WATER SUPPLY ASSESSMENT

Newport Banning Ranch

September 2010

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City of Newport Beach
Water Supply Assessment

Newport Banning Ranch

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Appendices
available at City of Newport Beach
Utilities Department
949 West 16th Street and
www.newportbeachca.gov/BanningRanch

Section 1 – Introduction

The City of Newport Beach (City) retained AECOM USA, Inc. (AECOM) to prepare a Water Supply Assessment (Assessment) for the Newport Banning Ranch Planned Community (Project) to satisfy the requirements set forth in *Senate Bill 610* (SB 610). This Assessment has been prepared by AECOM on behalf of the City with information provided by the City, the Municipal Water District of Orange County (MWDOC), the Orange County Water District (OCWD), and the developer's engineer (Fuscoe Engineering) and landscape architect (FORMA Design).

Section 2 – Purpose

Effective January 1, 2002, SB 610 (codified at California Public Resources Code §21151.9, and Water Code §§10631, 10656, 10657, 10910, 10911, 10912, and 10915) and SB 221 (codified at California Business & Professions Code §11010, and Government Code §§65867.5, 66455.3, and 66473. 7) amended state law to improve the link between information on water supply availability and certain land use decisions made by cities and counties. In general, SB 610 requires that the water purveyor of the public water system prepare a *water supply assessment* to be included in the environmental documentation of certain proposed projects. Similarly, SB 221 requires affirmative *written verification* from the water purveyor of the public water system that sufficient water supplies are available for non-exempt subdivisions of more than 500 residential units in conjunction with (or prior to) approval of a tentative map.

The proposed Project includes, among other components, more than 500 dwelling units and thus compliance with SB 610 is required. In addition, the Project requests a tentative map for more than 500 dwelling units, thus triggering compliance with SB 221. This Assessment has been prepared to only meet the requirements of SB 610, and a separate *written verification* report will be required at a later date in conjunction with approval of the tentative map.

The City has requested the Assessment as part of the environmental review of the Project. This Assessment is intended for use by the City in its evaluation of the Project under the California Environmental Quality Act (CEQA) process. This Assessment evaluates water supplies that are or will be available during normal year, single dry-year, and multiple dry-years conditions over a 20-year projection period, considering existing demands, expected Project demands, and reasonably foreseeable planned future water demands to be served by the City.

This Assessment does not entitle the Project to service or any right, priority or allocation in any supply, capacity or facility, or affect the City's obligation to provide service to its existing customers or any potential future customers. In order to receive service, the Project applicant is required to file a complete application(s) for service with the City together with all forms, fees, plans and specifications, bonds, conveyance of necessary assessments, and meet all other requirements as specified therein.

Section 3 – Findings

Overview

The water demand for the proposed Project was included in the water demand forecasts of the City, as identified by City staff and the *1999 Water Master Plan* (Water Master Plan), and reflected in the *2005 Urban Water Management Plan* (UWMP) and within the planning documents of MWDOC, OCWD, and the Metropolitan Water District of Southern California (Metropolitan). Water supplies necessary to serve the demands estimated for the Project, along with existing and other projected future users, as well as the actions necessary to develop these supplies, have been identified in the water supply planning documents of the City, MWDOC, OCWD, and Metropolitan.

In the previous planning documents, development of the Project site was proposed as a more intensive development with higher water demands than the Project is currently considering (the Project as currently planned has almost 1,000 less residential dwelling units). Since higher densities were considered and accounted for in the City's UWMP, the demands for the current, less intensive Project were also included. Therefore, this Assessment can rely on the demand projections in the UWMP and demonstrates that with the development of the resources identified, there will be sufficient water supplies over a 20-year planning horizon to meet existing demands, the new estimated Project demands, and the other planned development projects within the City's water service area.

As set forth in this Assessment, the City's water supply consists of imported water and groundwater. The City receives its imported water from MWDOC of which it is a member agency. In turn, MWDOC receives much of its supply from Metropolitan of which MWDOC is a member agency. The City's groundwater supply (pumped from wells owned and operated by the City) is managed by OCWD. Additionally, the City purchases some recycled water from OCWD. As such, the City and the analysis and conclusions in this Assessment rely exclusively on the water supply projections in the City's UWMP and the reliability plans of MWDOC, Metropolitan, and OCWD.

During normal water supply year conditions, the City has sufficient potable resources to meet existing and projected year 2030 average annual demands. Similarly, during single dry-year and multiple dry-years conditions, the City also has sufficient potable supplies to meet the existing and projected demands. These findings are summarized in **Section 8**. The adequacy of potable supply is further confirmed in Metropolitan's *Report on Metropolitan's Water Supplies: A Blueprint for Water Reliability* (dated March 2003), which states that Metropolitan will have adequate supplies to meet dry-year demands within its service area over the next 20 years.

In its 2005 Urban Water Management Plan, MWDOC determined the availability of its imported supply is expected to equate to its projected imported demand. MWDOC concluded this because in Metropolitan's Regional 2005 Urban Water Management Plan (Section II.2 - Evaluating Supply Reliability), Metropolitan was able to show that it can maintain 100% reliability in

meeting direct consumptive demand under the conditions that represent normal, single driest, and multi-dry years through 2030.

Recent Events

The case of *NRDC v. Kempthorne* (05-1207, E.D.Cal.) involved an action brought by the National Resources Defense Council (NRDC) to reduce pumping out of the San Francisco Bay-Delta (Delta) in order to protect an endangered fish, the Delta Smelt. A ruling in this case was issued in August of 2007, where the court ordered pumping in the Delta to be temporarily cut back by 30% until a new Biological Opinion could be prepared. Metropolitan estimates that it was unable to receive approximately 250,000 acre-feet (af) of State Water Project (SWP) water in 2008, requiring them to pull water from storage accounts. A new Biological Opinion was submitted at the end of 2008, and the provisions are more stringent than the original cutbacks (by as much as 50% in some cases).

In addition to the SWP pumping restrictions, southern California is in its third consecutive year of drought. In 2008 and 2009, Metropolitan and many local agencies, including the City, called for voluntary water use reductions. Despite these efforts, Metropolitan issued a Water Supply Allocation Plan in July 1, 2009, which initiated mandatory conservation throughout Southern California (reduction by 10%). In this plan, delivery to a member agency of more than its allocated amount of Metropolitan supplies subjects the member agency to a penalty of from one to four times Metropolitan's full service rate for untreated Tier 2 water. In turn, MWDOC has implemented Stage 2 of their Water Supply Allocation Plan, which passes along the increased cost of imported water to its member agencies if the conservation measures are not met.

In 2009, the Orange County Grand Jury issued a report entitled *"Paper Water" – Does Orange County Have A Reliable Future?* where they investigated if and how Orange County's cities and water districts are planning for a redistribution of water supplies away from Orange County. The reason for the investigation stemmed from news reports and warnings from water officials throughout California that raised the following concerns: (1) supply deficiencies are becoming critical due to prolonged drought, (2) the Delta court rulings have forced drastic supply cutbacks, and (3) the deteriorating water delivery infrastructure is subject to severe damage in the event of an earthquake or other natural force. In general, the Grand Jury concluded that more public awareness and process improvement regarding water issues must be made as Orange County continues to develop. Also, the many water agencies in Orange County need to strengthen their unified approach in preparing for a difficult future for Orange County's water resources.

To comprehensively address the impacts of the SWP cutbacks and the drought, Metropolitan developed with its member agencies a Five-Year Supply Plan (Supply Plan) in April 2008 to identify specific resource and conservation actions to manage water deliveries under continued drought conditions and court-ordered restrictions. The Supply Plan focuses on six categories of resource options to improve Metropolitan's reliability from 2009 through 2013, summarized as follows:

- Water Conservation – increase and accelerate conservation savings by: (1) increasing outreach to heighten public awareness of the need to conserve water, (2) motivate

conservation by increasing resources and support for water use ordinances and conservation-based rate structures, and (3) accelerate the installation of water efficient devices.

- Colorado River Transactions – pursue additional supplies along the Colorado River. Metropolitan estimates the following programs could provide an additional 140,000 af of Colorado River Aqueduct (CRA) supply in 2009 with potential increases the following years:
  - Emergency short-term fallowing program with Palo Verde Irrigation District.
  - Participation with the Bureau of Reclamation in pilot operation of the Yuma Desalting Plant.
  - Expansion of the 2004 storage and interstate release agreement with the Southern Nevada Water Authority.
  - Exchange and advance delivery agreement with the Coachella Valley Water District.
  - Water exchange with Arizona and fallowing program with the California Indian tribes.
- Near-Term Delta Actions – develop measures that protect fish species and reduce supply impacts, such as habitat and hatchery projects, and physical and operational actions with the goal of reducing conflicts between water supply conveyance and environmental needs.
- SWP Transactions – through the California Department of Water Resources' Drought Water Bank, facilitate transfers from willing sellers located upstream of the Delta to buyers through the SWP and Central Valley Project. Metropolitan took delivery of 29,000 af from the Drought Water Bank in 2009.
- Groundwater Recovery – increase supply through groundwater that requires treatment and recovery for consumptive use. It is estimated that there is over 300,000 af of groundwater that could be treated and recovered in Metropolitan's service area.
- Local Resources – work with member agencies to expand and/or accelerate local projects with a potential to be online within the next five years (e.g., recycled water treatment plants, groundwater recovery plants, desalination plants, and new hookups to existing recycled plants). Over 50 potential projects have been identified with an estimated total annual yield of 122,000 af by 2013.

Metropolitan is also working on a 2009 Update to their Integrated Resources Plan (IRP). Through this IRP update process, Metropolitan will identify changes to the long-term plan and establish direction to address the present and future challenges brought by record drought, climate change, and environmental concerns.

(For more information on recent events related to Metropolitan, please refer to their 2009 Bond Disclosure Statement, Appendix A. An electronic copy is located in **Appendix B.**)

At a local level within Orange County, several efforts are underway to mitigate the imported supply losses and improve reliability. Phase 2 of OCWD's Groundwater Replenishment System (GWR System) project is now under design to increase production from 72,000 af per year (af/yr) to 102,000 af/yr. The initial GWR System was completed and on-line in January 2008,

and augments existing groundwater supplies by producing purified water to recharge the basin. Also, MWDOC is currently looking at two potential ocean desalination plants to produce new supplies and offset approximately 9% of the water imported into Orange County. However, it is not known when these facilities are expected to be constructed and producing water. Therefore, desalination was not considered in this Assessment.

Within the City, an ordinance was adopted in December 2009 titled "Chapter 14.16 Water Conservation and Supply Level Regulations" to define careful water management practices to ensure a reliable minimum supply of water to meet current and future supply needs. The ordinance creates a Water Conservation and Supply Shortage Program that establishes permanent water conservation requirements during non-shortage conditions, and further establishes four levels of water supply shortage response actions to be implemented within the City during times of declared water shortage. A detailed summary of this ordinance is provided in **Section 6**.

While the issues of drought, climate change, and environmental concerns will continue to provide challenges to water suppliers in California, this Assessment concludes that sufficient water exists for the Project with the development of the resources and projects discussed in the planning documents of the City's water suppliers. The water agencies involved in providing that supply are devoting considerable resources and energy to maintaining a reliable supply for customers and potential customers within their service areas.

Section 4 – Project Description

The Project is a 400-acre, multi-use, planned development that is generally located north of West Coast Highway (HWY-1), east of the Santa Ana River channel, south of the Talbert Nature Preserve, and west of Superior Avenue (see **Figures 4-1 and 4-2**). Approximately 40 acres of the site are located within the incorporated boundary of the City; the remainder of the site is within unincorporated Orange County. The entire site is within the boundary of the Coastal Zone as established by the California Coastal Act.

The Mesa Consolidated Water District (MCWD), located just north and adjacent to the City, has an 18 mile service area that includes the City of Costa Mesa, parts of the City, and some unincorporated sections of Orange County. The Project's north and northeast boundaries are adjacent to MCWD's service area.

As shown on **Figure 4-1**, the Project is located between and outside the existing service areas of the City and MCWD, but is within the City's adopted Sphere of Influence (SOI). Therefore, annexation and a boundary adjustment will be required and coordinated through the Local Agency Formation Commission (LAFCO). The City is a full service agency which provides all public services to areas within its boundaries. LAFCO is concerned with assuring that local government boundaries are logical and that the area within local government boundaries can be provided with municipal services efficiently. LAFCO has determined that based on the City's Utilities Department assessment, the City can provide efficient and cost effective water service to the Project.

Figure 4-1 – Project Vicinity Map

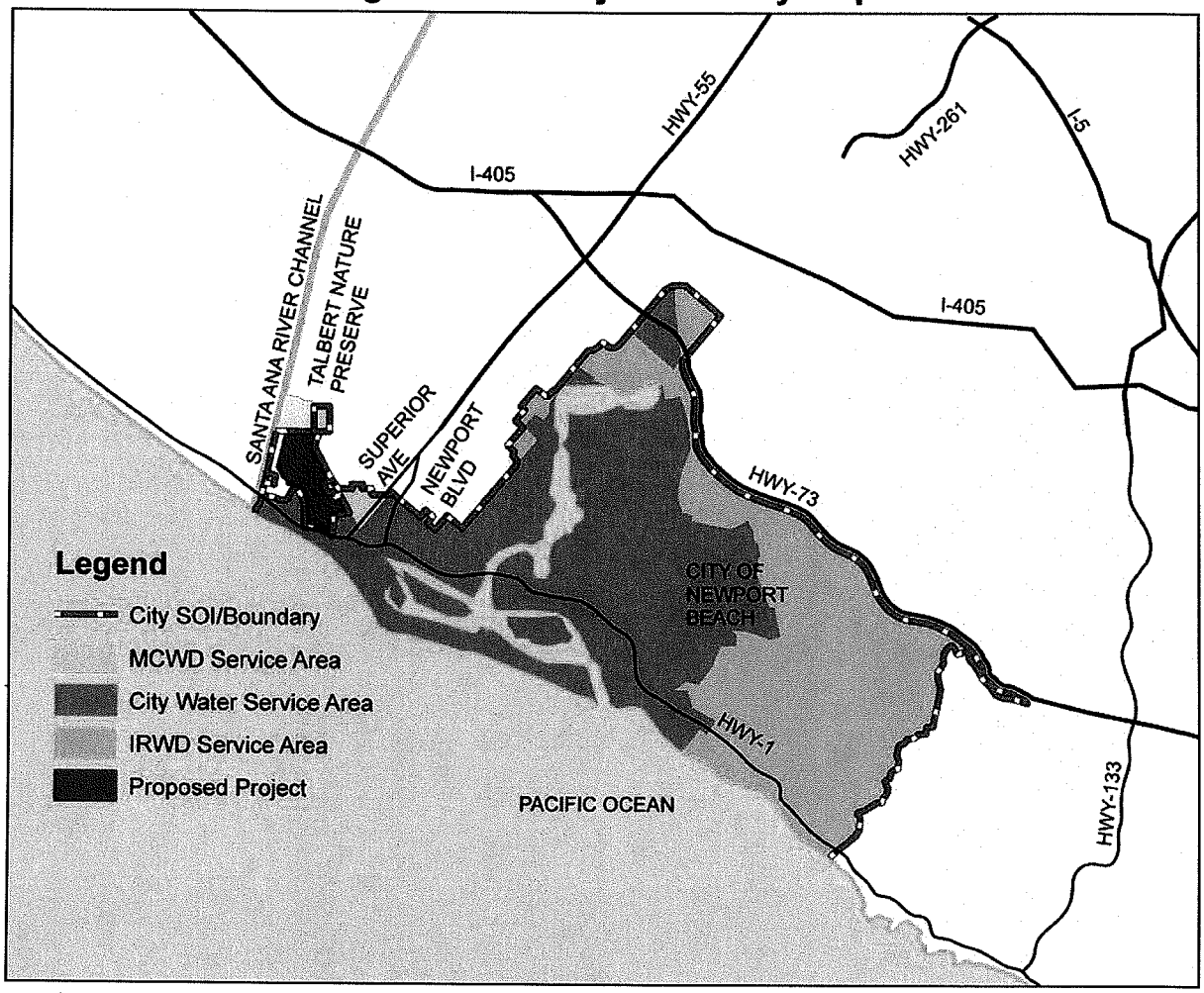
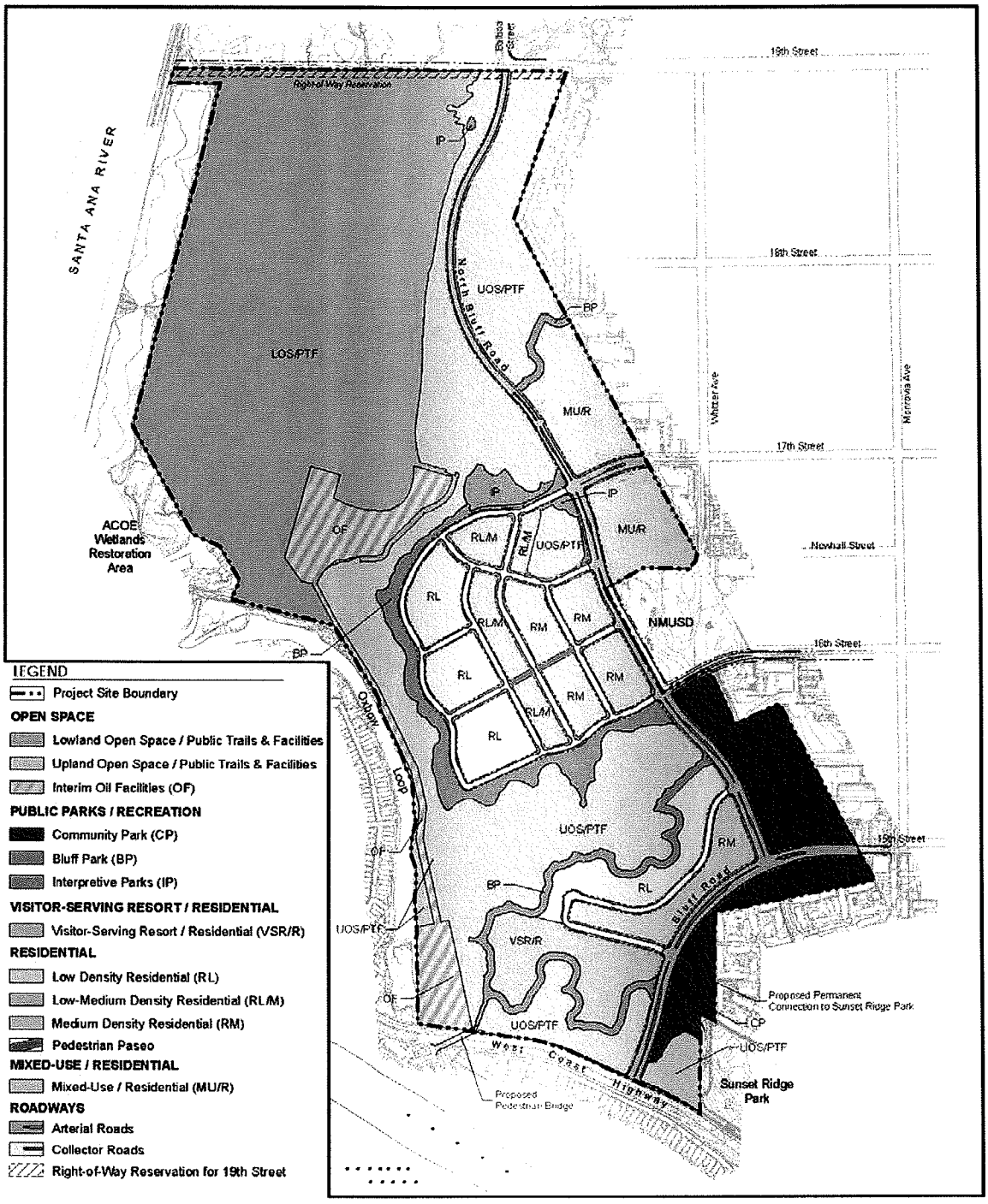


Figure 4-2 – Aerial of Existing Site

The Project proposes 1,375 residential dwelling units, 75,000 square feet of commercial retail, a 75-room visitor-serving resort, parks, and open space. The planned development pattern is generally depicted on **Figure 4-3**, with the proposed water system facilities shown on **Figure 4-4**.

Figure 4-3 – Development Plan

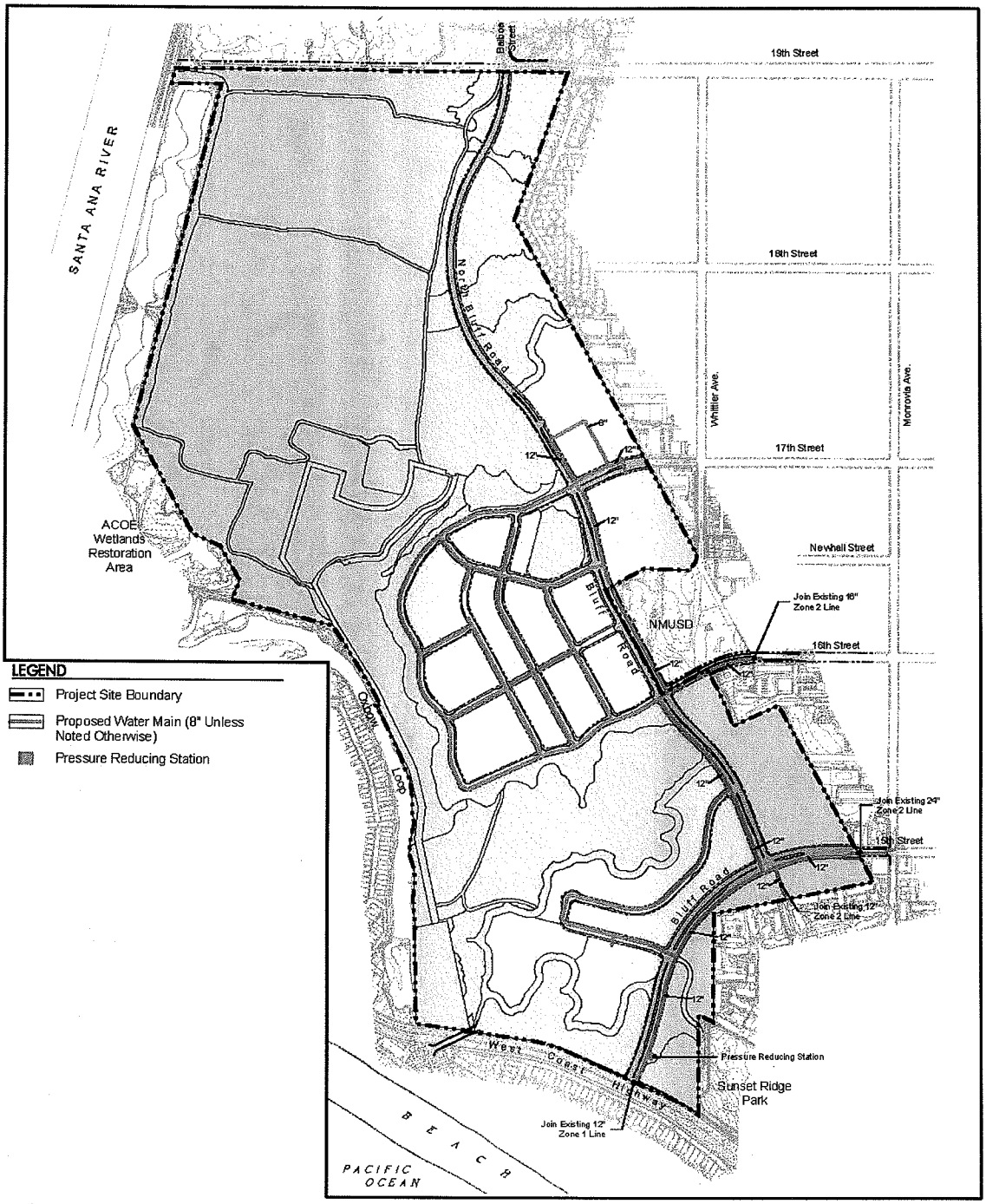


NEWPORT BANNING RANCH

PLANNED COMMUNITY DEVELOPMENT PLAN
City of Newport Beach - California

GLENN LUKOS ASSOCIATES FUSCOE FORMA 09-08-2010

Figure 4-4 – Proposed Water Facility Plan



NEWPORT BANNING RANCH

MASTER DEVELOPMENT PLAN
City of Newport Beach - California

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A summary of the Project land uses and associated water demands are presented in **Table 4-1**. The total average annual water demand for the Project is estimated to be 613.5 af/yr, or 0.55 million gallons per day (mgd).

Table 4-1 – Land Use Summary & Project Demands

Land Use	Area	Density	Unit Demand Factor	Average Annual Water Demands	
	(ac)	(units/ac)	(gpm/ac)	(gpm)	(af/yr)
Open Space / Conservation Areas	251.6	-	-	-	-
Community & Interpretive Parks	31.7	-	2.00	63.4	102.2
Bluff Parks	20.6	-	1.20	24.7	39.8
75-Room Visitor-Serving Resort	5.3	-	2.00	10.6	17.1
Low Density Residential	26.1	6.3	2.03	53.0	85.5
Low-Medium Density Residential	11.8	7.3	2.16	25.5	41.1
Medium Density Residential	27.2	11.3	2.53	68.8	111.0
Medium-High Density Residential	5.8	15.0	2.87	16.6	26.8
High Density Residential	19.2	38.0	6.03	115.8	186.8
Commercial	1.7	-	1.20	2.0	3.2
TOTAL	**401.0**			**380.4**	**613.5**

SOURCE: Area and land use provided by the developer's landscape architect (FORMA Design) on November 20, 2009. See Appendix A for unit water demand calculations.

A review of the City's Water Master Plan shows that the current Project and associated demands are substantially less than previously planned. The original Project proposed 2,329 residential units with a total average annual water demand of approximately 1,005 af/yr, or 0.90 mgd. These previous demands for the Project were also incorporated into the City's UWMP. Therefore, the current Project water demand of 613.5 af/yr is also accounted for in the City's UWMP, upon which this Assessment relies.

Section 5 – City of Newport Beach

The City of Newport Beach, located along the Orange County coast of southern California, has a sphere of influence that covers approximately 50 square miles. The City is bounded to the west by the Pacific Ocean. On the north, south, and east, the City is surrounded by the cities of Huntington Beach, Laguna Beach, Irvine and Costa Mesa, respectively. The City supplies water to approximately two-thirds (36 square miles) of its sphere of influence; the remainder is served by the Irvine Ranch Water District (IRWD) and MCWD (as shown on **Figure 4-1**).

The City provides water and recycled water services to approximately 80,000 residents in its service area. The City currently supplies approximately 18,000 af/yr of potable water to a total of approximately 26,000 accounts. Existing and projected population estimates for the City service area are shown in **Table 5-1**.

Table 5-1 – Existing & Projected Population in Service Area

	2005	2010	2015	2020	2025	2030
Population	79,320	80,250	81,052	81,863	82,681	83,508

SOURCE: City UWMP (December 2005).

The City distributes retail water supplies directly to its customers, which include residential (single and multi-family), commercial, and institutional/government users. The City does not supply water to other agencies except in the event of an emergency (through emergency interconnections with nearby agencies). The City's distribution system consists of 300 miles of pipelines, five pressure zones, five pump stations, and several reservoirs. The City has six connections along the Orange County Feeder and the East Orange County Feeder No. 2, with a total available capacity of 104 cubic feet per second (cfs).

The City's water supply consists of imported water, groundwater, and recycled water, summarized as follows:

- Imported Water – the City purchases imported water from MWDOC, who in turn receives its water from Metropolitan. Most of this imported water supply is provided through the SWP and CRA.
- Groundwater – the City's groundwater supply is obtained from four wells: Dolphin Shallow Well, Dolphin Deep Well, Tamura Shallow Well, and Tamura Deep Well. These wells are supplied from the Lower Santa Ana Basin and regulated by OCWD. For 2009, the City's Basin Pumping Percentage set by OCWD is 62% (62% of the City's demands can be supplied by groundwater). OCWD regulations are described in more detail in **Section 7**.
- Recycled Water – the City began serving recycled water in 1999, obtained through an agreement with OCWD. OCWD provides water through the Green Acres Project, which has the capability to deliver up to 1,000 af/yr. The City has programs and policies in place to promote increased recycled water use in future years including financial incentives (20 percent discount off potable water rates) as identified in Section 5 the City's UWMP.

Urban Water Management Plan

In accordance with the California Urban Water Management Planning Act (California Water Code §§10610 et seq.), the City Council updated its 2000 UWMP in 2005. The effort involved close coordination and planning with the MWDOC and Metropolitan to ensure that supply and demand data were presented accurately. In December 2005, City Council held a public hearing and adopted the 2005 UWMP. As required by law, the City's UWMP includes projected water supplies required to meet future demands through 2030. In accordance with the requirements of California Water Code §10910(c)(2) and California Government Code §66473.7(c)(3), information from the City's UWMP has been used to prepare this Assessment. An electronic copy of the UWMP is located in **Appendix B**.

Section 6 – Historical & Projected Water Demands

The projected demands for the City service area are based on the City's 2005 UWMP, City staff refinements, and MWDOC Member Agency Surveys. MWDOC and Metropolitan use the most recent regional growth forecasts from the Southern California Association of Governments (SCAG) to calculate future demands within their service areas. This provides for consistency between the retail and wholesale water agency demand projections, in an effort to ensure that adequate supplies are being planned for the City's existing and future water users. SCAG's growth forecasts are based on the land use policies of its member cities, so planned growth is essentially included in the water demand forecasts of the City. The historical and projected water demands for the City service area are shown in **Table 6-1**.

Table 6-1 – Historical & Projected Water Demands

Water Use Sector	Annual Demand (af/yr)								
	FY 05-06	FY 06-07	FY 07-08	FY 08-09	2010	2015	2020	2025	2030
Residential – Single Family	7,689	6,900	6,761	6,750	8,085	8,805	8,840	8,870	8,870
Residential – Multi-Family	2,761	2,585	2,529	2,184	2,820	3,072	3,084	3,095	3,095
Other [1]	7,370	9,524	9,056	8,495	8,886	9,678	9,716	9,751	9,751
Total	**17,820**	**19,009**	**18,346**	**17,429**	**19,791**	**21,555**	**21,640**	**21,716**	**21,716**

SOURCE: City UWMP (December 2005), City demand records.

[1] Includes commercial, institutional, and landscaping land uses and unaccounted-for losses.

Southern California is currently in a multiple dry-year event. Due to the drought and recent regulatory restrictions on SWP allocations, Metropolitan issued a Water Supply Allocation Plan on July 1, 2009 triggering mandatory conservation throughout Southern California (reduction by 10%). Delivery to a member agency of more than its allocated amount of Metropolitan supplies subjects the member agency to a penalty of from one to four times Metropolitan's full service rate for untreated Tier 2 water. In turn, MWDOC has implemented Stage 2 of their Water Supply Allocation Plan, which passes along the increased cost of imported water to its member agencies if the conservation measures are not met.

As a result of these factors and the City's efforts to increase public awareness of the need to conserve water, **Table 6-1** shows a reduction in demands over the last two years (663 af/yr between fiscal years 06-07 and 07-08 and another 917 af/yr between 07-08 and 08-09, for an average reduction of 4.2% each year). It is anticipated that water conservation trends will continue in the future, as the City adopted a Water Conservation and Supply Level Regulations ordinance in December 2009 that has mandatory permanent water conservation requirements that are effective at all times (even during non-shortage conditions). Note that these reductions are not factored into the projections from the City's 2005 UWMP. Therefore, the 2010 through 2030

demands shown in **Table 6-1** could be less. The City's water conservation programs and ordinances are described in more detail below.

Demand Management (Water Conservation)

Demand management, or water conservation, is frequently the lowest-cost resource available to a water agency. Water conservation programs are developed and implemented on the premise that water conservation increases water supply by reducing the demand on available supply, which is vital to the optimal use of the region's supply resources. Water conservation is addressed in the City's UWMP as an element of the long-term strategy for meeting present and future water needs.

The City became a member of the California Urban Water Conservation Council (CUWCC) in August 2005. The CUWCC was created to increase urban water use efficiency statewide and assist in increasing water conservation through partnerships among urban water agencies, public interest organizations, and private entities. This consensus-building effort resulted in "Memorandum of Understanding Regarding Urban Water Conservation in California" (MOU), as amended September 16, 1999, which formalizes an agreement to implement best management practices (BMPs) for conserving water. Those signing the MOU have pledged to develop and implement fourteen BMPs if economically feasible.

The City has submitted annual reports to CUWCC in accordance with the MOU that identify water demand management measures currently being implemented, or scheduled for implementation. Copies of the 2007 and 2008 reports are included in **Appendix A**.

Water Conservation & Supply Level Regulations

As a result of recent dry years and restrictions of the Delta in northern California, the City adopted an ordinance in December 2009 titled "Chapter 14.16 Water Conservation and Supply Level Regulations" (included in **Appendix A**). The ordinance creates a Water Conservation and Supply Shortage Program that establishes permanent water conservation requirements during non-shortage conditions and further establishes four levels of water supply shortage response actions to be implemented during times of declared water shortage. The mandatory permanent water conservation requirements are effective at all times (including during a Water Supply Shortage) and include the following restrictions on:

- Flow duration for non-low flow drip type or non-weather controlled landscape irrigation systems fed by potable water
- Excessive runoff from landscape irrigation
- Washing down hard or paved surfaces
- Excessive water loss from plumbing breaks / leaks
- Irrigating during a rainfall event and installation of non-weather based irrigation systems
- Non-recirculating water features / commercial car washing facilities
- Washing vehicles
- Serving water at eating / drinking establishments

- Daily towel / linen laundering at lodging establishments
- Installing single pass cooling systems on premises requesting a new water service
- Type of new washing machines at commercial laundries
- Use of water from a hydrant or at construction sites
- Type of new equipment installed in commercial kitchens

During a Water Supply Shortage, the following are the four levels of mandatory water conservation and their requirements:

- **Level One:**
  - Limit outdoor watering to scheduled irrigation days
  - Cutbacks in water usage (up to 10%)
  - Increased response time to fix broken / leaking plumbing (within 72 hours of notification from the City)
  - Limit filling of ornamental water features / pools (once per week)
- **Level Two:**
  - Further reduction in scheduled irrigation days and no watering between 9:00 a.m and 5:00 p.m. on any day
  - Increased cutbacks in water usage (11-25%)
  - Increased response time to fix broken / leaking plumbing (within 48 hours of notification from the City)
  - Increased limitations for filling of ornamental water features / pools (once every other week)
- **Level Three:**
  - Further reduction in scheduled irrigation days and no watering between 9:00 a.m and 5:00 p.m. on any day
  - Increased cutbacks in water usage (26-40%)
  - Increased response time to fix broken / leaking plumbing (within 24 hours of notification from the City)
  - No filling of ornamental water features / pools
- **Level Four:**
  - No outdoor watering
  - Increased cutbacks in water usage (more than 40%)
  - No new potable water services / meters
  - Level Three broken / leaking pluming response times and water feature limitations remain the same

Section 7 – Historical & Projected Water Supplies

As a member agency, the City purchases all of its imported potable water from MWDOC. As a member agency of Metropolitan, MWDOC in turn purchases its imported water from Metropolitan. The City's groundwater pumped from the Lower Santa Ana Basin is regulated by OCWD. The statutory relationships between MWDOC and its member agencies, Metropolitan and its member agencies, and OCWD and its member agencies establish the scope of the City's entitlements to potable water. Due to the City's dependency on these agencies, this Assessment includes information on the existing and projected supplies, supply programs, and related projects of MWDOC, Metropolitan, and OCWD along with the demands and supplies within the City service area.

Metropolitan Water District of Southern California

Metropolitan was formed in 1928 to develop, store, and distribute supplemental water in southern California for domestic and municipal purposes. As embodied in their Administrative Code §§4200 and 4201, water will be available to cities and areas within Metropolitan's legal boundaries and it is their mission to provide its service area with adequate and reliable supplies of high quality water to meet present and future needs in an environmentally and economically way.

Metropolitan's 2004 IRP identifies a mix of resources (imported and local) that when implemented Metropolitan projects' will provide 100 percent reliability for full-service demands through the attainment of regional targets set for conservation, local supplies, SWP supplies, CRA supplies, groundwater banking, and water transfers. The 2004 update to the IRP included a conservative planning buffer supply to mitigate against the risks associated with implementation of local and imported supply programs. The planning buffer identified an additional increment of water that could potentially be developed if other supplies are not implemented as planned. As part of implementation of the planning buffer, Metropolitan committed to periodically evaluating supply development to ensure that the region is not over-developing supplies. If managed properly, the planning buffer is intended to help ensure that the southern California region, including Orange County, will have adequate supplies to meet future demands.

In November 2005, Metropolitan adopted its *2005 Regional Urban Water Management Plan* (2005 RUWMP), in accordance with state law. The resource targets included in the 2004 IRP Update serve as the foundation for the planning assumptions used in the 2005 RUWMP. Metropolitan's 2005 RUWMP contains a water supply reliability assessment that includes a detailed evaluation of the supplies necessary to meet demands over a 25-year period in average, single dry-year and multiple-dry year periods. As part of this process, Metropolitan also uses SCAG's regional growth forecast in calculating regional water demands for southern California.

As stated in Metropolitan's 2005 RUWMP, the document may be used as a source document for meeting the requirements of SB 610 until the next scheduled update is completed in 2010. In addition, the 2005 RUWMP includes a "Justification For Supplies" in its Appendix A.3 that

details the planning, legal, financial, and regulatory basis for including each source of supply in the plan. An electronic copy of the 2005 RUWMP is located in **Appendix B**.

As discussed in **Section 3**, Metropolitan developed a Supply Plan in April 2008 to identify specific resource and conservation actions to manage water deliveries for the next five years under continued drought conditions and court-ordered restrictions. The Supply Plan focuses on water conservation, Colorado River transactions, near-term Delta actions, SWP transactions, groundwater recovery, and local resources. Metropolitan is also working on a 2009 IRP Update with the continued mission of providing adequate and reliable supplies to meet present and future needs. The update will address the emerging challenges of climate change and endangered species. Although imported sources will remain important baseline supplies, it is envisioned that conservation and new local supplies (e.g., recycling and ocean water desalination) will provide the water for growing needs.

Municipal Water District of Orange County

MWDOC was formed by Orange County voters in 1951 under the Municipal Water District Act of 1911 with the mission to ensure water reliability to the communities it serves. Today, 28 retail water agencies and cities rely on MWDOC for imported water. MWDOC is Metropolitan's third largest member agency and represents the interests of its client agencies. MWDOC supplies are delivered through several aqueducts, two of which (the Orange County Feeder and the East Orange County Feeder No. 2) supply the City. Prior to installing wells in 1997, the City's entire water supply was imported from MWDOC.

In December 2005, the MWDOC Board of Directors adopted its 2005 Urban Water Management Plan (2005 Plan) in accordance with state law. The 2005 Plan contains a water supply reliability assessment that identifies a diverse mix of imported and local supplies necessary to meet demands over the next 25 years in average, single dry-year and multiple-dry year periods. In the 2005 Plan, no shortages were anticipated within MWDOC's service area if projected MWDOC and member agency supplies were developed as planned, and with Metropolitan's IRP implemented. The 2005 Plan includes the original larger Project demands from the City's Water Master Plan and UWMP. An electronic copy of the 2005 Plan is located in **Appendix B**.

Orange County Water District

OCWD was formed in 1933 to protect the County's water rights on the Santa Ana River and manage the underground aquifer, making optimum use of local supplies and augmenting those with imported supplies provided through the Metropolitan member agencies in the County. The use of the groundwater supply is regulated by the OCWD through a Groundwater Basin Management Plan that is usually updated every five years (the latest is dated July 2009, with an electronic copy located in **Appendix B**). OCWD's jurisdiction includes four main non-adjudicated groundwater basins: the La Habra Basin, the San Juan Basin, the Laguna Canyon Basin, and the Lower Santa Ana Basin (Basins). OCWD typically recharges the Basins with Santa Ana River flows, recycled water, and imported water (when available) to maintain groundwater levels.

The Basin's pumping is not operated on an annual safe-yield basis (i.e., no pumping restrictions exist). As such, the net change in storage in any given year may be positive or negative. In order to maintain the long term viability of basin supplies, OCWD sets an annual BPP (the percentage of groundwater production out of the total water demand) for each member agency that is governed through financial incentives. Pumping up to the BPP is charged a fee on a per acre-foot basis. Groundwater production above the BPP is charged at a higher rate, typically set so the cost of groundwater production above the BPP is similar to the cost of purchasing alternative supplies. Pumping agencies do not accrue individual storage rights if they pump less than the BPP, a major difference compared to most adjudicated basins. Additionally, agencies cannot transfer groundwater pumping rights.

The City became a member of OCWD (with the right to draw groundwater) in August 1986. A copy of the annexation agreement is located in **Appendix A**. The City receives all it groundwater from the Lower Santa Ana Basin, also referred to as the Coastal Plain of Orange County Groundwater Basin (Groundwater Basin Number 8-1), as listed in California's Bulletin 118 (included in **Appendix A**). The Lower Santa Ana Basin underlies a coastal alluvial plain in the northwestern portion of Orange County, and is bounded by consolidated rocks on the north in Puente and Chino Hills, on the east in the Santa Ana Mountains, and on the south in the San Joaquin Hills. It is bounded by the Pacific Ocean on the southwest and approximately by the Orange County-Los Angeles County line on the northwest, and it underlies the lower Santa Ana River watershed. Bulletin 118 identifies the Lower Santa Ana Basin as Type A, which indicates that the basin has been investigated and modeled to determine the potential effects of changes in pumping and recharge. In the Bulletin, there is no indication that the Basin is or will become overdrafted under present management.

The City's groundwater supply is obtained from four wells located in the City of Fountain Valley, approximately five miles north of Newport Beach (see **Figure 7-1**). The wells, constructed in 1997, are owned and operated by the City and are located at two locations known as the Dolphin Well Site and Tamura Well Site. Each site contains two wells, one shallow and one deep. The physical constraint on the groundwater supply is the pumping capacity of the wells. The only legal constraint to the groundwater supply is the BPP described above that is set by OCWD. Well design capacities are listed below. The amount of groundwater pumped from each well in the last four years is shown in **Table 7-1**.

- Dolphin Shallow Well – 250 horsepower (hp), 2,500 gpm at 288 feet of head.
- Dolphin Deep Well – 400 hp, 3,200 gpm at 384 feet of head.
- Tamura Shallow Well – 250 hp, 2,300 gpm at 286 feet of head.
- Tamura Deep Well – 400 hp, 2,900 gpm at 380 feet of head.

Figure 7-1 – City Well Locations

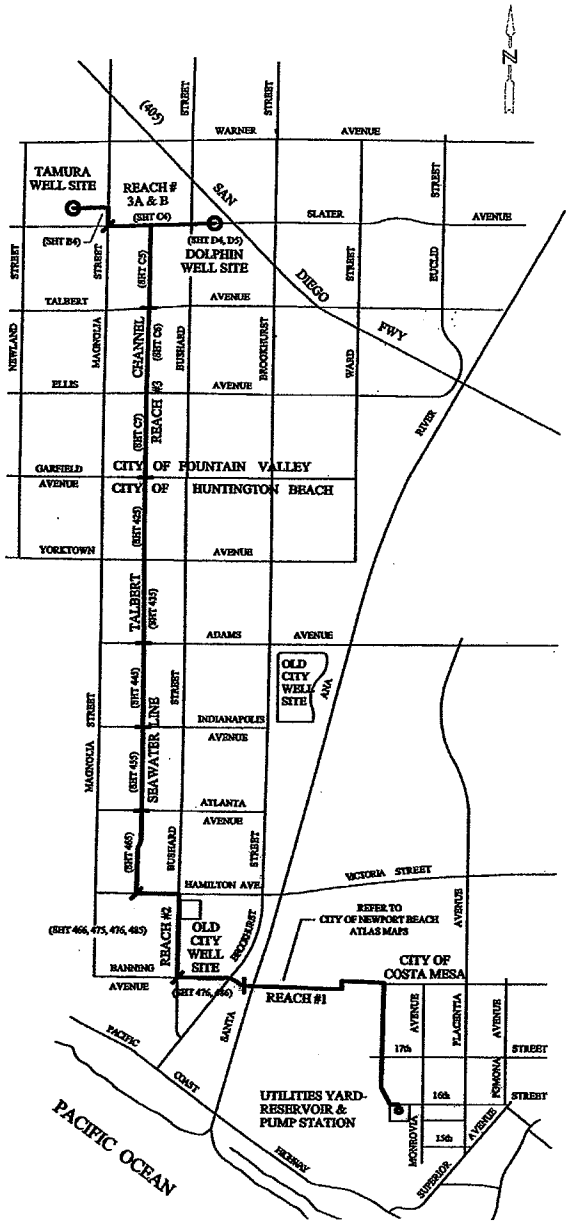

Table 7-1 – Historical Groundwater Supplies

Well	Annual Amount (af/yr)			
	FY 05-06	FY 06-07	FY 07-08	FY 08-09
Dolphin Shallow	239	920	3,185	2,270
Dolphin Deep	1,590	1,434	3,728	3,565
Tamura Shallow	589	825	2,870	1,883
Tamura Deep	1,140	426	4,555	3,569
Total	**3,558**	**3,605**	**14,338**	**11,287**

City of Newport Beach

The City's 2005 UWMP contains a comparison of projected water supply and estimated demands through the year 2030. The potable water resources necessary to meet projected demands include imported water (30%) and groundwater (70%). Existing and projected supplies to the City are shown in **Table 7-2**.

Table 7-2 – Existing and Projected Supplies

Supply Source	Annual Amount (af/yr)								
	FY 05-06	FY 06-07	FY 07-08	FY 08-09	2010	2015	2020	2025	2030
MWDOC (Imported)	14,012	15,093	3,743	5,843	5,758	6,157	6,362	6,226	6,256
OCWD (Groundwater)	3,558	3,605	14,338	11,287	13,590	14,921	14,778	14,990	14,960
Recycled Water	250	311	265	299	443	477	500	500	500
Total	**17,820**	**19,009**	**18,346**	**17,429**	**19,791**	**21,555**	**21,640**	**21,716**	**21,716**
% Potable from Groundwater	**20%**	**19%**	**79%**	**66%**	**70%**	**71%**	**70%**	**71%**	**71%**

SOURCE: City UWMP (December 2005), City demand records.

As previously discussed with the City's demand summary (**Table 6-1**), there has been an average 4% per year reduction in demands (and supply requirements) over the last two years. Because these changes post-date the City's current UWMP, these reductions are not included in the supply projections in **Table 7-2**.

Section 8 – Conclusion: Availability of Sufficient Supplies

The City, MWDOC, Metropolitan, and OCWD have developed plans and are implementing projects and programs to ensure that the existing and future water users within the City service area have an adequate supply. In response to recent events, Metropolitan developed a Supply Plan in April 2008 to identify specific resource and conservation actions to manage water deliveries for the next five years under continued drought conditions and court-ordered restrictions. Metropolitan is also currently working on a 2009 IRP update to identify changes to the long-term plan and establish direction to address the present and future challenges brought by record drought, climate change, and environmental concerns.

In addition to Metropolitan's efforts, OCWD's GWR System project was completed and on-line in January 2008, and augments existing groundwater supplies by producing purified water to recharge the Basin. Phase 2 is now under design to increase production from 72,000 af/yr to 102,000 af/yr. Within the City, the Chapter 14.16 Water Conservation and Supply Level Regulations ordinance was adopted in December 2009 that establishes permanent water conservation requirements during non-shortage conditions.

Table 8-1 lists existing and projected supplies within the City service area for normal year conditions. This comparison demonstrates that there will be adequate water supplies to meet the demands of the proposed Project, existing customers, and other future planned uses during normal year conditions.

Table 8-1 –Projected Water Supply and Demand (Normal Year)

Description		Annual Amount (af/yr)				
		2010	2015	2020	2025	2030
Total Projected Demand [1]		**19,791**	**21,555**	**21,640**	**21,716**	**21,716**
Available Supply [2]	MWDOC (Imported)	5,758	6,157	6,362	6,226	6,256
	OCWD (Groundwater)	13,590	14,921	14,778	14,990	14,960
	Recycled Water	443	477	500	500	500
Total Available Supply		**19,791**	**21,555**	**21,640**	**21,716**	**21,716**
% Potable Supply from Groundwater		70%	71%	70%	71%	71%
Difference		**0**	**0**	**0**	**0**	**0**

SOURCE: City UWMP (December 2005).

[1] Per **Table 6-1**.

[2] Per **Table 7-2**.

Table 8-2 provides a comparison of estimated future normal year, single dry-year, and multiple dry-years supply and demand conditions, and the data adequately demonstrates that City supplies will be sufficient to meet future demands during dry-year period conditions. The basis for the information is provided in the City's UWMP, and was derived from analyses using MWDOC's water balance computer model.

The computer model simulated three variables (retail demand, local supplies, and imported supplies) over the 83 years from 1922 to 2004. The average of the 83 simulations represents the normal water year. The hydrologic conditions for 1961 and the period from 1959 to 1961 yielded the highest single-year and three-year demands for imported supply. During dry-years, it is assumed that local supplies will reduce and the reliability of imported supply will increase through Metropolitan's water transfer and storage programs. As an example, groundwater supply decreases from 70% during normal years to between 60% and 64% during the first multiple dry-year. During the third multiple dry-year, the groundwater supply further decreases to between 49% and 59%.

Table 8-2 – Projected Water Supply and Demand (Normal, Single Dry-Year, and Multiple Dry-Years)

Description		Annual Amount (af/yr)				
		Normal Year	Single Dry-Year	Multiple Dry-Years		
				Year 1	Year 2	Year 3
2010						
Total Projected Demand		**19,791**	**20,889**	**20,553**	**20,193**	**20,889**
Available Supply	MWDOC (Imported)	5,758	8,450	7,260	8,099	8,450
	OCWD (Groundwater)	13,590	11,996	12,850	11,651	11,996
	Recycled Water	443	443	443	443	443
Total Available Supply		**19,791**	**20,889**	**20,553**	**20,193**	**20,889**
% Potable Supply from Groundwater		70%	59%	64%	59%	59%
Difference		**0**	**0**	**0**	**0**	**0**
2015						
Total Projected Demand		**21,555**	**22,751**	**22,376**	**22,155**	**22,751**
Available Supply	MWDOC (Imported)	6,157	9,911	8,706	10,114	9,911
	OCWD (Groundwater)	14,921	12,363	13,193	11,564	12,363
	Recycled Water	477	477	477	477	477
Total Available Supply		**21,555**	**22,751**	**22,376**	**22,155**	**22,751**
% Potable Supply from Groundwater		71%	56%	60%	53%	56%
Difference		**0**	**0**	**0**	**0**	**0**
2020						
Total Projected Demand		**21,640**	**22,840**	**23,053**	**22,423**	**22,840**
Available Supply	MWDOC (Imported)	6,362	11,314	8,978	10,771	11,314
	OCWD (Groundwater)	14,778	11,026	13,575	11,152	11,026
	Recycled Water	500	500	500	500	500
Total Available Supply		**21,640**	**22,840**	**23,053**	**22,423**	**22,840**
% Potable Supply from Groundwater		70%	49%	60%	51%	49%
Difference		**0**	**0**	**0**	**0**	**0**

Description		Annual Amount (af/yr)				
		Normal Year	Single Dry-Year	Multiple Dry-Years		
				Year 1	Year 2	Year 3
2025						
Total Projected Demand		**21,716**	**22,921**	**23,144**	**22,511**	**22,921**
Available Supply	MWDOC (Imported)	6,226	10,726	9,006	10,168	10,726
	OCWD (Groundwater)	14,990	11,695	13,638	11,843	11,695
	Recycled Water	500	500	500	500	500
Total Available Supply		**21,716**	**22,921**	**23,144**	**22,511**	**22,921**
% Potable Supply from Groundwater		71%	52%	60%	54%	52%
Difference		**0**	**0**	**0**	**0**	**0**
2030						
Total Projected Demand		**21,716**	**22,921**	**23,170**	**22,519**	**22,921**
Available Supply	MWDOC (Imported)	6,256	11,104	8,639	10,308	11,104
	OCWD (Groundwater)	14,960	11,317	14,031	11,711	11,317
	Recycled Water	500	500	500	500	500
Total Available Supply		**21,716**	**22,921**	**23,170**	**22,519**	**22,921**
% Potable Supply from Groundwater		71%	50%	62%	53%	50%
Difference		**0**	**0**	**0**	**0**	**0**

SOURCE: City UWMP (December 2005).

As previously discussed in **Sections 6 and 7**, there has been an average 4% per year reduction in the City's demands (and supply requirements) over the last two years due to the drought, SWP cutbacks, and increased conservation through heightened public awareness and implementation of conservation-based rate structures. With the City recently adopting its water conservation ordinance, it is anticipated that these water conservation trends will continue in the future. These reductions are not reflected in the projections from the 2005 UWMP and used in this Assessment. Also, the demands shown for the single and multiple dry-year projections are larger than the normal year demands. This is likely because the preparation of the UWMP followed a very wet year (Winter 04-05), and water was more abundant. Now, with the current cutbacks and restrictions in place, actual demands would likely be less.

This Assessment demonstrates that there will be adequate water supplies to meet the demands of the proposed Project, and the existing and other planned development within the City. This conclusion is based on the supply and demand comparisons from the current UWMP, which the statute states to rely on. It is acknowledged that uncertainties have come to light since the 2005

UWMP. However, the present and future challenges brought by record drought, climate change, and environmental concerns are beyond the scope of this Assessment and will be addressed in the upcoming UWMPs for the City, MWDOC, and Metropolitan. The water agencies involved in providing the supply are devoting considerable resources and energy to maintaining its reliability for customers and potential customers within their service areas.

Source Documents

California Department of Water Resources, Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001, October 8, 2003

California Department of Water Resources, Bulletin 118 Update, October 2003

California Urban Water Conservation Council, 2007-2008 City of Newport Beach Coverage Report

City of Newport Beach, General Plan, July 25, 2006

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City of Newport Beach, Master Site Plan, May 2009 and Vesting Tentative Tract Map 17308

City of Newport Beach, Draft Water Conservation and Supply Level Regulations, October 2009

County of Orange, Central Orange County Integrated Regional and Coastal Watershed Management Plan, August 2007

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Metropolitan Water District of Southern California, Integrated Resources Plan Update, July 2004

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Metropolitan Water District of Southern California, 2005 Regional Urban Water Management Plan

Metropolitan Water District of Southern California, 2009 Bond Statement, November 20, 2009

Municipal Water District of Orange County, 2005 Urban Water Management Plan, December 2005

Municipal Water District of Orange County, Water Rate$, Water System Operations, and Financial Information, 2005-2008

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Municipal Water District of Orange County, MWDOC Response to Grand Jury Report – "Paper Water" – Does Orange County Have a Reliable Future?, September 2009

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Orange County Water District, '05-'06 and '06-'07 Engineer's Report on the Groundwater Conditions, Water Supply and Basin Utilization in the Orange County Water District

Orange County Water District, Groundwater Management Plan 2009 Update, July 9, 2009

Water Agency Standards (Helix, Lakeside, Otay, Padre Dam, Ramona, San Dieguito, Santa Fe) WAS Guidelines, September 7, 2004

Available at City of Newport Beach
Utilities Department
949 West 16th Street and
www.newportbeachca.gov/BanningRanch

Appendix A

Project Demand Calculation

Available at City of Newport Beach
Utilities Department
949 West 16th Street and
www.newportbeachca.gov/BanningRanch

Appendix A

California Department of Water Resources Bulletin 118, Coastal Plain of Orange County Groundwater Basin (Basin Number 8-1)

Available at City of Newport Beach
Utilities Department
949 West 16th Street and
www.newportbeachca.gov/BanningRanch

Appendix A

California Urban Water Conservation Council 2007-2009 Coverage Report

Available at City of Newport Beach
Utilities Department
949 West 16th Street and
www.newportbeachca.gov/BanningRanch

Appendix A

City Ordinance Chapter 14.16 – Water Conservation and Supply Level Regulations

Available at City of Newport Beach
Utilities Department
949 West 16th Street and
www.newportbeachca.gov/BanningRanch

Appendix A

City / OCWD Annexation Agreement

Available at City of Newport Beach
Utilities Department
949 West 16th Street and
www.newportbeachca.gov/BanningRanch

Appendix B

(on compact disc)

Metropolitan Water District of Southern California
2005 Regional Urban Water Management Plan

and

Metropolitan Water District of Southern California
2009 Bond Statement

and

Municipal Water District of Orange County
2005 Urban Water Management Plan

and

City of Newport Beach
2005 Urban Water Management Plan

and

Orange County Water District
2009 Groundwater Management Plan