

Appendix G - Water Supply Assessment

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Water Supply Assessment

Introduction

This document regarding the proposed Downtown Specific Plan (DTSP) project is a Water Supply Assessment (WSA) intended to satisfy the requirements of Senate Bill 610. The regional and local context for the project's water demand is included in this document to provide City decision-makers a regional framework on which to base a decision about the sufficiency of water supplies for the proposed project.

This report is organized following a basic hierarchy to describe each issue: regional context (Orange County Groundwater Basin and Metropolitan Water District of Southern California), local context (City of Huntington Beach), and finally project-level analysis for the proposed DTSP. The report organization is as follows:

- 1) Introduction
- 2) Water supply – historical and projected
- 3) Water demands – historical and projected
- 4) Regional and local land-use planning setting
- 5) Comparison of Supply and Demand with and without Conservation
- 6) Conclusion of Analysis
- 7) Plans for Obtaining Sufficient Supply – Local and Regional programs

The final WSA for this project must be approved by the City Council, and its conclusions incorporated into other environmental documents as necessary, including but not limited to the Environmental Impact Report. The water supply analysis contained herein is one of many items to be considered before approval of the proposed project.

1.1 WATER SUPPLY

1.1.1 Potable Water

The City of Huntington Beach is the principal water retailer within the City boundaries and the Sunset Beach area of unincorporated Orange County. The water service area includes the Downtown Specific Plan area. The Huntington Beach Public Works Department (Public Works) is responsible for operating and maintaining wells, reservoirs, imported water connections, distribution pipelines, fire hydrants, water meters, and related infrastructure. In addition, Public Works also conducts comprehensive water quality

testing and monitoring programs and develops long-range operational and engineering plans designed to prepare for future needs and contingencies.

The City of Huntington Beach is 56.1 percent owner and acts as General Manager/Engineer for the West Orange County Water Board (WOCWB). The WOCWB is a joint powers agreement between the cities of Huntington Beach, Garden Grove, Westminster, and Seal Beach for the ownership and operation of two large capacity turnouts (OC-9 and OC-35) connected to the imported water system.

1.1.2 Water Sources and Supplies

The City's drinking water is a blend of surface water imported by the Metropolitan Water District of Southern California (Metropolitan) via its member agency Metropolitan Water District of Orange County (MWDOC), and groundwater pumped from the Santa Ana River basin.

Metropolitan's imported water sources are from the Colorado River Aqueduct (CRA) and the State Water Project (SWP), which draws water from the San Francisco-San Joaquin Bay Delta via the California Aqueduct. The amount of water delivered to the City by MWDOC currently accounts for about one-third of the total water used in the City. The City maintains three imported water connections with Metropolitan. As stated above, two connections are operated under the WOCWB joint powers agreement and the third is controlled solely by the City. One connection (OC 9) enters Huntington Beach at Newland Street and Edinger Avenue, and has the capacity to deliver 6,300 gpm into the water system. The second connection (OC 35) is located at Springdale Street and Glenwood Drive with a capacity of 9,000 gpm. The third connection (OC 44) enters Huntington Beach at the Santa Ana River and Adams Avenue with a capacity of 6,700 gpm.

Groundwater comes from a natural underground reservoir managed by the Orange County Water District (OCWD) that stretches from the Prado Dam and fans across the northwestern portion of Orange County, excluding the communities of Brea and La Habra, and as far south as the El Toro "Y". In general, approximately two-thirds of the City's water supply comes from groundwater wells accessing the Orange County Basin. OCWD's allowable Basin Pumping Percentage (BPP) establishes the annual pumping percentage per OCWD member and may vary annually. Within the City, groundwater for potable use is produced from ten operating wells that vary in depth from 306 feet to 996 feet, with production ranging from 500 gallons per minute (gpm) to 3,400 gpm. Total capacity of the ten wells is 25,050 gpm.

1.1.3 Current Conditions

California is currently facing a significant water crisis. After experiencing two years of drought and the driest spring on record (2008), water reserves are low. With the Sacramento-San Joaquin Delta ecosystem waning, recent court-ordered restrictions on water deliveries from the Delta have forced the Department of Water Resources (DWR) to restrict pumping in the Delta to protect the threatened delta smelt, thereby reducing the amount of water available to Metropolitan and other SWP contractors by 20 to 30 percent. Drought conditions in the Colorado River Basin and a Sierra snow-pack that is more unreliable due to global climate variation are leaving many communities throughout California facing mandatory

restrictions on water use and/or rising water bills. In June 2008, the Governor issued Executive Order S-06-08 declaring a statewide drought, which directed state agencies and departments to take immediate action to address drought conditions and water delivery reductions that exist in California.

Due to drought conditions and uncertainty regarding future pumping operations from the SWP, Metropolitan has worked with member agencies to put together a Water Supply Allocation Plan (Met WSAP). The plan allocates water to members based on the Regional Shortage Level experienced in Metropolitan's service area; higher regional shortages result in larger supply cutbacks.

1.1.4 Supply Considerations

This WSA for the proposed Downtown Specific Plan area was prepared during a very unique period in California's water history. Water year 2007 was a dry year throughout California, with parts of Southern California setting new records for minimum annual precipitation (California DWR 2009). As previously stated, statewide water supplies are currently limited by below-normal precipitation in much of the State, nine dry years in the Colorado River Basin, and SWP currently having pumping restrictions. These circumstances continue to threaten statewide water supplies; however, the statewide supply situation is subject to change and precipitation could return to normal or above-normal in the near-term and then extend over many years. This assumes that precipitation history will repeat itself and cyclical wet hydrologic periods return. In addition, forthcoming case law or new pumping technology could lift the SWP pumping restrictions; thereby, returning the system to firm delivery capacity. Therefore, for comparison purposes normal "Base Year" supply, Water Supply Allocation Plan Year "WSAP Year" supply, and various demand scenario comparisons will be presented in this analysis.

1.1.5 Metropolitan Water Supply Planning

For future years in which Metropolitan's supplies are insufficient to meet firm demands, imported supplies to MWDOC will be managed in accordance with the Met WSAP. Because the City is not a direct Metropolitan member, the effects of the Met WSAP on MWDOC and its subsequent supply actions as it relates to member agencies follows later in this section. The plan includes sample calculations for determining a particular member agency's allocation, as well as estimated retail and wholesale reliability for member agencies based on a given percent reduction in total supply (shortage percentage).

On February 12, 2008, the Metropolitan Board of Directors officially adopted the Met WSAP. The Met WSAP includes estimated retail and wholesale reliability for member agencies based on shortage percentage. The shortage percentages, which correspond to designated shortage levels outlined in the plan, cover 5 percent increments from 5 to 50 percent. Under each shortage level, there are specific wholesale minimum allocations for each member agency. The Met WSAP also includes graphs and tables showing an estimate of the wholesale minimum allocations for each of the member agencies in a Level 2 Regional Shortage (10 percent), Level 4 Regional Shortage (20 percent), and in a Level 6 Regional Shortage (40 percent). Table 1.1.5-1 (Wholesale Reliability for Imported Supplies within the Basin (AFY)) shows the level of regional shortage by percentage for the MWDOC basin.

Table 1.1.5-1 Wholesale Reliability for Imported Supplies within the Basin (AFY)

<i>Shortage Percentage (Regional Shortage)</i>	<i>Level 2 Regional Shortage 10%</i>	<i>Level 4 Regional Shortage 20%</i>	<i>Level 6 Regional Shortage 40%</i>
MWDOC (in basin)	94.9%	89.2%	78.3%

SOURCE: Metropolitan Water District of Southern California. Board of Directors, Water Planning and Stewardship Committee. February 12, 2009 Board Meeting.

Recent Activity

The Metropolitan Board of Directors approved the implementation of Metropolitan’s Met WSAP at a Level 2 on April 14, 2009. This action was taken in order to manage demands through the period of July 1, 2009, through June 30, 2010, given the limited supplies available in the current calendar year, including limiting withdrawals of storage in order to maintain reasonable reserve levels.

Metropolitan’s monthly report provides updates for regional water supply and demand conditions and potential actions under the Water Surplus and Drought Management Plan (WSDM Plan). The WSDM Plan provides the overall strategy for managing Metropolitan’s resources to meet the range of estimated demands for the current calendar year. This report considers conditions as of May 21, 2009.

The WSDM Plan calculates reliable supply capacity for the current and next calendar years, which includes the supplies in Metropolitan’s Five Year Supply Plan Resource Option. Based on these estimates, Metropolitan determines its supplies in the region that are currently available to meet customer demands. This WSA prepared for the Downtown Specific Plan area assumed that based on the Delta pumping limitations and year three of a statewide drought, the water supply situation will not change radically over the next twenty years. With this understanding, for conservative water supply planning purposes, supplies are held constant per allocation over this same period. Table 1.1.5-2 (New Metropolitan Supply and Allocation CY 2009 with Five-Year Supply Plan Resource Option [MAF]) shows the supplies available to Metropolitan beginning 2010 and extending annually to 2015 and out to 2030.

Table 1.1.5-2 New Metropolitan Supply and Allocation CY 2009 with Five-Year Supply Plan Resource Option (MAF)

<i>Year</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>2020</i>	<i>2025</i>	<i>2030</i>
CRA ^a	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
SWP ^b	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Total	2.01									

Note: The numbers in this table don’t add up due to original rounding.

SOURCE: Metropolitan, Water Surplus and Drought Management Plan Report, May 2009 (Appendix G[d])

a. *Metropolitan Water Surplus and Drought Mgt Plan, 5/ 21/2009, CRA - Colorado River Aqueduct.*

b. *Metropolitan Water Surplus and Drought Mgt Plan, 5/ 21/2009, SWP – State Water Project.*

MAF = million acre-feet

CY = calendar year

1.1.6 MWDOC's Water Supply Planning

MWDOC was formed for the purpose of contracting with Metropolitan to acquire supplemental imported water supplies from northern California and the Colorado River for use within Orange County. MWDOC is a regional water wholesaler and resource planning agency, managing all of Orange County's imported water supply with the exception of water imported to the cities of Anaheim, Fullerton, and Santa Ana. MWDOC serves more than 2.3 million residents in a 600-square-mile service area and is Metropolitan's third largest member agency. It is through MWDOC that the City of Huntington Beach purchases imported water from Metropolitan.

Direct-use water (water directly piped from treatment facilities or wells to homes and commercial and institutional buildings, as opposed to indirect use, which is water needed to replenish groundwater storage and to serve as a barrier against saltwater intrusion) in MWDOC's service area comes from both local and imported supplies. Local supplies developed by individual member agencies, primarily groundwater, presently account for about 50 percent of MWDOC's direct water use. Other local supplies include recycled wastewater and surface water. The remaining 50 percent of direct water use demand is met by imported water from Metropolitan.

Recent Activity and WSAP

For the past year, MWDOC staff has nearly completed its work on the development of MWDOC's WSAP, in response to the actions under Metropolitan's Met WSAP. Through MWDOC Board's recommended policy principles, member agency technical workshops, and MWDOC Committee meetings, staff developed a plan to allocate imported water in a fair and equitable manner to all of its 28 member agencies within its service area.

As of spring 2009, MWDOC's Board of Directors voted unanimously for implementation of MWDOC's WSAP. In conjunction with the WSAP, the MWDOC Board officially declared a regional water shortage. The WSAP is being implemented at Stage 2—a 10 percent reduction in available imported water supply—and will be effective July 1, 2009, through June 30, 2010. MWDOC's Board took action as a result of Metropolitan's Board of Directors calling for a Stage 2, or 10 percent reduction, on April 14, 2009. The WSAP uses the water supply data provided via imported supplies from Metropolitan conveyed to MWDOC and groundwater supplies managed by OCWD. MWDOC determined the supplies that will be available to each retailer in its service area.

1.1.7 OCWD's Water Supply Planning

OCWD was formed in 1933 by a special act of the California Legislature to protect the groundwater basin. The District is neither a wholesale nor a retail water provider; rather, the District manages the groundwater basin through regional recharge programs. Recharge is accomplished with local and imported water supplies to offset pumping from the Basin. Because OCWD is the manager of the Basin and not an urban water supplier, it is not required to develop an UWMP; however, in 2004, OCWD adopted a Groundwater Management Plan (GMP) in its capacity to ensure sufficient water supplies for present and future beneficial uses within Orange County. An update to the OCWD GMP was released in

May 2009. The GMP has objectives to help secure a long-term viable supply of groundwater; this management strategy, described in more detail below, is effectively based upon groundwater recharge programs including the forebay recharge facilities, seawater intrusions barriers, and in-lieu programs and water storage agreements with Metropolitan.

There are twenty-three major producers extracting water from the Orange County groundwater basin, which is managed by OCWD in collaboration with the other water and wastewater agencies.

OCWD’s allowable Basin Pumping Percentage (BPP) establishes the annual pumping percentage per OCWD member and may vary annually. The BPP is set uniformly and is a portion of each member’s water supply that comes from groundwater pumped from the basin. OCWD members pay a Replenishment Assessment (RA) fee for water pumped from the basin. Groundwater production at or below the BPP is assessed the RA. Any production above the BPP is charged the RA plus the Basin Equity Assessment (BEA). The BEA is calculated so that the cost of groundwater production above the BPP is typically higher than purchasing imported potable supplies. This approach serves to discourage, but not eliminate, production above the BPP. The BEA can be increased as needed to discourage production above the BPP. Currently, the BPP is set at 62 percent, and groundwater pumped between 62 percent to a maximum restriction of 64 percent will be charged the sum of the RA and BEA, which is essentially the same rate as the import water rate purchased through MWDOC.

1.1.8 Supplies within the City of Huntington Beach

Total potable supplies within the City are composed of local groundwater and imported water. The MWDOC’s WSAP formula was used to determine water supplies to the City under the current hydrologic conditions. Base Period supplies were formulated by calculating supply deliveries from 2004 - 2006 and then factoring in conservation credits and other specific adjustments.

For conservative water supply planning purposes, these same supply quantities were then extended over the 20-year planning horizon and supplies are held constant according to the prescribed allocation rate. For example, Base Period supplies of 33,323 AFY remain the same over the 20-year planning horizon and each WSAP Stage is presented in the same manner. Table 1.1.8-1 (MWDOC’s WSAP Base Year Supplies [AFY]) shows the supplies available to the City under MWDOC’s WSAP Base Period model (no reductions), hereinafter referred to as “Base Year.” Under this supply scenario commencing in July 2009 through 2010, the City could expect to receive 33,323 AFY.

Table 1.1.8-1 MWDOC’s WSAP Base Year Supplies (AFY)						
<i>Years</i>	<i>2009</i>	<i>2010</i>	<i>2015</i>	<i>2020</i>	<i>2025</i>	<i>2030</i>
Imported Water	12,663	12,663	12,663	12,663	12,663	12,663
Groundwater	20,660	20,660	20,660	20,660	20,660	20,660
Total^a	33,323	33,323	33,323	33,323	33,323	33,323

a. MWDOC’s WSAP Base Year Water Supply Allocation. Assumes 38% Imported Water from MWDOC and 62% BPP of Groundwater from OCWD.

However, as previously discussed, due to reduced statewide water supplies under WSAP Stage 2 supply allocation, the City can expect to receive less than the Base Year water supply allocation, which is estimated to be 31,963 AFY. One short-term solution to compensate for reduction in import supply can be achieved by pumping within the BEA restriction, currently set at two (2) percent above BPP, at a rate essentially the same as the purchasing rate through MWDOC. As shown in Table 1.1.8-2 (MWDOC’s WSAP Stage 2 Supplies with 2009 BEA of 2% or 64% Groundwater (AFY)), under MWDOC’s WSAP Stage 2, additional groundwater pumping within BEA restriction could increase annual supplies by 1,776 acre-feet. Under MWDOC’s WSAP Stage 3, that could increase by 1,688 acre-feet.

<i>Years</i>	<i>2009</i>	<i>2010</i>	<i>2015</i>	<i>2020</i>	<i>2025</i>	<i>2030</i>
Imported Water	12,146	12,146	12,146	12,146	12,146	12,146
Groundwater	21,593	21,593	21,593	21,593	21,593	21,593
Total^a	33,739	33,739	33,739	33,739	33,739	33,739

a. MWDOC WSAP Base Year Water Supply Allocation. Assumes 38% Imported Water from MWDOC and 62% BPP of Groundwater from OCWD, plus 2009 BEA allowance of 2%.

Table 1.1.8-3 (MWDOC WSAP Water Supply Allocation Schedule) shows the supplies that the City could expect to receive under various MWDOC WSAP allocations. For consistency with Metropolitan’s WSDM and Five Year Supply Plan Resource Option allocations and recent implementation of Stage 2 MWDOC reductions, the project WSA takes a conservative approach and assumes that under MWDOC’s WSAP Stage 2 beginning July 1, 2009, the City can expect to receive approximately 31,963 AFY in total supplies. Under MWDOC’s WSAP Stage 2, the City’s allocation reduction equates to a loss of 517 AFY or 12,146 acre-feet of imported supplies. Under MWDOC’s WSAP Stage 3, the City’s allocation reduction equates to a loss of 1,120 AFY or 11,543 acre-feet of imported supplies.

<i>Allocation Schedule of Shortages^a</i>	<i>Import Allocation (AFY)^b</i>	<i>Allocation Reduction Less Base Year Supply</i>	<i>Actual Percentage Reduction from Base Year Demand</i>	<i>Percent of Supply</i>	<i>Supply Total^c</i>
10% (Stage 2)	12,146	517	4.08	95.92%	31,963
15% (Stage 3)	11,543	1,120	8.84	91.16%	30,376
20%	10,732	1,931	15.25	84.75%	28,242
25%	9,920	2,743	21.66	78.34%	26,105
30%	9,108	3,555	28.07	71.93%	23,968
35%	8,296	4,367	34.48	65.52%	21,832
40%	7,484	5,179	40.90	59.10%	19,695
45%	6,672	5,991	47.31	52.69%	17,558
50%	5,861	6,802	53.71	46.29%	15,424

Note: MWDOC’s naming convention of the allocation of shortages shown in column 1 does not equate to an exact percentage of reduction. The actual supply reduction is shown in column 4. For consistency purposes, this EIR utilizes MWDOC’s naming convention, though the actual reductions tend to be smaller (e.g., 10% reduction is closer to 4%).

SOURCE: MWDOC Draft WSAP 2009

- a. Allocation Schedule of Shortages: Stage 2 = 10% and Stage 3 = 15%.
- b. Import Allocation based on Base Year allocation of 12,663 AFY.
- c. Supply total Base Year Allocation of 33,323 AFY. Assumes 38% Imported Water from MWDOC and 62% BPP of Groundwater from OCWD.

Projected supplies are shown in Table 101.8-4 (City of Huntington Beach Supply Allocations with MWDOC’s WSAP Stage 2 and Stage 3 Allocations—Normal, Single-Dry, and Multiple-Dry Years [2009/10–2030]). In addition, Table 1.1.8-5 (City of Huntington Beach Supply Allocations with WSAP Stage 2 and Stage 3 Allocations with BEA 2% Pumping Allowance Normal, Single-Dry, and Multiple-Dry Years [2009/10–2030]) shows the same projected supply scenario as that presented in Table 10.1.8-4 but includes the BEA allowance of two percent, thus raising the groundwater supply from 62 to 64 percent. For water supply planning purposes, the WSA prepared for this project projected further MWDOC WSAP reductions the following year and over consecutive dry years. For example, if next year is another dry year, MWDOC could initiate Stage 3 of the MWDOC WSAP and reduce deliveries accordingly. If this were the case, imported water supplies to the City would be curtailed by 1,120 acre-feet, reduced to 11,543 acre-feet, which is 30,376 AFY in total supplies without the additional two percent BEA allowance (Table 1.1.8-4) and 32,064 AFY in total supplies with the additional BEA allowance (Table 1.1.8-5). The analysis assumed that the probability of multiple dry year events could commence in any given year and extend over three years.

Table 1.1.8-4 City of Huntington Beach Supply Allocations with WSAP Stage 2 and Stage 3 Allocations—Normal, Single-Dry, and Multiple-Dry Years (2009/10–2030)

Supply Allocation	Base Year Water Supply Allocation ^a		WSAP Stage 2 Allocation Single Dry Year ^b		Multiple Dry Year Event ^e					
					WSAP Stage 2 Allocation Dry Year 1 ^c		WSAP Stage 3 Allocation Dry Year 2 ^d		WSAP Stage 3 Allocation Dry Year 3	
	AFY	%	AFY	%	AFY	%	AFY	%	AFY	%
Huntington Beach Allocation	33,323	100	31,963	90	31,963	90	30,376	85	30,376	85

- a. MWDOC Draft WSAP 2009. Assumes 38% imported water from MWDOC and 62% BPP of groundwater from OCWD.
- b. Additional dry year planning projections based on Stage 2 and Stage 3 Allocations.
- c. Stage 2 Allocation in effect beginning in Dry Year 1 – Same as Single Dry Year.
- d. Stage 3 Allocation in effect after Dry Year1 and due to the WSAP model WSAP Stage remains in effect over the next year as well.

Table 1.1.8-5 City of Huntington Beach Supply Allocations with WSAP Stage 2 and Stage 3 Allocations with BEA 2% Pumping Allowance Normal, Single-Dry, and Multiple-Dry Years (2009/10–2030)

Supply Allocation	Base Year Water Supply Allocation ^a		WSAP Stage 2 Allocation Single Dry Year ^b		Multiple Dry Year Event ^e					
					WSAP Stage 2 Allocation Dry Year 1 ^c		WSAP Stage 3 Allocation Dry Year 2 ^d		WSAP Stage 3 Allocation Dry Year 3	
	AFY	%	AFY	%	AFY	%	AFY	%	AFY	%
Huntington Beach Allocation	33,323	100	33,739	90	33,739	90	32,064	85	32,064	85

- a. MWDOC Draft WSAP 2009. Assumes 38% imported water from MWDOC and 62% BPP of groundwater from OCWD. Plus 2009 BEA allowance of 2% would increase base year water total supply up to 35,174 AFY.
- b. Additional dry year planning projections based on Stage 2 and Stage 3 Allocations.
- c. Stage 2 Allocation in effect beginning in Dry Year 1 – Same as Single Dry Year plus 2% BEA pumping.
- d. Stage 3 Allocation in effect with BEA of 2% after Dry Year1 and due to the WSAP model WSAP Stage remains in effect over the next year.

1.1.9 Water Infrastructure, Treatment and Distribution

The City of Huntington Beach has four reservoirs with a total combined capacity of 55 million gallons. Various booster pumps draw water from the reservoirs and pressurize it into the water system during high demand periods. Overmyer Reservoir has a capacity of 20 million gallons. Peck Reservoir has a capacity of 17 million gallons. Edwards Hill Reservoir is the newest facility and has a capacity of 9 million gallons. Springdale Reservoir has a capacity of approximately 9 million gallons.

The City of Huntington Beach also has ten wells, three imported water connections, and a variety of transmission and conveyance facilities. Wells vary in depth from 306 feet to 996 feet and range in production from 500 gallons per minute (gpm) to 3,400 gpm. The total system capacity of the City’s groundwater wells is 25,050 gpm. The booster pumps have a total capacity of 58,690 gpm, which is adequate to keep the system pressurized under peak flow conditions. The City also maintains three imported water connections to the Metropolitan system.

1.2 WATER DEMAND

1.2.1 Demand in Metropolitan’s Service Area

Metropolitan defines “firm demands” as projected firm sales plus 70 percent of projected Interim Agricultural Water Program sales. Demand projections are based on growth forecasted in the Southern California Association of Governments 2004 Regional Transportation Plan and the San Diego Association of Governments 2030 forecasts. Metropolitan calculates firm demands as total demands (retail municipal and industrial as well as agricultural demands) less conservation and local supplies (groundwater, recycled water, local surface supplies used by member agencies). Metropolitan projected firm demands from 2010 to 2030 are shown in Table 1.2.1-1 (Projected Metropolitan Firm Demands in Average-, Single-Dry-, and Multiple-Dry-Year Types [AFY]).

Table 1.2.1-1 Projected Metropolitan Firm Demands in Average-, Single-Dry-, and Multiple-Dry-Year Types (AFY)

	<i>2010</i>	<i>2015</i>	<i>2020</i>	<i>2025</i>	<i>2030</i>
Firm Demands in an Average Year	2,170,200	2,170,492	2,313,613	2,401,926	2,482,325
Firm Demands in a Single-Dry Year	2,344,792	2,380,767	2,363,375	2,363,261	2,344,232
Firm Demands in a Multiple-Dry Year	2,234,558	2,228,203	2,363,908	2,447,761	2,534,113

SOURCE: Metropolitan Water District of Southern California, Communication with Brandon Goshi, July 21, 2009.

1.2.2 MWDOC Water Demands

Regional projected demand in OCWD’s service area, shown in Table 1.2.2-1 (Total Projected Demand within the Basin in a Normal Year (AFY), is based upon demand estimated by the individual producers and submitted to the MWDOC as part of its Annual Survey in Spring 2008. Demands of member agencies located outside of the Orange County Groundwater Basin were removed from the dataset. Non-potable demands were also removed from the dataset. Dry year demands are typically higher than

normal year demands, which is largely due to lack of rainfall and the subsequent need for increased water for landscaping in dry years. However, under the current dry year situation, based on demand reduction measures necessary to support supply reductions, dry year demands are assumed not to increase. In fact, in dry years demands should actually decrease due to water saving efforts; however, due to the speculative nature of conservation achievements, and in order to be conservative, increases in demands are relative to population increases within the City.

Table 1.2.2-1 Total Projected Demand within the Basin in a Normal Year (AFY)					
	<i>2010</i>	<i>2015</i>	<i>2020</i>	<i>2025</i>	<i>2030</i>
MWDOC (in basin)	342,841	362,646	369,814	373,880	375,928
Total Demand^a	500,961	527,828	543,464	550,830	552,797

SOURCE: MWDOC. Water Demands in the OCWD Basin. Projections by the Retail Agency. Draft. 2008. Provided by MWDOC staff upon request.

a. Includes demands in the cities of Anaheim, Fullerton and Santa Ana.

1.2.3 City of Huntington Beach Demands

Similar to other water supply agencies, the City estimates a range of different future water demands, such as average-day demands and other adjusted demands, in order to adequately plan for anticipated growth for water supply and sizing of pipes respectively.

In the City of Huntington Beach, water demand is not dissimilar from other municipal water providers, insofar as demand occurs as a result of consumptive uses by consumers. However, for Huntington Beach, on an annual basis demand equals supply, due to the fact that unaccounted-for system losses are aggregated with distribution deliveries, and due to the presence of a large groundwater basin it is not necessary for the City to maintain any large above ground storage reserves for consumptive uses (storage is provided for fire suppression purposes).

■ Historical City of Huntington Beach Demands

As shown in Table 1.2.3-1 (10 Year Historical Demands 1999–2008), the average demand between 1999 to 2001 is 34,686 AFY, while the average demand in the last 3 years is 32,099, a difference of 2,587 AFY (7.5% reduction from 34,686 AFY). Furthermore, last year’s demand is even lower at 31,691 AFY, a total difference of 2,995 AFY (8.6% reduction from 34,686 AFY). Although demand may increase per capita in the future, based on historical trends and data, along with continued water conservation technology improvements, efforts, education, and public awareness, it is not expected that demand per capita will increase.

Year	Water Demand (AFY)
1999	34,427
2000	35,738
2001	33,893
2002	35,083
2003	33,256
2004	34,061
2005	32,561
2006	31,960
2007	32,645
2008	31,691
Last 3 Year Average	32,099
10 Year Average	33,532
Base Year Demand (Per MWDOC for WSAP)	33,323

■ Downtown Specific Plan Area Demands

Regarding both existing project site water demand and net increase in water demand, refer to Chapter 4 of the Draft EIR.

As a comparison between the projected net increases in water demand of 371 AFY from the Downtown Specific Plan area versus the above mentioned Normal base year demand of 33,323 AFY ($371/33,323$), that only equates to 1.1%. As a comparison between the sum of all previously evaluated projects water demand of 835 AFY and the projected net increase in water demand of 371 AFY from the Downtown Specific Plan area versus the above mentioned Normal base year demand of 33,323 AFY [$(835+371)/33,323$], that equates to 3.6%.

For the purpose of this WSA, the study is based on the projected ultimate net increase in water demand of 371 acre-feet-year (AFY), including an additional 835 AFY for all other previously evaluated projects.

1.3 LAND USE PLANNING, POPULATION AND HOUSING

1.3.1 Land Use Planning

Regarding background on land use planning, refer to Chapter 3 of the Draft EIR.

1.3.2 Population Evaluation and Housing Considerations

■ Population

The population data provided by the DOF are computed and updated annually and therefore, are considered more reflective of current conditions than the population projections prepared by SCAG. For this reason, DOF data will be used in this analysis to provide existing conditions, where they are available. However, SCAG data are also presented for comparison purposes, and are relied upon for future population projections.

The 2008 DOF estimated population of 201,993¹ represents a 0.3 percent increase over the 2007 population of approximately 201,315. Table 1.3.2-1 shows the population growth in the City since 2000, using data derived from the DOF reflecting U.S. Census sources and population estimates. As identified, the City's average annual growth has steadily declined since 2000, with increases between 2007 and 2008 representing only a fraction of what occurred between 2000 and 2001.

Year	Population	Average Annual Growth (persons/year)
2000	189,627	—
2001	192,412	2,785
2002	194,781	2,369
2003	197,087	2,306
2004	198,831	1,744
2005	199,896	1,065
2006	200,608	712
2007	201,315	707
2008	201,993	678

Source: State of California, Department of Finance, E-4 Population Estimates for Cities, Counties and the State, 2001-2008, with 2000 Benchmark. Sacramento, California, May 2008.

The 2004 SCAG Regional Transportation Plan (RTP) Update shows future population projections for Huntington Beach, which are presented in Table 1.3.2-2. These projections are also confirmed locally by the Center for Demographic Research at California State University Fullerton (CSF).²

¹ State of California, Department of Finance, E-1 Population Estimates for Cities, Counties and the State with Annual Percent Change—January 1, 2007 and 2008. Sacramento, California, May 2008.

² California State University Fullerton Center for Demographic Research, Orange County Progress Report. August 2008.

	2005	2010	2015	2020	2025	2030
Population	200,349	212,957	217,822	220,892	222,569	224,788
Households	75,601	77,237	77,720	77,968	78,315	78,839

Source: SCAG 2008, Growth Forecast.

■ Population and Housing Evaluation for Water Supply Planning

Population increases associated with future developments were accounted for in the SCAG 2008 projections and CSF; by 2030, the City population is expected to increase to 224,788, an increase of 22,795 over 2008 population numbers. This equates to an increase of approximately 0.0048 annually.

In terms of dwelling units, using DOF numbers, dwelling units in 2008 were 78,007. Going forward, SCAG projects 78,839 total housing units by 2030. Since the 1990, the City has captured only 3,828 new dwelling units because of the 5,000 constructed 1,172 were demolished or converted. This is the difference between 78,007 and 74,179 as shown in Table 1.3.2-3.

1990 Housing Stock^a	Existing (2008) Housing Stock^b	Permitted General Plan Increase	Net # of DU built since 1990	Remaining allowable growth	Proposed build-out of Specific Plan	Exceedance
74,179	78,007	18,500	3,828	14,672	648	No

Notes:
a. Huntington Beach General Plan EIR. 1995. Table PD-1 Huntington Beach Draft General Plan Buildout.
b. State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2008, with 2000 Benchmark. Sacramento, California, May 2008.

As stated above, based on this information and patterns of development, it seems reasonable to assume that Huntington Beach would not reach the 18,500 dwelling units projected in the General Plan.

According to Table 4.13.1 of the Draft EIR, referencing 648 net new dwelling units at 2.41 pph, this would equate to approximately an increase in population of 1,562.

As a comparison between the projected increase in population of 1,562 from the Downtown Specific Plan area versus the above mentioned projected population of 224,788 by 2030 through census data (1,562/224,788), that only equates to less than 0.7%. Furthermore, the proposed build-out from this project would be less than 5% of total remaining allowable growth in dwelling units per the General Plan.

Although there is a separate Beach/Edinger Corridor Study (BECSP)³, a proposed specific plan has not been approved and adopted by the City, this DTSP WSA also analyzed a scenario which included the projected net increase in water demand of 1,180 AFY for the BECSP, along with the projected net

³ A separate water supply assessment for the BECSP analyzed water supply based on a conservative population increase by year 2030, and such methodology essentially captures and includes all previously evaluated projects, DTSP, BECSP, and any other yet to be identified projects.

increase in water demand of 371 AFY as referenced in the Draft EIR, plus the previously evaluated projects water demand of 835 AFY. This WSA also analyzed the water supply based on projected net increase in water demand of 371 AFY as referenced in the Draft EIR, plus the previously evaluated projects water demand of 835 AFY. However, as stated under Section 10.2.3 of this WSA, the projected net increase in water demand of 371 AFY from the Downtown Specific Plan area versus the above mentioned Normal base year demand of 33,323 AFY ($371/33,323$) that only equates to 1.1%. Additionally, as a comparison between the sum of all previously evaluated projects water demand of 835 AFY and the projected net increase in water demand of 371 AFY from the Downtown Specific Plan area versus the above mentioned Normal base year demand of 33,323 AFY [$(835+371)/33,323$], that equates to 3.6%. In other words, the net increase in projected water demand from DTSP is insignificant when compared to the overall water demand from the City.

For conservative planning purposes, supplies are held constant according to the prescribed allocation rate. For example, Base Year supplies of 33,323 AFY remain the same over the 20-year planning horizon and each WSAP Stage is presented in the same manner. In other words, water supply increases are not proportional to population rate increases.

The study of water supply to meet demands by 2030 under current census projection data is done separately under the water supply assessment for the Beach-Edinger Corridors Specific Plan.

1.4 SUPPLY-DEMAND COMPARISON FOR CITY OF HUNTINGTON BEACH (WITH DTSP & OTHER PREVIOUSLY APPROVED PROJECTS)

This WSA for the proposed Downtown Specific Plan area was prepared during a very unique period in California's water history. Water year 2007 was a dry year throughout California, with parts of Southern California setting new records for minimum annual precipitation (California DWR 2009). As previously stated, statewide water supplies are currently limited by below-normal precipitation in much of the State, nine dry years in the Colorado River Basin, and SWP currently having pumping restrictions. These circumstances continue to threaten statewide water supplies; however, the statewide supply situation is subject to change and precipitation could return to normal or above-normal in the near-term and then extend over many years. This assumes that precipitation history will repeat itself and cyclical wet hydrologic periods return. In addition, forthcoming case law or new pumping technology could lift the SWP pumping restrictions; thereby, returning the system to firm delivery capacity. Therefore, for comparison purposes normal "Base Year" supply, Water Supply Allocation Plan Year "WSAP Year" supply, and various demand scenario comparisons will be presented in this analysis.

For the purpose of this WSA, and for conservative planning purposes, supplies are held constant according to the prescribed allocation rate. For example, Base Year supplies of 33,323 AFY remain the same over the 20-year planning horizon and each WSAP Stage is presented in the same manner. In other words, water supply increases are not proportional to population rate increases. Additionally, the following supply-demand comparison will be based on the following:

- Demands - 2008 demands 31,691 AFY assumed to remain the same for 2009 and 2010 (based on historical trend of water use and current Stage 1 of voluntary water conservation under the City’s Water Management Plan), plus the sum of previously evaluated projects of 835 AFY, and the net increase of 371 AFY from the Downtown Specific Plan area, held constant for the purpose of this study. For very conservative purpose in water supply analysis, it is also assumed that demand will increase starting 2009/2010 to the sum of the ultimate built-out of the DTSP Update and all other previously evaluated projects.
- Supplies – Two supply scenarios, one under current WSAP Stage 2 and Stage 3 allocations (Table 1.1.8-4), and the other under a BEA 2% pumping allowance (Table 1.1.8-5), held constant for the purpose of this study.

1.4.1 Normal, Single-Dry, and Multiple-Dry Year Supply and 2008 Demand Comparison

Table 1.4.1-1 shows the comparison of anticipated supply and calculated demand over the next 20 years under a Normal Year scenario. With this understanding, the City can anticipate a supply surplus in each year between 2010 and 2030.

Table 1.4.1-1: Supply and Demand Comparison with Normal Year Supplies (AFY)					
	Years				
	2009/2010	2015	2020	2025	2030
Supplies ¹	33,323	33,323	33,323	33,323	33,323
Demand ²	32,526	32,526	32,526	32,526	32,526
DTSP Net Increase in Demand	371	371	371	371	371
Difference Between Supply & Demand	426	426	426	426	426
More Water Conservation? / (% More)	N/A	N/A	N/A	N/A	N/A
Notes:					
1. Table 1.1.8-4.					
2. Demand is the sum of 2008 demand (31,691 AFY) plus previous evaluated projects (835 AFY).					

Table 1.4.1-2 shows the comparison of anticipated supply and calculated demand over the next 20 years under a Single-Dry Year scenario. With this understanding, the City can anticipate a supply deficit of 934 AFY in each year between 2010 and 2030, which will require an additional 2.9% in water conservation to balance demand with supply.