

Appendix O: Water Supply Assessment

CITY OF ORANGE

WATER SUPPLY ASSESSMENT

FOR

RIO SANTIAGO PROJECT

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DECEMBER 2009

TABLE OF CONTENTS

I.	EXECUTIVE SUMMARY AND CONCLUSIONS	1
II.	WATER SUPPLY ASSESSMENT IS REQUIRED.....	5
III.	STATUTORY WATER SUPPLY ASSESSMENT REQUIREMENTS.....	6
IV.	WATER SUPPLY ASSESSMENT	8
	SECTION 1. PROJECTED WATER DEMANDS OF THE PROJECT WERE NOT ACCOUNTED FOR IN CITY OF ORANGE YEAR 2005 URBAN WATER MANAGEMENT PLAN.....	8
	SECTION 2. TOTAL PROJECTED WATER SUPPLIES AVAILABLE DURING NORMAL, SINGLE DRY, AND MULTIPLE DRY WATER YEARS DURING A 20-YEAR PROJECTION ARE SUFFICIENT TO MEET PROJECTED WATER DEMANDS OF THE PROJECTS IN ADDITION TO CITY OF ORANGE EXISTING AND PLANNED FUTURE USES.....	11
	SECTION 3. IDENTIFICATION OF EXISTING WATER SUPPLY ENTITLEMENTS, WATER RIGHTS AND WATER SERVICE CONTRACTS	13
	SECTION 3.A. WRITTEN CONTRACTS OR OTHER PROOF OF ENTITLEMENT TO WATER SUPPLY	13
	SECTION 3.B. ADOPTED CAPITAL OUTLAY PROGRAM FOR FINANCING THE DELIVERY OF WATER SUPPLY	17
	SECTION 3.C. FEDERAL, STATE AND LOCAL PERMITS FOR CONSTRUCTION OF NECESSARY INFRASTRUCTURE ASSOCIATED WITH DELIVERING WATER SUPPLY	18
	SECTION 3.D. NECESSARY REGULATORY APPROVALS REQUIRED TO CONVEY OR DELIVER WATER SUPPLY	18
	SECTION 4. FOR WATER NOT RECEIVED IN PRIOR YEARS UNDER EXISTING SUPPLY ENTITLEMENTS, WATER RIGHTS, OR WATER SERVICE CONTRACTS, IDENTIFICATION OF OTHER WATER SYSTEMS OR CONTRACT HOLDERS RECEIVING WATER OR WITH RIGHTS TO SAME SOURCE OF WATER	18
V.	APPENDIX “A” WATER SUPPLY ASSESSMENT REFERENCE DOCUMENTS....	23

LIST OF TABLES

Table 1A:Rio Santiago Planning Area Summary.....	3
Table 1: Water Supplies	11
Table 2: Water Demands	11
Table 3: Comparison of Water Supply and Demands.....	12
Table 4: Active Groundwater Wells	14
Table 5: Imported Water Supplies	15

I. EXECUTIVE SUMMARY AND CONCLUSIONS

This Water Supply Assessment (sometimes referred to herein as the “WSA”) was prepared for the City of Orange (the “City”) in order to assess the ability of the City’s public water system to meet the water supply requirements of the Rio Santiago Project (herein referred the “Project”) within the City of Orange in accordance with California Water Code Sections 10910 - 10915.

Project Description

The proposed Project is located in the City of Orange (City), north of Santiago Canyon Road and east of Cannon Street, and contains approximately 110 acres. The project site address is 6118 East Santiago Canyon Road. The following Orange County tax assessment parcel numbers comprise the project site:

- 093-280-07, 17, 27, 29, 30, 31
- 370-011-08, 18, 21, 22
- 370-041-112, 25
- 370-141-19

Implementation of the Rio Santiago Specific Plan would provide for the development of an age targeted planned community featuring senior housing integrated with active and passive recreational land use, and dedicated open space within four planning areas, all as depicted on Figure 3-4, *Existing and Proposed General Plan Designations*. Table 1A, *Rio Santiago Planning Area Summary*, provides a statistical overview of the proposed project.

There are 460 residential units proposed for Planning Area A which is located at the southeast corner of the site, south of the Santiago Creek and adjacent to Santiago Canyon Road and The Reserve neighborhood. This planning area is 30 gross acres in size and will be the home of Rio Santiago’s residential component, comprised of a combination of Senior Casitas Living, Independent Senior Living, and Assisted/Skilled Nursing Senior Living. A residential overlay would allow a limited number of attached/detached Townhomes or Single Family Detached homes on an approximate 8.5 acre overlay within Planning Area A.

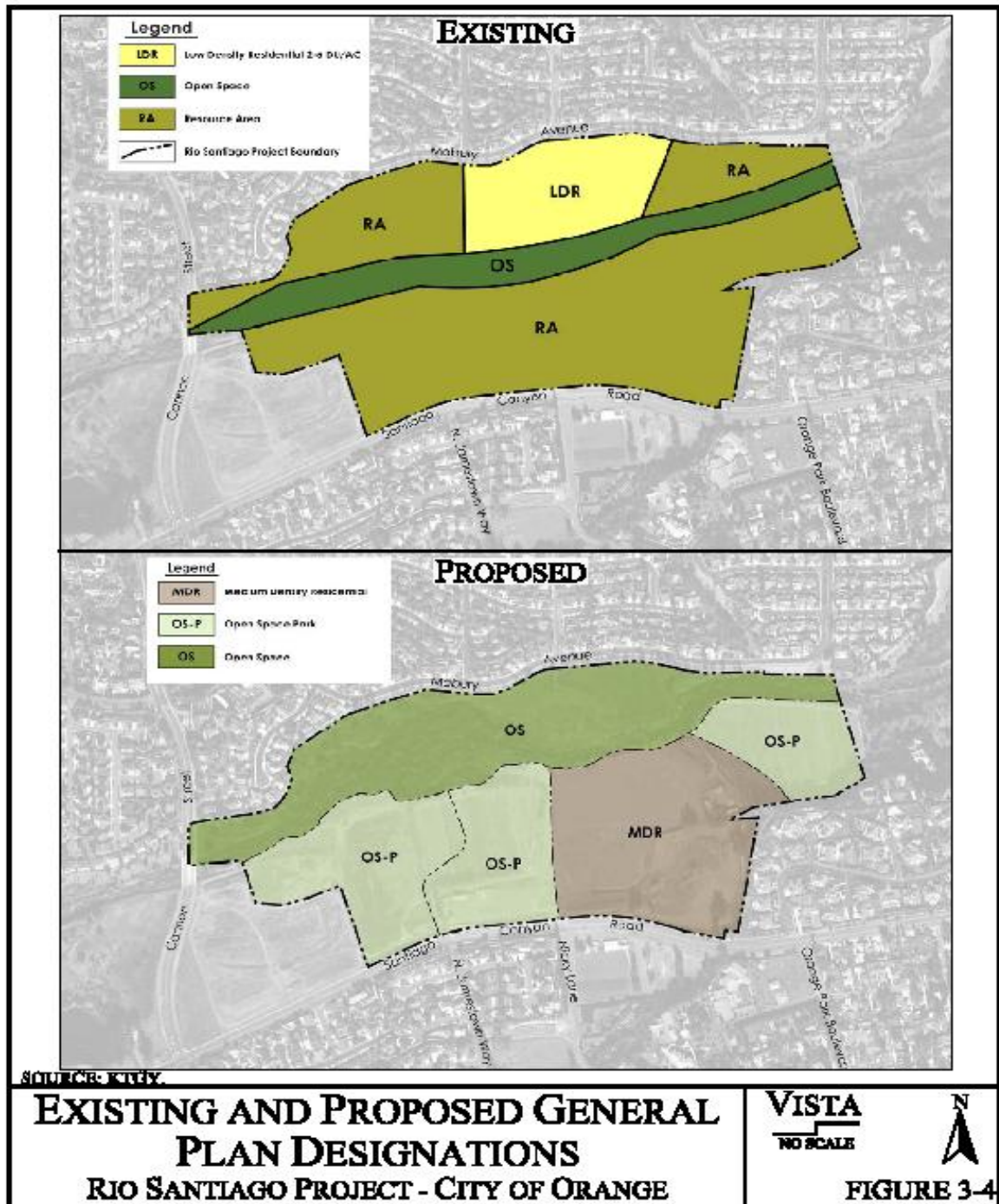


Table 1A Rio Santiago Planning Area Summary

Planning Area	Land Use Designation	Land Use	Units / Square Feet	Gross Acres	Percent of Site
A	Residential	Casitas Living Independent Sr. Living Assisted Sr. Living Attached Townhomes (Overlay) Detached Townhomes (Overlay) Single-Family (Overlay)	1,250 to 1,450 550-1,250 300 1,250 to 1,450 1,250 to 1,450 not available	30	27
B	Open Space	Natural Open Space	0	42	38
C-1 & C-2	Open Space - Park	Active Recreational Multi-Purpose Recreation/Wellness Facilities	97,000 sq. ft Building.	28	26
D	Open Space - Park	Passive Recreation	0	10	9

Conclusions:

1. Total projected water supplies available from the City's public water system including the groundwater from the basin or basins from which the proposed Project will be supplied during normal, single dry, and multiple dry water years during a 20-year projection are sufficient to meet the projected water demands associated with the proposed project, in addition to the City's public water system's existing and planned future uses, including agricultural and manufacturing uses (exclusive of the Project).
2. Current and future sources of potable water supplies are sufficient to meet the projected water demand associated with the Project, in addition to City of Orange's existing and approved new development uses (exclusive of the Project).
3. The analyses included in this Water Supply Assessment (WSA) demonstrate that the combination of Orange County Groundwater Basin Supplies and MWD base supply will enable the City of Orange to meet the projected 20-year water demand associated with the Project.

In addition to local groundwater, the City is dependent to a lesser extent on imported water from Metropolitan Water District of Southern California (MWD) through Municipal Water District of Orange County (MWDOC) to meet its demands. MWD and MWDOC have prepared and adopted 2005 Regional Urban Water Management Plans for their respective service areas, which is inclusive of and consistent with the City's base supply and demand projections addressed herein. Pursuant to Water Code Section 10631(k), the City has relied upon water supply information provided by the wholesale agencies, MWD and MWDOC in their respective Regional UWMPs as well as the City's Urban Water Management Plan Update (2005 UWMP Update) prepared and adopted in December 2005.

Therefore reference is made to the 2005 MWD Regional Urban Water Management Plan (Regional UWMP) for the reliability of MWD water supplies and their vulnerability to seasonal or climatic shortages.

Furthermore, as mentioned Section 4 in July 1, 2009 Metropolitan proceeded with implementation of Water Allocation Plan. MWDOC has also adopted and implemented Water Allocation Plan for its members. Accordingly, the City may receive only 85 to 90 percent of its imported water needs. Since the City typically receives only 30 to 38 percent of its water demands from the imported sources this may translate into approximately 5 percent reduction in total supply capacity. The City may provide additional water supplies by either increased pumping from groundwater and or through conservation, and or purchase of additional import supply at higher cost.

II. WATER SUPPLY ASSESSMENT IS REQUIRED

A draft EIR in accordance with the California Environmental Quality Act (“CEQA”) was prepared for the Project by AECOM/Vista Community Planners dated November 1, 2009. Based upon the project description in the Draft EIR, City has determined that an Environmental Impact Report (EIR) is required for the Project. Section 10912 of the Water Code defines a “project” for which a WSA must be prepared as any of the following:

- (1) A proposed residential development of more than 500 dwelling units.
- (2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
- (3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
- (4) A proposed hotel or motel, or both, having more than 500 rooms.
- (5) A proposed industrial, manufacturing, or processing plant or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
- (6) A mixed-use project that includes one or more of the projects specified in paragraphs “(1)” through “(5)” above and/or paragraph “(7)” below.
- (7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

The Rio Santiago Project is considered to be a “project” within the meaning of that term as defined by the above criteria. Although projected water demands associated with a development project entitled “Fieldstone Project” proposed for the site in 2004 was included as part of the City’s 2005 UWMP Update, purpose and the characteristics of “the project” has changed completely. Therefore, the City has retained Ergun Bakall, Consulting Civil Engineer to prepare of this WSA for inclusion in the EIR.

III. STATUTORY WATER SUPPLY ASSESSMENT REQUIREMENTS

Once the City determines that a proposed development project qualifies as a “project”, as defined in Section 10912 of the California Water Code, and determines that an environmental impact report, a negative declaration, or a mitigated negative declaration is required under the California Environmental Quality Act, it must identify the public water system that may supply water for the proposed project. In this particular case, the City is the public water system that will supply water for the Project.

The California Water Code requires the City to first determine whether the projected water demand associated with the proposed project was included as part of the City’s most recently adopted Urban Water Management Plan (“UWMP”). A review revealed that the Project is substantially different than the one proposed for the site which was included in the City’s most recently adopted UWMP update of December 2005. The City is required to prepare the water supply assessment required by Sections 10910-10914 of the California Water Code.

The Water Supply Assessment (WSA) for the proposed Project is required to include “a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.”

Subparagraph “(d)” of Section 10910 of the California Water Code requires the WSA to include the following elements:

(1) An identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed Project and a description of the quantities of water received in prior years by the City under the existing water supply entitlements, water rights, or water service contracts.

(2) An identification of existing water supply entitlements, water rights, or water service contracts held by the City, which shall be demonstrated by providing information related to all of the following:

(A) Written contracts or other proof of entitlement to an identified water supply.

(B) Copies of a capital outlay program for financing the delivery of a water

supply that has been adopted by the City.

(C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.

(D) Any necessary regulatory approvals that is required in order to be able to convey or deliver the water supply.

Subparagraph “(e)” of Section 10910 the California Water Code further provides that “[if] no water has been received in prior years by the [City] . . . under the existing water supply entitlements, water rights, or water service contracts, the [City] . . . shall also include in its water supply assessment . . . an identification of the other public water systems or water service contract holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the [City] . . . has identified as a source of water supply within its water supply assessments.”

Moreover, if a water supply for the proposed Project includes groundwater, subparagraph “(f)” of Section 10910 of the California Water Code requires the following additional information to be included in the water supply assessment:

“(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

“(2) A description of any groundwater basin or basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the [City] . . . has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the Department of Water Resources has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the [City] . . . of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

“(3) A detailed description and analysis of the amount and location of groundwater pumped by the [City] . . . for the past five years from any groundwater basin from which the proposed Project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

“(4) A detailed description and analysis of the amount and location of

groundwater that is projected to be pumped by the [City] . . . from any basin from which the proposed Project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

“(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed Project will be supplied to meet the projected water demand associated with the proposed Project. A water supply assessment shall not be required to include the information required by this paragraph if the [City] determines, as part of the review required by [subparagraph “(f)(1)” of Section 10910 of the California Water Code], that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the Project was addressed in the description and analysis [of the amount and location of groundwater that is projected to be pumped by the City that was] required by paragraph (4) of subdivision (b) of Section 10631 [to be included in the City’s Urban Water Management Plan].”

IV. WATER SUPPLY ASSESSMENT

Each of the determinations required by Section 10910 of the Water Code, listed in the preceding section of this document, is addressed below.

SECTION 1. PROJECTED WATER DEMANDS OF THE PROJECT WERE NOT ACCOUNTED FOR IN CITY OF ORANGE YEAR 2005 URBAN WATER MANAGEMENT PLAN.

The City adopted its most recent Urban Water Management Plan Update in accordance with Section 10610 et seq. of the California Water Code in December, 2005¹ which included water supply and demand projections through year 2030.

The information included in this WSA addresses supply and demand projections for the entire City service area through the year 2030, inclusive of the Project. Consequently, a projection period of 20 years is used for purposes of this WSA as required under Section 10910(c)(3) of the California Water Code.

Although projected water demands associated with “a project” at this site was included as part of the City’s 2005 UWMP Update, purpose and the characteristics of the proposed

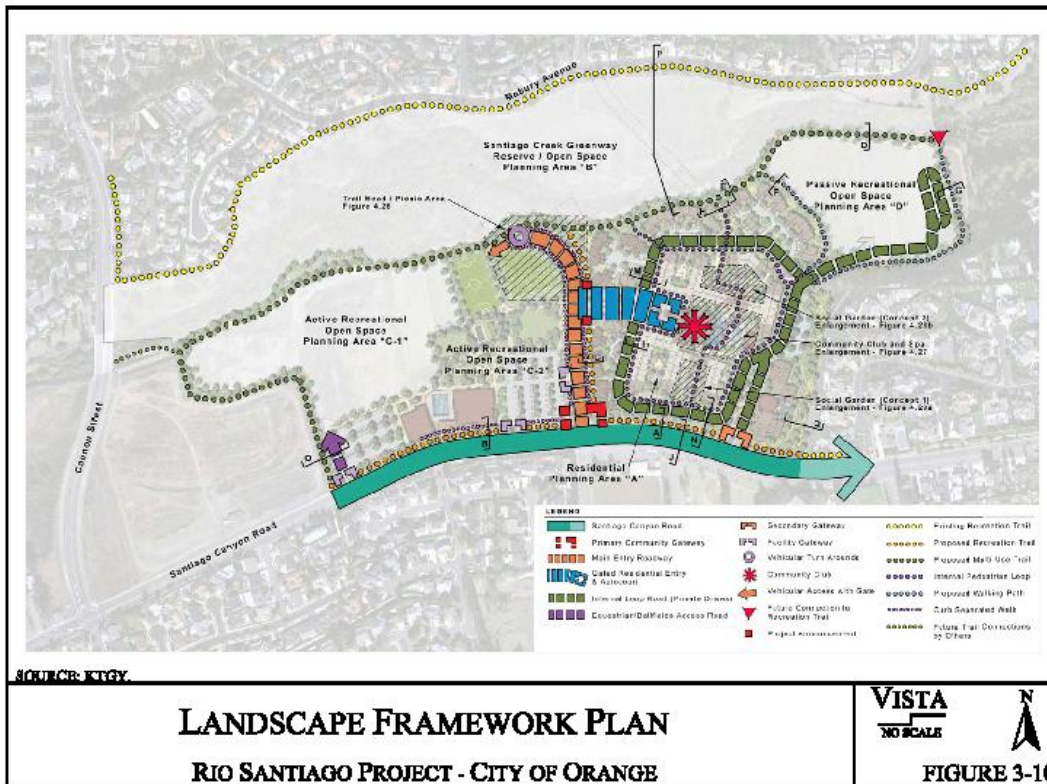
¹Due to the number and size of documents referenced or incorporated by reference herein, if not attached, they are available at the offices of the City Water Manager. A list of documents referenced in this WSA is attached as Appendix “A.”

development at the site has changed significantly.

DEMAND DETERMINATION

The City's 2005 UWMP Update included **water demand for the Sully-Miller/Fieldstone Communities, Tract No.15750, referred herein as Fieldstone Project, at 145,000 gallons per day or 159 acre-feet per year.**

460 residential units proposed for the project site would all be located in an area 30 gross acres in size comprised of a combination of Senior Casitas Living, Independent Senior Living, and Assisted/Skilled Nursing Senior Living. There may be a limited number of attached/detached Townhomes (44) or Single Family Detached (25) homes on an approximate 8.5 acre within the area.



Demand Factors

The following demand factors were historically employed for Water Supply Assessments and UWMP Updates:

Low to Medium Density Residential

Local Interior: 200 gal/day/du
Local Exterior: 100 gal/day/du
Irrigation Demand: 3300 gal/ac/day (of irrigated area)

High Density Residential

Local Interior: 180 gal/day/du
Local Exterior: 20gal/day/du

Multi-purpose Facility: Local Interior: **200 gal/day/1000SF**
 Local Exterior: **20 gal/day/1000SF**
 Irrigation Demand: **3300 gal/day/acre**

For the purposes of demand determination 44 townhomes and 25 Single Family Detached units were considered to be low to medium density residential. The remaining 391 residential units were considered to be high density residential. Fifty percent of Planning area A was considered to be irrigated. For Planning Areas C-1, C-2 and D annual irrigation demand of 3 feet per acre per year was assumed.

Low-Med. Density: 69 units x 200 g/d/du = 13,800 g/d Approx. 15 acre-feet per year
High Density: 391 units x 180 g/d/du = 70,380 g/d Approx. 77 acre-feet per year
Irrigation: 30 ac. x 0.50 x 3,300 g/d/ac = 49,500 g/d Approx. 54 acre-feet per year

Area C-1 and C-2 Active Recreational: 28 ac. x 3 feet/ac/year = 84 acre-feet per year
Area D Passive Recreational: 10 ac. x 3 feet/ac/year = 30 acre-feet per year
Multi-Purpose Building: 97,000 x 220 g/d/sf = 21,340 g/d =24 ac-feet per year

Total Project Demand: Approximately 284 acre-feet per year.

Fieldstone Project at this site had a projected water demand of 159 acre-feet per year included in the City’s UWMP Update of 2005 therefore the net increase is 125 AF/yr. However, it was decided to use 284 AF/yr in order to maintain consistency with the demand figures utilized in the City’s Water Supply Assessments prepared since the adoption of the 2005 UWMP Update. This is a more conservative approach and would also account for any unaccounted for increases in demand.

SECTION 2. TOTAL PROJECTED WATER SUPPLIES AVAILABLE DURING NORMAL, SINGLE DRY, AND MULTIPLE DRY WATER YEARS DURING A 20-YEAR PROJECTION ARE SUFFICIENT TO MEET PROJECTED WATER DEMANDS OF THE PROJECT IN ADDITION TO CITY OF ORANGE EXISTING AND PLANNED FUTURE US

Table 1 below shows the water supplies available to the City as documented in the City’s UWMP Update 2005 (UWMP 2005). Basin supplies were adjusted to account for current well production capacities as to the date of this assessment.

Table 1					
Water Supplies – AF/Y					
Source of Water	Normal Water Year	Multiple Dry Water Years			
		Single Dry Water Year	Year 1*	Year 2*	Year 3*
Orange County Groundwater Basin	38,350**	38,350**	30,680***	30,680	30,680
Local Water	1,000	0	0	0	0
Imported MWD Water	35,983	35,983	35,983	35,983	35,983
Total	75,333	75,333	66,663	66,663	66,663
% of Normal	100%	100%	88.5 %	88.5 %	88.5 %

**First, Second and Third year of Multiple Dry Years*

***Adjusted from 2005 UWMP to reflect present day well production capacities.*

****80 percent of dry-year per the 2005 UWMP*

Table 2 below shows the water demands of the City with and without the water demands estimated for the Project.

Table 2					
Water Demands – AF/Y					
		Multiple Dry Water Years			
	Normal Water Year	Single Dry Water Year	Year 1	Year 2	Year 3
Total Water Demand before the Project **	37,031	39,095	39,802	39,802	39,802
Percentage of Normal Year Demands	100	105.6	107.5	107.5	107.5
Total Water Demand of the Project	284	300	305	305	305
Total City Water Demand with the Project	37,415	39,395	40,107	40,107	40,107

** Total water demands of the City as documented in the City’s revised WSA for Maguire Orange Center Project, dated April 2009.

Table 3 below shows the comparison water demands and water supplies for the City as documented in the City’s Maguire Orange Center Project WSA and the water demands determined for the Project as shown above.

Table 3					
Water Supply vs. Demands – AF/Y					
		Multiple Dry Water Years			
	Normal Water Year	Single Dry Water Year	Year 1*	Year 2*	Year 3*
Total City Water Demand with the Project	37,415	39,395	40,107	40,107	40,107
Total Water Supply Capability of the City	75,333	75,333	66,663	66,663	66,663
Reserve Capacity	37,918	35,938	26,556	26,556	26,556
Demand as Percentage of Supply	49.7	52.3	60.1	60.1	60.1

**First, Second and Third year of Multiple Dry Years*

SECTION 4 below discusses the current situation with respect to imported water supplies in particular Metropolitan’s State Water Project. As mentioned therein should Metropolitan proceeds with implementation of Water Allocation Plan the City may receive only 85 to 90 percent of its imported water needs. Since the City typically provides only 30 to 35 percent of water demand from the imported sources this may translate into approximately 5 percent reduction in total supply capacity which the City may meet by either increased pumping from groundwater supplies or by conservation.

**SECTION 3. IDENTIFICATION OF EXISTING WATER SUPPLY
ENTITLEMENTS, WATER RIGHTS AND WATER SERVICE CONTRACTS**

This Section provides information responsive to the statutory requirements itemized above concerning entitlements to water, ability to fund identified facilities, and permits and regulatory approvals in connection therewith.

**SECTION 3.A. WRITTEN CONTRACTS OR OTHER PROOF OF
ENTITLEMENT TO WATER SUPPLY**

Water Supplies

The City's main source of water supply is the groundwater pumped from wells within the Orange County Groundwater Basin (Basin). Groundwater has historically provided anywhere from 62 to 80 percent of the total demand. Imported water from MWD through MWDOC is the other significant source of City supplies. The City has also purchases local water from the Serrano Water District (SWD). The source of local water is run-off from Santiago Creek that is impounded behind Santiago Dam in Irvine Lake.

Groundwater

The Basin, also referred as the **Lower Santa Ana Basin**, provides the main source of water supply for the City of Orange. The City's Water Division operates 15 active groundwater-producing wells in the Basin. The water is produced by 16 wells, which are described on Table IV. Two (2) additional wells are planned for construction in accordance with the City's recently adopted Seven Year Capital Improvement Plan extending from fiscal year 2007-2008 through fiscal year 2013-2014.

Table 4 below represents the active wells supplying the City water system from the Basin.

TABLE 4 Active Groundwater Wells				
Well No.	Capacity (GPM)	Diameter (Inches)	Depth (Feet)	State Well No,
3	580	12	162	4S/9W-26N1
4	865	16	285	4S/9W-32B1
5	1100	20	325	4S/9W- 32B2
8	1300	16	284	4S/10W-24J1
9	1300	16	235	4S/10W-24J2
14	1020	24	300	4S/9W-32B3
15	1050	24	240	4S/9W-7P1
18	1000	20	320	4S/9W-31B2
19	2300	18	265	4S/9W-19K1
20	2700	20	250	4S/10W-36C2
21	2800	20	270	4S/9W-17N1
22	1700	22	293	4S/9W-20P1
23	1550	24	356	4S/9W-28J2
24	2000	24	390	4S/9W-28A01
25	2300	20	370	4S/9W-B04S
26	3000	22	350	4S/10W-35B04
Total	26,565			

** 26,565 GPM is equivalent to approximately 42,600 AF/Yr of production capacity. However, to be conservative only 90% of the well production capacity will be counted on for the annual production estimates. Therefore, the production capacity is assumed to be 38,350AF/YR (rounded)*

Imported Water

The City is a member agency of MWDOC, which in turn is a member agency of MWD. The City has been receiving water from MWD on a continual basis in increasing quantities based on service demands since 1951. MWD water is provided through the connections identified in Table 5 below.

Table 5			
Imported Water Supply Sources (in cfs)			
Source	Connection Designation	Total Allocated Feeder Capacity	Capacity of Connection
Metropolitan Water District of Southern California (MWD)			
East Orange County Feeder No. 2	OC-40	*14.0	20
	OC-41 (future)		
	OC-42		14
Allen-McCulloch Pipeline	OC-67	*22.7	30.0
	OC-69		10.0
Orange County Feeder	OC-3	11.0	*10.0
East Orange County Water District (EOCWD)	EOCWD	9.0	*3.0
Total Imported (MWD) Capacity	*49.7 (35,983 AF/Yr)		
Local Supplies			
1000 AF/Yr			
Serrano Water District	SWD-1	2.0	2.0
	SWD-2		

* For determining the total capacity, either the total feeder capacity or the connection capacity, whichever is less, were utilized.

As a member agency of MWDOC and MWD, the City is entitled to receive available water from MWD. Property owners within the City, including the area encompassed by the Projects, have been, and continue to be, subject to the payment of property taxes levied by MWD since 1951 in connection with the entitlement to receive MWD water served by the City for use on their property.

As further detailed in **SECTION 4**, in response to the present conditions affecting the Metropolitan's water supply, MWD and MWDOC imposed Water Allocation Plans (see Appendix 17 and 18). The imported water demand of the City for the FY2008/09 was **13,110 AF**. Preliminary estimates from MWDOC indicate that the City's imported water allocation is 11,144 AF for FY 2009-2010. As discussed in the MWDOC Allocation Plan any agency that exceeds its allocation is subject to financial penalties provided that MWDOC itself exceeds its total allocation from MWD. Otherwise no client agency is subject to penalties. The City can meet the additional demand by increasing its groundwater production in excess of the Basin Production Percentage (BPP) by paying the Basin Equity Assessment (BEA). BPP is annually set by OCWD and assumed for the current fiscal year to be at 62 percent. BEA is typically set at the current price of

imported water.

Importation System

The City also has entitlements and/or written contracts to receive imported (potable) water from MWD via the regional distribution system located in Orange County, components of which are described below. Although pipeline capacity rights do not guarantee the availability of water, per se, they do guarantee the ability to convey water when it is available to the City's distribution system and, therefore, operate in tandem with water entitlements and/or contracts to receive supplemental water for purposes of demonstrating not only water supply reliability, but also physical delivery system reliability. All imported water supplies assumed in this report are available to the City from existing infrastructure facilities.

The City is connected to the Allen-McColloch Pipeline (AMP), the East Orange County Feeder No. 2 and the Orange County Feeder all of which deliver domestic water MWD sources.

Allen-McColloch Pipeline (AMP)

The AMP is the supplemental source of domestic water in which the City owns specified capacity rights for the delivery of water. MWD owns and operates the AMP. The City's AMP capacity ownership, expressed as rate of flow, is 22.7 cubic feet per second (cfs).

The Agreement for Sale and Purchase of Allen-McColloch Pipeline (Metropolitan Agreement No. 4623) among MWD, MWDOC, MWDOC Water Facilities Corporation and certain other identified participants, including the City, dated July 1, 1994 (the AMP Sale Agreement) requires MWD, among other things, to meet the City's requests for water deliveries (subject to the availability of water from MWD). The AMP Sale Agreement further requires MWD to augment/increase capacity necessary to meet the City's projected ultimate service area water demands, which includes the Projects and other undeveloped lands within the City. Furthermore the enumerated capacity is the nominal peaking capacity that can be exceeded subject to certain peaking penalties.

East Orange County Feeder No. 2

The EOCF No.2 is a 25-mile long treated water transmission main, constructed in 1962 by Metropolitan Water District, Anaheim, Santa Ana and MWDOC. The pipeline runs south from Metropolitan's Diemer Water Treatment Plant in Yorba Linda through Anaheim, Orange, Tustin and Irvine, to the San Joaquin Reservoir. EOCF No.2 delivery capacity is 310 cfs. The EOCF No.2 is jointly owned by Metropolitan, Anaheim, Santa Ana, and MWDOC, as follows:

Metropolitan: 31.656 %

Anaheim: 3.255 %

Santa Ana: 6.592 %
MWDOC: 54.078 %
MWDOC Through Coastal: 4.419%

The original joint powers agreement for the EOCF No.2 was signed in July, 1961. There were 2 amendments to that agreement, the last in 1965. There are also the agreements between MWDOC and each of MWDOC's EOCF No.2 agencies such as the one dated June 6, 1962 by which MWDOC has assigned 14 cfs of its capacity to the City of Orange.

MWDOC has also assigned capacities to Capistrano Valley WD (15 cfs), East Orange CWD (16 cfs), Huntington Beach (5 cfs), Irvine Ranch WD (41 cfs), Mesa Consolidated WD (9 cfs), Moulton Niguel WD (45 cfs), and Santa Margarita WD ("14" cfs).

The City's capacity of **14.0 cfs**, is equivalent to **10,136 acre-feet per year**.

East Orange County Water District

A certain part of the City is located within the boundaries of the East Orange County Water District (EOCWD) a wholesale water agency who is also a member agency of MWDOC and MWD. The EOCWD system is supplied with imported water via AMP as well as EOCF No.2 from MWD sources.

According to EOCWD, the retail agencies within its wholesale service area do not have individually designated capacity rights, but are entitled to share all the capacity owned by EOCWD in accordance with their needs and requirements. Discussions with the City staff indicate that actual physical capacity of the EOCWD connection might be able to supply only 5 cfs without additional improvements such as a new pumping station. Therefore, this WSA considered only 3.0 cfs capacity being available from EOCWD sources.

SECTION 3.B. ADOPTED CAPITAL OUTLAY PROGRAM FOR FINANCING THE DELIVERY OF WATER SUPPLY

In addition to its existing water supply infrastructure, the City has adopted a Seven-Year Capital Improvement Plan for Fiscal Years 2007 -2008 to 2013-2014 (the "City's CIP"). The City also has an annual budget, which is updated each year. The City's CIP identifies capital facilities necessary in order to provide reliable water service to customers within its service area, including the Project. The City's CIP includes the proposed construction of two (2) new water wells, commonly referred to as Wells No27 and 28; the proposed improvement or enhancements to two (2) Pump Stations; two (2) Water Storage Reservoirs and miscellaneous pipeline improvements.

SECTION 3.C. FEDERAL, STATE AND LOCAL PERMITS FOR CONSTRUCTION OF NECESSARY INFRASTRUCTURE ASSOCIATED WITH DELIVERING WATER SUPPLY

There are currently no known requirements other than routine city permits. Examples of routine permits include City issued well drilling permits and City issued construction permits.

SECTION 3.D. NECESSARY REGULATORY APPROVALS REQUIRED TO CONVEY OR DELIVER WATER SUPPLY

The City will have to get amended “Water Supply Permits” from the California State Department of Health in order to add new water wells to its sources of water supply.

SECTION 4. FOR WATER NOT RECEIVED IN PRIOR YEARS UNDER EXISTING SUPPLY ENTITLEMENTS, WATER RIGHTS, OR WATER SERVICE CONTRACTS, IDENTIFICATION OF OTHER WATER SYSTEMS OR CONTRACT HOLDERS RECEIVING WATER OR WITH RIGHTS TO SAME SOURCE OF WATER

Metropolitan’s Water Supply

Metropolitan's principal sources of water are the State Water Project and the Colorado River. Recent court decisions restrict deliveries from the State Water Project beginning in 2008, as described below under *Endangered Species Act Considerations*.” Record dry conditions in Metropolitan’s service area in 2006-07, continuing dry conditions in the northern Sierra watershed for the State Water Project, including a record dry spring in 2008, and a multi-year drought in the Colorado River Basin have further affected water deliveries and storage..

State Water Project

The State Water Project is owned by the State of California (the “State”) and operated by the State Department of Water Resources (the “Department of Water Resources”). Below-normal precipitation in the northern Sierra Mountains in the winter and spring of, the seasons when most of the annual precipitation occurs ended with record dry conditions during March and April of 2008. Due to these drought conditions and court-ordered restrictions, on June 4, 2008, California Governor Arnold Schwarzenegger issued an Executive Order (the “Executive Order”) proclaiming a condition of statewide drought. The Governor followed the Executive Order with a Proclamation of a State of Emergency (the “Proclamation”) in nine counties (Sacramento, San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare and Kern) on June 12, 2008, to avert severe impacts to these agricultural areas from drought conditions and from reduced deliveries from the federal Central Valley Project announced by the United States Bureau of

Reclamation (the “Bureau of Reclamation”). Metropolitan has invested in local and regional water storage, conservation and reclamation projects with its member agencies. Metropolitan is drawing on its stored water supplies to meet near-term demands and anticipates additional actions to stretch reserve supplies. On June 10, 2008, Metropolitan’s Board approved a resolution declaring that Metropolitan’s service area is in a Water Supply Alert condition and urging cities, counties, member agencies and retail water agencies in Metropolitan’s service area to adopt and enforce drought ordinances, accelerate public outreach and conservation messaging, and develop additional local supplies to help preserve the region’s water storage reserves.

Bay-Delta Regulatory and Planning Activities. The SWRCB is the agency responsible for setting water quality standards and administering water rights throughout California. Decisions of the SWRCB can affect the availability of water to Metropolitan and other users of State Water Project water. The SWRCB exercises its regulatory authority over the Bay-Delta by means of public proceedings leading to regulations and decisions. Since 2000, SWRCB’s D-1641 has governed the State Water Project’s ability to export water from the Bay-Delta for delivery to Metropolitan and other agencies receiving water from the State Water Project. D-1641 allocated responsibility for meeting flow requirements and salinity and other water quality objectives established earlier by the WQCP. D-1641 was challenged in a dozen lawsuits, filed primarily by Bay-Delta interests and environmental groups. These cases were consolidated in a single action. D-1641 was, for the most part, affirmed by the California Court of Appeal in the *State Water Resources Control Board Cases* in February 2006. The California Supreme Court denied petitions for review of the Court of Appeal’s decision. In December 2006, SWRCB adopted limited amendments to D-1641 to cure the two issues (the flow regime for salmon and deferral of a salinity objective to protect Bay-Delta agriculture) identified by the Court of Appeal. SWRCB also identified additional issues to review beginning in 2007, which could result in future changes in water quality objectives and flows that could affect exports of water from the State Water Project.

D-1641 includes a salinity objective established in the Bay-Delta to protect local agriculture. In February 2006 SWRCB issued a “cease and desist” order against the Department of Water Resources and the Bureau of Reclamation finding that the Department of Water Resources and Bureau of Reclamation were “threatening to violate” those objectives and requiring that the State Water Project and the federal Central Valley Project, operated by the Bureau of Reclamation (the “Central Valley Project”), ensure that salinity objectives are not exceeded. The order was issued even though salinity objectives had not been exceeded and any future exceedance may be caused by factors, such as waste discharges, that are outside the control of the State Water Project and Central Valley Project. The Bureau of Reclamation, Central Valley Project contractors and State Water Contractors filed litigation challenging the order. The litigation was dismissed in December 2006, as a result of settlement negotiations in which SWRCB recognized that the Bureau of Reclamation and the Department of Water Resources should not be responsible for an exceedance of the objectives if it is caused by circumstances beyond their control.

Endangered Species Act Considerations

The listing of several fish species as threatened or endangered under the federal and/or California Endangered Species Acts (respectively, the “Federal ESA” and the “California ESA” and, collectively, the “ESAs”) have impacted State Water Project operations and limited the flexibility of the State Water Project. In addition, in February 2009 the California Fish and Game Commission listed the longfin smelt as a threatened species for protection under the California ESA. The United States Fish and Wildlife Service and National Marine Fisheries Service have issued biological opinions and incidental take statements that govern operations of the State Water Project and Central Valley Project with respect to the Delta smelt, the winter-run and spring-run Chinook salmon and the Central Valley steelhead. An additional biological opinion will be required for the North American green sturgeon, which was listed in April 2006. The Bureau of Reclamation initiated consultations with the United States Fish and Wildlife Service and National Marine Fisheries Service for new biological opinions with respect to the coordinated operations of the State Water Project and Central Valley Project in July 2006, following the filing of the challenges to the biological opinions and incidental take statements described under “*Federal ESA Litigation*” below.

Under the Federal ESA, critical habitat also must be designated for each listed species. Critical habitat has been designated for each of the listed species except for the green sturgeon. As a result of recent litigation, the United States Fish and Wildlife Service were required to designate habitat for the green sturgeon by April 30, 2008; however, critical habitat for the green sturgeon has not yet been designated.

Federal ESA Litigation. Litigation filed by several environmental interest groups (*NRDC v. Kempthorne; Pacific Coast Federation of Fishermen’s Associations v. Gutierrez*) in the United States District Court for the Eastern District of California alleges that these biological opinions and incidental take statements inadequately analyzed impacts on listed species under the Federal ESA.

California ESA Litigation. In addition to this litigation under the Federal ESA, other environmental groups sued the Department of Water Resources on October 4, 2006 in the Superior Court of the State of California for Alameda County alleging that the Department of Water Resources was taking listed species without authorization under the California ESA.. On April 18, 2007, the Alameda County Superior Court issued its Statement of Decision in *Watershed Enforcers v. California Department of Water Resources*. The Department of Water Resources appealed the Alameda County Superior Court’s order which automatically stays the order pending the outcome of the appeal. On May 7, 2007, the Department of Water Resources executed a memorandum of understanding (“MOU”) with the California Department of Fish and Game to assist in reinitiated consultations with the United States Fish and Wildlife Service and National Marine Fisheries Service for new biological opinions on the coordinated operations of the State Water Project and Central Valley Project as they relate to the listed species of fish. In the MOU, the Department of Water Resources and the California Department of Fish and Game agreed that the biological assessment and resulting biological opinions under the Federal ESA should be developed to include State Water Project operations that are

consistent with the California ESA. After the new biological opinions and incidental take statements for the listed species of fish are completed, the Department of Water Resources is expected to apply to the Department of Fish and Game for a consistency determination under the California ESA based on the new biological opinions and incidental take statements.

State Water Project Operational Constraints. The Department of Water Resources has altered the operations of the State Water Project to accommodate species of fish listed under the Federal and California ESAs. These changes in project operations have influenced the manner in which water is diverted from the Bay-Delta and State Water Project deliveries and have resulted in reduced deliveries of State Water Project water to Metropolitan. Other issues such as the recent decline of some fisheries in the Delta and surrounding regions and certain operational actions in the Delta may significantly impact Metropolitan's water supply from the Delta. State Water Project operational requirements may be further modified through the consultation process for new biological opinions for listed species under the Federal ESA or from the California Department of Fish and Game's actions regarding a consistency determination under the California ESA. No assurances can be given whether or when new biological opinions or a consistency determination will be issued under the Federal ESA and California ESA, what the content of those opinions and determinations might be and how they might affect State Water Project and Central Valley Project operations. Decisions in these cases or future litigation, listings of additional species (such as the longfin smelt) or new regulatory requirements could adversely affect State Water Project operations in the future by requiring additional export reductions, releases of additional water from storage or other operational changes impacting water supply operations. Metropolitan cannot predict the ultimate outcome of any of the litigation or regulatory processes described above at this time or whether such outcome will result in any materially adverse impact on the operation of the State Water Project pumps, Metropolitan's State Water Project supplies or Metropolitan's water reserves.

Supply Management Strategies

Metropolitan's current measures to address potential water supply shortages and interruptions included calling for extraordinary conservation, cutting groundwater replenishment and agricultural water deliveries, maximizing groundwater production, acquiring additional supplies and drawing from storage accounts.

On June 10, 2008, Metropolitan's Board approved a resolution declaring that its service area is in a Water Supply Alert condition and urging cities, counties, member agencies and retail water agencies in Metropolitan's service area to preserve regional storage reserves through extraordinary conservation measures, by activating or adopting and enforcing conservation and drought ordinances and by accelerating water recycling and groundwater recovery projects. Metropolitan working with member agencies, prepared the **Water Supply Allocation Plan** (see Appendix 18) based on the principles contained in Metropolitan's Water Surplus and Drought Management Plan. The Water Supply Allocation Plan was approved by the Board in February 2008. The Water Supply

Allocation Plan provides a formula for equitable distribution of available supplies in case of extreme water shortages within Metropolitan's service area. In April 2009 Metropolitan's Board approved the resolution imposing the Water Supply Allocation Plan resulting in mandatory water allocations, effective July 1, 2009.

MWDOC also prepared and implemented water conservation and allocation programs (see Appendix 17) within MWDOC service territory along the same lines of MWD plan effective at the same time. The imported water demand of the City for the FY2008/09 was **13,110 AF**. Preliminary estimates from MWDOC indicate that the City's imported water allocation is 11,144 AF for FY 2009-2010. As discussed in the MWDOC Allocation Plan any agency that exceeds its allocation is subject to financial penalties provided that MWDOC itself exceeds its total allocation from MWD. Otherwise no client agency is subject to penalties. The City can meet the additional demand by increasing its groundwater production in excess of the Basin Production Percentage (BPP) by paying the Basin Equity Assessment (BEA).

APPENDIX “A” WATER SUPPLY ASSESSMENT REFERENCE DOCUMENTS

1. City of Orange- “Water Supply Assessment- Maguire Orange Center Project” dated April 2009.
2. City of Orange - “Urban Water Management Plan Update -December 2005,”
3. “Report on Metropolitan’s Water Supplies,” dated March 25, 2003, prepared by Metropolitan Water District of Southern California (MWD 2003 Supply Report)
4. City of Orange- Seven Year Capital Improvement Plan -Fiscal Years 2007/2008 to 2013-2014
5. “Municipal Water District of Orange County 2005 Regional Urban Water Management Plan,” dated December 2005
6. “The Regional Urban Water Management Plan for the Metropolitan Water District of Southern California,” dated December 2005
7. Agreement for Sale and Purchase of Allen-McColloch Pipeline (Metropolitan Agreement No. 4623)
8. Agreement Municipal Water District of Orange County and the City of Orange, dated June 6, 1962
9. MWD Water Surplus and Drought Management Plan (WSDM), dated August 1999
10. Metropolitan Water District Memorandum to Board of Directors, dated November 27, 2000, prepared by Roderick E. Walston, General Counsel
11. Letter dated September 11, 2003 from Serrano Water District to City of Orange
12. Orange County Water District Master Plan Report, April 1999
13. Orange County Water District Groundwater Management Plan, May 2004
14. Water Supply Assessment for Children’s Hospital of Orange County-Master Plan –November 2008
15. Appendix A to the Official Statement by Metropolitan Water District of Southern California dated December 2008
16. Rio Santiago Draft EIR Project Description dated October 26,2009 by AECOM
17. MWDOC Water Allocation Plan dated January 2009

18. MWD Water Allocation Plan- Revision June 2009

Jakki Tonkovich

From: Ramona Takahashi [rtakahashi@cityoforange.org]
Sent: Wednesday, September 07, 2011 2:25 PM
To: Fred Talarico
Cc: Megan Penn; Chad Ortlieb; Son Tran; Bob Baehner; Jakki Tonkovich
Subject: RE: Rio Santiago

Fred,

I apologize for not getting back to you sooner regarding your August inquiries. The consultant that prepared the original Rio Santiago WSA was contacted after we met in June and he indicated that he was willing to prepare a WSA. At that time, we did not have the new project description so the details regarding costs and timing were not addressed. Upon receiving and reviewing the new description, a preliminary analysis was done and it had been determined, on a preliminary basis, that another WSA was not warranted. The management's response to the preliminary analysis is an intermediate draft in progress so it would be pre-mature to issue it until the draft has been completed. Once the draft has been completed, it will be sent to you.

Thank you very much and do not hesitate to contact me should you have any further questions.

Ramona Takahashi
Project Engineer
City of Orange Water Division
189 S. Water Street, Orange, CA 92866
714-288-2485 rtakahashi@cityoforange.org

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From: Fred Talarico [mailto:Fred@vistalb.com]
Sent: Tuesday, September 06, 2011 5:01 PM
To: Ramona Takahashi
Cc: Megan Penn; Chad Ortlieb; Son Tran; Bob Baehner; Jakki Tonkovich
Subject: RE: Rio Santiago

Ramona,

Would it be possible for us to review the management response? We are not sure if the report has been updated or if you are still working to determine what consultant to select. Jakki and I are going to be in

10/19/2011

Orange tomorrow morning and will stop by to discuss.

Thanks,

Fred Talarico
Principal Planner
Vista Community Planners (VISTA)

Phone (949) 872-1160
Facsimile (949) 494-3150

From: Ramona Takahashi [mailto:rtakahashi@cityoforange.org]
Sent: Tuesday, September 06, 2011 11:10 AM
To: Jakki Tonkovich; Fred Talarico
Cc: Megan Penn; Chad Ortlieb; Son Tran; Bob Baehner
Subject: RE: Rio Santiago

Fred and Jakki,

I recently received the managements response to my conclusions which now requires me to review their response. I will be working towards returning comments to their response optimistically by the end of next week. If I can provide them sooner, than of course I will do so. At that point, it will be in their hands for direction.

Thank you very much and do not hesitate to contact me should you have any further questions.

Ramona Takahashi
Project Engineer
City of Orange Water Division
189 S. Water Street, Orange, CA 92866
714-288-2485 rtakahashi@cityoforange.org

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From: Jakki Tonkovich [mailto:Jakki@vistalb.com]
Sent: Thursday, September 01, 2011 11:27 AM
To: Ramona Takahashi; Bob Baehner
Cc: Fred Talarico; Megan Penn; Chad Ortlieb; Son Tran
Subject: RE: Rio Santiago

10/19/2011

Ramona:
Can you please give me an update as to where we stand on the water supply assessment?
Thanks
Jakki

From: Ramona Takahashi [mailto:rtakahashi@cityoforange.org]
Sent: Thursday, August 04, 2011 9:42 AM
To: Jakki Tonkovich; Bob Baehner
Cc: Fred Talarico; Megan Penn; Chad Ortlieb; Son Tran
Subject: RE: Rio Santiago

Jakki,

I've looked at the updated land uses shown on the attachment. The previous acreage for Open Space Park: OS-P (Passive Recreation such as golf putting green, bocce ball, interpretive center, etc.) is shown as 10 but there is not a present max or present acreage amount shown. For my initial review, I've assumed that they are not applicable due to the existing and previous max and therefore both quantities are zero. Please let me know if this assumption is correct or what these numbers should be.

The conclusions will be provided to the City Attorney for an opinion so I should have comments for you sometime within the next couple of weeks.

Thank you very much and do not hesitate to contact me should you have any further questions.

Ramona Takahashi
Project Engineer
City of Orange Water Division
189 S. Water Street, Orange, CA 92866
714-288-2485 rtakahashi@cityoforange.org

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From: Jakki Tonkovich [mailto:Jakki@vistalb.com]
Sent: Tuesday, August 02, 2011 4:16 PM
To: Ramona Takahashi; Bob Baehner
Cc: Fred Talarico; Megan Penn; Chad Ortlieb
Subject: RE: Rio Santiago

Hi Ramona and Bob:
I just wanted to make sure you had everything that you need to start the process for the Water Study. Please let

10/19/2011

me know what else, if any, you need.

We are looking to find out the timing of the study - would it be possible to give an answer.

Thanks
Jakki

From: Ramona Takahashi [mailto:rtakahashi@cityoforange.org]
Sent: Tuesday, July 12, 2011 3:45 PM
To: Jakki Tonkovich; Bob Baehner
Cc: Fred Talarico; Megan Penn; Chad Ortlieb
Subject: RE: Rio Santiago

Jakki,

Can you please provide an estimated time when the information requested in the email below may be submitted? I've attached the previously provided 2009 project description summary table for your reference.

Thank you very much and do not hesitate to contact me should you have any questions or comments.

Ramona Takahashi
Project Engineer
City of Orange Water Division
189 S. Water Street, Orange, CA 92866
714-288-2485 rtakahashi@cityoforange.org

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From: Ramona Takahashi
Sent: Wednesday, June 29, 2011 4:31 PM
To: 'Jakki Tonkovich'; Bob Baehner
Cc: 'Fred Talarico'; 'Megan Penn'; Chad Ortlieb
Subject: RE: Rio Santiago

Jakki,

Thank you for the updates. In order for a determination to be made regarding a potential amended WSA, we will need a table provided that tabulates and summarizes the increases and decreases in the quantities of the various land use and planning area project components. Specifically, you will need to establish and provide the changes in the quantities between the previous provided project description and the new project description.

10/19/2011

Thank you very much and do not hesitate to contact me should you have any questions.

Ramona Takahashi
Project Engineer
City of Orange Water Division
189 S. Water Street, Orange, CA 92866
714-288-2485 rtakahashi@cityoforange.org

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From: Jakki Tonkovich [mailto:Jakki@vistalb.com]
Sent: Tuesday, June 28, 2011 2:35 PM
To: Ramona Takahashi; Bob Baehner
Cc: Fred Talarico; Megan Penn
Subject: Rio Santiago

Hi:

Attached please find electronic versions of the 2 recent NOP that went out related to the Rio Santiago Site. The second one (1 page) has a minor correction that clearly explains that the open space is on both sides of the creek.

I did check - the NOP was submitted to Richard Hurtado. I will correct it, so that future items (like NOC) get sent to you guys.

Thanks
Jakki Tonkovich
(949) 836-1992

Jakki Tonkovich

From: Burror, Jim [JBURROR@OCSD.COM]
Sent: Thursday, September 22, 2011 6:46 AM
To: Jakki Tonkovich
Subject: RE: Rio Santiago Project Site

Jakki,

OCSD truck sewer near the project site can accommodate the planned uses at the proposed site.

Thanks

Jim Burror
Engineering Supervisor
Orange County Sanitation District
714-593-7335 (W) / 714-962-5018 (F)
www.ocsd.com
10844 Ellis Avenue
Fountain Valley, CA 92708

From: Jakki Tonkovich [mailto:Jakki@vistalb.com]
Sent: Wednesday, September 21, 2011 4:24 PM
To: Burror, Jim
Cc: Fred Talarico
Subject: Rio Santiago Project Site

Hi Jim:

Can you please confirm via email the conversation that we had today that there is enough capacity in the system for 118,229 gpd that our project (Rio Santiago Specific Plan).

Thank You,
Jakki Tonkovich
Vista Community Planners

Jakki Tonkovich

Subject: FW: Rio Santiago-Water Supply Assessment Determination

From: Ramona Takahashi [<mailto:rtakahashi@cityoforange.org>]
Sent: Tuesday, January 17, 2012 9:42 AM
To: Megan Penn
Cc: Chad Ortlieb
Subject: FW: Rio Santiago-Water Supply Assessment Determination

Megan,

Please see the email below regarding the final determination.

Thank you very much and do not hesitate to contact me should you have any further questions.

Ramona Takahashi
Project Engineer
City of Orange Water Division
189 S. Water Street, Orange, CA 92866
714-288-2485 rtakahashi@cityoforange.org

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From: Bob Baehner
Sent: Wednesday, December 21, 2011 10:12 AM
To: Ramona Takahashi
Cc:
Subject: Rio Santiago-Water Supply Assessment Determination

Ramona,

From the information provided, it was determined that a Water Supply Assessment for the currently proposed Rio Santiago project was not required and not warranted.

Obviously, should the developer wish to conduct any water study regarding the site with their resources, that would be their choice.

Thanks

Robert C. Baehner, PE
Acting Water Manager
City of Orange - Water Division
(714) 288-2475
fax (714) 744-2973
bbaehner@cityoforange.org