Appendix L

WATER SUPPLY ASSESSMENT

APPENDIX L

INFORMATION FOR THE READER

The City of Newark requested a Water Supply Verification (WSV) from the Alameda County Water Authority (ACWD) on May 28, 2015. The WSV was received on September 10, 2015, and is provided with full attachments in Section C of Volume I of the Final Supplemental Environmental Impact Report (Final SEIR). For the convenience of readers using technical report files, the WSV itself is also attached here, immediately following this Information sheet.

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September 10, 2015

RECEIVED
SEP 14 2015
COMMUNITY DEVELOPMENT

Terrence Grindall
Assistant City Manager
City of Newark
37101 Newark Boulevard
Newark, CA 94560

Dear Mr. Grindall

Subject: Written Verification of Sufficient Water Supply for the Gateway Station West

ACWD has received the City's request for a Water Supply Verification (WVS) for the 589-unit Gateway Station West project (Gateway) (see Attachment A). Gateway lies within the Dumbarton Transit Oriented Development (TOD) Specific Plan for which ACWD completed a Water Supply Assessment in October of 2010 (WSA) (see Attachment B). Gateway is the first of several developments within the TOD which will rely upon the WSA for completion of their respective Supplemental Environmental Impact Reports (EIR). The Gateway project is a combination of 321 single-family residential units, 268 multi-family units, local parks/recreation areas, and undeveloped land on a 54.5 acre area. Because Gateway exceeds 500 residential units, it requires an additional written verification of sufficient water supply (written verification, WVS) under California Water Code Section 66473.7.

The 2010 WSA found that the TOD was consistent with ACWD planning assumptions and included in our forecast and water supply planning and our 2010-2015 Urban Water Management Plan (UWMP). The area within the TOD that Gateway will occupy was considered for 669 units in the Specific Plan, the 2010 WSA and the original EIR; therefore the 589 unit Gateway proposal represents a net decrease in size and water demand from what was considered and deemed to have sufficient water supply in 2010. Since completion of the 2010-2015 UWMP, there have been no substantive changes in ACWD's long-term water supply assumptions and therefore the analysis in both the UWMP and 2010 WSA remain the same. Based on the analysis and documentation within the 2010 WSA, as supplemented by the content of this letter, ACWD confirms that there are sufficient water supplies available for the Gateway

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Station West Project during normal, single-dry, and multiple-dry years within a 20-year projection that will meet the projected demand associated with the proposed subdivision, in addition to existing and planned future uses. ACWD's written verification is based on ACWD's UWMP and the 2010 WSA.

Since the 2010 WSA was completed, there have been four successive years of low rainfall and the State is currently experiencing a severe drought. Consequently, ACWD has declared a water shortage emergency and has adopted a Water Shortage Emergency Ordinance. Drought and water shortage contingency plans are fully consistent with ACWD's long-term planning and are documented in the UWMP. To address the current conditions, the following updates supplement the 2010 WSA, by Section, which may also be helpful for the Project's supplemental EIR.

SECTION 1 INTRODUCTION

BACKGROUND

As a result of four successive years of low rainfall, the State is currently experiencing a severe drought. Due to the record-dry conditions, Governor Edmund G. Brown proclaimed a drought emergency on January 17, 2014 ordering, amongst other actions, State agencies to execute a statewide conservation campaign to reduce water usage by 20%. On March 13, 2014, ACWD Board of Directors adopted Ordinance No. 2014-01 declaring a water shortage emergency and adopting water use regulations, restrictions and guidelines for the water shortage emergency (see Attachment C), designed to achieve a 20% service area-wide reduction in water use by prohibiting wasteful uses of water and limiting landscape irrigation. On July 29, 2014 the State Water Resources Control Board (SWRCB) adopted statewide emergency conservation regulations that largely mirrored the District's Ordinance prohibitions.

As the drought entered its fourth year, the State passed additional emergency conservation regulations on March 27, 2015 which extended and expanded the regulations adopted in 2014[1]. These regulations were further expanded and adopted on May 5, 2015. During the intervening month, the Governor issued another Executive Order on April 1, 2015 which included, for the first time ever, a mandate to reduce statewide water use, specifically by 25% from 2013 levels. In response, the SWRCB replaced the statewide target established in July of 2014 with agency-specific goals based on each agency's average residential gallons per capita per day (R-GPCD), as reported to the State, for July 2014 - September 2014; ACWD's target reduction is 16% from its baseline use between July 2013-December 2013, and January/February 2013. The SWRCB also expanded water agency reporting requirements and added additional end-

[1] March 27, 2015 Regulations included: prohibiting irrigation during and within 48 hours following measurable rainfall, prohibiting restaurants from serving water unless requested, requiring hotels/motels to offer guests the option to not have linens/towels laundered daily and required water agencies to notify customers about leaks within the customer's control

user prohibitions including prohibiting irrigation with potable water of ornamental turf on public medians and called for new standards for irrigation of landscaping in new development. The new development standards are addressed under an emergency regulation adopted by the Building Standards Commission in June 2014 and through a revised Model Water Efficient Landscape Ordinance (MWELO) that all cities will be required to adopt. The revised MWELO includes much stricter efficiency standards for irrigation systems and greatly limits the installation of non-functional turf for new developments and for renovated landscapes at existing developments.

The District's Ordinance is consistent with the revised State goal for ACWD and therefore has not been changed, even though the savings target was reduced from 20% to 16%. Water demand for FY 2014-2015 was 38,500 AF, or roughly 20% less than the pre-drought demand as well as the baseline demand reported in and contemplated by the WSA.

SECTION 2 WATER DEMAND

WATER DEMANDS – ACWD SERVICE AREA

It is anticipated that the current State and ACWD water conservation regulations will have a lasting, long-term effect of reduced demand for water and therefore it is anticipated that ACWD's post-drought water demand forecast will be reduced from the previous forecast reported in the 2010-2015 UWMP and Table 2 of the Dumbarton TOD WSA. Post-drought demand reductions have been historically demonstrated and are a result of customers embracing and implementing conservation and water-use efficiency measures during a drought. Such actions include increased rate of replacement of old, high water-use plumbing fixtures with new, more efficient water-use plumbing fixtures as well as replacing high water-use landscaping, such as ornamental turf grass, with drought tolerant plants and hardscape. Also, the stricter MWELO and plumbing code efficiency standards included in the Governor's April 2015 Executive Order will result in a reduction in forecast future demands.

Should the demand forecast be reduced as anticipated, there will be a corollary improvement in long-term water supply reliability. These updates will be further studied in the fall of 2015 and reflected in the 2015-2020 UWMP.

WATER DEMANDS – GATEWAY STATION WEST PROJECT

Estimation of Project Water Demands

The following estimated water demand for the Project updates the project information in Table 5 of the WSA, which considered the entire TOD Specific Plan development and resulting water demand.

Table 5 Water Demands for the Gateway Station West Project

Element	Planning units		GPD/ Unit	Demand estimate (AF/yr.)
Residential (2,000 ft² lots)	379	Dwelling units	179	76
Residential (3,000 ft² lots)	210	Dwelling units	247	58
Open space	4.57	Acres	4,630	24
Estimated Total Project Demand *(rounded to nearest 100 AF)*				158
Water Supplies Required *(8.4% Unaccounted for Water)*				172
Approximate peak day demand in mgd *(1.6x peaking factor)*				0.25

IMPACTS OF DROUGHT ON DEMANDS

Current Drought Restrictions Apply

As discussed in Section 1, the State of California is imposing water use restrictions, regulations, and standards due to the severe drought and ACWD is operating under a water shortage emergency ordinance. These restrictions will remain in place through the end of the water shortage emergency. The Project is subject to all water use restrictions and limitations as described in Ordinance No. 2014-01 until it is rescinded by the Board. In addition, ACWD may adopt additional water use restrictions or implement other measures should they become necessary. Additional restrictions could potentially include limitations on new service, such as denying new or additional water service connections, and therefore impact new development in the service area, including the Project, while the drought persists. Chapter 10 of the 2010 UWMP, *Water Shortage Contingency Plan*, describes a non-exhaustive list of potential actions the District may take under various water shortage scenarios.

SECTION 3 WATER SUPPLY

LOCAL SOURCES

Niles Cone Groundwater Basin

On September 16, 2014, the Governor signed the Sustainable Groundwater Management Act (Act) into law establishing a new structure for groundwater management, recognizing that groundwater management in California is best accomplished locally. Since the District was created by statute to manage groundwater resources, ACWD is identified in the Act, as a statutorily designated agency. As a result, ACWD can comply with the Act

by either meeting specific requirements outlined in the Act for functionally equivalent plans or by becoming a groundwater sustainability agency. The framework for how the Act will be implemented is still in development. However, the implementation of the Act will not have a negative impact on the reliability of local groundwater supply.

WATER SUPPLY IN NORMAL AND DRY YEAR CONDITIONS

Water Supply under Critical Dry Year Conditions

ACWD's UWMP defines 1977 as the single critical dry year for planning analysis as required under the Urban Water Management Planning Act. While ACWD had to declare a Water Shortage Emergency in 2014, seeking a 20% reduction in demand, 1977 remains the single most critical water supply year for ACWD planning and therefore the analysis in the UWMP is unchanged.

ACWD planning criteria, as described in ACWD's UWMP for a single critical dry year, takes into account that State Water Project (SWP) deliveries would be reduced to approximately 10% of the maximum contractual amounts (referred to as the "Table A" amounts in the SWP contracts) during single critically dry years. On January 31, 2014, DWR announced a zero allocation of SWP entitlements for the first time in its 54-year history. Although the allocation was subsequently raised to 5%, this water was not available before September 1, 2014, after the typically high summer demand season. This disruption of the SWP supply source led to ACWD declaring a Water Shortage Emergency, following plans outlined in the Chapter 9 of the UWMP *(Water Shortage Contingency Plan).*

Despite the less than 5% allocation, total water supply available to ACWD in 2014 was greater than that which is projected to be available under hydrologic conditions of 1977. Local rainfall-runoff used to recharge the Niles Cone Groundwater basin was marginally higher in 2014 than in 1977. Similarly, SFPUC supply in 2014 was higher than that projected for 1977. Whereas the SFPUC only requested a voluntary 10% reduction in 2014, they estimate that they would require a mandatory 20% reduction under the hydrologic conditions of 1977 should they occur again with present day demands, facilities and operating requirements, as is documented in the UWMP.

SECTION 4 WATER SUPPLY AND DEMAND ANALYSIS

SINGLE DRY YEAR WATER SUPPLY

In 2014, ACWD experienced a water supply emergency due primarily to interrupted delivery of SWP as discussed in Section 3. In addition to challenges on the SWP, local supply rivaled all-time driest supply and the SFPUC called for a voluntary 10% reduction in water use from 2013 levels. Despite these challenges, the water supply conditions of 1977 remain the single driest conditions in ACWD's planning data and, therefore, the

single dry year reliability data reflected in ACWD's UWMP Table 8-3 and in Table 14 of the WSA remains unchanged.

SECTION 5 SUMMARY AND CONCLUSIONS

For purposes of this written verification, ACWD revisited the Summary and Conclusions section of the WSA factoring in all that is set forth in this letter. This conclusion remains unchanged – the Gateway project demand, which is lower than projected in the WSA, is consistent with the planning assumptions and is included in ACWD's forecast and water supply planning. The existing and on-going water shortage emergency does not impact this conclusion because ACWD implemented, and will continue to implement, its water shortage contingency plan as contemplated by ACWD's UWMP. However, given the passage of almost 5 years since the approval of the WSA, the following paragraphs in the Summary and Conclusions of the WSA, which apply to the entire TOD, are tailored for this WVS for the Gateway project.

A. Paragraph 8 of WSA. ACWD is currently in a Water Shortage Emergency and has implemented the Water Shortage Emergency Plan as detailed in the UWMP. ACWD has secured additional supplies through the DWR drought water bank in 2014, as well as a transfer from Contra Costa Water District (CCWD) in 2013. ACWD has also implemented a drought contingency plan. Because the Project's demands are consistent with the UWMP demand forecast, the development of the Project will not result in increased shortages from that which is already factored into ACWD's planning. The project is subject to the water use restrictions set forth in Ordinance No 2014-01, the current SWRCB emergency regulations and other state restrictions, and all future regulations, restrictions and limitations that may be adopted by ACWD, the state, or other government agencies.

B. Paragraph 9 of WSA. The Water Efficiency Measures for New Developments have been updated; please refer to Attachment D to this written verification.

C. Paragraph 10. In 2010 ACWD was contemplating a recycled water project at the Dumbarton Storm Water Pumping Station, adjacent to the TOD, and required the Project to implement recycled water for non-potable uses when developed. This recycled water source was ultimately not included in ACWD's Preferred Projects identified in the 2010 ACWD-USD Recycled Water Feasibility Study and is therefore not available for the Project.

D. Paragraph 13. This written verification is based on the proposed land use of the Gateway Station West Project, as provided to ACWD by the City of Newark (documented in ATTACHMENT A). If, prior to Project approval, the proposed land use within the Project area changes from what is currently incorporated in this written verification, ACWD will evaluate the impacts that these changes may have on ACWD's water supplies. In the event that the land use changes impact the

conclusions of this written verification, ACWD may require additional mitigation measures as a condition of providing water service to the Project. If the proposed land use changes occur after Project approval and approval of the final subdivision maps, ACWD will evaluate the potential water supply impacts of these changes, and may require additional mitigation as a condition of providing water service to those areas with the changed land use condition.

Sincerely,

Robert Shaver
General Manager

TN:bbm
Enclosures

Attachment A - Letter of Request for Water Supply Verification; email communication and development details for all of Dumbarton TOD parcels
Attachment B - 2010 Dumbarton TOD Water Supply Assessment, report only
Attachment C - Water Shortage Emergency Ordinance (ACWD Ordinance No. 2014-01)
Attachment D - Updated Water Efficiency Measures for New Developments

COPY

RESOLUTION NO. 15-055

OF BOARD OF DIRECTORS OF ALAMEDA COUNTY WATER DISTRICT APPROVING THE WRITTEN VERIFICATION OF SUFFICIENT WATER SUPPLY FOR THE GATEWAY STATION WEST PROJECT

WHEREAS, California Government Code Section 65867.5 requires that a development that includes a subdivision with 500 or more housing units shall not be approved unless a written verification of sufficient water supply is provided pursuant to California Government Code Section 66473.7;

WHEREAS, on May 29, 2015, the District received the City of Newark's (City) request for a written verification of sufficient water supply for the 589 housing unit Gateway Station West Project (Project);

WHEREAS, the Project is a subset of the Dumbarton Transit Oriented Development Specific Plan for which the District completed a Water Supply Assessment (WSA) in October 2010;

WHEREAS, since the WSA was completed, there has been four successive years of low rainfall, the State of California is experiencing a severe drought, and the District has adopted an Ordinance declaring a water shortage emergency;

WHEREAS, droughts and water shortage emergencies are consistent with the District's long-term planning and are contemplated in the District's 2010-2015 Urban Water Management Plan (UWMP);

WHEREAS, staff has reviewed the Project details and concluded that they are consistent with the District's planning assumptions and water supply analysis in the UWMP and WSA, which documents the sufficiency of water supply; and

WHEREAS, staff has prepared a written verification of sufficient water supply for the Project that is based on the analysis in the WSA as supplemented to address the current water shortage emergency conditions.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Alameda County Water District that the written verification of sufficient water supply for the Gateway Station West Project is hereby approved and the General Manager is authorized to send the written verification of sufficient water supply to the City of Newark.

PASSED AND ADOPTED this 10th day of September, 2015, by the following vote:

AYES: Directors Huang, Gunther, Sethy, and Koller

NOES: None

ABSENT: Director Weed

Martin L. Koller, President
Board of Directors
Alameda County Water District

ATTEST:

Andrew Warren, Assistant District Secretary
Alameda County Water District
(Seal)

APPROVED AS TO FORM:

Patrick T. Miyaki, Attorney
Alameda County Water District

2010 WSA Circulated with the Draft Supplemental EIR

WATER SUPPLY ASSESSMENT

FOR THE

DUMBARTON TRANSIT ORIENTED

DEVELOPMENT PROJECT

OCTOBER 2010

PREPARED FOR

CITY OF NEWARK,
CALIFORNIA

Prepared by:

ALAMEDA COUNTY WATER DISTRICT
43885 S. Grimmer Blvd.
Fremont, CA 94538

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SECTION 1
INTRODUCTION

BACKGROUND

The City of Newark (City) has requested a Water Supply Assessment (WSA) for the Dumbarton Transit Oriented Development Project (Project). The project is a mixed use proposal of high, medium and low density residential housing, commercial retail / office building area, and open space. The Project site covers approximately 207 acres and is located adjacent to the proposed Dumbarton Commuter Rail Line in Newark (Figure 1). The Project site is located in the middle of the Newark Dumbarton Transit Area Priority Development Area (PDA) as outlined by the Association of Bay Area Governments (ABAG) in Projections and Priorities 2009. ACWD's 2009 Water Demand Forecast (Forecast) included all ABAG projections. Prior to the 2009 Forecast, this area was included in ACWD planning under the previous Specific Plan Area 2, which contemplated primarily a commercial and industrial project. As the Project relies on individual and independent developers, there is no specific timeline or phasing for completion of the Project.

The Project will require water supplies for the new homes, businesses and institutional uses. The existing water provider in the area is the Alameda County Water District (ACWD). ACWD is a retail water purveyor with a service area that includes the cities of Fremont, Newark and Union City. ACWD provides water primarily to urban customers: approximately 70% of supplies are used by residential customers, with the balance (approximately 30%) utilized by commercial, industrial, and institutional customers. Net distribution system water use was approximately 47,600 acre-feet (AF), or an average of 42.5 million gallons per day (mgd) in fiscal year 2009-10. The District's primary sources of supply come from the California State Water Project (SWP), the San Francisco Regional Water System, and local supplies from the Alameda Creek Watershed and Niles Cone Groundwater Basin (underlying the ACWD service area).

California Water Code (Water Code) Section §10910 requires that a water supply assessment be provided to cities and counties for a project that is subject to the California Environmental Quality Act (CEQA), and which surpasses a threshold for the number of housing units and/or square feet of commercial/industrial buildings. The cities and counties are mandated to identify the public water system that might provide water supply to the project and then to request a water supply assessment. The water supply assessment documents sources of water supply, quantifies water demands, evaluates drought impacts, and provides a comparison of water supply and demand that is the basis for an assessment of water supply sufficiency.

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PURPOSE

The purpose of this Water Supply Assessment is to document ACWD's existing and future water supplies for its service area and compare them to the area's future water demands, including the future water demands of the Project. This comparison, conducted for both normal hydrologic conditions and drought conditions, is the basis for an assessment of water supply sufficiency in accordance with the requirements of California Water Code Section §10910.

METHODOLOGY

ACWD's long-term water supply strategy was developed as part of the District's Integrated Resources Planning Study (IRP), and adopted by the ACWD Board in 1995. ACWD's 2006-2010 Urban Water Management Plan (UWMP, or 2005 UWMP) incorporates this water supply strategy. The UWMP documented ACWD's existing water supplies as well as the projected future demand for water and changing availability of our supplies. The projections were made the year prior to completion of the UWMP, or 2004, and relied on the most current published supply reliability and land use planning data at that time.

ACWD is currently in the process of compiling data and information needed to prepare the 2011-2015 UWMP (2010 Draft UWMP Data). The 2010 Draft UWMP Data reflects substantial changes in both supply and demand from that which was reported in the 2005 UWMP. This WSA will rely on the 2010 Draft UWMP Data for purposes of analyzing and reporting water supply reliability and the 2005 UWMP (attached) for purposes of documenting ACWD's sources of supply as required under the Water Code.

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SECTION 2
WATER DEMAND

This section provides an overview of historical and current water use in the District, and a summary of future projected water demands for the Project and ACWD's service area.

WATER USE CATEGORIES

Water use in the ACWD service area is divided into two categories: 1) distribution system use, and 2) groundwater system use. The distribution system use includes all water uses supplied by ACWD's treatment and production facilities, and conveyed to ACWD customers via the District's distribution system. This use is further subdivided into the categories of single family residential (SFR), multi-family residential (MFR), commercial, industrial, institutional, landscape and other use.

Groundwater system use includes private (non-ACWD) groundwater pumping (primarily for industrial and municipal landscape irrigation uses), ACWD's Aquifer Reclamation Program pumping, and saline groundwater outflow to San Francisco Bay. The Aquifer Reclamation Program (ARP) pumping is an ongoing ACWD program to pump saline groundwater out of the aquifer system and replace it with fresh water recharged at the District's groundwater recharge facilities. Saline groundwater outflow to San Francisco Bay represents the groundwater outflow required to maintain groundwater flow in a bayward direction necessary to prevent seawater intrusion into the local aquifer system and to flush saline groundwater back to San Francisco Bay.

The District's groundwater system use is not anticipated to change significantly in the future. Therefore, the following discussions of water use are focused on the District's distribution system water use.

HISTORICAL AND CURRENT WATER USE

Table 1 provides a summary of the last ten years of water use within the District. As shown in the table, residential water use comprises approximately 70% of District water use, with the remaining 30% used by commercial, industrial and institutional customers.

Water consumption patterns in the ACWD service area are a function of many independent factors including growth, weather conditions, economic conditions and water conservation behaviors. The District saw dramatic declines in consumption during the 1987-1992 drought due to voluntary conservation and District-sponsored demand management efforts. However, during the drought recovery period since 1992, several significant factors have influenced consumption. From 1993-2001 accelerated growth of both residential and business customers (including the high technology industry) occurred due to a strong economy. During this period, vacancy rates decreased and water consumption rose. From 2001 to 2007 the overall consumption in the District was relatively flat, attributed primarily to less robust local economic conditions, mild weather and on-going water conservation programs. In 2008, 2009 and continuing in 2010, ACWD has seen declines in overall water consumption, which ACWD

attributes to a combination of successive dry year conditions, Statewide conservation campaigns and a continued economic downturn. The resulting substantive reduction in demand for water has changed ACWD's near and mid-term anticipated level of new demands.

WATER DEMANDS - ACWD SERVICE AREA

ACWD's approach to water demand forecasting for the UWMP is to: 1) evaluate existing demands of lands already developed in the service area; 2) estimate future demands of currently undeveloped lands that are designated for development; and 3) combine the existing and future demands to estimate the overall District-wide future demands. This demand forecasting is done for six primary land use categories: single family residential, multi-family residential, commercial, industrial, institutional, and "other". In order to estimate future demands of currently undeveloped lands in each of these categories, ACWD obtains the most recent zoning information for these lands. The land use information is provided by the cities' planning staff, and includes general plan land use designations and, when available, more detailed information from specific plans or other planning documents. A District-wide water demand forecast for each land use category is then developed by multiplying the planned land use under each land use category by a District-wide average unit water use specific to that land use category. Additional potential future land use is also accounted for in the demand projections, and is based on city-approved plans for redevelopment and/or intensification of specific areas. The demand forecast also considers future demands associated with Association of Bay Area Governments (ABAG) Smart Growth projections.

Actual unit water use for any specific land use project may vary significantly from the District-wide average. However, determining the actual unit water use for each specific development project in the service area is beyond the scope of ACWD's UWMP demand forecast. Rather than providing demand forecasts for specific land use projects, the UWMP provides an aggregated, District-wide demand forecast for each land use category, as well as the total District-wide demand. This approach is proven sufficiently accurate for long-term, District-wide demand forecasting and is consistent with the California Water Code requirements for urban water management planning. However, if the District has detailed information about the water demands of a specific project during the time it is preparing the UWMP, the District will account for the specific project's water demands in the UWMP in lieu of the District-wide average.

ACWD's 2009 Forecast is substantially revised from the 2004 Forecast in several key areas with a combined effect of reduced long-term demand. Key changes since 2004 are a slower rate of growth in the service area, continued restructuring of the local economy with a net loss of high water use industry (manufacturing), prolonged economic recovery from the recession, increased natural conservation with plumbing code updates, and accelerated conservation effect resulting from recent drought message and public awareness.

The projected future demands in the ACWD service area are summarized in Table 2 (for the years 2010, 2015, 2020, 2025 and 2030). The water demand forecast also includes projected savings from water conservation, both District-sponsored water conservation and "natural conservation" resulting from new plumbing code standards. Also called "code-based savings"

or "passive conservation", these demand reductions come about due to the replacement of old inefficient plumbing fixtures with low flow fixtures. ACWD is a signatory to the California Urban Water Conservation Council's (CUWCC) MOU on Urban Water Conservation and is committed to the implementation of all locally cost-effective water conservation best management practices. A complete description of ACWD's water conservation program, as well as water saving assumptions, is provided in Chapter 7 of the attached UWMP.

As described in the following section, the Project's demands are considered to be consistent with the District's demand forecast, and therefore, are not listed separately in Table 2. Demands listed in this table include the demands from all WSAs completed to date except for the Ballpark Village Specific Plan and Masonic Homes Flatlands Projects which have both been rescinded.

WATER DEMANDS – DUMBARTON TRANSIT ORIENTED DEVELOPMENT PROJECT

Estimation of Project Water Demands

The Dumbarton Transit Oriented Development Project is a mixed use proposal of high, medium and low density residential housing, commercial retail / office building area, and open space. The Project site covers approximately 207 acres and is located adjacent to the proposed Dumbarton Commuter Rail Line in Newark (Figure 1). The Project site is located in the middle of the Newark Dumbarton Transit Area Priority Development Area (PDA) as outlined by the Association of Bay Area Governments (ABAG) in *Projections and Priorities 2009*. ACWD's 2009 Water Demand Forecast (Forecast) included all ABAG projections. Prior to the 2009 Forecast, this area was included in ACWD planning under the previous Specific Plan Area 2, which contemplated primarily commercial and industrial development. As the Project relies on individual and independent developers, there is no specific timeline or phasing for completion of the Project.

Information on the Project's proposed land use was provided by the City of Newark and is listed in Table 5 and represents the upper end of development potential. Roughly one third of the Project site is currently developed with low intensity industrial activity, with less than two AF/yr of water demand. ACWD estimates the Project will result in 780 AF/yr of new demand.

Water Efficiency Measures to be Incorporated in the Project

In order to ensure that the Project incorporates the most up to date water efficiency measures, the Project should be developed with the latest technology in water efficient plumbing fixtures and irrigation systems at both residential and non-residential developments, including but not limited to those listed in ATTACHMENT D: Water Efficiency Measures for New Developments.

IMPACTS OF DROUGHT ON DEMANDS

Dry periods may impact water demands in the ACWD service area in several ways. Because approximately 40% of the District's residential demand is for landscape irrigation, dry periods may result in an increase in demands due to less local rainfall available to meet the evapotranspiration requirements of lawns and other landscaping. However, demands may also be reduced due to customer efforts to be more water efficient during dry periods. As an example, during the 1987-1992 drought, ACWD customers reduced overall water use by approximately 20%. This response to the drought was due both to voluntary efforts and mandatory restrictions imposed by ACWD. However, because many customers have retained a "water conservation ethic" since the 1987-92 drought, and because of increased efficiencies of plumbing fixtures and the implementation of on-going District-sponsored water conservation programs, the ability to reduce overall water use during future droughts by similar levels may be lessened. For example, during the current drought period between FY 03/04 and FY 09/10, ACWD customers reduced water consumption by 15%, however a portion of this reduction may also be attributed to the recent economic downturn.

For planning purposes, it is assumed that during drought periods water demands for ACWD's distribution system customers (including those of the Project) do not change from those during normal years. However, the groundwater system demands are typically lower in dry years as lower groundwater levels, caused by reduced local recharge and increased reliance on groundwater storage, result in reduced saline groundwater outflows. ACWD will often minimize ARP pumping as well during dry periods. Summaries of projected demands under single dry year and multiple dry year conditions (based on a five year drought under 2026-2030 demand conditions) are provided in Table 3 and Table 4 respectively.

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SECTION 3
WATER SUPPLY

ACWD's three primary sources of water supply are: 1) the State Water Project (SWP); 2) San Francisco's Regional Water System; and 3) local supplies. The SWP and San Francisco Regional Water Supplies are imported into the District service area through the South Bay Aqueduct and Hetch-Hetchy Aqueduct, respectively. Local supplies include fresh groundwater from the Niles Cone Groundwater Basin (underlying the District service area), desalinated brackish groundwater from portions of the groundwater basin previously impacted by seawater intrusion, and surface water from the Del Valle Reservoir. The primary source of recharge for the Niles Cone Groundwater Basin is percolation of runoff from the Alameda Creek watershed. To a lesser degree, a portion of ACWD's SWP supplies are also used for local groundwater percolation. Infiltration of rainfall and applied water within the ACWD service area also contribute to local groundwater recharge.

ACWD's planned future water supplies also include recycled water. As described below, ACWD anticipates implementing a recycled water program to provide up to 1,600 AF/Yr for non-potable uses (i.e. irrigation and industrial uses) by the year 2020.

Due to the configuration of ACWD's water production facilities and the interconnection with the District's distribution system, the proposed Project may receive water supplies from all three primary sources of supplies, and would not be dependent on any single source of supply. Therefore, a description of all of ACWD's water supplies is provided below. Table 6 provides a summary description of the contracts and permits for these supplies and Table 7 provides a summary of the historical use of these supplies by ACWD.

WHOLESALE WATER SUPPLIES

As described above, ACWD's wholesale water supplies are: 1) State Water Project supplies purchased from the California Department of Water Resources; and 2) San Francisco Regional Water System supplies purchased from San Francisco. ACWD's contracts for these wholesale supplies are provided in Attachment C and each supply is described in greater detail below.

State Water Project

In 1961, the District signed a contract with the State Department of Water Resources (DWR) for a maximum annual amount of 42,000 acre-feet from the SWP, referred to as ACWD's "maximum Table A allocation". The SWP, managed by the DWR, is the largest state-built, multi-purpose water project in the country. The SWP facilities include 28 dams and reservoirs, 26 pumping and generating plants, and approximately 660 miles of aqueducts. The water stored in the SWP storage facilities originates from rainfall and snowmelt runoff in Northern and Central California watersheds. The SWP's primary storage facility is Lake Oroville in the Feather River Watershed. Releases from Lake Oroville flow down the Feather River to the Sacramento River, which subsequently flows to the Sacramento-San Joaquin Delta. The SWP diverts water from the Delta through the Banks Pumping Plant which lifts water from the Clifton Court Forebay (in the Delta) to the California Aqueduct and Bethany Reservoir. From Bethany Reservoir, the South Bay Pumping Plant lifts water into the South Bay Aqueduct,

which delivers State Water Project supplies to ACWD and other Bay Area water agencies in Alameda and Santa Clara Counties.

Semitropic Banking of ACWD's SWP Supplies: Because of the variability in the SWP supply availability, ACWD's 1995 IRP identified the need to secure 140,000 AF of off-site storage capacity to improve the dry year reliability of this supply source. Based on this IRP recommendation, ACWD has contracted with Semitropic Water Storage District for participation in the Semitropic Groundwater Banking Program in Kern County. In wet years, ACWD delivers its unused (excess) SWP supplies to Semitropic for storage in their groundwater basin. In dry years, ACWD can recover these supplies through: (1) an "in-lieu" exchange whereby ACWD will receive a portion of Semitropic's SWP supplies (and Semitropic will utilize groundwater previously stored by ACWD in its basin); and (2) a "pumpback" program where Semitropic directly pumps stored groundwater into the California Aqueduct and ACWD recovers this supply through SWP exchanges.

The rate at which ACWD can recover stored water in dry years is constrained by contractual limitations and limitations on the capacity of the Semitropic pumpback facilities. Based on the terms of the agreements with Semitropic, the amount of return capacity is based on the amount of storage capacity purchased. Because of these limitations, ACWD secured a total of 150,000 AF of storage capacity at Semitropic (in excess of the IRP's recommendation of 140,000 AF), in order to provide sufficient dry year return capacity to meet ACWD's projected needs in all but the most severe drought conditions.

As with local groundwater storage in the Niles Cone Groundwater Basin, the Semitropic Groundwater Banking Program does not provide a new source of supply for the District. Rather, it provides a means to store the District's unused SWP supplies in wet years for use during dry years when the delivery of SWP supplies may be significantly curtailed.

San Francisco's Regional Water System

ACWD also receives water from the San Francisco Regional Water System, operated by the San Francisco Public Utilities Commission (SFPUC). This supply is predominantly from the Sierra Nevada, delivered through the Hetch-Hetchy aqueducts, but also includes treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo Counties. 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.

In 2009, ACWD, along with the other wholesale customers, signed a new Master Sales Agreement with San Francisco, supplemented by an individual Water Sales Contract. The new agreements have a term of 25 years and provide a commitment from San Francisco to provide, collectively, up to 184 mgd to its wholesale customers. ACWD's individual supply assurance is 13.76 mgd.

LOCAL SOURCES

As described above, ACWD's local sources include fresh groundwater from the Niles Cone Groundwater Basin, brackish groundwater desalination, and surface water supplies from the Del Valle Reservoir. Each of these supplies is described in greater detail below.

Niles Cone Groundwater Basin

The principal source of local supply for the District is the local aquifer system known as the Niles Cone Groundwater Basin. The primary source of recharge for the Niles Cone Groundwater Basin is local runoff from the Alameda Creek Watershed, which is captured, diverted and recharged at the District's groundwater recharge facilities. To a lesser extent, infiltration of rainfall and applied water within the ACWD service area also provide a local source of recharge for the groundwater basin. ACWD also uses a portion of its imported State Water Project supplies for groundwater recharge.

The water quality in the groundwater system is characterized by fresh groundwater in the eastern portion of the groundwater basin transitioning into brackish groundwater in the western portion of the basin. The brackish groundwater is a result of historical seawater intrusion from the adjacent San Francisco Bay. Since the 1960's ACWD has managed the groundwater basin to prevent any additional seawater intrusion and has an on-going program to pump trapped brackish groundwater back to San Francisco Bay through the District's Aquifer Reclamation Program wells.

The Niles Cone Groundwater Basin has capacity to store water from year to year ("local groundwater storage"). However, the usable storage capacity of the groundwater basin is significantly limited by the potential for seawater intrusion if groundwater levels are maintained too low. Although local groundwater storage (i.e. groundwater supplies in excess of recharge) provides a short term source of supply during dry years, it is not a supply that is available every year because the groundwater system will require replenishment from freshwater sources, without which seawater intrusion would occur.

Chapter 4 of the UWMP (attached) provides a comprehensive description of the Niles Cone Groundwater Basin, including groundwater quality, groundwater levels, historical and projected groundwater pumping, and ACWD's groundwater management activities. A copy of ACWD's groundwater management policy is also provided in the UWMP. The Niles Cone Groundwater Basin is also described in DWR Bulletin 118 – Update 2003: *California's Groundwater*, and is not listed as in "overdraft" or "potentially overdraft condition" by the DWR.

Brackish Groundwater Desalination

In 2003 ACWD commissioned the Newark Desalination Facility. This 5-mgd facility utilizes the reverse osmosis process to remove salts and other impurities from the brackish groundwater pumped at ACWD's Aquifer Reclamation Program wells. Treated water from the Newark Desalination Facility is blended with untreated local groundwater and provided as a

supply for the distribution system demands. ACWD is currently expanding this facility to 10-mgd.

Del Valle Reservoir

The District and Zone 7 Water Agency of the Alameda County Flood Control and Water Conservation District (hereafter referred to as "Zone 7"), have equal rights on Arroyo Del Valle to divert water to storage. When the California Department of Water Resources (DWR) constructed Del Valle Dam in the upper Alameda Creek Watershed, those rights were recognized in an agreement among DWR, the District, and Zone 7. Consequently, DWR typically makes a total of 15,000 AF of storage available annually in Del Valle Reservoir for use by ACWD and Zone 7. ACWD and Zone 7 equally share this storage capacity, thereby providing up to 7,500 AF of storage capacity annually to ACWD.

Recycled Water

Although ACWD does not currently have a recycled water supply, the District's long-term supply strategy includes a recycled water program to be implemented by 2020, which will provide up to 1,600 AF/yr of non-potable supply (e.g. landscape irrigation and industrial process water). A potential source of recycled water is from a joint project with Union Sanitary District (USD). Similar to ACWD, USD's service area includes the cities of Fremont, Union City and Newark. USD currently treats approximately 28 mgd (approximately 31,000 AF/Yr) of wastewater, the majority of which is discharged to San Francisco Bay via the East Bay Dischargers Authority pipeline facilities. Because ACWD's planning is based on providing 1,600 AF/Yr of recycled water, it is anticipated that there will be a sufficient source of wastewater supply available for a future recycled water project in the ACWD service area.

Recycled water distribution pipelines will be separate from the District's existing potable distribution system and, therefore, would not adversely affect existing potable supply operations. The volume of recycled water produced would be the same in drought years as in normal years, thus providing a firm source of supply. Demand for recycled water for irrigation purposes is highest in the summer months. Therefore, in addition to increasing water supply, use of recycled water would help meet peak monthly and daily production capacity needs.

ACWD and USD have evaluated two potential sources of recycled water: In 1993 and in 1999 ACWD and USD evaluated a potential program whereby the recycled water would originate at USD's Alvarado Wastewater Treatment Plant (Alvarado WWTP), located at the north end of the service area in Union City. As an alternative to constructing a recycled water treatment facility at the Alvarado WWTP, in 2003 ACWD and USD completed an evaluation of the feasibility of constructing a satellite recycled water treatment facility in southern Fremont at USD's Irvington Pump Station. These options are currently being reevaluated as well as the potential for other feasible options in an update to the Recycled Water Feasibility study. In addition, ACWD will continue to consider the potential use of other regional recycled water supplies, should such supplies become available. The ultimate decision on the source of a recycled water supply will likely be based on a variety of factors including costs, permitting issues, environmental constraints and location of recycled water customers.

WATER SUPPLY UNCERTAINTIES

The purpose of this section is to identify factors which may impact current planning assumptions, the significance and magnitude of which are currently unknown. As described below, the potential impacts of global warming are a key uncertainty which may impact all of ACWD supplies. In addition, each of ACWD's supplies face uncertainties which may be unique to the source of supply. A summary of water supply uncertainties facing ACWD's supplies is provided in Table 8 and discussed in greater detail below.

Climate Change

Climate change may result in less snowfall, more local rainfall and rising sea-levels. Under current conditions, much of ACWD's imported water supplies are held in "storage" in winter and spring snowpack in the Sierra Nevada Mountains. With a diminished snowpack, the yield of the State Water Project and San Francisco Regional System may be significantly impacted. The magnitude of the impact of climate change on water supplies is not known. However, the following provides an overview of recent studies that have evaluated potential impacts on surface water and groundwater supplies in California.

Surface Water: In 2006 DWR's Climate Action Team (CAT) released a report on climate change and its potential impact on California's water resources. Entitled *Progress on Incorporating Climate Change into Management of California's Water Resources* (*2006 Climate Change Report*), the report summarizes recent research into change in precipitation, air temperatures, snow levels, and snowmelt runoff. The report also evaluates possible future impact on California water supply through model simulations reflecting multiple climate change scenarios, weather conditions and geopolitical conditions.

The main results of the *2006 Climate Change Report* related to climate change's estimated impacts on the State Water Project around the year 2050:

- Estimated changes in annual average SWP south-of-Delta Table A deliveries range from a slight increase of about 1 percent for a wetter scenario to about a 10 percent reduction for one of the drier climate change scenarios.

- Estimated increased winter runoff and lower Table A allocations resulting in slightly higher average annual Article 21 deliveries in the three drier climate change scenarios[1]. However, the increases in Article 21 deliveries do not offset the losses to Table A. The wetter scenario with higher Table A allocations results in fewer Article 21 delivery opportunities and slightly lower annual Article 21 deliveries.

[1] Article 21deliveries refer to Article 21 of the SWP contracts which allows for contractors to receive additional water deliveries only under specific conditions. These conditions include: 1) Article 21 water is available only when excess water is available in the Delta, and 2) Article 21water is available only when conveyance capacity through the SWP facilities is available. Due to the uncertainties regarding the availability of Article 21 water, ACWD does not include this supply in its water supply planning and Urban Water Management Plan.

- Estimated SWP carryover storage is reduced in the drier climate change scenario and is somewhat increased in the wetter climate change scenario.

The 2009 Biennial Report of the CAT includes updates to the findings of the 2006 study. The update expands the number of future climate scenarios, methods for estimating sea-level rise, estimates for irrigation demands, reservoir inflows, and restrictions in Delta operations anticipated with sea-level rise and resultant salt-intrusion. The updated study qualitatively reports that SWP reliability will be further diminished from previous findings, however, as determined in 2006, those impacts do not become significant until the latter half of the 21st century. Therefore, while included in this analysis, the water supply impacts anticipated from climate change are minimal during the 20-year purview of the UWMP and WSA. The *State Water Project Delivery Reliability Report, 2009* (2009 SWP Reliability Report, 2009 SWP) includes these revised climate change assumptions, the impacts of which are reflected in the reliability data used in this WSA.

Groundwater: In 2003, and then again in an update prepared in August of 2005, the Pacific Institute for Studies in Development, Environment and Security prepared a literature search report for DWR, which summarized recommendations for coping with and adapting to climate change from key peer-reviewed publications and specifically considered the potential impacts of climate change on groundwater. The Pacific Institute's report is entitled, *Climate Change and California Water Resources: A Survey and Summary of the Literature*, by Michael Diparsky and Peter H. Gleick, Pacific Institute (*Climate Change and Water Resources*).

Climate Change and Water Resources found that little work has been done on the impacts of climate change for specific groundwater basins, or for general groundwater recharge characteristics or water quality. As the following conclusions from the report illustrate, the potential impacts of climate change on groundwater resources are divided, with some potentially resulting in increased availability of groundwater and others potentially resulting in less.

- Changes in recharge will result from change in effective rainfall as well as a change in the timing of the recharge season. Increased winter rainfall could lead to increased groundwater recharge.

- Higher evaporation or shorter rainfall seasons could mean that soil deficits persist for longer periods of time, shortening recharge seasons.

- Because a significant portion of winter recharge comes from deep percolation of precipitation below the rooting zone, warmer winter temperatures between storms would be expected to increase and dry out the soil between storms. A greater amount of rain in subsequent storms would then be required to wet the root zone and provide water for deep percolation.

- Sea-level rise could affect coastal aquifers through saltwater intrusion.

- Warmer, wetter winters would increase the amount of runoff available for groundwater recharge. However this additional runoff would be occurring at a time when some basins are either being recharged at their maximum capacity or are already full.

- Reductions in spring runoff and higher evapotranspiration because of higher temperatures could reduce the amount of water available for recharge.

Local Supplies

In addition to potential climate change impacts, the availability of ACWD's local supplies may be influenced by a variety of other factors including operational and facility modifications to accommodate on-going Alameda Creek fishery restoration efforts. Upstream land use, flood control and water supply projects in the Alameda Creek Watershed may also impact the supply and quality of water available at ACWD's groundwater recharge facilities. Similarly, efforts to develop groundwater supplies by agencies in the South East Bay Plain (north of ACWD) may also impact ACWD's groundwater supply availability. However, the extent of these impacts on ACWD's local supplies, if any, is not currently known.

San Francisco Regional Supplies

In order to enhance the ability of the SFPUC water supply system to meet identified service goals for water quality, seismic reliability, delivery reliability, and water supply, the SFPUC is undertaking a Water System Improvement Program (WSIP). Completion of the projects in the WSIP is critical to ensuring the reliability of the San Francisco Regional supplies. However, it is currently uncertain if the SFPUC will be successful in fully implementing this program, and if it will be accomplished in a timely manner.

State Water Project Supplies

The reliability of ACWD's State Water Project supplies will continue to remain uncertain due to the on-going concerns regarding the sustainability of the Delta. These concerns include the Delta ecosystem and potential future environmental regulations, levee stability and the potential for catastrophic failure of these levees, urban encroachment within the Delta, and water quality within the Delta due to urban and agricultural discharges.

Most notably, successive actions to protect endangered species within the Delta have resulted in reductions in long term reliability from 69% to 60% of Maximum Table A allocation over the past four years. Beginning in December of 2007, Federal District Court Judge Oliver Wanger issued a final court order ("Wanger Decision") which put into place an operational plan requiring the State Water Project and Central Valley Project (CVP) to reduce Delta export pumping operations in order to protect the Delta smelt. This court action was replaced by a biological opinion in December of 2008, which largely upheld the operating restrictions imposed by the Wanger Decision. Most recently, in June of 2009 a revised biological opinion for salmonids was published which further restricted the State's ability to deliver supplies presently and for the foreseeable future.

Most recently, on July 20, 2010, the State Water Resources Control Board (State Water Board) released a report titled "Draft Report on the Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem". Development of these criteria was required under SBX7 1, passed in November of 2009, which sought to protect the public trust resources of the Delta ecosystem. The purpose for developing the criteria is to inform planning decisions for the Delta Plan and the Bay Delta Conservation Plan (BDCP), a multiagency effort with the goal of providing long-term Federal and State Endangered Species Act compliance for Delta export operations. At this point, the extent to which these criteria will be implemented and what effect they may have on the State's ability to deliver water supplies is as of yet unknown.

The net effect of existing uncertainties is that projected reliability of the SWP has been reduced from 72% to 60% of Maximum Table A since 2002 (Table 9).

Semitropic Banking Program

Over the past several years ACWD faced uncertainties with regard to recovery of water from the Semitropic Banking Program. These uncertainties include: 1) water quality concerns with regard to groundwater from Semitropic that is pumped back into the California Aqueduct; and 2) the ability to make the upstream exchanges needed to deliver the recovered water to the ACWD service area. With regards to the water quality issues, Semitropic has initiated a pilot water treatment plant which has treated the groundwater to meet the required criteria for pumping this water into the California Aqueduct. Semitropic has indicated that this pilot treatment plant will form the basis for a future permanent treatment facility. With regards to the exchange capacity needed to recover dry year supplies from Semitropic, over the past year, ACWD has coordinated with Semitropic, DWR, and other Semitropic Banking partners to ensure coordination of the planned use of the Semitropic recovery capacity and the needed exchanges. However, the risk remains that under certain critical dry year conditions ACWD may not be able to recover 100% of the District's contractual recovery capacity from Semitropic.

As part of the update to the ACWD IRP and UWMP, ACWD is evaluating the potential constraints with the Semitropic recovery capacity and how these constraints may affect ACWD's dry year supply reliability. ACWD will also be evaluating potential mitigation measures to minimize the risk associated with the constraints in Semitropic dry year recovery. These measures may include: 1) re-operation of local and other storage available to ACWD (i.e. Niles Cone Groundwater Basin, Del Valle Reservoir, San Luis Reservoir) in coordination with recovery from Semitropic and/or: 2) alternative dry year supply programs.

SB 7 – Water Conservation Requirements under the 2009 Comprehensive Water Package

In November of 2009, the California State Assembly passed a suite of water bills designed, among other things, to address long range water supply reliability. One of these bills, SB 7, also known as 20x2020, requires the state to achieve a 20% reduction in urban per capita water use by December 31, 2020.

SB 7 acknowledges that not all water agencies should be held to one fixed target as many have been actively implementing conservation for some time. To address this, SB 7 provides agencies with a choice of four different methodologies to set and achieve their water use target. The bill requires ACWD to hold a public meeting to present the method and to publish it in the 2010 UWMP. Given that one of the four methodologies to choose from has yet to be published by DWR, the State has extended the UWMP deadline to July 1, 2011.

ACWD has begun to analyze several of the choices, but will have to complete further studies over the coming year to determine which target and implementation strategies are in the District's best interest. Having identified programmatic conservation as a critical component in meeting long-term water supply reliability in the 1995 IRP, and as a signatory to the CUWCC MOU, ACWD and its customers have already achieved significant levels of conservation. As a result of these efforts, ACWD estimates that the actual required reductions in per-capita use between the present and 2020 will be something less than a true 20%. Implementation of the efficiency standards expected of this development will help achieve these new goals (ATTACHMENT D : WATER EFFICIENCY MEASURES FOR NEW DEVELOPMENTS)

WATER SUPPLY IN NORMAL AND DRY YEAR CONDITIONS

The projected availability for each of ACWD's water supplies under normal, critical dry year and multiple dry year conditions are provided in Table 10 through Table 12. As documented in the District's 2005 UWMP, information on the projected availability of ACWD's local supplies is based on the long-term historical hydrologic conditions in the Alameda Creek Watershed. Information on the projected reliability of ACWD's wholesale supplies from the State Water Project and San Francisco Regional Water System supplies were provided by the DWR and San Francisco Public Utilities Commission, respectively. As discussed, the WSA differs from the last published UWMP, but reflects the 2010 Draft UWMP Data.

Water Supply under Normal Year Conditions

In order to be consistent with the recommendations by the DWR in the use of SWP reliability information, this water supply assessment characterizes long-term average conditions as normal year conditions. As shown in Table 10, under normal year conditions supplies from the SWP and San Francisco Regional Water System comprise approximately 55% of the water available to ACWD, with the balance coming from local supplies. All of the supplies listed in Table 10, with the exception of recycled water, are existing supplies available to ACWD, and have been historically utilized by the District. Recycled water, not currently available to ACWD, is anticipated to add approximately 1,600 AF/Yr to the District's normal year water supplies by the year 2020. Supplies from local groundwater storage and the Semitropic Groundwater Banking Program are not included as normal year supplies because these supplies are intended for dry year conditions (or other water shortages) and are not intended to meet normal year demands.

Water Supply under Critical Dry Year Conditions

As shown in Table 11, the availability of ACWD's overall water supplies under a critically dry year may be significantly reduced. Under critically dry conditions, the SWP deliveries would be reduced to approximately 10% of the maximum contractual amounts (referred to as the "Table A" amounts in the SWP contracts). In addition, ACWD's other supplies from the San Francisco Regional Water System and local supplies from the Alameda Creek Watershed may also be substantially reduced during a critically dry year.

In order to mitigate these potentially severe water supply cut-backs, ACWD would rely on groundwater reserves stored in the local Niles Cone Groundwater Basin, and reserves stored at the Semitropic Groundwater Banking Program. As described above, the amount of storage in the local Niles Cone Groundwater Basin is limited due to threats of seawater intrusion when groundwater elevations fall below sea-level. ACWD has therefore invested in additional off-site storage at the Semitropic Groundwater Banking Program. Under two separate agreements with Semitropic, ACWD has contracted for a combined total of 150,000 AF of storage capacity. The District currently has approximately 110,000 AF of water in storage at the Semitropic banking program. However, the maximum rate at which stored water can be returned to ACWD from Semitropic is constrained by ACWD-Semitropic contractual limitations. As shown in Table 11, under the most severe drought conditions, the maximum rate at which water can be returned to ACWD is 13,800 AF/Yr[2].

Water Supply under Multiple Dry Year Conditions

Table 12 provides summaries of the projected supply availabilities under a long-term (five-year) drought for 2026-2030 demand conditions. This multiple year drought sequence is based on the 1929-1933 historical hydrologic conditions, which represents the most severe five-year drought on record (based on projected availability of ACWD's supplies over the 1922-94 hydrologic period). The results from this analysis indicate that ACWD's water supplies may be significantly reduced during a multiple year drought. However, the supply reduction would not be as severe as during a single, critically dry year condition. As with the single dry year condition, both local groundwater storage and off-site groundwater storage in Semitropic will play key roles in offsetting shortfalls in the District's other local and imported supplies.

2 ACWD's maximum rate of recovery from the Semitropic Groundwater Banking Program during critically dry years will increase by 300 AF/Yr (from 13,500 AF/Yr to 13,800 AF/Yr) as a condition of ACWD providing water service to the Patterson Ranch Development Project in Fremont, per the 2010 Patterson Ranch Recirculated Draft EIR.

SECTION 4
WATER SUPPLY AND DEMAND ANALYSES

The following provides a comparison of ACWD water supplies and projected future demands, including the demands associated with the proposed Project. The supply/demand comparisons are provided for normal, single year dry, and multiple dry year conditions.

NORMAL YEAR WATER SUPPLY

Table 13 provides a comparison of normal year water supply and demands under future levels of development in five-year increments from 2010 through 2030. As shown in the tables, ACWD's projected supply under normal year conditions is sufficient to meet current and projected future demands, which include demands for this Project.

SINGLE DRY YEAR WATER SUPPLY

Table 14 documents the comparison of water supply and demand under a single critical dry year condition based on 1977 hydrologic conditions. As with the normal year conditions, the single dry year supply/demand comparison is provided in the same five-year increments between 2010 and 2030.

As shown in the table, ACWD anticipates facing a water supply shortage during single critical dry year supply conditions. This shortage is less than previously anticipated in the 2005 UWMP due primarily to the reduction in forecast demands, discussed under WATER DEMANDS - ACWD SERVICE AREA. District planning has held since the 1995 IRP that shortages anticipated during critical droughts of this magnitude and frequency (1 in 35 years) will be mitigated through a combination of demand management measures (including rationing) and purchases of dry year water through programs such as the Drought Water Bank (initiated during the 1987-92 drought by the DWR).

MULTIPLE DRY YEAR WATER SUPPLY

Table 15 documents projected water supply and demand under an extended dry period (multiple year drought). As documented in the UWMP, ACWD recognizes the hydrology of 1929 to 1933 to be most severe five-year period for the District's imported and local supplies. The multiple year dry period was reviewed for the level of demand anticipated between the years of 2026 and 2030 as that is the highest level of demands anticipated during the next 20 years.

Unlike the single dry year analysis, shortages are not anticipated during a multiple year drought (similar to the 1929-33 conditions) experienced during the next 20 years.

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SECTION 5
SUMMARY AND CONCLUSIONS

1. The City of Newark has proposed the Dumbarton Transit Oriented Development Project which includes 2,500 high density residential housing, 230,000 sq. ft of commercial retail building area, and 17 acres of open space.

2. The total projected demand for the Project is 780 AF/yr.

3. The Project demand is consistent with planning assumptions and is included in ACWD's forecast and water supply planning.

4. ACWD has diverse sources of supply that include imported water from the State Water Project and San Francisco Regional Water System, as well as local supplies from the Alameda Creek Watershed and underlying Niles Cone Groundwater Basin. Due to the configuration of ACWD's water production facilities, the proposed Project would not be dependent on any single source of supply.

5. ACWD's imported and local water supplies may be significantly cut back during droughts. In order to improve ACWD's dry year reliability, ACWD has secured 150,000 AF of off-site storage capacity at the Semitropic Groundwater Banking Program in Kern County. ACWD currently has approximately 110,000 AF in storage at the Semitropic Program.

6. Key uncertainties facing ACWD's supplies include the effects of climate change as well as supply restrictions due to endangered species and environmental protection. ACWD's projected long-term average supply reliability from the State has been reduced from 72% to 60% of Maximum Table A Allocation, primarily as a result of Delta export pumping restrictions to protect endangered species.

7. Under normal year conditions, ACWD's water supplies are projected to be sufficient to meet the future demands in the service area, including the Project's demands.

8. ACWD's UWMP identifies that ACWD may face water supply shortages during critically dry years. As described in the UWMP, ACWD would look to secure additional supplies through a DWR drought water bank or similar water purchase/transfer program under these severe drought conditions. ACWD may also implement a drought contingency plan, which would include provisions for ACWD customers to cut back on water use, the magnitude of which would depend on the severity of the shortage. Because the Project's demands are consistent with the UWMP demand forecast, the development of the Project will not result in increased shortages from that which is already factored into ACWD's planning. However, because ACWD anticipates potential future shortages under severe drought conditions, water supplies to the Project may be cut back during these severe dry year conditions. The level of cut back to the Project would be consistent with the rest of ACWD's customers, and would depend on the magnitude of the dry-year shortage facing the entire District.

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9. As part of the Project description, the Project shall be developed with the latest technology in water efficient plumbing fixtures and irrigation systems at both residential and non-residential developments, including but not limited to those listed in ATTACHMENT D: Water Efficiency Measures for New Developments.

10. The Project is required to use recycled water for non-potable uses (such as irrigation and industrial process water) as the supply becomes available. Specific requirements related to the extent of the installation of recycled water infrastructure will be determined by ACWD at the time water service is requested.

11. The determination of water supply sufficiency is based on the implementation of the water efficiency measures set forth in paragraph 9-10 above and these water efficiency measures must be included in the environmental analysis for this Project and in the City's conditions of Project approval.

12. Under Government Code §66473.7 ACWD will be required to issue a written verification ensuring sufficient water supply if a residential subdivision is part of the Project. ACWD will re-evaluate the assumptions and conclusions of this water supply assessment at that time. If these assumptions have changed significantly ACWD may require additional mitigation measures as a condition of providing a water supply verification and/or as a condition of providing water service.

13. This water supply assessment is based on the proposed land use of the Dumbarton Transit Oriented Development Project, as provided to ACWD by the City of Newark (documented in ATTACHMENT A). If, prior to Project approval, the proposed land use within the Project area changes from what is currently incorporated in this water supply assessment, ACWD will evaluate the impacts that these changes may have on ACWD's water supplies. In the event that the land use changes impact the conclusions of this water supply assessment, ACWD may require additional mitigation measures as a condition of providing water service to the Project. If the proposed land use changes occur after Project approval and approval of the final subdivision maps, ACWD will evaluate the potential water supply impacts of these changes, and may require additional mitigation as a condition of providing water service to those areas with the changed land use condition.

14. The determination made in this water supply and demand analysis is based on the circumstances as of the date this water supply assessment was approved. In the event that subsequent evaluation of District-wide demands and supplies in-light of the water supply uncertainties set forth in this water supply assessment indicates that there will be an imbalance between demands and supplies, ACWD may require additional mitigation for the Project. For example, if District supplies are not sufficient to meet the demands, as a condition of water service, ACWD may require the Project proponent to: 1) acquire a new water supply to offset the water supply impacts of the Project, and/or: 2) invest in District-wide conservation programming (above and beyond that which is planned by the District) to offset the increase in District-wide demands that are a result of the Project; and/or 3) provide other mitigations deemed necessary to offset specific impacts identified (such as purchasing storage and recovery capacity in Semitropic Groundwater Banking Program).

ACWD reserves the right to impose conditions that go beyond the conditions that the City of Newark may impose as part of the environmental analysis at the time ACWD provides a verification of sufficient supply for the Project and/or enters into a water service agreement with the developer to provide water service to the Project.

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Table 1 ACWD Past and Current Water Use (Acre-Feet)

Water Use Category	Fiscal Year										
	99-00	**00-01**	**01-02**	**02-03**	**03-04**	**04-05**	**05-06**	**06-07**	**07-08**	**08-09**	**09-10**
Distribution System											
Single Family Residential	25,000	25,700	25,200	25,300	26,000	23,700	24,900	25,200	24,600	24,100	21,500
Multi-Family Residential	8,600	8,900	8,200	8,500	8,100	8,200	8000	8,100	8,100	8,100	7,600
Commercial	5,800	5,600	5,200	5,000	5,200	5,300	5,500	5,300	5,200	5,100	4,700
Industrial	4,700	4,600	4,300	4,100	4,100	3,400	3,500	3,400	3,100	2,800	2,500
Institutional	2,100	2,300	2,200	2,200	2,300	2,000	2,100	2,100	2,100	2,100	1,800
Landscape	5,200	5,300	5,600	5,600	6,300	5,700	5,200	5,700	5,900	5,600	4,800
Other	200	200	200	200	200	100	100	100	100	200	100
Total Consumption	51,700	52,600	50,800	50,700	52,300	48,400	49,300	49,900	49,100	48,000	43,000
Unaccounted for Water	4,200	3,600	4,300	3,700	4,100	3,200	3,800	5,000	5,700	3,000	4,600
Distribution System Total	55,900	56,200	55,100	54,400	56,400	51,600	53,100	54,900	54,800	51,000	47,600
Groundwater System											
Private Groundwater	3,100	3,800	3,100	3,400	3,600	3,800	3,000	3,000	2,100	2,100	2,000
Groundwater Reclamation											
-ARP Pumping	6,300	4,300	7,400	7,700	11,100	9,400	11,600	9,900	6,600	4,900	6,800
-Saline Outflow	7,400	6,600	6,300	5,800	7,200	6,600	7,500	6,800	7,400	7,400	7,400 (est)
Groundwater System Total	16,800	14,700	16,800	16,900	21,900	19,800	22,100	19,700	16,100	11,300	14,200
Grand Total	72,700	70,900	71,900	71,300	78,300	71,400	75,200	74,600	70,900	64,400	63,800 (est)

Notes:

1. Annual consumption is based on units billed during the Fiscal Year (July 1 to June 30). ACWD uses bi-monthly billing cycle.
2. All values rounded to the nearest 100.
3. Total Consumption values may not equal sum of individual components due to rounding.
4. Multi-Family Residential, Commercial, Industrial, and Institutional categories do not include dedicated landscape irrigation water use within these categories.
5. Landscape water use includes all dedicated landscape accounts for Multi-Family Residential, Commercial, Industrial and Institutional customers.
6. Distribution System Total represents total water production, as reported in ACWD's Annual Groundwater Survey Reports.
7. System Losses are calculated as the difference between Distribution System Total (total production) and Total Measured Consumption and include water for fire suppression, distribution system flushing, distribution system and service line leaks, etc.
8. Groundwater System demands are based on annual reported values in ACWD's Annual Survey Report on groundwater conditions. FY 09/10 Figures are currently an estimate
9. Groundwater Reclamation demands represents groundwater system demands to protect and reclaim the groundwater system from seawater intrusion.
10. Groundwater System demands do not include "Other Outflows" as reported in ACWD's Annual Survey Report on Groundwater Conditions.

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Table 2 Estimated Future Water Demands in the ACWD Service Area – Normal Year (AF/yr)

Water Use Category	Year				
	2010	**2015**	**2020**	**2025**	**2030**
Distribution System					
Single Family Residential	23,800	26,500	26,900	27,200	27,500
Multi-Family Residential	9,700	10,100	10,400	10,800	11,100
Commercial	6,200	6,600	7,000	7,200	7,500
Industrial	3,700	4,300	4,800	5,100	5,400
Institutional	3,100	3,800	4,200	4,500	5,100
Other	100	100	100	100	100
Sub-Total	**46,600**	**51,400**	**53,400**	**54,900**	**56,700**
Adjustment for plumbing code savings	(100)	(800)	(1,500)	(2,000)	(2,400)
Sub-Total Demand	*46,500*	*50,600*	*51,900*	*52,900*	*54,300*
Total Distribution System Demand with unaccounted for waters	*50,500*	*55,000*	*56,400*	*57,500*	*59,000*
Adjustments for water conservation savings	(100)	(800)	(1,400)	(1,400)	(1,400)
Groundwater System Demand	14,800	14,800	14,800	14,800	14,800
Total ACWD Forecast Demands	**65,200**	**69,000**	**69,800**	**70,900**	**72,400**

Notes:

1. All numbers are from ACWD's 2009 water demand forecast, developed in preparation for the 2010 UWMP. Forecast includes demand assumptions for the Project.
2. All values rounded to the nearest 100. Total values may not equal sum of individual components due to rounding errors.
3. Numbers do not reflect demand reductions resulting from SB-7.
4. Landscape Irrigation included within Multi-Family Residential, Commercial, Industrial, and Institutional categories.
5. Adjustment for conservation includes savings due to District-sponsored water conservation programs.
6. Total Distribution System Demand includes 8% unaccounted for water or UAW. UAW is calculated as the difference between total production and total measured consumption and is mostly comprised of meter inaccuracy but also includes physical water such as water used for fire suppression, distribution system flushing, distribution system and service line leaks.
7. Groundwater System demands include: (1) private pumping, (2) ARP pumping and (3) saline groundwater outflows.

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Table 3 Estimated Future Water Demands in the ACWD Service Area – Critical Dry Year (AF/yr)

Water Use Category	Year				
	2010	**2015**	**2020**	**2025**	**2030**
Distribution System					
Single Family Residential	23,800	26,500	26,900	27,200	27,500
Multi-Family Residential	9,700	10,100	10,400	10,800	11,100
Commercial	6,200	6,600	7,000	7,200	7,500
Industrial	3,700	4,300	4,800	5,100	5,400
Institutional	3,100	3,800	4,200	4,500	5,100
Other	100	100	100	100	100
Sub-Total	**46,600**	**51,400**	**53,400**	**54,900**	**56,700**
Adjustment for plumbing code savings	(100)	(800)	(1,500)	(2,000)	(2,400)
Sub-Total Distribution System Demand (without losses)	*46,500*	*50,600*	*51,900*	*52,900*	*54,300*
Sub-Total Distribution System Demand (with losses)	*50,500*	*55,000*	*56,400*	*57,500*	*59,000*
Adjustments for water conservation savings	(100)	(800)	(1,400)	(1,400)	(1,400)
Groundwater System Demand	10,500	10,500	10,500	10,500	10,500
Total ACWD Forecast Demands	**60,900**	**64,700**	**65,500**	**66,600**	**68,100**

Notes:

1. All numbers are from ACWD's 2009 water demand forecast, developed in preparation for the 2010 UWMP. Forecast includes demand assumptions for the Project.
2. All values rounded to the nearest 100. Total values may not equal sum of individual components due to rounding errors.
3. Numbers do not reflect demand reductions resulting from SB-7.
4. Landscape Irrigation included within Multi-Family Residential, Commercial, Industrial, and Institutional categories.
5. Adjustment for conservation includes savings due to District-sponsored water conservation programs.
6. Total Distribution System Demand (with losses) includes estimated system losses of 8.4%. Distribution system losses are calculated as the difference between total production and total measured consumption and include water for fire suppression, distribution system flushing, distribution system and service line leaks, etc.
7. Groundwater System demands include: (1) private pumping, (2) ARP pumping and (3) saline groundwater outflows.

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Table 4 Estimated Future Water Demands in the ACWD Service Area – Multiple Dry Years (AF/Yr)

Water Use Category	Year				
	2026	**2027**	**2028**	**2029**	**2030**
Distribution System					
Single Family Residential	27,300	27,300	27,400	27,400	27,500
Multi-Family Residential	10,800	10,900	10,900	11,000	11,100
Commercial	7,300	7,300	7,400	7,400	7,500
Industrial	5,200	5,200	5,300	5,400	5,400
Institutional	4,500	4,600	4,600	4,900	5,100
Other	100	100	100	100	100
Sub-Total	55,200	55,400	55,700	56,200	56,700
Adjustment for plumbing code savings	(2,100)	(2,200)	(2,200)	(2,300)	(2,400)
Sub-Total Distribution System Demand (without losses)	53,100	53,200	53,400	53,900	54,300
Sub-Total Distribution System Demand (with losses)	57,700	57,800	58,000	58,600	59,000
Adjustments for water conservation savings	(1,400)	(1,400)	(1,400)	(1,400)	(1,400)
Groundwater System Demand	10,800	9,900	5,600	5,500	6,400
Total ACWD Forecast Demands	67,100	66,300	62,200	62,700	64,000

Notes:

1. All numbers are from ACWD's 2009 water demand forecast, developed in preparation for the 2010 UWMP. Forecast includes demand assumptions for the Project.
2. All values rounded to the nearest 100. Total values may not equal sum of individual components due to rounding errors.
3. Numbers do not reflect demand reductions resulting from SB-7.
4. Landscape Irrigation included within Multi-Family Residential, Commercial, Industrial, and Institutional categories.
5. Adjustment for conservation includes savings due to District-sponsored water conservation programs.
6. Total Distribution System Demand (with losses) includes estimated system losses of 8.4%. Distribution system losses are calculated as the difference between total production and total measured consumption and include water for fire suppression, distribution system flushing, distribution system and service line leaks, etc.
7. Groundwater System demands include: (1) private pumping, (2) ARP pumping and (3) saline groundwater outflows.

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Table 5 Water Demands for Dumbarton Transit Oriented Development Project

Element	Planning units		GPD/ Unit [1]	Demand estimate (AF/yr)
Retail / Commercial	230,000	Building Area	0.282	73
Residential (high density MFR)	430	Dwelling units	150	72
Residential (2,000 ft2 lots)	1,176	Dwelling units	179	236
Residential (3,000 ft2 lots)	726	Dwelling units	247	201
Residential (4,000 ft2 lots)	168	Dwelling units	247	46
Open space	17	Acres	4,630	88
Estimated Total Project Demand *(rounded)*				720
Water Supplies Required *(8.4% Unaccounted for Water)*				780
Approximate peak day demand in mgd *(1.6x peaking factor)*				1.11

[1] Demand units from the 2009 Water Demand Forecast.
[2] Figures provided by City of Newark.

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Table 6 Overview of Contracts and Permits for ACWD's Existing Water Supplies

SUPPLY COMPONENT	Category	Description	Maximum Quantity (AF/Yr)	Ever Used
Imported Supplies				
- State Water Project	Contract	In 1961, ACWD signed an agreement with the California State Department of Water Resources for a maximum annual amount of 42,000 AF/Yr from the State Water Project (SWP). SWP water is delivered to ACWD via the South Bay Aqueduct. This contract expires in the year 2035.	42,000	Yes
- San Francisco Regional Water System	Contract	In 2009, ACWD along with the other wholesale customers signed a new Master Sales Agreement with San Francisco. The new agreement has a term of 25 years and provides a commitment from San Francisco to provide, collectively, up to 184 mgd to its wholesale customers. ACWD's contractual purchase amount is 13.76 mgd.	15,344	Yes
Local Supplies				
- Alameda Creek Diversions for Groundwater Recharge	Water-rights permit	ACWD applied for a water rights permit from the SWRCB in 1949, granted in 1951 (permit no. 8428) to appropriate up to 40,000 AF/Yr of unappropriated water from the Alameda Creek for groundwater storage and replenishment.	40,000	Yes
- Del Valle Reservoir	Water-rights permit	ACWD received a water rights permit in from the SWRCB in 1958 (permit no. 11320) to appropriate up to 60,000 AF/Yr of unappropriated water from Arroyo Del Valle in the Alameda Creek Watershed for storage and later beneficial use.	60,000	Yes
- Groundwater Storage in Niles Cone Groundwater Basin - Desalination of Brackish Groundwater	Other	ACWD manages and protects the Niles Cone Groundwater Basin for water supply under its Groundwater Management Policy (adopted 1989, amended 2001). This Policy is based on the statutory authority granted to ACWD under the County Water District Law; the Replenishment Assessment Act of ACWD; and local well ordinances.	N/A	Yes
Banking / Transfers				
- Semitropic Groundwater Banking Program	Contract	In 1996 and in 2001 entered into agreements with Semitropic Water Storage District for 150,000 AF of combined groundwater storage capacity for banking of ACWD's excess SWP supplies in wet years. The banked water is to be returned to ACWD in dry years via a series of exchanges. These banking agreements expire in the year 2035.	13,500 (maximum return quantity during critically dry years)	Yes

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Table 7 Historical Water Supply Utilization by ACWD (AF/Yr)

Fiscal Year	SWP supplies used at ACWD facilities	Del Valle	San Francisco Regional Water	Newark Desal Facility	Net Local Groundwater Recharge (2)	Recovered from Semitropic GW bank	Total In-District Water Supply	SWP Supply delivered to Semitropic GW bank
93-94	21,600	5,000	12,200	-	28,500	-	67,300	-
94-95	16,100	4,200	13,000	-	35,900	-	69,200	-
95-96	18,600	5,300	12,200	-	27,600	-	63,700	-
96-97	7,700	15,900	14,700	-	25,300	-	63,600	6,200
97-98	12,900	10,600	13,700	-	58,000	-	95,200	10,000
98-99	20,800	5,300	13,600	-	33,200	-	72,900	18,780
99-00	25,200	3,800	13,800	-	26,900	-	69,700	7,230
00-01	26,400	200	13,000	-	31,000	-	70,600	7,250
01-02	21,900	4,600	13,500	-	32,100	-	72,100	90
02-03	17,600	7,400	14,000	-	31,400	-	70,400	20,800
03-04	18,500	6,700	13,700	2,600	30,700	-	72,200	4,000
04-05	18,800	6,000	11,800	3,900	38,700	-	79,200	9,300
05-06	15,600	7,700	11,700	2,100	31,100	-	68,200	41,540
06-07	13,800	11,000	15,300	2,800	26,000	-	68,900	11,940
07-08	22,600	500	15,000	3,600	24,900	5,500	72,100	-
08-09	16,600	4,200	12,600	3,200	23,700	10,600	58,313	-

1. All values rounded to the nearest 100. Total values may not equal sum of individual components due to rounding errors.
2. Recharge figures less evaporation and other losses.

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Table 8 Summary of Potential Future Factors that may Influence ACWD Water Supply Reliability

SUPPLY	Factor		
	Legal/Environmental	**Water Quality**	**Climatic**
Imported Supplies			
-State Water Project	ESA* requirements may constrain Delta pumping	Potential seawater intrusion impacts if Delta Levees fail.	Supply is dependent on hydrologic conditions
- San Francisco Regional Supply	ESA requirements may require additional reservoir releases	None anticipated	Supply is dependent on hydrologic conditions
Local Supplies			
- Groundwater Recharge	ESA requirements may impact groundwater recharge operations	None anticipated	Supply is dependent on hydrologic conditions
- Groundwater Storage	None anticipated	None anticipated	Supply is dependent on availability of water to store in wet years
- Del Valle	ESA requirements may require downstream flow releases	None anticipated	Supply is dependent on hydrologic conditions
- Desalination	None anticipated	None anticipated	Supply is dependent on local groundwater conditions
- Recycled Water	None anticipated	None anticipated	None anticipated
Banking/Transfers			
- Semitropic Banking	Delta pumping constraints may impact ability to recover water through SWP exchanges	Banked groundwater may require treatment	Supply is dependent on availability of water to store in wet years

* Endangered Species Act

Table 9 Recent DWR publications and stated reliability of Deliveries from the State Water Project

	2002 Report	2005 Report	2007 Report	2009 Report
Average % of Full Allocation in year of report	72%	69%	63%	60%
Primary cause for reduction	N/A	Changes in modeling assumptions and demands	Wanger Decision + Climate Change	Biological Opinions on Salmonids & Smelt + expanded climate change

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Table 10 Projected Normal Year Supply

SUPPLY	2010	2015	2020	2025	2030
Imported Supplies					
- State Water Project	25,500	25,500	25,500	25,500	25,500
- San Francisco Regional	15,400	15,400	15,400	15,400	15,400
Total Imported Supplies	40,900	40,900	40,900	40,900	40,900
Local Supplies					
- Groundwater Recharge	21,400	21,400	21,400	21,400	21,400
- Groundwater Storage	0	0	0	0	0
- Del Valle	7,100	7,100	7,100	7,100	7,100
- Desalination	5,100	5,100	5,100	5,100	5,100
- Recycled Water	0	0	1,600	1,600	1,600
Total Local Supplies	33,600	33,600	35,200	35,200	35,200
Banking/Transfers					
- Semitropic Banking	*N/A – Not intended or needed to meet normal year demands*				
TOTAL SUPPLY	*74,500*	*74,500*	*76,100*	*76,100*	*76,100*

Table 11 Projected Critical Year Supply

SUPPLY	2010	2015	2020	2025	2030
Imported Supplies					
- State Water Project	4,000	4,000	4,000	4,000	4,000
- San Francisco Regional	11,700	13,700	14,100	12,700	13,100
Total Imported Supplies	15,700	17,700	18,100	16,700	17,100
Local Supplies					
- Groundwater Recharge	15,600	15,600	15,600	15,600	15,600
- Groundwater Storage	10,000	10,000	10,000	10,000	10,000
- Del Valle	100	100	100	100	100
- Desalination	5,600	5,600	5,600	5,600	5,600
- Recycled Water	0	0	1,600	1,600	1,600
Total Local Supplies	31,300	31,300	32,900	32,900	32,900
Banking/Transfers					
- Semitropic Banking	13,800	13,800	13,800	13,800	13,800
TOTAL SUPPLY	*60,800*	*62,800*	*64,800*	*63,400*	*63,800*

Notes:

1. Critical Dry Year conditions are based on projected water supply availability under 1977 drought conditions.
2. Semitropic Banking assumes ACWD's existing recovery capacity increased by 300 AF/Yr (from 13,500 AF/Yr to 13,800 AF/Yr), per 2010 Re-circulated Draft EIR for the Patterson Ranch Planned District.

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Table 12 Projected Multiple Dry Year Supply

SUPPLY	2026	2027	2028	2029	2030
Imported Supplies					
-State Water Project	13,900	17,400	12,400	16,200	16,300
- San Francisco Regional	15,300	15,300	13,100	15,300	15,300
Total Imported Supplies	29,200	32,700	25,500	31,500	31,600
Local Supplies					
- Groundwater Recharge	12,700	12,100	9,900	19,800	14,000
- Groundwater Storage	9,100	0	10,000	0	3,300
- Del Valle	900	5,200	1,000	3,400	1,000
- Desalination	5,000	5,000	2,000	1,900	2,600
- Recycled Water	1,600	1,600	1,600	1,600	1,600
Total Local Supplies	29,300	23,900	24,500	26,700	22,500
Banking/Transfers					
- Available Semitropic Banking	17,900	19,900	17,100	19,200	19,200
TOTAL SUPPLY	*76,400*	*76,500*	*67,100*	*77,400*	*73,300*

Notes:

1. Multiple Dry Year conditions based on projected water supply availability under 1929-33 drought conditions.
2. Semitropic Banking assumes ACWD's existing pump back recovery capacity increased by 300 AF/Yr (from 13,500 AF/Yr to 13,800 AF/Yr), per 2010 Re-circulated Draft EIR for the Patterson Ranch Planned District.

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Table 13 Water Supply and Demand Comparison: Normal Year

SUPPLY/DEMAND	Year				
	2010	**2015**	**2020**	**2025**	**2030**
Total Supply	74,500	74,500	76,100	76,100	76,100
Forecast Demands	65,200	69,000	69,800	70,900	72,400
Anticipated Shortage	*none*	*none*	*none*	*none*	*none*

Notes:

1. All values rounded to the nearest 100 AF.
2. Forecast Demands include Project demands.

Table 14 Water Supply and Demand Comparison: Critical Dry Year

SUPPLY/DEMAND	Year				
	2010	**2015**	**2020**	**2025**	**2030**
Total Supply	60,800	62,800	64,800	63,400	63,800
Forecast Demands	60,900	64,700	65,500	66,600	68,100
Anticipated Shortage	-100	-1,900	-700	-3,200	-4,300

Notes:

1. All values rounded to the nearest 100 AF.
2. Forecast Demands include Project demands.
3. Critical Dry Year conditions are based on projected water supply availability under 1977 drought conditions.

Table 15 Water Supply and Demand Comparison: Multiple Dry Year

SUPPLY/DEMAND	Year				
	2026	**2027**	**2028**	**2029**	**2030**
Total Supply	76,400	76,500	67,100	77,400	73,300
Forecast Demands	67,100	66,300	62,200	62,700	64,000
Anticipated Shortage	*none*	*none*	*none*	*none*	*none*

Notes:

1. All values rounded to the nearest 100 AF.
2. Forecast Demands include Project demands.
3. Multiple Dry Year conditions are based on projected water supply availability under 1929-1933 drought conditions; supply includes access to stored water in Semitropic

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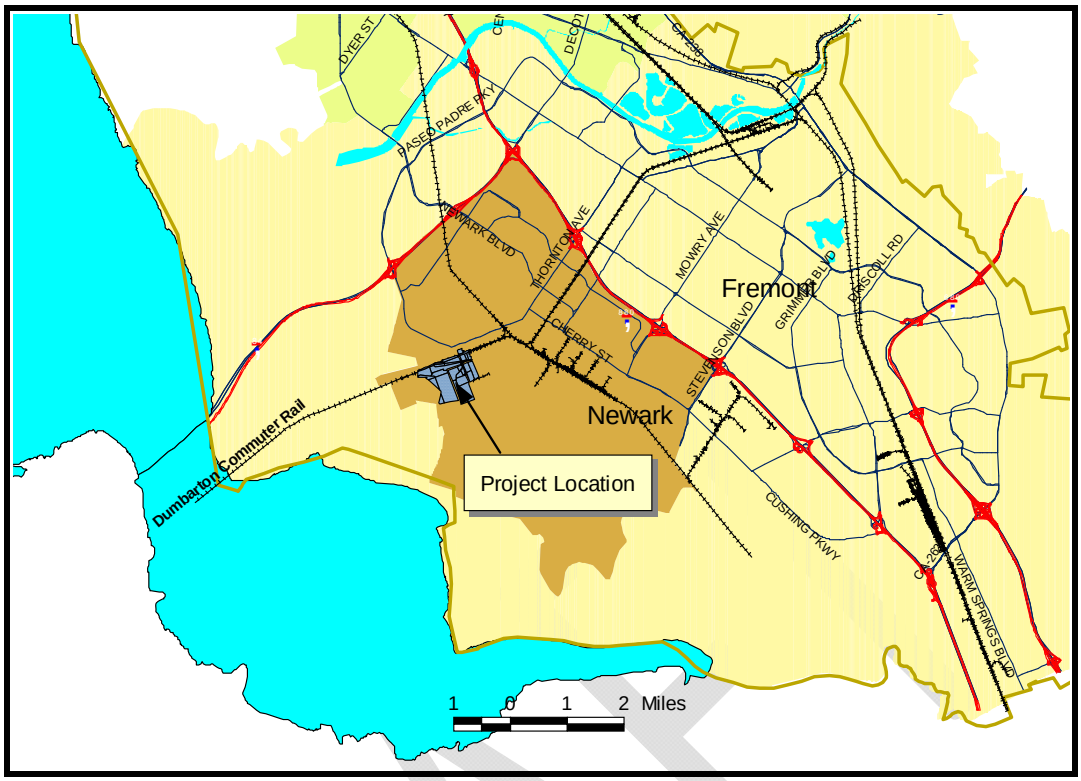

Figure 1 ACWD Service Area and Dumbarton Transit Oriented Development Project Location Map

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ATTACHMENT A
Letter of Request from City of Newark for Water Supply Assessment

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CITY OF NEWARK, CALIFORNIA

37101 Newark Boulevard • Newark, California 94560-3796 • (510) 578-4000 • FAX (510) 578-4306

July 15, 2010

Eric Cartwright
Alameda County Water District
43885 South Grimmer Boulevard
Fremont, CA 94538

RE: **Water Supply Assessment for Draft Environmental Impact Report for the Dumbarton Transit Oriented Development**

Dear Mr. Cartwright:

As the Lead Agency, the City of Newark is preparing an Environmental Impact Report for the Dumbarton Transit Oriented Development, located in Newark. This is a 2,500 unit residential community with pedestrian and transit orientation. A description of the proposed project and a location map are attached. In accordance with the requirements of State law (SB 610) and the California Environmental Quality Act (CEQA) Guidelines, the City of Newark requests that you provide an analysis of whether the Alameda County Water District has adequate water supply to serve this project.

Please provide the City of Newark with a water supply assessment identifying whether the projected water supply for the next 20 years, based on normal, single dry, and multiple dry years, and including existing and planned future water users, is adequate to meet the demand projected for the proposed development. In conformance with the California Water Code Section 10910(d)(1), please include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system. In addition, please include the following information in the water supply analysis:

a) Written contracts or other proof of entitlement to an identified water supply;
b) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system;
c) Federal, State, and local permits for construction of necessary infrastructure associated with delivering the water supply; and
d) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

If the water supply for this project will include groundwater, please also provide the following additional information in your analysis:

a) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project;
b) A description of any groundwater basin or basins from which the proposed project will be supplied;
c) A detailed description and analysis of the amount and location of groundwater pumped by the public water system; and
d) An analysis of the sufficiency of the groundwater from the basin or basins from which the project will be supplied to meet the projected water demand associated with the proposed project.

According to California Water Code Section 10910(g)(1), the deadline for your response is 90 days after receipt of this request; however, we would appreciate an earlier response, if possible. Please identify a contact person, and send your response to:

Terrence Grindall
Community Development Director
City of Newark
37101 Newark Blvd.
Newark, California 95020

Thank you for your assistance in this matter. Please do not hesitate to contact me at 510-578-4208, if you have any questions regarding this request or the proposed project.

Sincerely,

Terrence Grindall

Terrence Grindall
Community Development Director

Attachment: Description and location map

DUMBARTON TOD PROJECT DESCRIPTION

The Dumbarton Transit-Oriented Development (TOD) is an infill development containing a mix of 2,500 housing units designed to meet the demands of the City of Newark and the surrounding community. The Dumbarton TOD project is located in the City limits, and is a 207-acre project area. Approval of the Specific Plan, Zoning Amendments, Development Agreement and other City entitlements will facilitate the Dumbarton TOD Development. It will provide a broad range of new housing opportunities, retail and business opportunities, park and open space amenities.

The Dumbarton TOD Community Plan will include a wide range of housing types in an integrated design that encourages interaction between residents of each housing type. The design incorporates open space areas throughout the property at varying levels of use intensity.

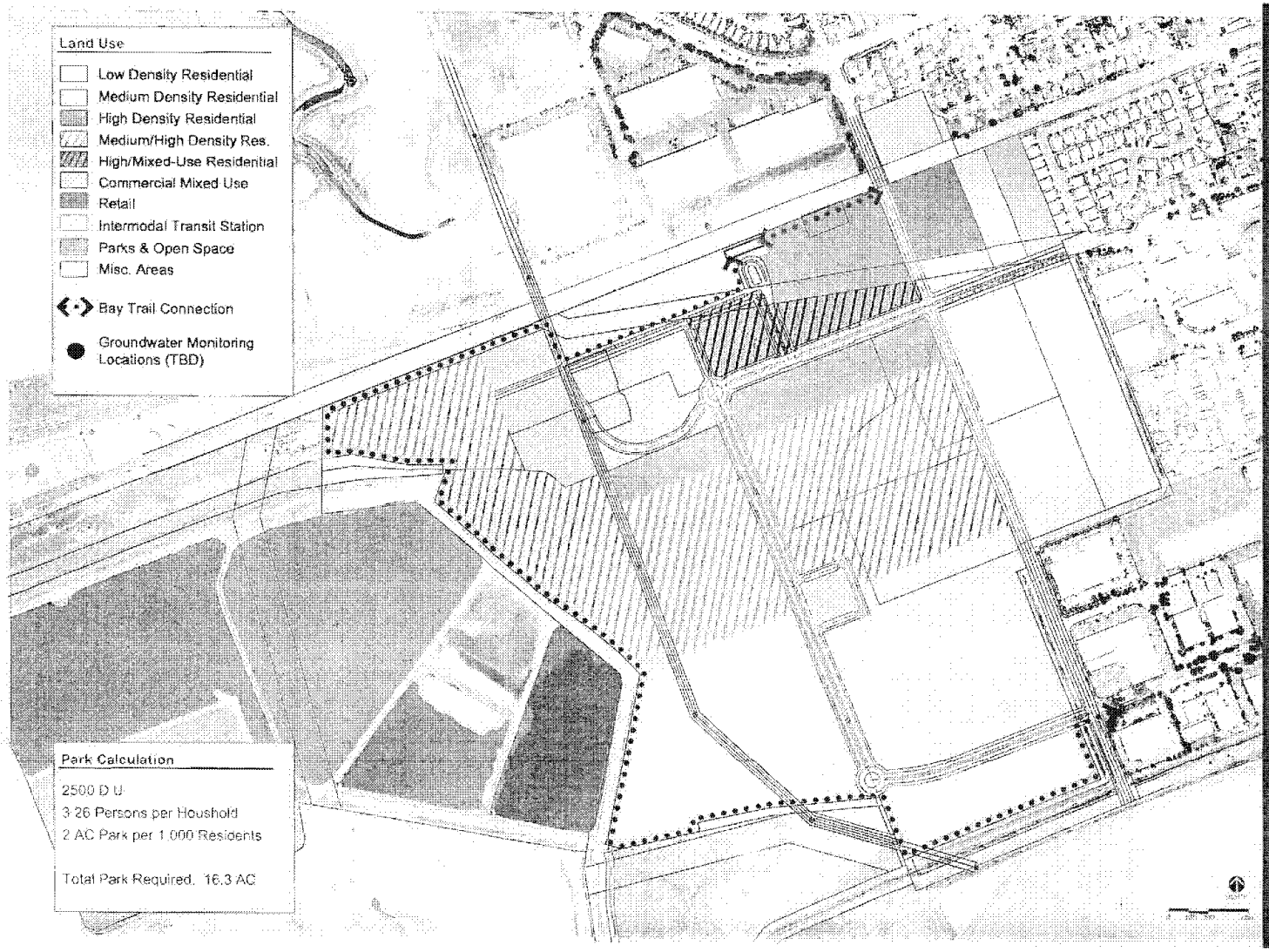
The largest of the planned open space area is located in the northwestern portion of the site, adjacent to the west side of the Dumbarton Commuter Rail Line Station. This park and open space area is intended to serve the greater community of Newark as it's size allows for the larger programmed sports fields, picnic areas, outdoor amplified musical and dramatic performances and open areas for both active and passive recreation. This park is approximately 6 acres in size and utilizes land that is unavailable to residential uses due to PG&E power lines and associated easements that run directly through this area.

The proposed project includes approximately 135 acres of for sale and for rent single-family homes, multi-family homes and affordable homes; approximately 17 acres of parks and open space; approximately 12 acres of commercial retail and commercial office; and approximately 6 acres of municipal uses. The remainder of the project land will be used for road right-of-way and easements around the project area.

The chart below shows how the distribution of home types and other land uses could be distributed as an example:

Land Use	Density Range/Acre	Average Lot Size SQFT	Units/SQFT	Gross Acres
Low Density Residential	8-14	4,000	168	13
Medium Density Residential	14-25	3,000	726	66
Medium High Density Res.	14-60	2,000 per unit	1176	43
High Density Residential	26-60	1,500 per unit	310	11
High/Mixed-Use Res.	26-60	1,500 per unit	120	5
Commercial Retail/Office	40% FAR		230,000	13
Parks and Open Space				17

Above: Figure 1.2: Depot Concept with site shown in transparent white color. Map provided by Google.



Dumbarton TOD Specific Plan

Newark, CA

DAHLIN GROUP

Conceptual Land Use Plan

01.29.10

ATTACHMENT B – ACWD URBAN WATER MANAGEMENT PLAN 2006-2010

DRAFT

ATTACHMENT C
ACWD WATER SUPPLY CONTRACTS

- **State Water Project Water Supply Contract (partial)**
- **San Francisco Water Supply Contract**

(note: Complete State Water Project Supply Contract is available on DWR website: http://www.swpao.water.ca.gov/wsc/index.cfm)

DRAFT

ATTACHMENT D – WATER EFFICIENCY MEASURES FOR NEW DEVELOPMENTS

DRAFT

WATER EFFICIENCY MEASURES FOR NEW RESIDENTIAL DEVELOPMENT - V.060810			
GPF = gallons per flush, GPM = gallons per minute, WF = water factor			
Indoors	**Flow Rate**	**Recommendation Details**	**Future Federal or State Requirements**
Toilets	**1.28 GPF**	High efficiency toilets (HET) have a flush volume of 1.28 GPF, dual flush models are also considered HETs, with an average flush less than 1.28 GPF. Choose HETs that are third party tested and certified as passing a 350 g or higher flush volume test as established by the Uniform North American Requirements.	Will be mandatory to comply with CALGreen under the prescriptive method - effective 1/1/2011 Required for all after 2013
Showerheads	**2.0 GPM**	EPA's Water Sense Program recommends showerheads with a flow rate of 2.0 GPM or less.	Will be mandatory to comply with CALGreen under the prescriptive method - effective 1/1/2011
Lavatory Faucets	**1.5 GPM**	Lavatory faucets with aerators that restrict flow to 1.5 GPM or less.	
Kitchen Faucets	**1.5 GPM**	Kitchen faucets with aerators that restrict flow to 1.5 GPM or less.	
Clothes Washers	**6 WF**	High efficiency clothes washers (HEW) with a water factor of 6 have a maximum average water use of 6 gallons per cubic foot of laundry. HEWs are typically front loading horizontal axis washers.	Potential requirement In 3-5 years
Outdoors		**Recommendation Details**	**Future Federal or State Requirements**
Turf Landscaping		Limit turf to areas where it is functional. Avoid planting turf in narrow, odd-shaped areas which are hard to irrigate efficiently.	Many of these measures are now required as part of the CA Model Water Efficient Landscape Ordinance effective 1/1/2010
Non-turf Landscaping		Select native or low water using plant species. High water using plants should be grouped together and irrigated seperately.	
Irrigation System		Irrigation systems should be designed to maximize efficiency and reduce water waste by minimizing overspray and runoff. Use low volume (e.g., drip) irrigation in non-turf areas.	
Irrigation Controller		An automatic, self-adjusting irrigation controller is recommended. Automatic, self-adjusting controllers utilize prevailing weather conditions, current and historic evapotranspiration, soil moisture levels, and other relevant factors to adapt water applications to meet the needs of plants.	
Overhead Sprinklers and Spray Heads		Should not be used in narrow areas, eight (8) feet wide or less, or where adjacent to impervious surfaces where overspray and excess run-off can occur.	
Valves and Circuits		Should be separated into hydrozones based on plant type and plant water needs.	
Decorative		All decorative fountains should recycle water.	
Swimming Pools and Spas		Covers should be used on all pools or spas.	
Bay-Friendly Landscaping Best Practices		Adopt the Bay-Friendly Program's (Stopwaste.org) 7 best practices for landscaping and gardening. 1. Landscape Locally; 2. Landscape for Less to the Landfill; 3. Nurture the Soil; 4. Conserve Water; 5. Conserve Energy; 6. Protect Water & Air Quality; 7. Create Wildlife Habitat	

WATER EFFICIENCY MEASURES FOR NEW COMMERCIAL DEVELOPMENT- V.060810			
GPF = gallons per flush, GPM = gallons per minute, WF = water factor			
Indoors	**Flow Rate**	**Recommendation Details**	**Future Federal or State Requirements**
Toilets	**1.28 GPF**	High efficiency toilets (HET) have a flush volume of 1.28 GPF, dual flush models are also considered HETs, with an average flush less than 1.28 GPF. Choose HETs that are third party tested and certified as passing a 350 g or higher flush volume test as established by the Uniform North American Requirements.	Will be mandatory to comply with CALGreen under the prescriptive method - effective 1/1/2011 Required for all after 2013
Urinals	**0.5 GPF**	High efficiency urinals (HEU) have a flush volume of 0.5 GPF or less.	
Showerheads	**2.0 GPM**	EPA's Water Sense Program recommends showerheads with a flow rate of 2.0 GPM or less.	Will be mandatory to comply with CALGreen under the prescriptive method - effective 1/1/2011
Lavatory Faucets	**.5 GPM**	Lavatory faucets with aerators that restrict flow to .5 GPM or less.	
Kitchen Faucets	**1.5 GPM**	Kitchen faucets with aerators that restrict flow to 1.5 GPM or less.	
Clothes Washers	**6 WF**	High efficiency clothes washers (HEW) with a water factor of 6 have a maximum average water use of 6 gallons per cubic foot of laundry. HEWs are typically front loading horizontal axis washers.	Potential requirement in 3-5 years
Cooling Towers		Should be equipped with a recirculating system with a minimum of five (5) cycles of concentration. Newly constructed cooling towers should be operated with conductivity controllers, as well as make up and blowdown meters	
Food Steamers		Should be boiler less or self-contained where applicable.	
Ice Machine		Should be air-cooled, or use no more than 25 gallons of water per 100 pounds of ice and should be equipped with a recirculating cooling unit.	
Commercial Refrigeration		Should be air-cooled or if it is water cooled it should have a closed loop system.	
Pre-rinse Dishwashing Spray Valve	**1.2 GPM**	Should have a maximum flow rate of 1.2 or less GPM.	
Vehicle Wash		Shall reuse a minimum of 50% of the water.	
Outdoors		**Recommendation Details**	**Future Federal or State Requirements**
Turf Landscaping		Limit turf to areas where it is functional. Avoid planting turf in narrow, odd-shaped areas which are hard to irrigate efficiently.	Many of these measures are now required as part of the CA Model Water Efficient Landscape Ordinance effective 1/1/2010
Non-turf Landscaping		Select native or low water using plant species. High water using plants should be grouped together and irrigated seperately.	
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Decorative fountains		All decorative fountains should recycle water.	
Swimming Pools and Spas		Covers should be used on all pools or spas.	
Bay-Friendly Landscaping Best Practices		Adopt the Bay-Friendly Program's (Stopwaste.org) 7 best practices for landscaping and gardening. 1. Landscape Locally; 2. Landscape for Less to the Landfill; 3. Nurture the Soil; 4. Conserve Water; 5. Conserve Energy; 6. Protect Water & Air Quality; 7. Create Wildlife Habitat	