land Use Study meets the criteria for CEQA review, and the City has determined that a PEIR is needed for the project. The City is currently preparing the CEQA documentation for consideration by City Council.

The project meets the definition of "project" under Water Code Section 10912 (a).

Water Code Section 10912 (a) defines a qualifying "project" as one that meets any of the following criteria:

1. A proposed residential development of more than 500 dwelling units;
2. A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
3. A commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
4. A hotel or motel with more than 500 rooms;
5. A proposed industrial, manufacturing or processing plant, or industrial park, planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
6. A mixed-use project that includes one or more of these elements; or
7. A project creating the equivalent demand of 500 residential units.

The Study meets the above SB 610 criteria in that Alternative A could result in a net increase of more than 500 dwelling units over the number reflected in the City's current General Plan.

The water agency's current UWMP does not account for the water demand associated with the project.

The City's UWMP was last updated in 2005. The water demand projections were developed as part of a series of technical studies performed in support of the Water System Improvement Program: SFPUC Wholesale Customer Water Demand Projections; SFPUC Wholesale Customer Water Conservation Potential; SFPUC Wholesale Customer Recycled Water Potential; and SFPUC 2030 Purchase Estimates. The studies used an "end use" model, involving two steps: 1) establishing base year water demand at the end-use level, such as toilets and showers, and calibrating the model to initial conditions; and 2) forecasting future water demand based on anticipated growth in the number of water service accounts. The projected water demand through 2030 incorporated development potential in accordance with the City's General Plan, including land use designations for properties within the Study area.

However, one of the Study scenarios, Alternative A, could result in a net increase in dwelling units within Hayward's water service area ranging from 511 to 1,074 over the existing General Plan potential. Alternatives B and C do not result in an increase in the number of dwelling units, nor an net increase of more than 250,000 square feet of commercial and retail space.

Based on the above criteria and conditions, an SB 610 water supply assessment is deemed necessary for the Route 238 Bypass Land Use Study Alternative A. The assessment will be prepared based on the development potential within the City of Hayward water service boundary.

SECTION 4.0 CITY OF HAYWARD WATER SYSTEM

The City of Hayward owns and operates a water distribution system to supply water to all but a small portion of the residential, commercial, industrial and institutional entities within the City boundaries and a small number of properties outside of the City limits through special approvals. The small areas within the City boundaries not served by the City are within the service area of, and are served by, EBMUD.

4.1 Wholesale Water Supplier

Hayward's sole source of drinking water since 1962 has been the City and County of San Francisco's regional system, operated by the Public Utilities Commission (SFPUC). This supply is predominantly from the Sierra Nevada, delivered through the Hetch Hetchy aqueducts, but also includes a small amount of treated water produced by the SFPUC from its local watershed and facilities in Alameda County.

The amount of imported water available to the SFPUC's retail and wholesale customers is constrained by hydrology, physical facilities, and the institutional parameters that allocate the water supply of the Tuolumne River. Due to these constraints, the SFPUC is very dependent on reservoir storage to firm up its water supplies. The SFPUC serves its retail and wholesale water demands with an integrated operation of local Bay Area water production and imported water from Hetch Hetchy. In practice, the local watershed facilities are operated to capture local runoff.

The business relationship between San Francisco and its wholesale customers is largely defined by the "Settlement Agreement and Master Water Sales Contract" executed in 1984. The Master Contract primarily addresses the rate-making methodology used to set wholesale water rates for its wholesale customers and water supply and water shortages for the regional system. The contract expires in June 2009, and a new contract is currently under negotiation.

In terms of water supply, the Master Contract provides for a 184 million gallon per day (mgd) supply assurance to the SFPUC's 28 wholesale customers, including Hayward, subject to reduction in the event of drought, water shortage, earthquake, other disasters, or rehabilitation and maintenance of the system, which may affect water distribution. The SFPUC's wholesale

customers have agreed to the allocation of 184 mgd among themselves, with each entity’s share of the supply assurance set forth in a schedule adopted in 1993. The supply assurance survives the termination of the Master Contract in 2009.

Hayward’s water supply from SFPUC is based on a supply agreement signed by both agencies in 1962. This agreement provides Hayward with all of its needed water supply, as long as such supplies are within SFPUC’s ability to deliver and water supply conditions are normal. In effect, Hayward does not have a pre-set numerical limit on the amount of water that is provided by SFPUC; however, Hayward’s allocation is subject to certain limitations. Hayward currently has very low per-capita water usage, and strives to keep water demands low through water conservation and demand management. Hayward’s contract with SFPUC has no expiration date.

The City does not receive any portion of its water supply from groundwater sources; thus, the additional information required by SB610 relative to groundwater sources is not applicable to this water supply assessment.

Over the past five years, (2003 through 2007) average daily water deliveries to Hayward have ranged as summarized in Table 4.1.

*Table 4.1
Five-Year Water Deliveries to Hayward (2003 to 2007)*

Year	Total Deliveries (in hundred cubic feet)	Average Daily Consumption (in million gallons per day)
2003	9,055,245	18.6
2004	9,565,598	19.6
2005	8,986,628	18.4
2006	8,947,530	18.3
2007	8,899,579	18.2

Source: SFPUC Billing Records

4.2 City of Hayward Water Distribution System

The distribution system is comprised of 5 pressure zones, 14 water storage tanks, 10 pump stations, five emergency water supply wells, three emergency interties, and a number of pressure reducing valves. Water is delivered from SFPUC to Hayward through two connections. The City updated its Water Distribution Master Plan in 2002 to identify needed improvements through 2020, and recommended projects have either been constructed or are incorporated into the City’s capital improvement program.

SECTION 5.0 PROJECT DEMAND ANALYSIS

5.1 Existing Water Demand Estimates

The 2005 UWMP includes water demand projections that were developed as described in Section 3.0. In summary, residential demand estimates were based on a net growth in housing units in conformance with existing General Plan policies. The computer model was adjusted to account for special circumstances related to Hayward growth, including rehabilitation of some existing housing units, increased number of persons per household, and projected higher use at some newly constructed larger homes. Commercial demand estimates were based on existing General Plan policies to continue attracting commercial businesses, such as retail establishments, restaurants, auto dealerships and other businesses that will serve City residents as well as the region as a whole. The estimates incorporated anticipated demand from identified future commercial and mixed-use development. The 2005 demand projections incorporate cost effective water conservation measures for all customer sectors.

The total projected water deliveries, as shown in the 2005 UWMP, are summarized in Table 5.1. The City received written notification from SFPUC in May 2005 indicating that its planned expanded water supply portfolio would be sufficient to deliver the estimated demand. All of the deliveries will be made under the terms of the contract described in Section 4.0.

*Table 5.1
Total Projected Water Deliveries in UWMP*

Unit	2010	2015	2020	2025	2030
Acre-Feet/Year	24,419	25,539	27,331	29,236	31,252
Average Million Gallons/Day	21.8	22.8	24.4	26.1	27.9

Source: 2005 UWMP, based on written notification from SFPUC

5.2 Project Water Demand Estimates

The projected water deliveries summarized in Table 5.1 incorporate adopted General Plan Policies, including land use designations for the Study area. This section will discuss and summarize the projected net increase in water demand associated with Alternative A. For the purpose of this assessment, it is assumed the average number of potential dwelling units would be constructed. Alternatives B and C would result in projected net decreases in water demand, due to reductions in residential use, and thus are not further addressed in this assessment.

5.2.1 Water Use Assumptions

In order to develop water use projections for the Route 238 Land Use alternatives, certain assumptions were made regarding average water demand for various land use designations. The water demand estimates, which are summarized in Table 5.2, are consistent with estimates

used in the most recent Water Distribution System Master Plan Update (2002), SFPUC Water Purchase Estimates (2004) and Water System Reservoir Project Study (2008).

*Table 5.2
Water Demand Estimates by Land Use Designation*

Land Use Designation	Water Demand Unit	Water Demand
<i>Residential</i>		
Suburban Density	Gallons/Dwelling Unit/Day	438
Low Density	Gallons/Dwelling Unit/Day	438
Medium Density	Gallons/Dwelling Unit/Day	275
High Density	Gallons/Dwelling Unit/Day	210
Mixed Use	Gallons/Dwelling Unit/Day	210
<i>Commercial</i>		
General Commercial	Gallons/1000 Square Ft/Day	260
Retail and Office Commercial	Gallons/1000 Square Ft/Day	260
Mixed Use	Gallons/1000 Square Ft/Day	260
<i>Parks/Recreation/Open Space</i>		
Public and Quasi Public	Gallons/Acre/Day	1,100
Limited Open Space	Gallons/Acre/Day	1,100
Parks and Recreation Open Space	Gallons/Acre/Day	1,100

Sources: Noted in preceding paragraph

5.2.2 Projected Water Demand from Existing General Plan Land Use Policies

Based on the water use numbers in Table 5.2, it is assumed that the existing General Plan Land Use Policies would result in the following water demand at buildout, assuming the average number of potential dwelling units.

*Table 5.3
Water Demand from Existing General Plan Land Use Designations*

Land Use	Dwelling Units	Square Feet	Acres	Water Demand (gallons/day)
Suburban Density	177			77,526
Low Density	315			137,970
Medium Density	870			239,250
High Density	489			102,690
Mixed Use (Residential)	210			44,100

General Commercial		170,252		44,266
Retail and Office Commercial		0		0
Mixed Use (Commercial)		0		0
Public and Quasi Public			2.80	3,080
Limited Open Space			6.04	6,643
Parks and Recreation Open Space			9.83	10,814
Totals	2,061	170,252	18.67	666,339

Sources: Route 238 Bypass Land Use Study Summary and Table 5.2

5.2.3 Projected Water Demand from Land Use Study Alternative A

Table 5.4 summarizes the expected water demand from Alternative A at buildout, assuming the mid-range number of residential dwelling units.

*Table 5.4
Water Demand from Alternative A (Market Potential)*

Land Use	Dwelling Units	Square Feet	Acres	Water Demand (gallons/day)
Suburban Density	51			22,338
Low Density	366			160,308
Medium Density	200			55,000
High Density	645			135,450
Mixed Use (Residential)	1,476			309,960
General Commercial		77,972		20,273
Retail and Office Commercial		25,287		6,575
Mixed Use (Commercial)		38,769		10,080
Public and Quasi Public			0.0	0
Limited Open Space			74.80	82,280
Parks and Recreation Open Space			11.44	12,583
Totals	2,738	142,028	86.24	814,847

Sources: Route 238 Bypass Land Use Study Summary and Table 5.2

5.2.4 Summary of Water Demand Estimates and Net Changes

Table 5.5 summarizes the water use estimates, at buildout, for the existing General Plan and Alternative A, as well as the net increase in water use that would result from implementation of Alternative A.

Table 5.5
Summary of Water Demand Estimates and Net Changes in Study Area

	Estimated Water Use (gal/day)	Net Increase over General Plan (gal/day)	% Chg
General Plan	666,339	n/a	n/a
Alternative A	814,847	148,508	22%

Sources: Tables 5.3 and 5.4

SECTION 6.0 SUPPLY AND DEMAND COMPARISONS AND SUPPLY RELIABILITY

6.1 Supply and Demand Comparisons in Normal Water Supply Years

The 2005 UWMP compares Hayward’s demand projections with SFPUC’s ability to meet the demand in years of average and above-average precipitation levels. In May 2005, the City received written notification from SFPUC indicating that its planned expanded water supply portfolio would be sufficient to deliver the City’s estimated purchases through 2030. This document is included as an appendix in the 2005 UWMP. Implementation of Route 238 Bypass Land Use Study Alternative A, at the mid-range of its development potential, would result in modest increases in water use over the UWMP planning period and would exceed SFPUC’s confirmed delivery ability to Hayward, beginning after 2010. Per the fiscal impact analysis prepared for the Study, growth between 2008 and 2010 would be minimal. Subsequently, additional housing units would be added roughly at a rate of about 25% of the total per five-year period through 2030. Thus, the net increase in water use can be expected to increase accordingly.

Table 6.1 compares the supply and demand projections, including increased consumption in the Study area.

Table 6.1
Projected Normal Year Supply and Demand Comparisons – Alternative A (in mgd)

	2010	2015	2020	2025	2030
Demand	21.8	22.8	24.5	26.2	28.0
Supply from SFPUC	21.8	22.8	24.4	26.1	27.9
Difference	0.0	0.0	0.1	0.1	0.1
% Deficiency	0%	0%	0.4%	0.4%	0.4%

Sources: Demand data interpolated from Table 5.5 and supply data from 2005 UWMP

6.2 Supply and Demand Comparisons in Dry Water Supply Years

In preparation for the 2005 UWMP, SFPUC evaluated the reliability of the water system, given the estimated system purchases for the years 2010 through 2030 and the expected performance of the water system based on a repeat of the historical hydrology from 1920 through 2002. For the purposes of the analysis, SFPUC assumed that the historical hydrologic period is indicative of

future events. The analytical results indicated that system-wide rationing, from 10% to 20% would be implemented in 9 out of the 82 years.

6.2.1 Interim Water Shortage Allocation Plan

The actual reduction would be based on the Interim Water Shortage Allocation Plan (IWSAP), which was adopted by each agency, including Hayward, in 2000 and remains in effect through June 2009. The IWSAP allocates water between SFPUC retail and wholesale customers, and further allocates available water among wholesale customers. The wholesale customer allocation is based on a formula which accounts for: 1) each agency's supply assurance (or agreed to alternative); 2) each agency's purchases from SFPUC during the three years preceding adoptions of the IWSAP; and 3) each agency's rolling average of purchases from SFPUC during the three years immediately preceding the shortage.

6.2.2 Supply and Demand Comparisons in a Single Dry Year

Table 6.2 compares the projected single-dry-year supply and demand, including projected demand from the Study area, over the next 25 years, based on Alternative A. SFPUC anticipates that in the event of one critically dry year, a system-wide reduction would not be necessary until 2030 because of storage capabilities. Thus, the deficiencies identified in Table 6.1 would remain at the same level until 2030 regardless of whether supplies are normal or a single dry year occurs. If, however, a dry year occurs in 2030, the supply deficiency would be higher than under normal conditions.

Table 6.2

Projected Single-Dry Year Supply and Demand Comparisons – Alternative A (in mgd)

	2010	2015	2020	2025	2030
Demand	21.8	22.8	24.5	26.2	28.0
Supply from SFPUC	21.8	22.8	24.4	26.1	25.1
Difference	0.0	0.0	0.1	0.1	2.9
% Deficiency	0%	0%	0.4%	0.4%	10.5%

Sources: Demand data interpolated from Table 5.5 and supply data from 2005 UWMP

6.2.3 Supply and Demand Comparisons in Multiple Dry Years

Table 6.3 compares projected supply and demand during multiple dry years through 2030, including projected demand from the Study area, over the next 25 years, based on Alternative A. From 2010 forward, it is expected that a system-wide reduction would not be necessary in the first dry year until 2030 (see discussion in Section 6.2.2). In the event of a multi-year supply shortage, water supplies would not meet projected demand in the second and third years.

Table 6.3

Projected Multiple-Dry-Year Supply and Demand Comparison - Alternative A (in mgd)

	2010	2015	2020	2025	2030
Multiple Dry Water Years – Year 1					
Demand	21.8	22.8	24.5	26.2	28.0
Supply from SFPUC	21.8	22.8	24.4	26.1	25.1
Difference	0.0	0.0	0.1	0.1	2.9
% Deficiency	0%	0.0%	0.4%	0.4%	10.5%
Multiple Dry Water Years – Year 2					
Demand	22.0	23.1	24.8	26.6	28.0
Supply from SPUC	19.4	19.7	20.3	20.9	22.3
Difference	2.6	3.4	4.5	5.7	5.7
% Deficiency	12%	15%	18%	21%	20%
Multiple Dry Water Years – Year 3					
Demand	22.4	23.5	25.2	26.8	28.0
Supply from SFPUC	19.4	19.7	20.3	20.9	22.3
Difference	3.0	3.8	4.9	5.9	5.7
% Deficiency	13%	16%	19%	22%	20%

Sources: Demand data interpolated from Table 6.1 and supply data from UWMP

SECTION 7.0 WATER SUPPLY SUFFICIENCY

Table 7.1 recaps the 2030 water demand and supply analyses shown in the previous section. For the purposes of comparison, the tables include demand with and without the additional consumption from Alternative A in the Study area.

Table 7.1 Comparison of 2030 Demand and Supply for Normal, Dry-Year and Multiple Dry Years – Alternative A (in mgd)

2030 Demand and Supply	Normal	Single Dry	Multiple Dry Year 2	Multiple Dry Year 3
Demand Total (without project)	27.9	27.9	27.9	27.9
Demand Total (with project)	28.0	28.0	28.0	28.0
Supply Total	27.9	25.1	22.3	22.3
Difference (without project)	0.0	2.8	5.6	5.6
Difference (with project)	0.1	2.9	5.7	5.7

Sources: Tables 6.2 and 6.3

In normal years, a modest deficit exists between the revised water demand projection and SFPUC’s ability to deliver water. However, the City anticipates being able to deliver sufficient water supplies to the Study area for several reasons. For normal years, the City considered the following relative factors:

Anticipated demand to date has not been fully realized. Climatic conditions, slower-than-expected residential and business development, and effective water conservation programs, have kept Hayward's water consumption at an average of 18.8 mgd from 2005 through 2007, which is comparable to the average demand of the prior three years. The UMWP anticipated that demand in 2010 would be 21.8 mgd; however, the actual demand may be lower. The 2010 UWMP will adjust the actual current consumption, and the resulting analysis is expected to verify that demand from the Study area can be met within SFPUC's ability to deliver water.

The City will continue to implement aggressive water conservation efforts in order to manage demand.

Conservative estimates have been used for open space land uses. To the extent that some of these parcels may be used for trails and other non-irrigated purposes, the demand for irrigation water would be lower than estimated.

For single and multiple dry years, the City considers that its Water Shortage Contingency Plan, described in detail in the 2005 UWMP, would allow the City to supply water to the Study area in accordance with required reductions. The Plan involves up to four stages of actions, depending on the severity of the drought, which may include mandatory prohibitions, water rationing and excess use charges, and restricted water deliveries in extreme cases.

In conclusion, the City of Hayward deems that the water supply is sufficient to satisfy the demands of the Route 238 Bypass Land Use Study Alternative A, in addition to existing and planned future uses.