LAS VIRGENES - TRIUNFO
JOINT POWERS AUTHORITY
AGENDA

CLOSING TIME FOR AGENDA IS 8:30 A.M. ON THE TUESDAY PRECEDING THE MEETING. GOVERNMENT CODE SECTION 54954.2 PROHIBITS TAKING ACTION ON ITEMS NOT ON POSTED AGENDA UNLESS AN EMERGENCY, AS DEFINED IN GOVERNMENT CODE SECTION 54956.5 EXISTS OR UNLESS OTHER REQUIREMENTS OF GOVERNMENT CODE SECTION 54954.2(B) ARE MET.

5:00 PM September 3, 2013

PLEDGE OF ALLEGIANCE

1. CALL TO ORDER AND ROLL CALL

A The meeting was called to order at _____ p.m. by _____ in the Las Virgenes Municipal Water District office and the Clerk of the Board called the roll.

Triunfo Sanitation District	Present	Left	Absent
Steven Iceland	______	______	______
Michael McReynolds, Chair	______	______	______
Janna Orkney	______	______	______
Michael Paule	______	______	______
James Wall	______	______	______
Las Virgenes Municipal Water District			
Charles Caspary, Vice Chair	______	______	______
Glen Peterson	______	______	______
Leonard Polan	______	______	______
Lee Renger	______	______	______
Barry Steinhardt	______	______	______

2. APPROVAL OF AGENDA

A Moved by _____, seconded by _____, and _____, that the agenda for the Regular Meeting of September 3, 2013, be approved as presented/amended.

3. PUBLIC COMMENTS

Members of the public may now address the Board of Directors **ON MATTERS NOT APPEARING ON THE AGENDA**, but within the jurisdiction of the Board. No action shall be taken on any matter not appearing on the agenda unless authorized by Subdivision (b) of Government Code Section 54954.2

4. ILLUSTRATIVE AND/OR VERBAL PRESENTATION AGENDA ITEMS

A **2013 Master Plans Update: Projected Wastewater Generation Rates and Future Recycled Water Demands**

5. ACTION ITEMS

A Tapia Channel Mixing Improvements: Approval of Request for Proposals

Approve the Request for Proposals for the Tapia Channel Mixing Improvements Project.

B Woodland Hills Country Club Recycled Water System Extension: Approval of Term Sheets

Approve the term sheets for the Woodland Hills Country Club Recycled Water System Extension.

6. BOARD COMMENTS

7. ADMINISTERING AGENT/GENERAL MANAGER REPORT

8. FUTURE AGENDA ITEMS

9. INFORMATION ITEMS

A Renewal of Sodium Bisulfite Contract

B Renewal of Sodium Hypochlorite Contract

10. PUBLIC COMMENTS

Members of the public may now address the Board of Directors **ON MATTERS NOT APPEARING ON THE AGENDA**, but within the jurisdiction of the Board. No action shall be taken on any matter not appearing on the agenda unless authorized by Subdivision (b) of Government Code Section 54954.2

11. CLOSED SESSION

A Conference with District Counsel - Potential Litigation (Government Code Section 54956.9): One Case

1. In the opinion of District Counsel, disclosure of the identity of the litigant would be prejudicial to the agency.

B Conference with District Counsel - Existing Litigation:

1. Heal the Bay, Inc. v. Lisa P. Jackson

C Conference with District Counsel - Existing Litigation (Government Code Section 54956.9(a)):

1. Las Virgenes Municipal Water District vs. Onsite Power Systems, Inc.

12. ADJOURNMENT

INFORMATION ONLY

September 3, 2013 JPA Board Meeting

TO: JPA Board of Directors

FROM: Facilities & Operations

Subject: 2013 Master Plans Update: Projected Wastewater Generation Rates and Future Recycled Water Demands

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SUMMARY:

As a part of the 2013 Master Plans update, Kennedy/Jenks Consultants completed the attached Technical Memorandum (TM) entitled "Current and Projected Wastewater Generation". The TM used historical wastewater flows, population growth figures, future water demand/consumption estimates, and an inflow and infiltration factor to project wastewater generation rates to the Tapia Water Reclamation Facility (Tapia) in 2035. A regression analysis was performed to evaluate the correlation between water use among various customer types and the economic factors (unemployment rate). The TM concluded that a design flow rate of 12 MGD is recommended for Tapia.

As a subconsultant to Kennedy/Jenks Consultants, HDR, Inc. completed another TM entitled "Proposed Future Demands and Modeling Scenarios for JPA's Recycled Water Master Plan" (also attached). The TM evaluates future recycled water demands within the LVMWD and TSD service areas as well as potential nearby service areas such as those within the City of Los Angeles (i.e. Woodland Hills Golf Course and Pierce College/Warner Center). The TM identified a potential additional recycled water demand of up to 6,900 AF/Y through "organic growth" to serve in-fill development and/or redevelopment. However, an additional demand of up to 1,870 AF/Y for a total demand of 8,770 AF/Y is possible considering five different scenarios for extension of the recycled water system.

Staff from Kennedy/Jenks Consultants and HDR, Inc. will provide a detailed presentation on their findings at the JPA Board meeting.

Prepared By: John Zhao, P.E., Principal Engineer

ATTACHMENTS:

Projected Wastewater Flow

Projected Recycled Water Demand

23 August 2013

Technical Memorandum

To: John Zhao & David Lippman (LVMWD), Mark Norris (TSD)

From: Roger Null, VP

Subject: Current and Projected Wastewater Generation
K/J 1389005*00

During the conduct of the Las Virgenes Municipal Water District's (District's) Potable Water, Recycled Water and Sanitation Master Plans, Kennedy/Jenks Consultants has prepared two previous Technical Memorandums (TMs) related to the analysis of current and historical water demands and projected increases in population and water usage in the District's service area. The focus of this TM is to present the historical wastewater flows to the Tapia Water Reclamation Facility (TWRF or Tapia), briefly summarize this prior analysis, and transition from projecting the District's population and water demands to forecasting projected wastewater discharges to TWRF.

Background of Local Wastewater Services

In 1964, the Las Virgenes Municipal Water District and the Triunfo Sanitation District (TSD) formed a Joint Powers Authority (JPA) to treat wastewater in its service area. TWRP has evolved from its original capacity of 0.5 million gallons per day (mgd) to a capacity of 16 mgd. In approximately 2005, TWRF completed the construction of necessary facility improvements to meet more stringent nutrient discharge requirements, resulting in a de-rated the wastewater plant capacity to its current level of 12 mgd. The service area boundaries of the District, TSD, and the JPA along with an overlay of census tracts used for planning are shown in Figure 1.

To fully interpret the long-range development opportunities within the JPA, the current wastewater collection pipeline system pipeline network should be considered in conjunction with any known potential development areas. This additional information is reflected in Figure 2.

There are several key findings associated with these two figures. These are:

- Much of the District's water service area resides outside its wastewater service area. As such, the recent population and water demand projections derived for the District will need to be adjusted to account for these service area differences and the inclusion of TSD service area considerations,
- The current sewer collection system throughout the JPA tends to be established in pocket areas, rather than a full network of collection facilities.
- The east side of the TSD service area, including the Bell Canyon area, and the District's Westhills and Chatsworth service areas drain easterly to the City of Los Angeles for wastewater treatment and disposal. These areas are therefore excluded from the projection of JPA wastewater flows to TWRF, and

ITEM 4A

ITEM 4A

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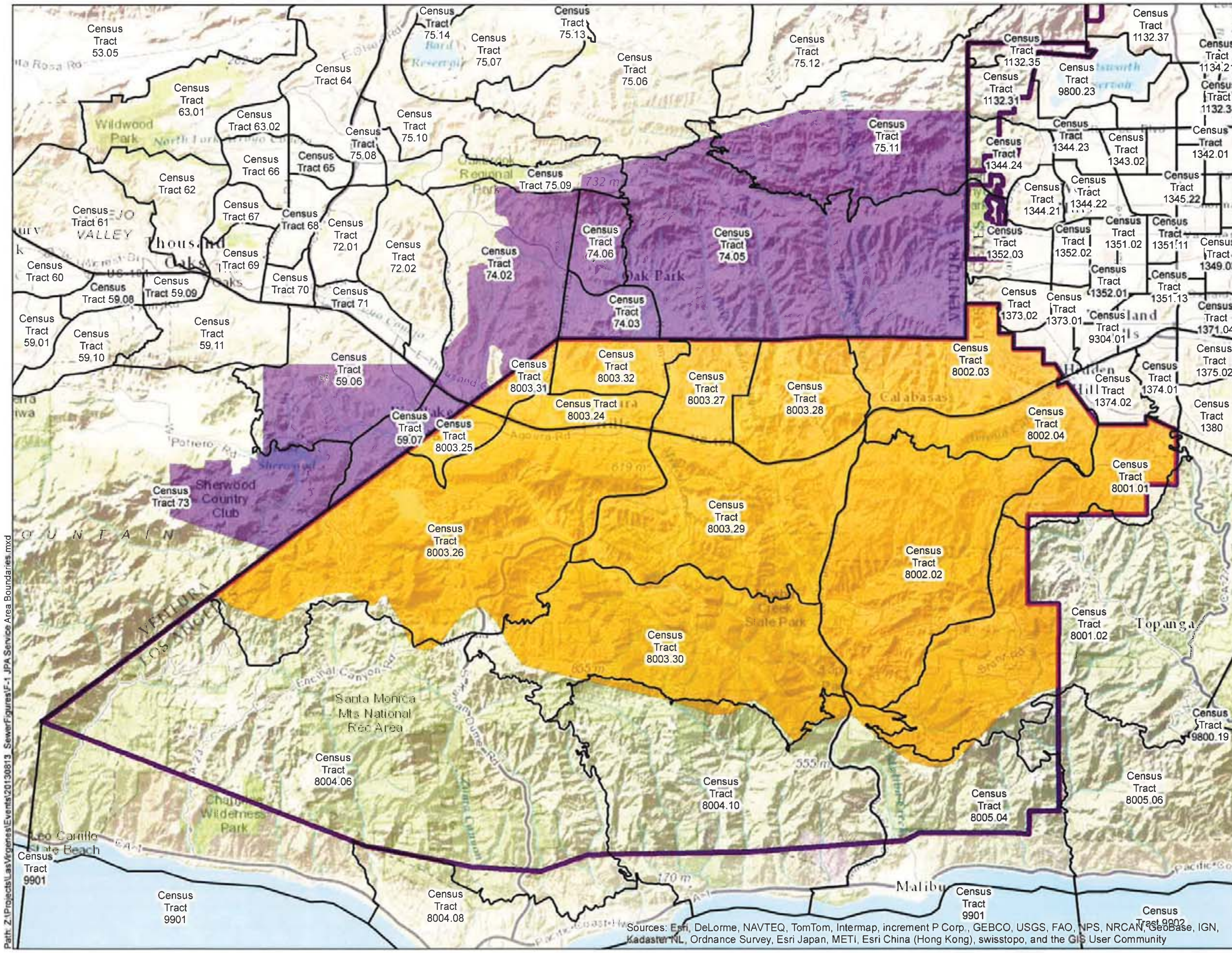


Legend

- LVMWD Boundary
- Tract 2010 Census
- Las Virgenes WMD Sewer Boundary
- Triunfo Sanitation District

Note: LVMWD Boundary extends beyond map extent.

N

0 5,000 10,000

Scale: Feet

Kennedy/Jenks Consultants

Las Virgenes MWD - W/RW/WW Master Plan
Los Angeles, CA

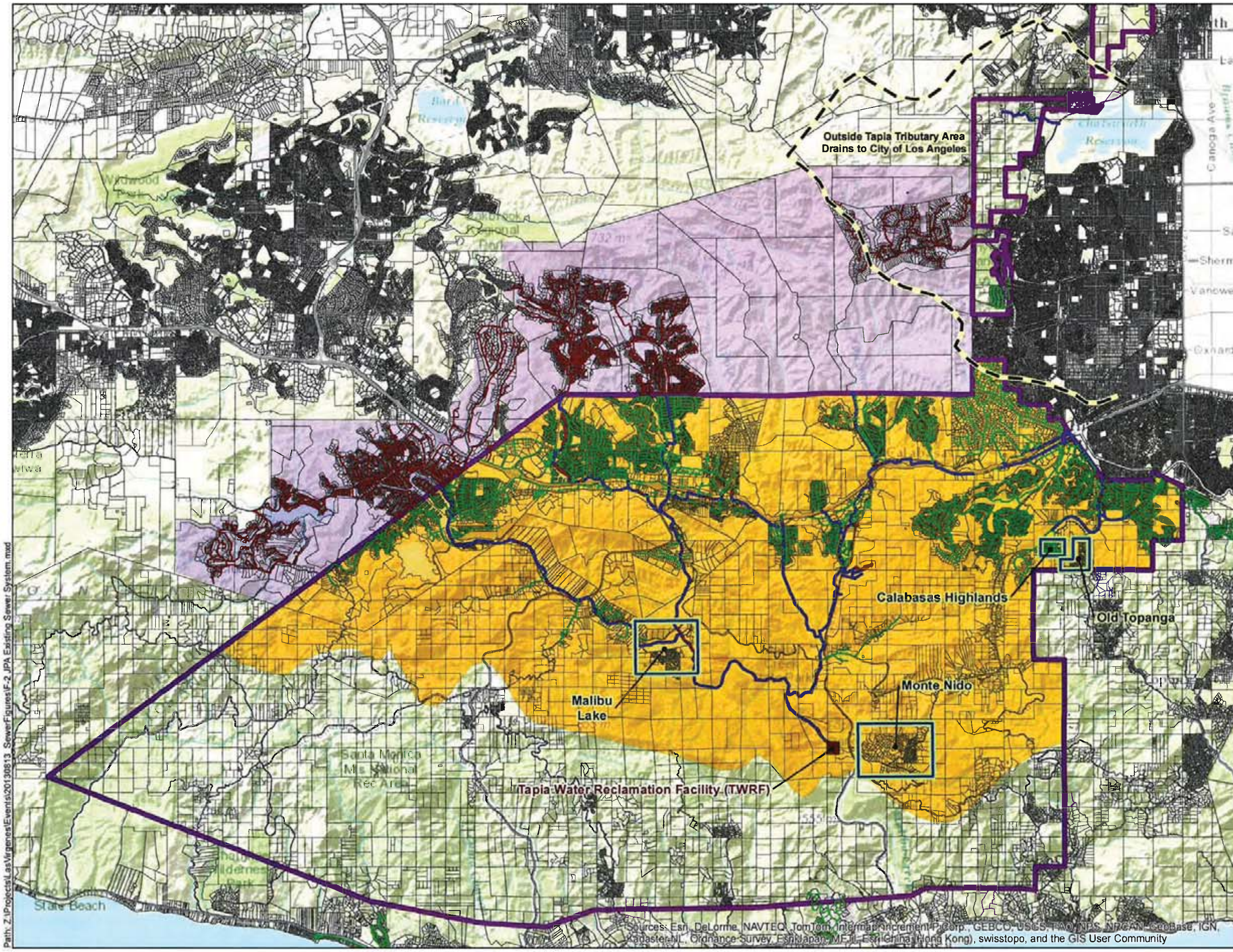
JPA Service Area Boundaries

August, 2013

Figure 1

ITEM 4A

Path: Z:\Projects\LasVirgenes\Events\20130813_SewerFigures\F-2 JPA Existing Sewer System.mxd



Legend

- TSD Mains
- LA County Pipelines
- LVMWD Laterals
- LVMWD Gravity Mains
- Bubble Areas
- Las Virgenes WMD Sewer Boundary
- Triunfo Sanitation District
- LVMWD Boundary
- Parcels

Note: LVMWD Boundary extends beyond map extent.

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0 5,000 10,000

Scale: Feet

Kennedy/Jenks Consultants

Las Virgenes MWD - W/RW/WW Master Plan
Los Angeles, CA

JPA Existing Sewer System

August, 2013

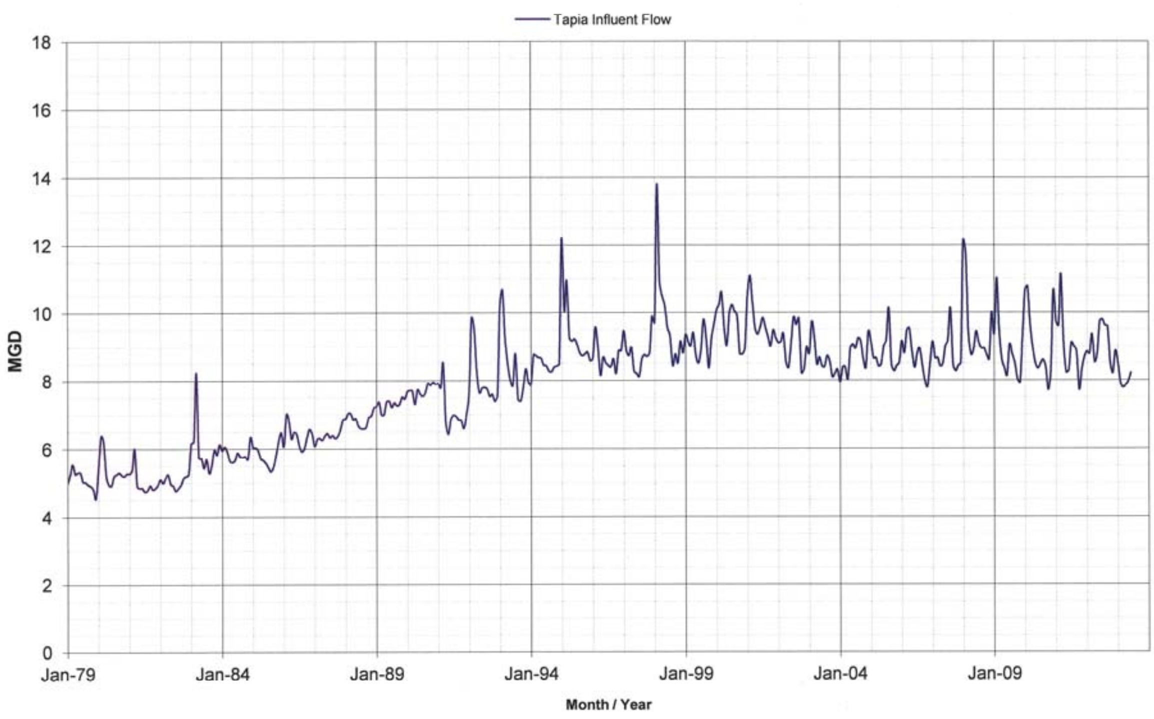
Figure 2

- Their appears to be a significant amount of undeveloped land around and east of the Oak Park service area. While much of the 19,000 acres may not be developable, a small amount, only 1,200 acres around Oak Park, is conservatively incorporated in the projection of future TSD wastewater flows to TWRF.

Historical and Current Wastewater Flows

Historical TWRF wastewater flows from 1980 to 2012 are shown in Figure 3. A breakdown of the origin of wastewater flows between the District, TSD, and other non-potable sources is provided in Table 1. As shown, flows to Tapia have tended to be relatively constant since the late 1990's, even though overall population in the District's service area has increased. It is believed that a portion of the continuity in wastewater flows can be attributed to a decline in the economy, the drought and mandatory conservation implemented in the JPA service area. Each of these factors is discussed in the following sections.

Figure 3: JPA Influent



ITEM 4A

Table 1: 2012 Wastewater Flows by Agency

Month	WW Influent (MGD)	Westlake Wells Supplement (MGD)	Net WW Influent (MGD)	LV WW Flows (MGD)	TSD WW Flows (MGD)
Jan	8.85	0.00	8.85	5.88	2.97
Feb	8.79	0.00	8.79	5.84	2.95
Mar	9.37	0.00	9.37	6.22	3.14
Apr	8.54	0.00	8.54	5.68	2.87
May	8.79	0.50	8.28	5.50	2.78
June	9.74	2.04	7.71	5.12	2.58
July	9.80	2.42	7.38	4.90	2.47
Aug	9.62	2.30	7.32	4.86	2.45
Sept	9.58	2.20	7.38	4.91	2.48
Oct	8.52	0.69	7.82	5.20	2.62
Nov	8.22	0.00	8.22	5.46	2.76
Dec	8.87	0.00	8.87	5.90	2.98
Averages	**9.06**	**0.85**	**8.21**	**5.46**	**2.75**

Source: 2012 Wastewater data, JPA/LVMWD

Economic Analysis of Water Demands and Wastewater Discharges

To assess the potential impact of the weather and economic conditions on water demands and potential wastewater discharges, a regression analysis of the District's billing data from the year 2003 through 2013 was performed. This analysis evaluated the correlation between water use among various customer types and weather (precipitation, ET) and economic (unemployment rate) factors for the District's customers over this same time period. Although it was found that there wasn't a high correlation with ET or rainfall (for water and not applicable for wastewater), the results of a demand analyses indicate that both water demands and wastewater discharges correlated with the changing economic conditions within the District's service area. When the economy is "good" with a low unemployment rate, both water usage and wastewater generation increase.

The analysis suggested that water usage and wastewater discharges are predicted to increase under good economic conditions for various customer types. Since sewage is not metered at the account level, the account-level water usage during the winter billing period was used to represent wastewater for each account. Based on this analysis, it is suggested an economic factor of 13 % be applied to the 2012 winter water data in the projection of future wastewater discharges for the District. A comprehensive Technical Memorandum of this statistical analysis is provided in Appendix A. Although account-level water data was not evaluated for TSD, it is believed that the service area characteristics are similar enough to apply this factor to both service areas of the JPA for the purposes of projecting wastewater flows to TWRF.

Drought Analysis of Water Demands and Wastewater Discharges

Dr. Randal Orton, Resource Conservation Manager, studied the impacts of drought on water demands and submitted a Technical Memorandum of findings in April 2012.. The objective of the study was to estimate the pace and magnitude of post drought response on water demands. Based on the District's experience during the 1990-91 drought and an analysis of the primary factors that influence demand for potable water in the residential sector of LVMWD's service area, it was estimated that the annual demand following the end of the recent drought will continue to rise, attaining its pre-drought level in approximately five to six years and 85 percent of that level in two years, depending primarily on the incidence of wet winters. Moreover, the study suggests that over a shorter, monthly or seasonal time frame, peak summertime residential demands will likely return to their pre-drought levels in approximately 2-4 years, while winter time levels returning in six to seven years.

Based on this study, a drought recovery factor of 31% was applied to the 2010 usage data, and 18% to the 2012 usage data in the development of a future demand project that would be used to represent an "upper limit" of a full drought recovery. Since it is logical to assume that influence of the economy and the drought are not mutually exclusive, a partial drought recovery factor was also developed. To this end, an additional water demand scenario was derived based on a 50% level of drought recovery (equal to 9% for the 2010 usage data).

Since winter water demands (used to represent wastewater) were not found to be as sensitive to the economy or drought as overall annual water demands, applying a full drought recovery factor in addition to the economic adjustment factor appears inappropriate. If we assume that the drought response is split equally for interior and exterior water usage, then 50% of the drought recovery factor (9%) would be appropriate for inclusion in projecting wastewater flows to TWRF. The District's Technical Memorandum addressing the drought response is provided in Appendix B.

Projected Growth

As previously shown in Figures 1 and 2, only a portion of the overall service area for both the District and TSD are tributary to the JPA's TWRF. In fact, much of the undeveloped area in the water service area resides in the southern slopes of the District, and is largely projected to remain on septic in the future. To project future wastewater flows, an estimate of new growth opportunities was derived for each agency. The discussion of growth in the sewer service area opportunities and assumptions follows.

LVMWD Growth Projection

The comprehensive population projection developed for the District in support of its water demand projection was incorporated herein to ascertain the additional dwelling units projected from vacant land/intensified parcels in the growth projection. This analysis determined that the population in the District's water service area is projected to reach approximately 86,800 people, an increase of approximately 23 percent. This increase is attained from both new housing units and the full occupancy of available housing as quantified in the 2010 census.

An important element of that evaluation revealed the need to “clip” various regional planning data sets to the District’s water service area boundary. A similar “clipping” is now required to refine the regional planning data to the District’s sewer service area boundary. Based on this review, it is estimated that approximately 50% of the projected growth is estimated to reside within the District and is tributary to the TWRF. The projected increase in additional dwelling units in the sewer service area is shown in Table 2.

Table 2: Housing Projections - LV Sewer Area

Agency/Growth Description	Projected New Dwelling Units
Agoura Hills[(a)]	
Agoura Village	293
N Agoura Rd	73
Calabasas[(a)]	746
Hidden Hills[(a)]	
Per HH note from SCAG	34
Westlake Village[(a)]	84
Westlake Village Business	401
Potential Septic Tank Conversions[(b)]	
Calabasas Highlands	36
Old Topanga	27
Malibu Lake	339
Monte Nido	63
Vacant HSE Units [(c)]	
Vacant Units	548
Totals	**2,644**

Notes:
(a) Agency specific 2013 Housing Elements.
(b) Detailed aerial review of existing dwellings not on sewer per area.
(c) Vacant Units coverage based on 2010 census data, TAZ specific

TSD Growth Projection

The TSD's estimate of projected growth was derived from several sources. These included the complete list of parcels that TSD currently serves (both active and inactive), the existing sewer collection system coverage in its services area, Ventura County's parcel data, Ventura County Planning Division's area plans, and discussions with TSD staff. During this process, it was difficult to determine how much of the vacant land (especially on the east side of TSD would develop and if the area tributary to the City of Los Angeles would continue to be discharged to the City.

For the purposes of this planning effort, we have assumed that only approximately 1,200 acres may be developed in the 2035 horizon (of approximately 19,000 acres) at 1 DU per 2 acres, that the wastewater generated in the east area will continue to be treated by the City of Los Angeles, and that the current septic accounts will convert to the sewer system. The large area of "vacant" land in the TSD service area is graphically depicted in Figure 4. A summary of the number of potential additional units in the TSD service area is shown Table 3.

Figure 4: TSD Selected Vacant Parcel Coverage

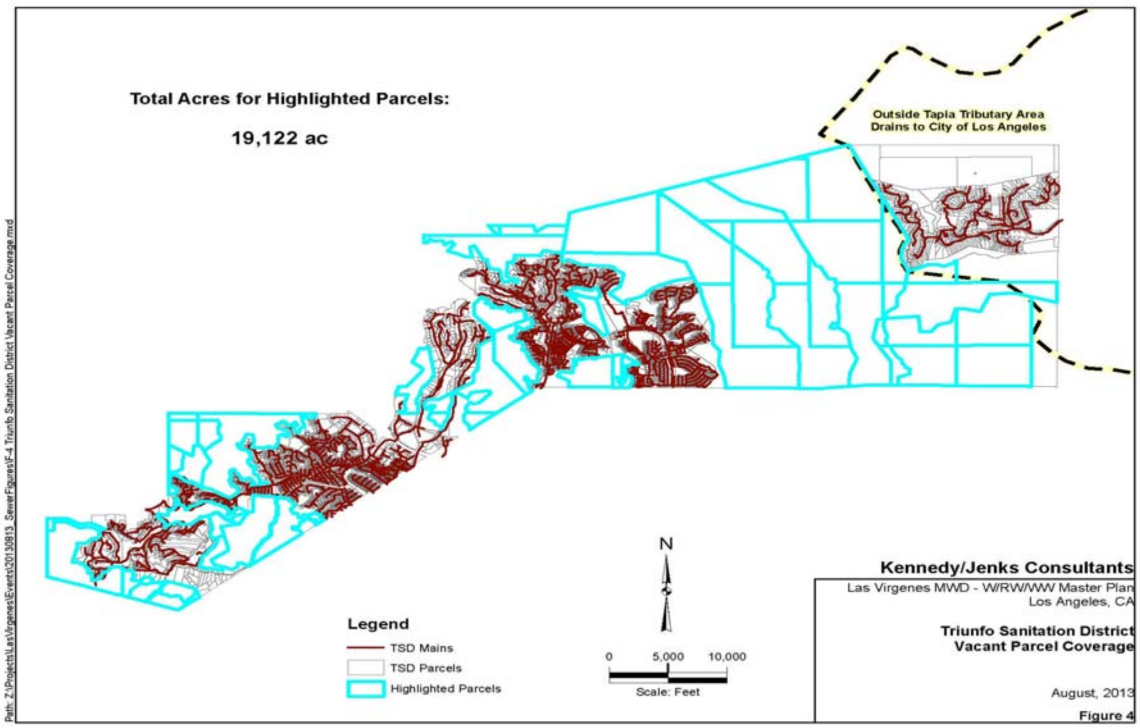


Table 3: Housing Projections - TSD Sewer Area

Growth Description	Projected New Dwelling Units
Infill Vacant	540
Septic	125
Non-Taxed Parcels	126
Future Rezoning [(a)]	600
Totals	**1,391**

Notes: Source data provided by TSD

(a) Future rezoning estimate based on area 1200 acres in close proximity to existing collection systems, and 1 DU per 2 acres for density.

ITEM 4A

Projected JPA Wastewater Flows

A projection of future wastewater flows is derived by combining the current average wastewater discharges shown in Table 1 with applicable adjustment factors for the economy, drought or other system conditions, and apply this information to current account information and projected growth values derived in Tables 2 and 3. The results of the process are provided Table 4.

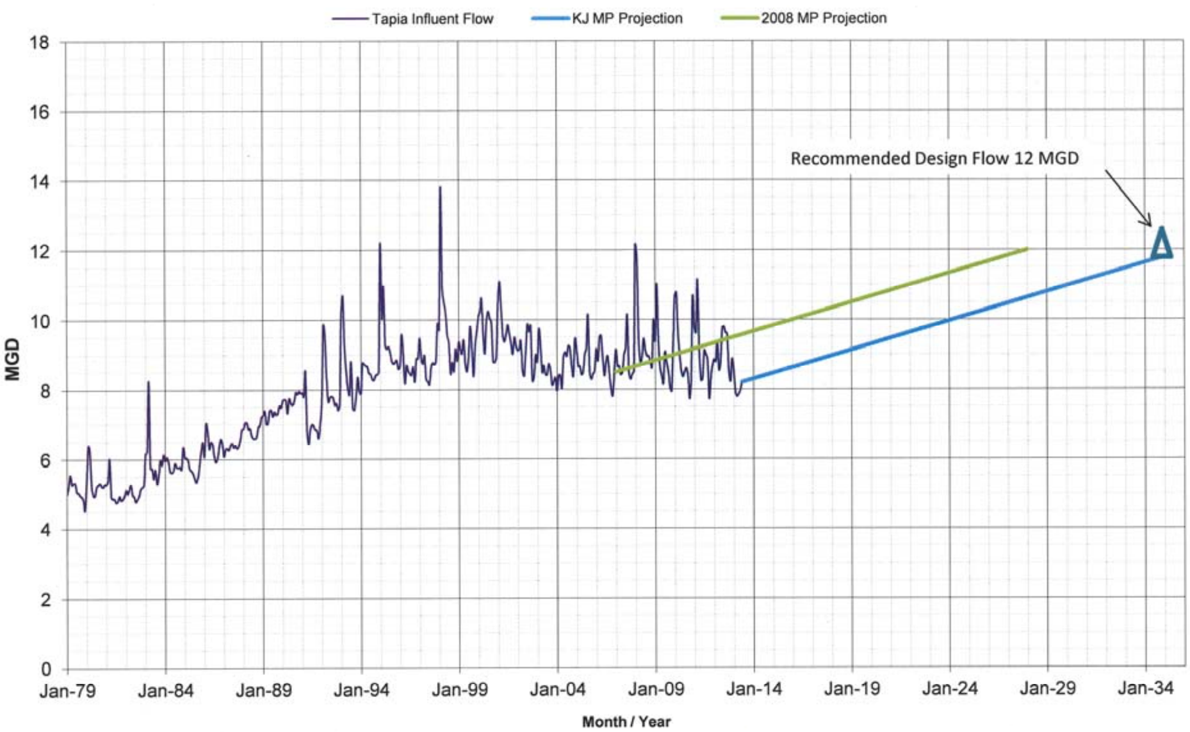
Table 4: Wastewater Flow Projection

JPA Wastewater Projection		
Description	**LVMWD**	**TSD**
Total Water Usage (HCF)	7,059,749	N/A
Total Water Usage (MGD)	14.47	N/A
March/April Water Usage (MGD)	11.21	N/A
Current Annual WW Generation (MGD)	5.46	2.75
Ratio of WW/Winter Water	0.49	N/A
WW Generation/Account (Gal/Day)	334	257
WW Generation/DU (Gal/Day)[1]	249	257
Approximate Number of DU 2012[1]	21,913	10,712
Projected New DU by 2035[1]	2,644	1,391
Additional WW Generation by 2035 (MGD)	0.66	0.36
Current Annual WW Generation (MGD)	5.46	2.75
Total WW Generation by 2035 (MGD)	6.12	3.11
JPA Total WW Generation (MGD)	**9.23**	
2035 WW Generation w/ Economic Factor (MGD)[2]	**10.43**	
2035 WW Generation w/ Drought Recovery (MGD)[3]	**11.36**	
2035 WW Generation w/ Provision for I&I[4]	**11.82**	

Note: Water and Wastewater values shown are for CY 2012
1. TSD # of Accounts assumed identical to TSD # of Units
2. Economic Factor of 13%
3. Drought Recovery Factor of 9%
4. I&I Factor of 4%

To further demonstrate this finding, the flow projection trends developed in the 2008 Sanitation Master Plan, along with current trend lines and the new 2013 long-range wastewater flow projections are shown graphically on Figure 5. Consistent with the work performed for the District's water system demand projection, Figure 5 demonstrates that the projection derived herein are comparable to the previous long-range planning values for the JPA. Based on this analysis a design flow of 12 mgd is recommended. This value provides for projected growth as well as treatment capacity for groundwater supplement.

Figure 5: Wastewater Flow Projections



Wastewater Generation Projection - Appendix A

Economic Analysis Technical Memorandum

30 July 2013

Memorandum

To: John Zhao, David Lippman

From: Roger Null, Dakota Corey

Subject: Effects of the Economy and Climate on Water Demands and Wastewater Discharges
K/J 1389005*00

Water use by residential, commercial and other customers can be affected by climate (e.g. evapotranspiration (ET), precipitation) and economic factors. Generally, increased ET is associated with increased water use. Also, time periods characterized by good economic conditions are often associated with higher water use than time periods when economic conditions are poor. Likewise, the amount of wastewater generated in a community may increase with improved economic conditions.

The extent of these effects may vary based on local conditions and can be significant. For example, Kennedy/Jenks Consultants has found in the City of Santa Monica, enhanced economic conditions could result in a ten percent increase in water demands. Increased demands may result in the need for additional system capacities, enhanced water conservation efforts in order to comply with state mandates, and/or additional water supply sources, etc. Hence, it is essential to evaluate the effect of these factors for Las Virgenes Municipal Water District (LVWMD) as a component of the larger master planning effort.

Effects of Economy and Climate on Water Demands

Regression analyses were performed to evaluate the correlation between water use among various customer types and weather (ET, precipitation) and economic (unemployment rate) factors. LVMWD has four different potable water customer account types, including single family residential (SFR), multi-family residential (MFR), commercial and irrigation. However, evaluation of the SFR accounts revealed a drastic range in landscape sizes (parcel area minus building area). LVWMD's service area contains approximately 1,300 SFR accounts with landscape areas less than or equal to 2,500 square feet, over 3,800 SFR accounts with landscape areas larger than 25,000 square feet, and more than 13,000 SFR accounts in between.

Due to this significant variation and the assumption that there is a correlation between lot size and income, the SFR accounts were broken down into five categories based on lot size. MFR, commercial, and irrigation accounts remained unchanged for a total of eight different customer categories. These water use customer categories are shown in Table 1.

ITEM 4A

Table 1: Water Use Customer Categories

Water Use Type	Number of Accounts
SFR	**-**
Up to 2,500 sq.ft[(a)]	1,290
2,500 to 5,000 sq.ft[(a)]	3,487
5,000 to 10,000 sq.ft[(a)]	6,206
10,000 to 25,000 sq.ft[(a)]	3,422
Larger than 25,000 sq.ft[(a)]	3,811
All SFR Together	18,216
MFR	553 (7,265 dwelling units)
Commercial	839
Irrigation	257

Note:
(a) Landscape Area = Parcel Area – Built Area

Weather data for these analyses were obtained from the California Irrigation Management Information System (CIMIS) database. Since CIMIS data is limited in the immediate LVMWD service area, data from Station #152 (Camarillo) was used for the weather regression analysis. Unemployment data for cities located within LVMWD's service area was obtained from the State of California Employment Development Department database. The economic regression analysis used the average unemployment rate of the four cities located within LVMWD's service area – Agoura Hills, Calabasas, Hidden Hills, and Westlake Village.

Results of the regression analyses indicated that, for LVMWD, the water use for MFR, commercial, irrigation, and SFR accounts of all lot sizes correlate better with unemployment rate (R^2 of 0.646 to 0.924) than weather related variables. Water use decreased with an increase in the unemployment rate. No significant correlation was observed with weather related parameters.

Table 2 shows the equations developed for the correlation of the eight customer categories, labeled as water use types in the table, with unemployment. Graphical results of the economic and weather related water demand analysis are provided in Appendix A.

Table 2: Regression Equations Used for Each Water Use Type

Water Use Type	Correlation Equation with Unemployment[(a)]
SFR	
Up to 2,500 sq.ft[(b)]	y = -119.94x + 32.378
2,500 to 5,000 sq.ft[(b)]	y = -200.77x + 50.007
5,000 to 10,000 sq.ft[(b)]	y = -270.51x + 69.697
10,000 to 25,000 sq.ft[(b)]	y = -353.29x + 104.52
Larger than 25,000 sq.ft[(b)]	y = -587.28x + 151.62
All SFR Together	y = -308.6x + 85.12
MFR	y = -56.714x + 18.004
Commercial	y = -873.22x + 261.24
Irrigation	y = -1505.2x + 320.06

Notes:
(a) y = Water use (AF/Connection); x = Unemployment rate (%)
(b) Landscape Area = Parcel Area – Built Area

The equations in Table 3 were used to determine the coefficients of determination (R^2) for each water use type. Higher values of R^2 (1 being the maximum), indicate that the regression line fits the data set well. For this data set, it is assumed that R^2 values higher than 0.6 indicate a significant relationship between the data set and the correlation equation. The R^2 values for this data set are listed in Table 3.

Table 3 also displays additional information such as the 2012 water use and the percentage of use for each customer type. The “Adjustment Factor for Good Economic Conditions” column shows approximately how much the water use would increase if the unemployment rate were to decrease to the 10th percentile unemployment rate of 3.24 percent from the 7 percent in 2012. Depending on the type of water user, demands are expected to increase 15 to 24 percent. This is important because year 2012 was a recessionary period with a high unemployment rate in the LVMWD service area (approximately 7 percent), which resulted in lower water use. The correlation analyses findings suggest that an economic recovery and ensuing higher water demands should be considered in the projection of future water demands.

Table 3: R^2 Values for Each Water Use Type

Water Use Type	2012 Water Use (HCF)	R^2 Value for Unemployment	Adjustment Factor for Good Economic Conditions[a]
Residential	**-**	**-**	**-**
Up to 2,500 sq.ft[b]	181,229 (2.05%)	**0.924**	17.3%
2,500 to 5,000 sq.ft[b]	740,440 (8.37%)	**0.904**	19.3%
5,000 to 10,000 sq.ft[b]	1,913,529 (21.64%)	**0.843**	18.4%
10,000 to 25,000 sq.ft[b]	1,671,973 (18.91%)	**0.695**	15.3%
Larger than 25,000 sq.ft[b]	2,535,102 (28.67%)	**0.646**	18.4%
All SFR Together	7,042,273 (79.64%)	**0.714**	16.8%
MFR	605,307 (6.85%)	**0.679**	14.0%
Commercial	892,365 (10.09%)	**0.711**	15.1%
Irrigation	301,458 (3.41)	**0.867**	24.3%
Totals	**8,841,403**	--	--

Notes:
(a) Adjustment Factor for Good Economic Conditions = Percent Change in water use relative to 2012 use if the unemployment rate were to decrease to the 10th percentile unemployment rate of 3.24% from the 7% in 2012
(b) Landscape Area = Parcel Area – Built Area

Effects of Economy on Wastewater Demand

Wastewater originates as a result of indoor water use – toilets, laundry machines, sinks and other indoor fixtures all contribute to the wastewater stream. While climate may affect water use, it is not expected to materially affect the generation of wastewater since wastewater does not include outdoor water use. Thus, only the effects of economic conditions were analyzed in relation to wastewater discharges in the District's service area.

Evaluation of winter water use data (the March billing cycle, which includes both February and March water use) were performed based on the built area, or the building footprint (measured in square feet), of the SFR units (Table 4). Winter water use data was used to approximate wastewater generation under the assumption that landscape irrigation and other outdoor water use should not be necessary in the wetter winter months. Under this assumption, most of the water used during the winter months should thus end up in the wastewater system. The SFR units were grouped in to six different built area categories.

Table 4: Winter Water Use Customer Categories

Water Use Type[(a)]	Number of Accounts
SFR	-
Up to 2,000 sq.ft[(b)]	6,206
2,000 to 3,000 sq.ft[(b)]	5,683
3,000 to 4,000 sq.ft[(b)]	3,298
4,000 to 5,000 sq.ft[(b)]	1,514
5,000 to 7,500 sq.ft[(b)]	1,269
> 7,500 sq.ft[(b)]	245
All SFRs Together	18,216
MFR	553 (7265 Dwelling units)
Commercial	839

Note: (a) Irrigation customers are not included in estimates of winter water use.
(b) Built area.

The data indicated two distinct trends. At unemployment rates up to approximately 6.5 percent the water use did not vary significantly. However, at unemployment rates from 7 percent to 8.4 percent the water use gradually decreased with an increase in unemployment rate. As a result, when winter water use was correlated with unemployment rates throughout the project period (range of unemployment rates of 3.3 to 8.4 percent), the R^2 was poor (R^2 = 0.28 to 0.45;). However, when water use was correlated to unemployment rates higher than 6.5 percent, the correlation improved to 0.92 or higher; Table 5). Graphical results of the economic wastewater analysis are provided in Appendix B.

Table 5: Comparison of R^2 Values Under Different Unemployment Rates

Water Use Type[(a)]	R^2 When All Unemployment Rates (3.3 – 8.4%) are Considered	R^2 at Unemployment Rate Higher than 6.5%
SFR		
Up to 2,000 sq.ft[(b)]	0.387	0.936
2,000 to 3,000 sq.ft[(b)]	0.450	0.983
3,000 to 4,000 sq.ft[(b)]	0.340	0.927
4,000 to 5,000 sq.ft[(b)]	0.311	0.974
5,000 to 7,500 sq.ft[(b)]	0.267	0.979
> 7,500 sq.ft[(b)]	0.298	0.969
All SFRs Together	0.287	0.980
MFR	0.687	0.952
Commercial	0.585	0.816

Note: (a) Irrigation customers are not included in estimates of winter water use.
(b) Built area.

Table 6 shows the equations developed for the different water use types.

ITEM 4A

Table 6: Regression Equations Used for Each Water Use Type

Water Use Type[a]	Average Bi-monthly Water Use Correlation at Unemployment Rates above 6.5% (HCF/Account)[b]
SFR	
Up to 2,000 sq.ft[c]	y = -639.03x + 76.05
2,000 to 3,000 sq.ft[c]	y = -799.94x + 92.46
3,000 to 4,000 sq.ft[c]	y = -1253.2x + 140.66
4,000 to 5,000 sq.ft[c]	y = -2038.7x + 220.49
5,000 to 7,500 sq.ft[c]	y = -3309.1x + 337.0
> 7,500 sq.ft[c]	y = -6971.4x + 687.29
All SFRs Together	y = -1194.8x + 131.96
MFR	y = -70.327x + 17.465
Commercial	y = -894.52x + 229.77

Notes:
(a) Irrigation customers are not included in estimates of winter water use.
(b) Y – Bi-monthly water use (HCF/Account); X – Unemployment Rate (%)
(c) Built area.

Table 7 shows the estimated percent change in winter water use at various unemployment rates relative to 2012 water use. Accordingly, at the 10th percentile low unemployment rate of 3.54 percent (i.e. good economic conditions), winter water use is estimated to be 14-16 percent higher for SFR units, and 10.5 percent higher in MFR units. No difference is seen between the 50th percentile unemployment rate of 4.4 percent and the 10th percentile unemployment rate of 3.54 percent since, in both cases, the unemployment rate is less than 6.5 percent. However, at higher levels of unemployment such at the 90th percentile (7.84 percent) winter water use is expected to be lower. Thus, as the economy improves and eventually meets the threshold of approximately 6.5 percent or less, wastewater generation within LVWMD's service area is expected to increase.

Table 7: Percent Change in Water Use Relative to 2012 Winter Water Use (Unemployment Rate of 7%)

Water Use Type[a]	90th Percentile High Unemployment (7.84%)	50th Percentile Unemployment (4.4%)	10th Percentile Low Unemployment (3.54%)
SFR			
Up to 2,000 sq.ft[b]	95.9%	114.6%	114.6%
2,000 to 3,000 sq.ft[b]	95.7%	115.2%	115.2%
3,000 to 4,000 sq.ft[b]	95.6%	115.9%	115.9%
4,000 to 5,000 sq.ft[b]	95.8%	114.7%	114.7%
5,000 to 7,500 sq.ft[b]	95.9%	114.0%	114.0%
> 7,500 sq.ft[b]	92.8%	114.3%	114.3%
All SFRs Together	96.3%	113.1%	113.1%
MFR	95.3%	110.5%	110.5%
Commercial	95.5%	110.2%	110.2%

Note: (a) Irrigation customers are not included in estimates of winter water use.
(b) Built area.

Summary and Recommendation

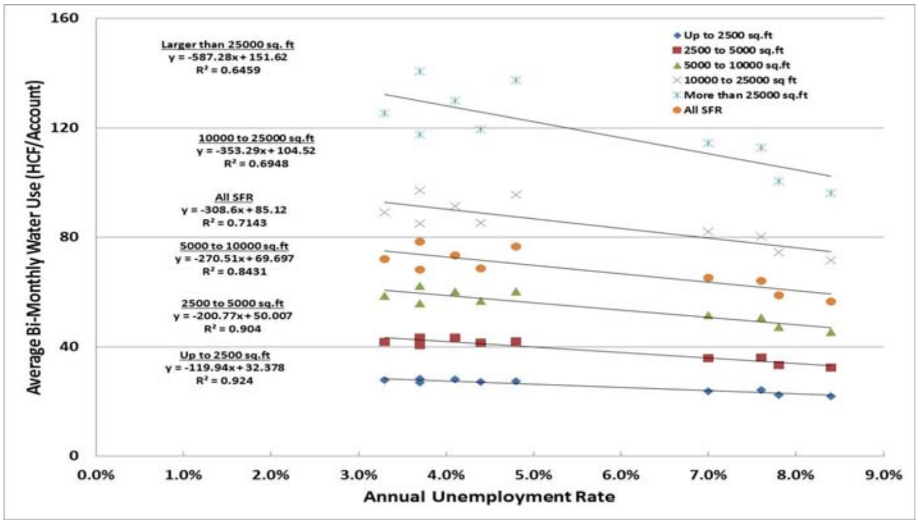
Results of the demand analyses indicate that both water and wastewater demand are correlated with economic conditions within LVWMD's service area. When the economy is "good" with a low unemployment rate, both water usage and wastewater generation increase. Water usage is predicted to increase as much as 14 to 24 percent, depending upon the customer type, under good economic conditions. Similarly, wastewater demand is expected to increase 10 to 16 percent depending on the type of water user under good economic conditions. The correlation between water and wastewater demand and economic conditions is strong, with R^2 values ranging from 0.6 to 0.9.

Due to the level of statistical significance between unemployment rates and water usage, it would appear appropriate to factor in a return to a good economy in LVMWD's water demand and wastewater flow projections. However, given the implications of this decision on future capital improvement requirements, resolution and final direction regarding the use of these factors is a District policy decision. As such, the final projection values will be derived following direction by LVWMD.

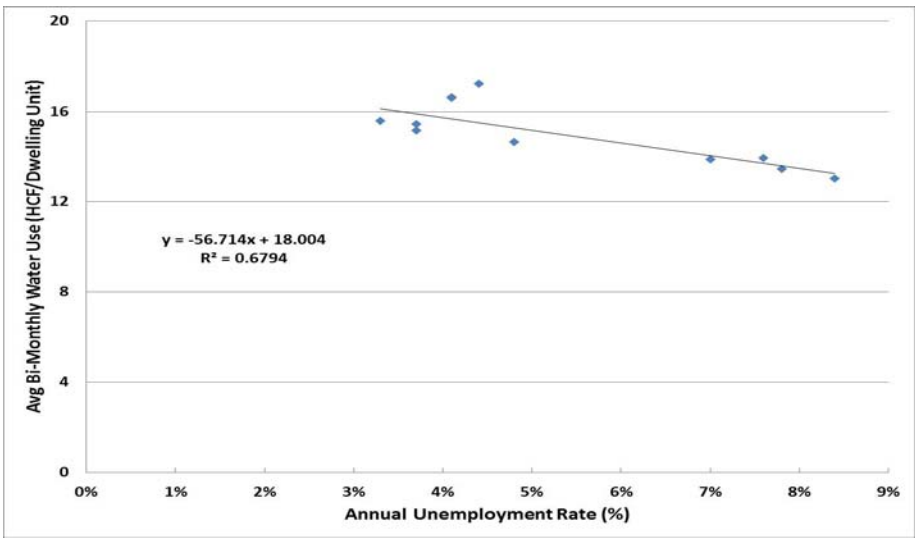
Appendix A

Water Use Figures

Effect of Economy (Unemployment Rate) on SFR Water Use

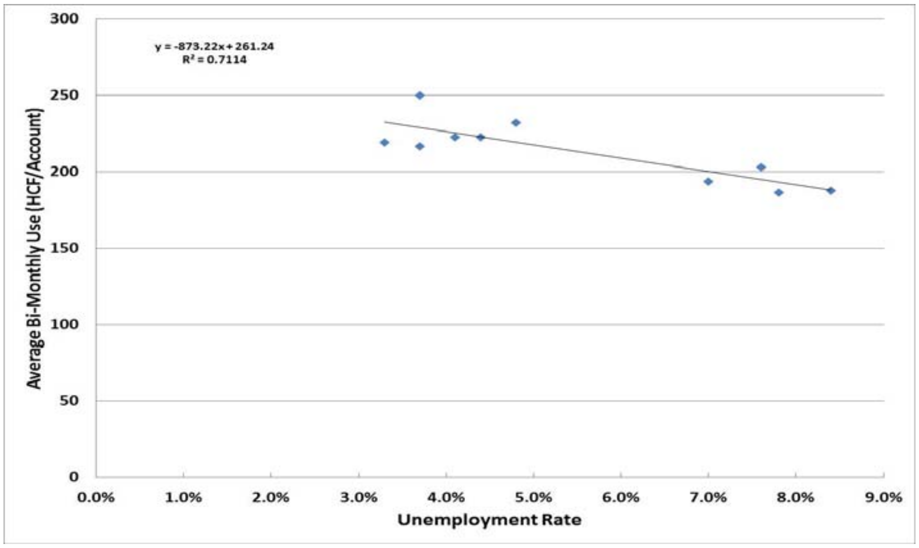


Effect of Economy (Unemployment Rate) on MFR Water Use

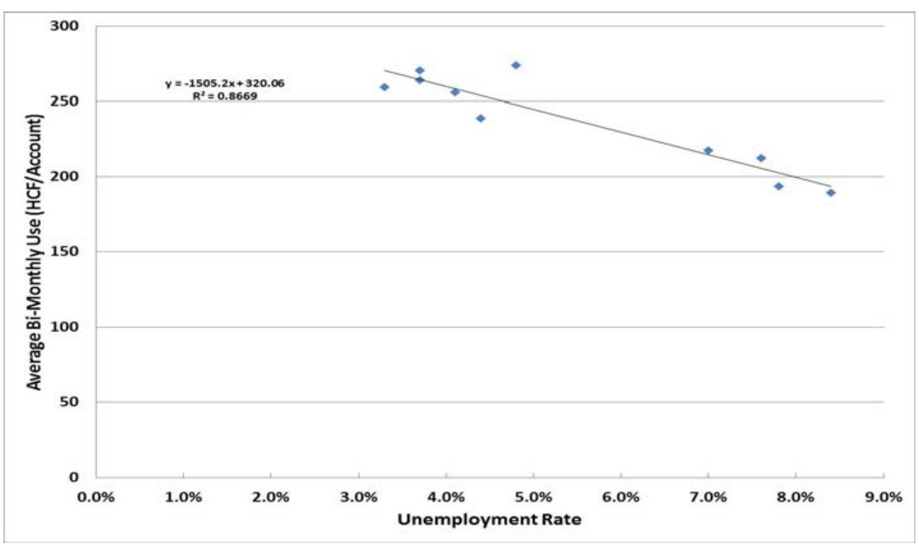


ITEM 4A

Effect of Economy (Unemployment Rate) on Commercial Water Use



Effect of Economy (Unemployment Rate) on Irrigation Water Use



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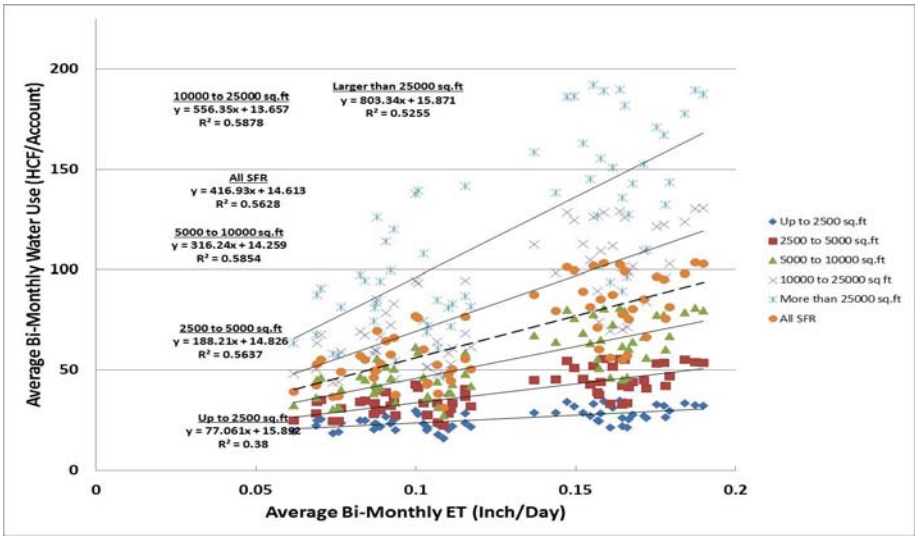
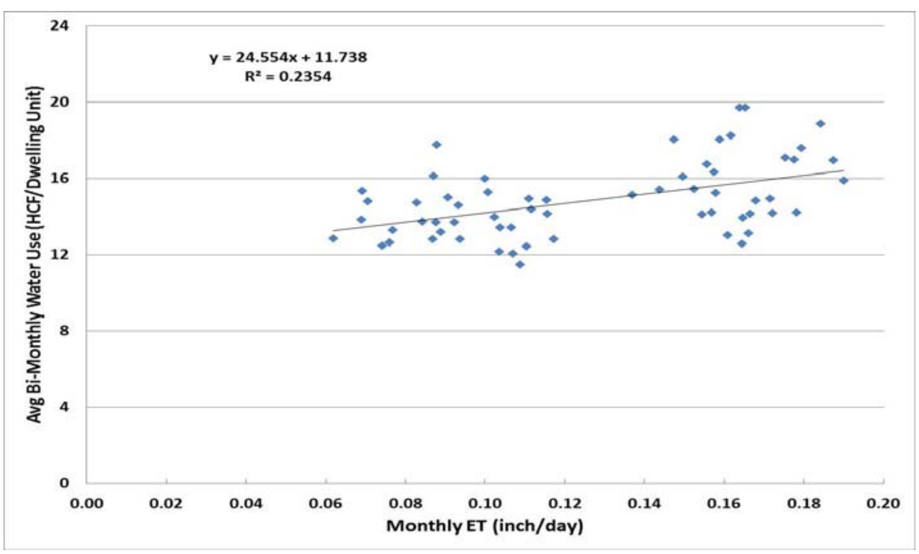
Effect of Weather (ET) on SFR Water Use

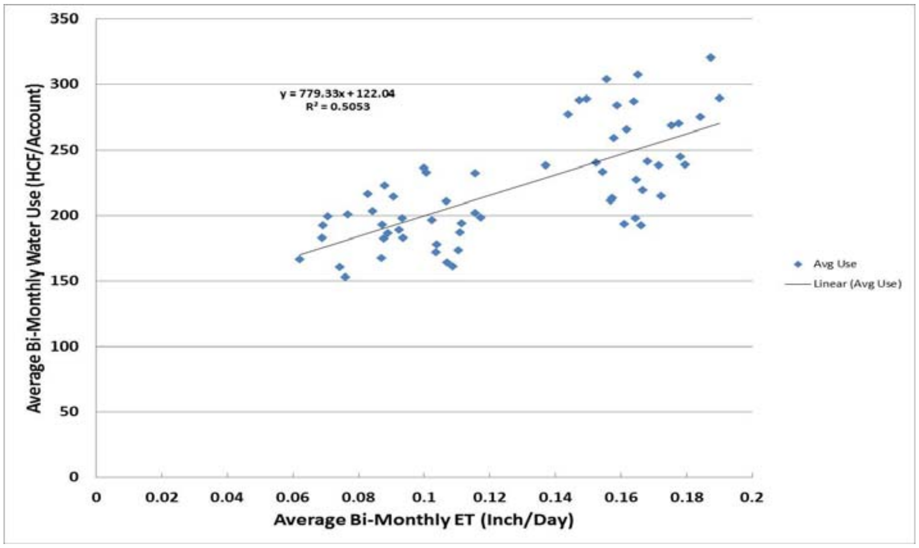


Effect of Weather (ET) on MFR Water Use

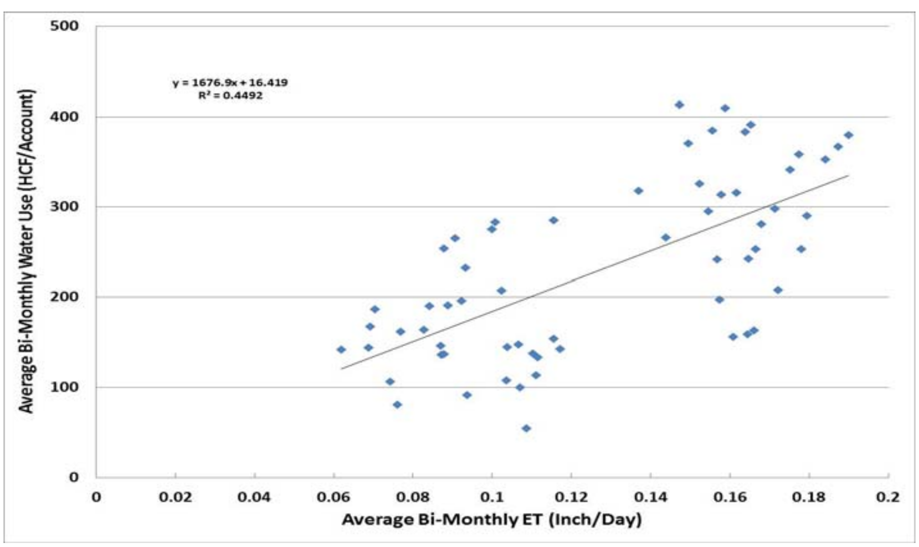


ITEM 4A

Effect of Weather (ET) on Commercial Water Use



Effect of Weather (ET) on Irrigation Water Use



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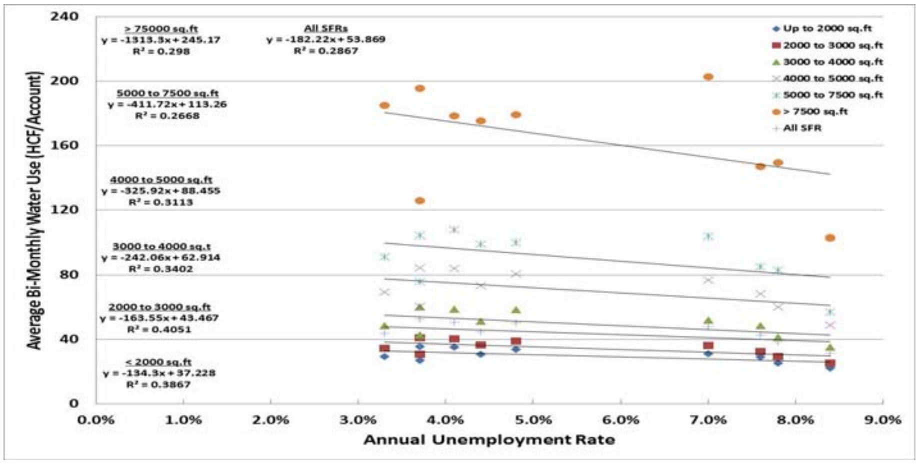
Appendix B

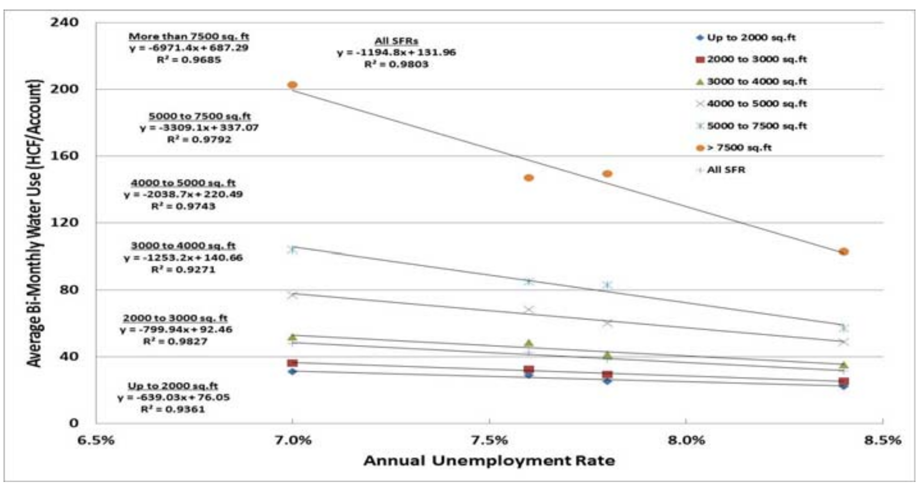
Winter Water Use (Wastewater) Figures

Effect of Economy on SFR Winter Water Use (Using Unemployment Rates Throughout the Project Period)



Poor correlation ($R^2 < 0.5$) obtained when unemployment rates throughout the project period were considered

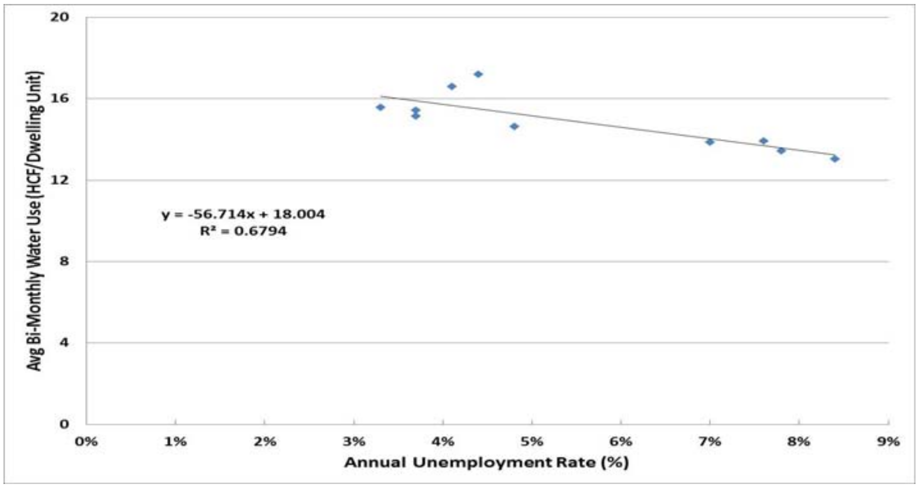
Effect of Economy on SFR Winter Water Use (Using Unemployment Rates Higher than 6.5% Only)



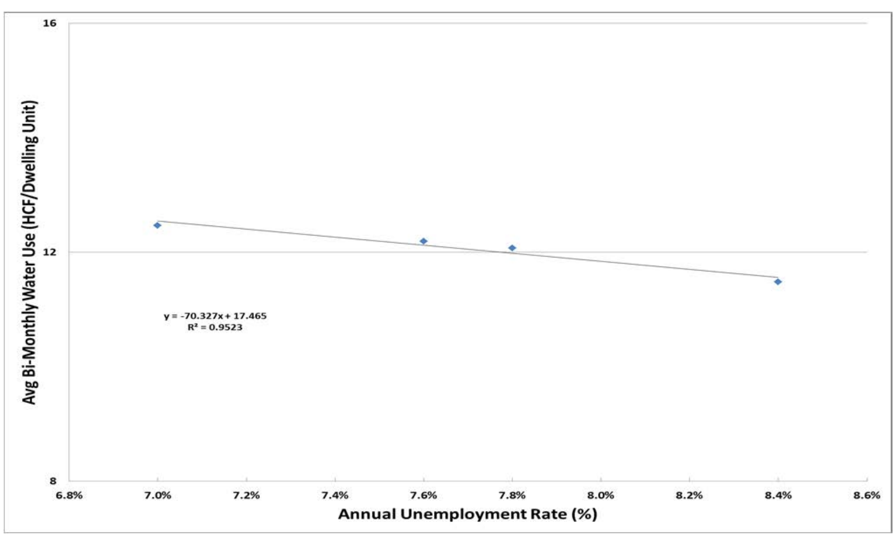
Good correlation ($R^2 < 0.9$) obtained when unemployment rates greater than 6.5% were considered.

ITEM 4A

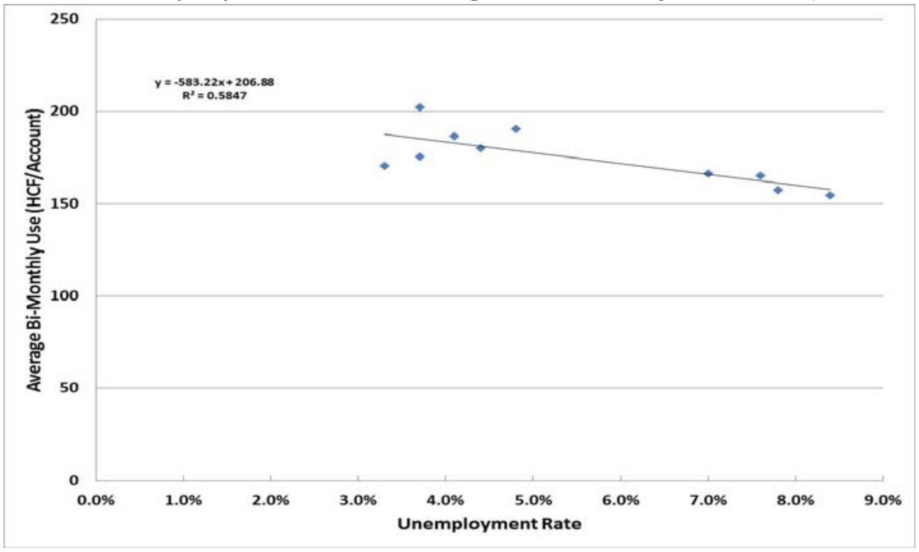
Effect of Economy on MFR Winter Water Use (Using Unemployment Rates Throughout the Project Period)



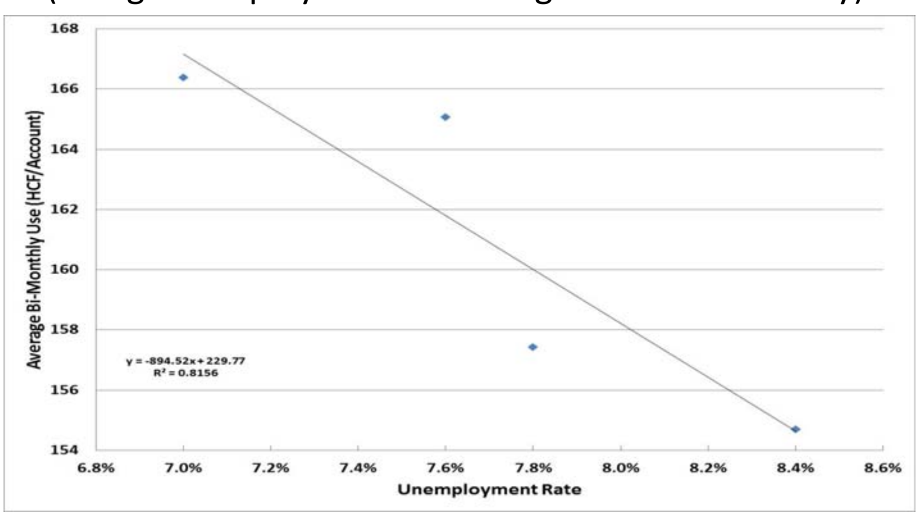
Effect of Economy on MFR Winter Water Use (Using Unemployment Rates Higher than 6.5% Only)



Effect of Economy on Commercial Winter Water Use (Using Unemployment Rate throughout the Project Period)



Effect of Economy on Commercial Winter Water Use (Using Unemployment Rates Higher than 6.5% Only)



Correlation (R^2 ~ 0.82) significantly improved when unemployment rates greater than 6.5% only were considered.

Wastewater Generation Projection - Appendix B

Drought Recovery Technical Memorandum

ITEM 4A

April 11, 2012

TO: CARLOS REYES

FROM: RANDAL ORTON[1]

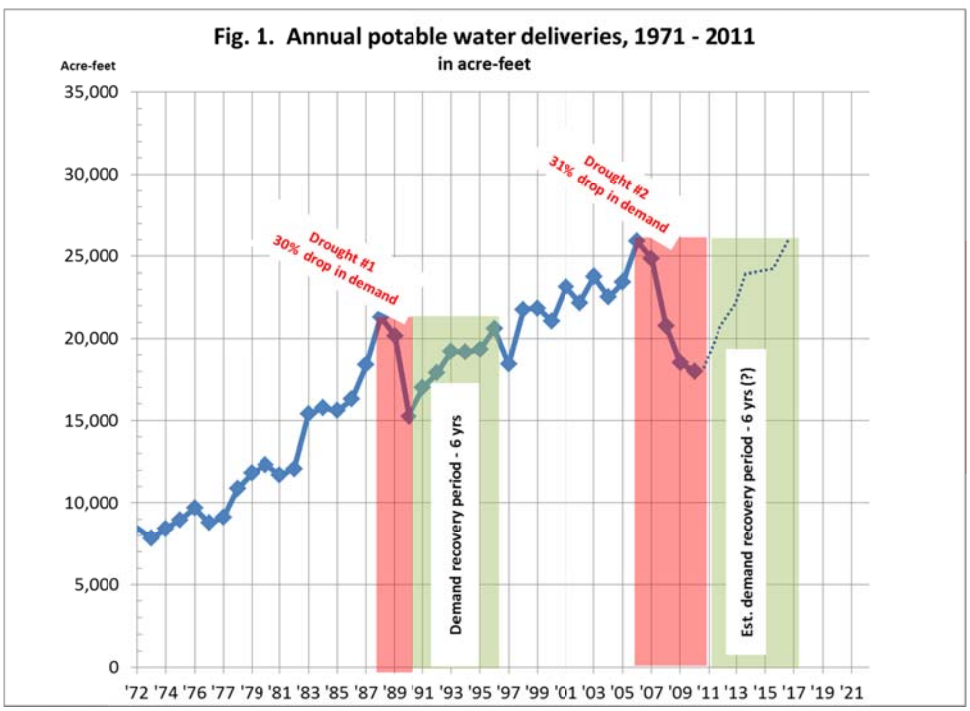
SUBJECT: POST-DROUGHT WATER DEMAND

Per your request, we compiled and examined District data[2] on potable water demand over the period 1972 through February 2012, focusing on changes in residential demand[3] during and immediately following both the 1991-2 and 2009-11 state-wide drought water shortage emergencies. Our objective was to estimate how quickly water demand following the recent drought might rise based on our experience following the 1991-2 drought, and to determine what factors most-strongly influence the recovery rate.

Based on our experience with the previous drought recovery (1992 – 1997), we estimate *annual* potable water demand may recover to its pre-drought level in 5-6 years (2016-17) if local weather is drier than normal, but may be delayed until 2017-18 if wetter conditions prevail. Peak summertime monthly demand will likely recover sooner (2014-15), regardless of weather, and peak summertime daily demands are expected to recover sooner still (2012-13).

DISCUSSION

Over the last 20 years, the District has declared a water shortage emergency twice in response to persistent, statewide droughts, once in the 1991-2 drought and again in the 2009-11 drought. Water use during both of these droughts fell about 30 percent from their pre-drought levels in response to conservation measures and financial penalties for over-usage (Fig. 1). Water demand



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[1] D. Holliday (IS), M. Hamilton (F&A), G. Weston (CS), S. Harris (RC) and J. Dougall (RC) assisted in data compilation and analysis.
[2] Lvdata/district information/annuals/xls.
[3] We considered residential demand only, as it accounts for about 95% of total annual demand in the LVMWD service area.

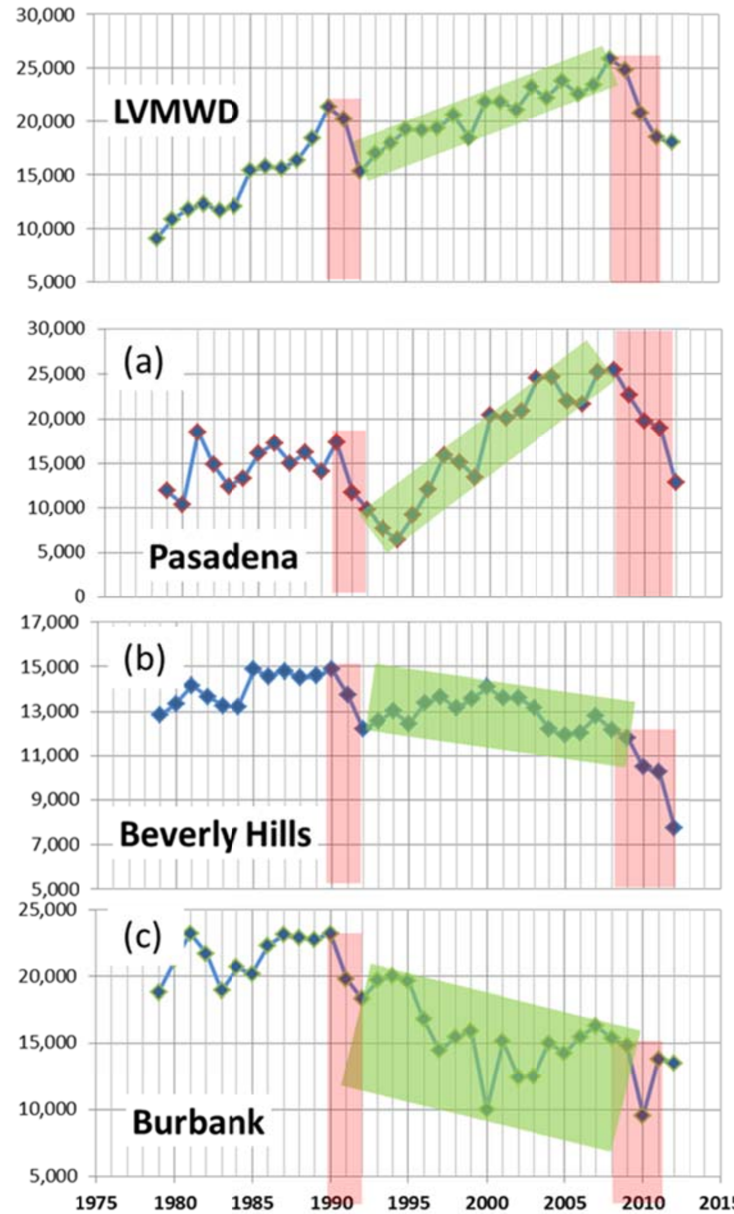
returned to its pre-drought level in about 6 years following the 1991-92 drought emergency, suggesting a similar period might elapse before current water demands return to their 2009 pre-drought levels. Further, the post-drought rise in demand was steeper in the first three years after the drought, recovering over 85 percent of pre-drought demand in just two years, and 95 percent of pre-drought demand in three years (Fig. 1).

However, different water districts experience drought and post-drought demands differently (Fig. 1b), and the validity of using the earlier drought recovery history to predict future, post-drought water demand depends on our ability to account for the major factors that influence per capita water use in the LVMWD service area, and to show that these factors are comparable for both the historical and current post-drought periods. These factors include:

1. Growth in overall demand due to new connections;
2. Changes in the average residential lot size;
3. Differences in weather
4. Differences in water conserving fixture installation rates (demand hardening)
5. Economic factors, such as differences in the consumer price index (CPI) adjusted for inflation.

Where these factors differ between the two periods being compared, it may still be possible to adjust or normalize the differences and maintain the validity of the comparison. However, this step proved unnecessary for factors 1-3, as none of these factors were appreciably different in recent years in comparison with the 6 yrs

Fig. 1b. Other agencies, other experiences – 3 examples. (a) Pasadena experienced both a similar recovery in post-drought and increased usage beyond the recovery period; (b) Beverly Hills only recovered to about 85% of pre-drought demand; (c) Usage in Burbank continued to decline after the 1990-91 drought, but quickly recovered after the 2008-11 drought to pre-2008 levels.



following the 1991-2 drought, as discussed below. The remainder of the memo provides additional detail for each factor we analyzed.

New Connections

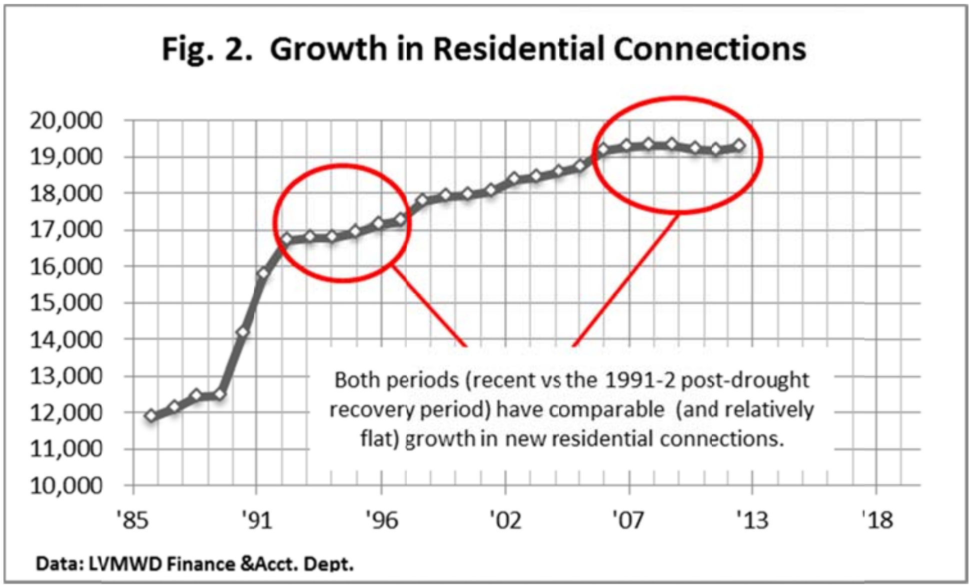


Fig. 2. Growth in Residential Connections

An immediate question is whether the relatively rapid rise in demand following the 1991-2 drought in Fig. 1 was an artifact of growth in new connections (rather than growth in per capita demand to pre-drought levels). Fig. 2 shows this not to be the case; both the post-1991-2 period through 1997 and recent years (2006-12) had comparable, relatively flat growth in new residential connections, with the exception of 1998, the last year of the post-1991-2 drought recovery period, when 526 new residential connections were added to the potable water system. However, by that year demand had already returned to its 1989 pre-drought peak (Fig. 1). In short, the number of residential connections was relatively stable for both the earlier drought recovery (1992-8) and current conditions (2006-12), with changes in demand related more to changes in per capita water use and weather.

Median residential lot size

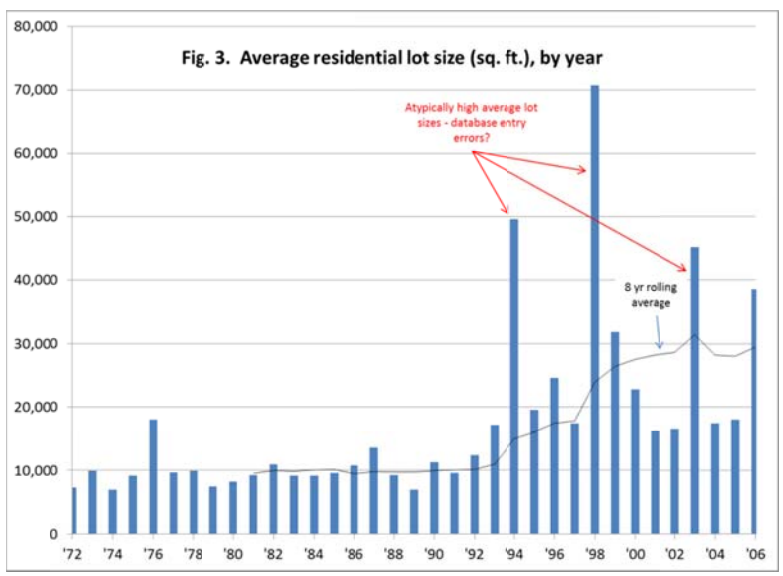
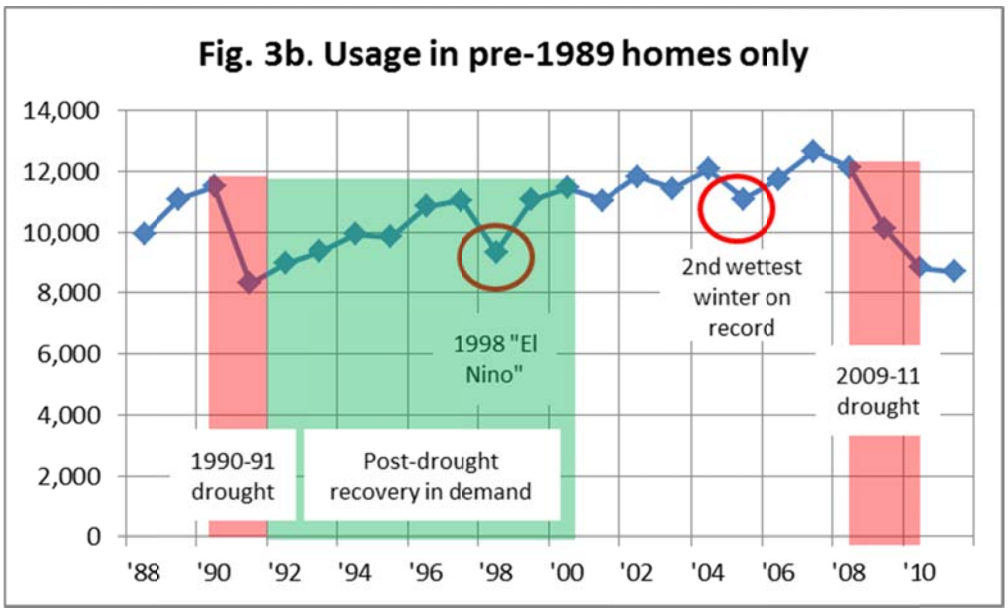


Fig. 3. Average residential lot size (sq. ft.), by year

We used two methods to account for differences in residential lot sizes in our comparison of current water use with usage following the 1990-1 drought. The first method was to compile data on median[4] lot size for the residential customer base for both periods (i.e. 1992-98 vs 2011-12). These values differed by less than ten percent, with median lot size today somewhat smaller than in 1992-98. Further, a large fraction of the ten percent difference may be an artifact of how multifamily residential lot sizes

[4] As a measure of central tendency, the median is less sensitive than the average to extreme values and outliers.

are recorded in the Customer Information System (CIS). Several years had atypically high average residential lot sizes ranging from 100–200 percent higher than the long term, 1972-2012 average (Fig. 3). Inspection of the data from those years found several instances where the square footage of the entire multifamily complex was entered for each of its constituent apartments or condominiums, artificially raising the median lot size. In those cases we found, we estimated the correct lot size by simply dividing the reported lot size (which was identical for every apartment or condo) by the number of units in the complex. However, this correction was limited to our working spreadsheet – we made no changes to the data in CIS – so you may wish to discuss this issue with Customer Service and Information Systems staff[5].



The second method to control for differences in average lot size between the two post-drought periods was to limit our analysis of water use after the recent drought to only those customers who were also connected to the potable water system during the 1991-2 drought cycle (Fig. 3b). Changes in demand in these homes are much less likely to be due to changes in lot sizes, on the assumption that their landscaped footprint changed very little over this period[6]. Post-drought recovery in demand took about nine years for these homes, versus six years for the general residential population, although 95 percent of pre-drought demand was recovered in 5 years, and 85 percent of demand was recovered in three years (Fig. 3b). Interestingly, after reaching pre-drought levels, demand in these homes then continued to rise a little, peaking in 2007 (an exceptionally dry year) at 12,645 AF.

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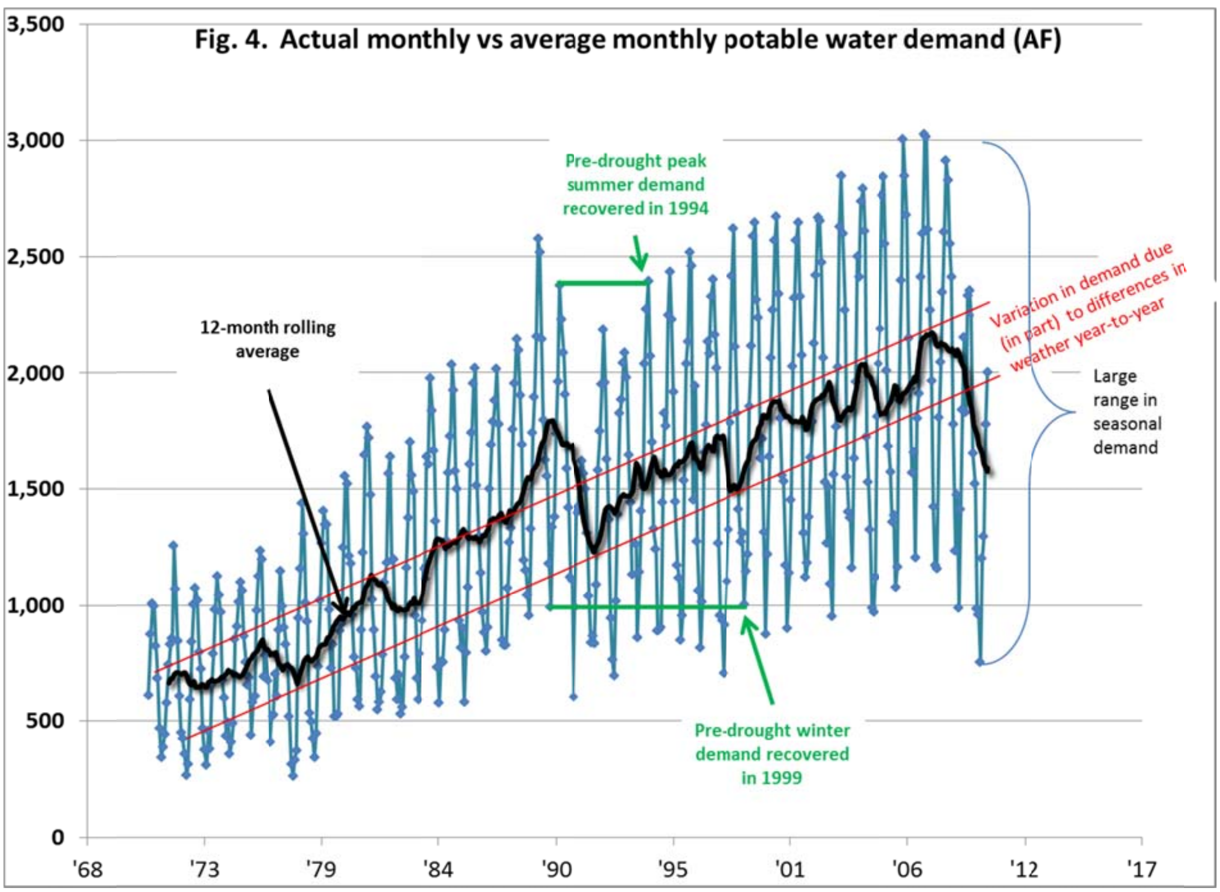
[5] There may be an easier way to identify incorrect lot size data entries for multifamily parcels than visual verification off the District GIS. The total number of accounts potentially affected can be estimated by sorting on lot size and noting all runs of identical lot sizes and install dates and adjacent addresses. This will be an overestimate of the actual number of data entry errors for lot size, because it is not impossible in tract homes for adjacent lots to have identical sizes and water meter install dates.

[6] While not performed for this analysis, this assumption could be tested in a subset of homes if IR aerial imagery is available for 1991 and can be compared with recent IR imagery on the District GIS for a subset of homes (5-10 percent of the total would probably be enough).

Weather

Water demand over any given year is strongly linked to weather in the LVMWD service area due to the prevalence of irrigated landscape coupled with large seasonal swings in rain and temperature and (Fig. 4). What this means for post-drought demand recovery is that peak summertime demands are expected to return to their pre-drought levels faster than off peak winter demand. This was the case following the 1991-2 drought, when post-drought peak demand returned to its pre-drought, July 1990 level in two years, versus 7 years for winter demand to return to its pre-drought level. Year to year variation in weather also affects annual demand, but on a monthly basis year to year differences (e.g. June 2011 versus June 2012) due to weather are on the order of 150-350 AF (bracketed by the red lines in Fig. 4), yielding annual differences in demand due to weather on the order of 1,800 – 3,600 AF, which falls to about 1,700 AF on a billing cycle basis[7]. Drop in demand due to wet weather occurs in about one year in four (27%), but is less important over the multi-year timescale of the expected post-drought rise in demand, as consecutive wet years are uncommon. Conversely, unusually dry years (e.g. 2007) can increase demand with about the same frequency. In short, *normal* variation in weather may be expected to delay or advance the rise in post-drought demand by a year or two at most.



[7] see Fig. 5 and associated discussion on p. 6

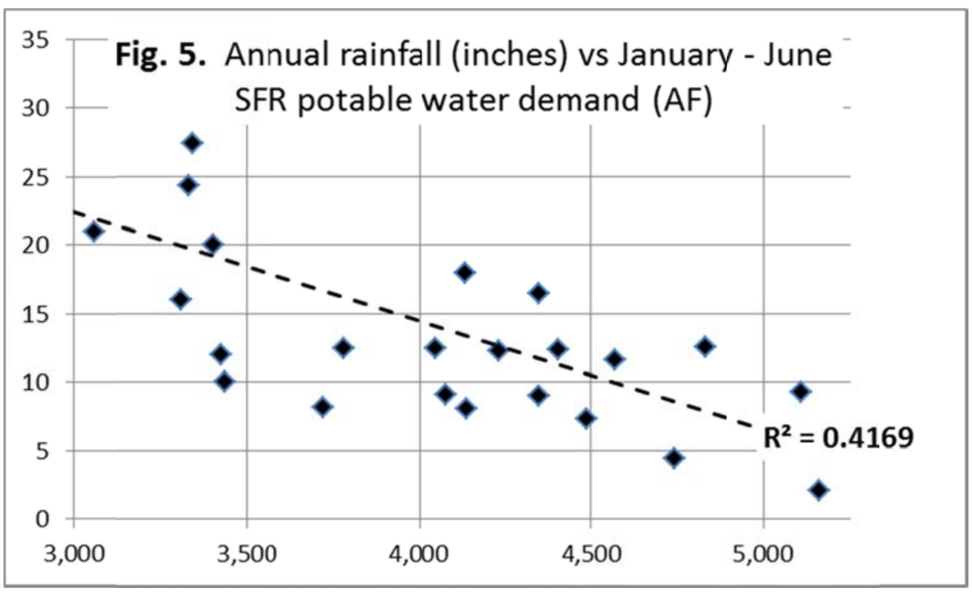
In predicating our estimates on the basis of normal variation in weather, one question is whether the weather in the period following the 1991-2 drought was normal in relation to the long term record, or if the rise in demand was associated with unusually *drier* weather? Inspection of rainfall records following the 1991-2 drought also show that the post-drought rise in demand was not associated with drier weather. On the contrary, this period was somewhat wetter than the 40-year long term average, and comparable to 2011, the first year following the end of the 2009-11 drought (Table 1).

Table 1. 1991-2 post drought period was significantly wetter than the long term mean.

Period	Annual rainfall
1991-2 drought	16.5"
1993-98 post drought recovery	**19.3"**
2009-11 drought	15.0"
2011 (post-drought)	20.0"
Long term average (1971-2011)	**15.2"**

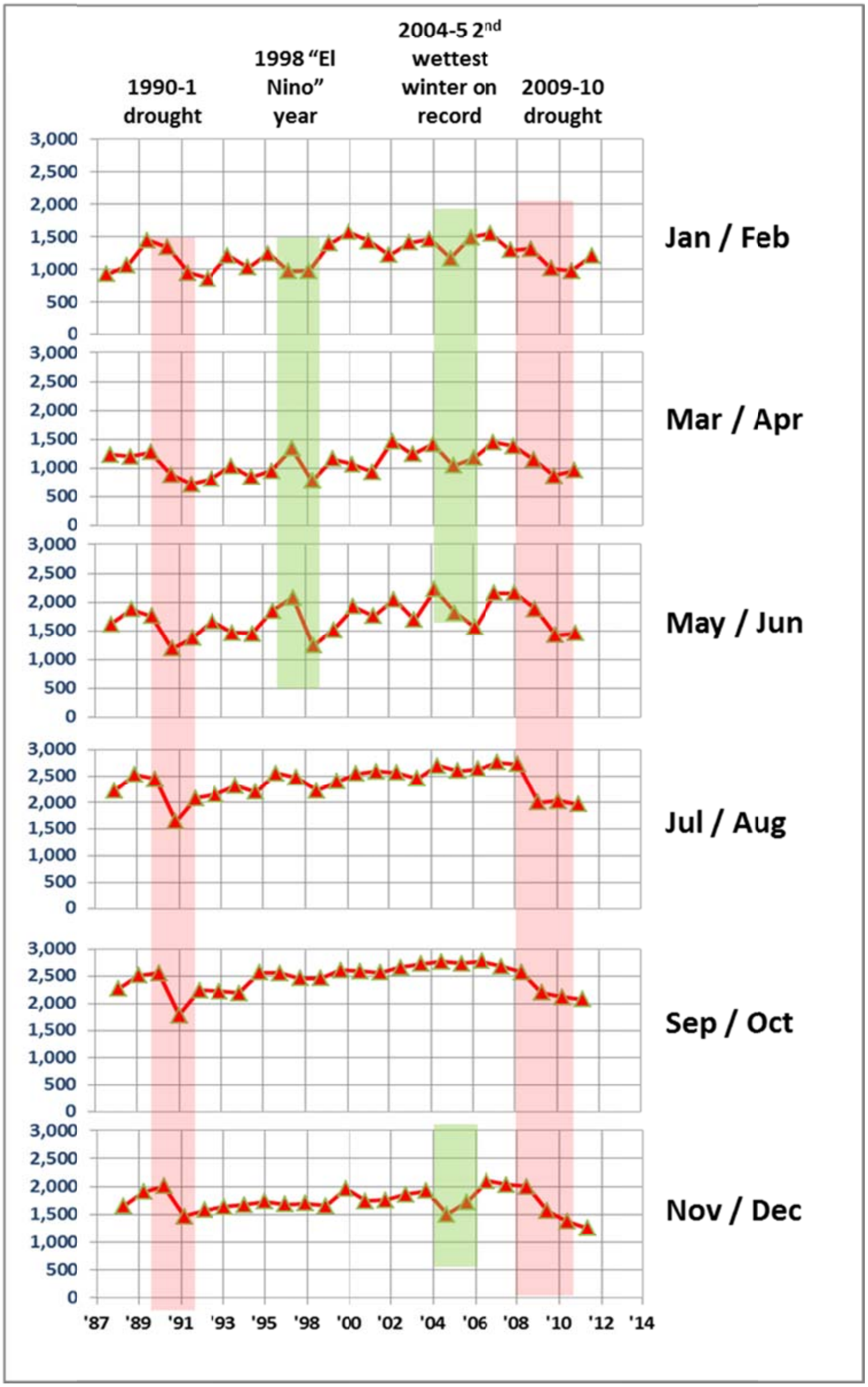
A series of wet years[8] would obviously depress the rise in demand already occurring following the end of the 2009-11 drought, but the frequency of consecutive wet years based on the long term record is low, about once every twenty years. *Nonetheless, even a single winter, if sufficiently wet, can reduce demand in winter months as much as an emergency drought response.* This occurred during the 1998 "El Nino" event and again in the winter of 2004-05, the 2nd wettest winter on record (Fig. 6). Figure 6 also shows that summertime demand over billing cycle timesteps are remarkably independent of year to year differences in weather, but decreased in response to emergency drought demand reduction efforts. Overall, changes in demand due to year to year differences in weather have not affected the overall trend in demand since the end of the 1990-1 drought, merely the variance in demand around the trendline (Fig. 4). Some idea of the magnitude of rainfall's effect on demand can be determined from Fig. 5, where Jan-June demand falls about 1,700 AF over the range of observed rainfall (2.1 – 27.4") . Note the spread in the data, however reflected in the relatively modest correlation coefficient (R^2 = 0.42).

Fig. 5. Annual rainfall (inches) vs January - June SFR potable water demand (AF)



[8] Where a wet year is defined as year where the amount of rain received is greater than one standard deviation from the long term mean

Fig. 6. Potable water deliveries to Single Family Residences (SFR) by billing period. Reduction in SFR demand due to unusually wet weather is comparable to drought response.



Differences in water conserving fixture installation rates (demand hardening)

In addition to weather and lot sizes, per capita demand depends in part on the intensity of conservation effort in homes. Behavioral conservation practices are notoriously difficult to quantify, but we have data on water conserving plumbing fixture installation rates over the entire period of record (1990 – 2011). We have also data on home build dates, which is important as building standards have become more stringent over time with respect to plumbing fixtures. However, for the purposes of demand forecasting, what matters most is *new* conservation, as residential demand up to the 2009-11 drought already includes all previous conservation measures. Table 2 compiles conservation fixture data since 2008, and suggests that new water conserving fixtures installed during the recent drought will likely reduce overall residential demand by about 600 AF over the recovery period, or about 2.3 percent of peak demand in 2007 and 2.5 percent of annual residential demand in 2008, the year before mandatory conservation rates took effect in the 2009-11 drought.

Table 2. Water conserving fixture installations 2008 to current	**INDOOR**		**OUTDOOR**			**TOTAL**
	HECW	HET	Rotating Nozzle	Synthetic Turf	WBIC	
No. installed	956	99	26	6	17	1,104
AF / YR SAVED	29.8	6.5	6.5	1.3	1.9	46.0
AF (lifetime of device)	419.0	131.1	27.3	12.3	18.0	607.8
AF/YR saved per installation	0.03	0.07	0.25	0.22	0.11	
AF/LIFETIME/DEVICE	0.44	1.32	1.05	2.05	1.06	

HECW: High Efficiency Clothes Washer. **HET**: High Efficiency Toilet. **WBIC**: Weather-Based Irrigation Controller

Economic factors.

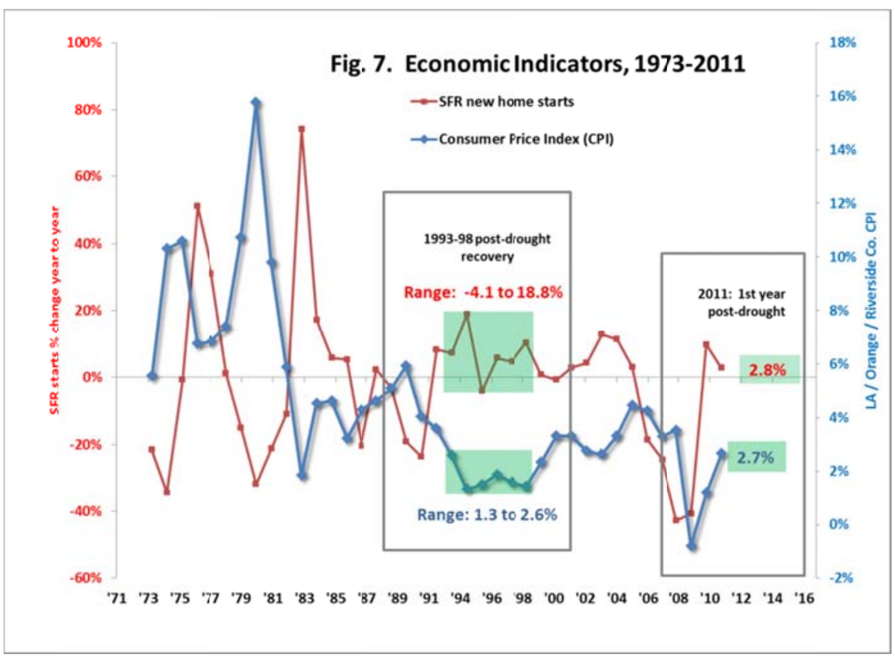


Fig. 7. Economic Indicators, 1973-2011

We looked at two economic indicators (annual percent change in CPI relative to previous year for Los Angeles, Orange and Riverside Counties, and western Single Family Residential housing starts) to compare current economic conditions with those following the 1991-2 drought. The CPI for 2011 was 2.7% higher than 2010, nearly identical to the rise in the CPI of the first year of the 1991-92 post drought recovery (2.6%). The percent change in new home construction for 2011 vs 2010 as 2.8%, which also falls within the range seen in the period following the 1991-2 drought (Fig. 7).

The inflation-adjusted cost of living, as measured by the annual rate of change in the CPI, was basically flat in the six years following the 1991-2 drought, having seen a steep decline in the preceding five years, whereas the current rate follows two years of steep increases and is already slightly higher than any year during the 1991-2 post-drought recovery. If the annual change in CPI continues to climb, it will exceed the rate of change observed during the previous post-drought recovery period (1993-97), and could in theory slow the rise in potable water demand observed since the end of the last drought. However, residential demand continued to rise when this occurred over the 1998-2005 period (compare Fig. 1 with Fig. 7 for this time period).

Economic factors – rates. While general economic indicators do not appear to be good predictors of potable water demand in the residential sector, steep declines in usage during both the 1990-1 and 2009-11 droughts demonstrate that residential demand is very sensitive to large changes in rates for delivered water. While the public outreach message associated with drought penalties for overuse are very different than general rate increases, the sensitivity of demand to the cost of water during droughts suggests that even general rate increases may reduce demand, depending on the magnitude of the increase. While not part of this study, it may be possible to quantify this effect or at least determine its potential magnitude by compiling water usage for a subset of long-term customers and looking for correlations between their usage and rate increases.

Post-drought recovery and the UWMP. Finally, our longer estimates for post-drought demand recovery fall within a year or two of the 2020 deadline for urban water providers to demonstrate a 20 percent drop in demand under the Urban Water Management Planning Act (UWMP). This requirement should be considered in the District's financial and demand planning, particularly if future rate increases appear to delay demand recovery sufficiently to intersect with the demand target required by 2020 under the UWMP act.

SUMMARY

Based on our experience in previous droughts (1990-1) and an analysis of the main factors that influence demand for potable water in the residential sector of our service area, we believe annual demand following the end of the recent drought will continue to rise, attaining its pre-drought level in six to seven years and 85 percent of that level in two years, depending primarily on the incidence of wet winters. Over shorter timescales, on a billing cycle and monthly usage basis, peak summertime residential demands will likely return to their pre-drought levels sooner although it is difficult to provide a more precise estimate than approximately 2-4 years.

Installation of water conserving plumbing and irrigation fixtures are estimated to reduce ultimate demand by about 2.5% of pre-drought demand. Higher than average increases in the cost of living (CPI) could also reduce the rate of recovery, although this did not occur when it happened before from 1998-2005.

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Technical Memo

To:	Roger Null, Kennedy Jenks Consultants		
From:	Dan Ellison, PE	Project:	LVMWD/TSD Recycled Water MP
CC:	John Zhao, David Lippman (LVMWD); Mark Norris (TSD); Saik-choon Poh (HDR)		
Date:	August 21, 2013	Job No:	

RE: Proposed Future Demands and Modeling Scenarios for JPA's Recycled Water Master Plan

This memorandum outlines the demand conditions, proposed main extensions, and modeling scenarios that we recommend analyzing as part of the Joint Power Authority's (JPA) Recycled Water Master Plan Update Project.

Demand Projections

Because the JPA system has existed since 1988, and the two agencies have been very proactive in expanding the use of recycled water (RW) within their systems, there is limited potential for "organic" growth of recycled water demands. The service areas within Ventura County are virtually built-out, and potential development within the Las Virgenes MWD service area will largely consist of small parcel-by-parcel in-fill development. No new parks, schools, golf courses, or other large users of RW are expected to be built within the service areas.

The largest area for potential development in Las Virgenes remains the south slopes of the Santa Monica Mountains, where sparce, sporadic development may continue for decades, consisting of single-family estates, often located at considerable distance from both RW mains and wastewater collection systems. It will be very difficult to serve RW to most of these customers. The bulk of organic RW demand growth is expected to consist of in-fill development along the 101 Freeway corridor and within older communities like Calabasas Highlands. As the economy continues to recover and land values continue to increase, formerly unattractive parcels will become economical for development. [The property just north of the LVMWD headquarters building is a prime example.] Only a few large potential developments remain within reach of the JPA's system (e.g., "Triangle Ranch").

It is difficult to predict the recycled water demands of these small in-fill developments. While many will include landscaped areas that are appropriate for RW, the irrigated areas are often small and the amount of water needed is highly variable depending on what gets built. We have seen some parcels where several different developments have been proposed, ranging from single family, to multi-family, to assisted living—and nothing gets built. Predicting the RW demands of these parcels is difficult at best. The construction of new schools, new parks, and new golf courses—the large, traditional users of RW—are not anticipated within any of these small developments.

Although the growth of RW demands resulting from in-fill development is uncertain, we do know with certainty that LVMWD staff will be very proactive in requiring the use of RW within new developments. For this reason, we believe a reasonable assumption is that the demands and supply of recycled water will increase proportionally. If RW supplies (i.e., wastewater flows to Tapia) increase by 20 percent, we would expect a similar increase in RW demands. Throughout the service area, developments that are within reach of a wastewater collection main are also likely to be within reach of a recycled water main.

Proposed RW Main Extensions

The majority of potential growth in RW demand stems from proposed extensions to the JPA RW system, and the bulk of our analysis will consist of assessing the hydraulic and economic feasibility of building these extensions. These main extensions would largely serve existing customers within and outside of the JPA service areas, converting a portion of existing potable water demand to RW use. **Figure 1** provides an overview of these proposed main extensions. **Figures 2 through 9** show each extension in greater detail. These main extensions are briefly described below:

Thousand Oaks Boulevard Extension (Figure 2)

This extension would serve customers of the California Water Service Company, within the Westlake portion of Thousand Oaks, and was the subject of a 2003 study by Boyle Engineering. Over two dozen customers have been identified along this route. The largest are Baxter Pharmaceutical, Westlake High School, and Russell Park.

Oak Park HOA Conversions (Figure 3)

This extension would serve common irrigation areas maintained by several homeowners associations and a few multi-family apartment complexes. These proposed conversions within the Oak Park community are served by Oak Park Water Service, and were identified as relatively attractive based on a preliminary study by Triunfo SD staff.

Conejo Creek Park Extension (Figure 4)

This extension would convey water to areas currently served by the City of Thousand Oaks, irrigating several parks maintained by the Conejo Recreation and Parks District. The basic concept of this extension was identified during the 2007 Master Plan, but has not been analyzed previously.

Decker Canyon Extension (Figure 5)

This extension was planned, permitted, designed, bid, but never constructed, because the bid prices substantially exceeded available funding. The primary user would be the Malibu Golf Club, the largest potable water user in the LVMWD service area. [Serving the golf course with RW may be an important strategy for relieving stress on the potable water system.] Updates to demands for this extension are based on a recent study by AECOM, which investigated construction of a conference facility on the golf club property.

Alternative Decker Canyon Extension (Figure 6)

This extension would likewise serve the Malibu Golf Club, via a longer pipeline that would also serve other demands along the way. In addition to the golf club, significant RW demands are expected to come from a new development and conversion of Medea Valley ranchettes to RW use.

Hidden Hills Extension (Figure 7)

This extension would create a “backbone” pipeline through the Hidden Hills community, from which other mains could be extended. The main would serve the front yard irrigation of houses along the route as well as the irrigation needs of Round Meadows School.

Woodland Hills GC Extension (Figure 8)

This main extension would serve Woodland Hills Golf Course, Louisville High School, and Serrania Park, within the City of Los Angeles. Along the way, a lateral would extend southwest, conveying RW to Freedom Park and Alice Stelle Middle School within the LVMWD service area. Demands for this extension are taken from a 2011 report by AECOM.

Pierce College Extension (Figure 9)

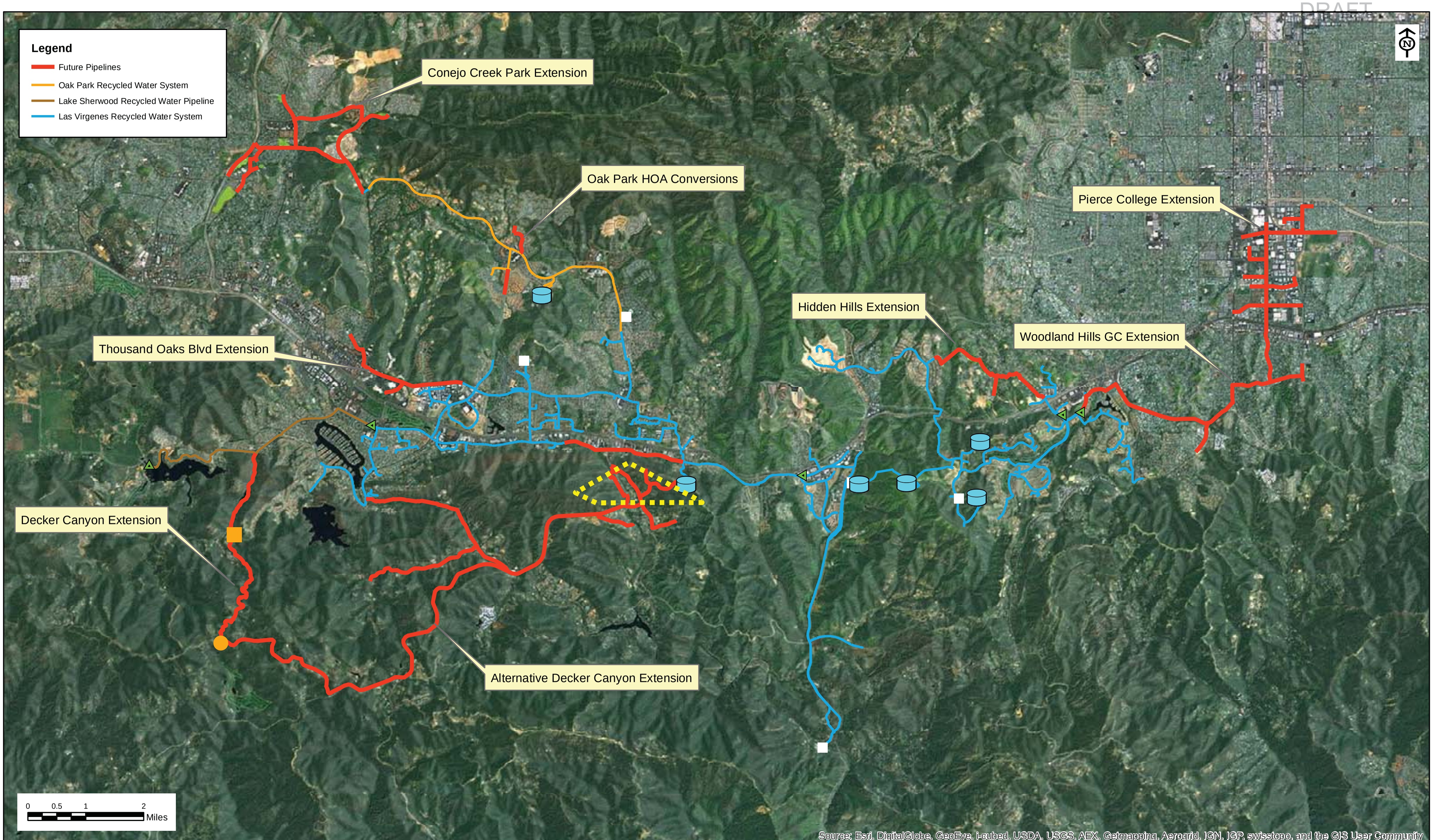
This main further extends the Woodland Hills Extension, ultimately reaching Pierce College. Demands for this main are based on a report by RMC/CDM for the City of Los Angeles. To serve these demands, major system upgrades stretching back to Reservoir 2 (next to the LVMWD Headquarters facility) would likely be needed.

Preliminary Demands and Supply Scenarios

Table 1 summarizes the demands and supplies that are expected to be modeled in five different scenarios. While the figures in this table will be subject to some amount of refinement over the next few months, they provide a reasonable approximation of what can be expected.

Table 1 – Preliminary Demand and Supply Scenarios

			SCENARIOS		
Demands (AFY)	A	B	C	D	E
1. Existing System plus in-fill development	6900	6900	6900	6900	6900
2. Thousand Oaks Boulevard Extension		251	251	251	251
3. Oak Park HOA Conversions		35	35	35	35
4. Conejo Creek Park Extension				118	118
5. Decker Canyon Extension			229		
6. Alternative Decker Canyon Extension				459	459
7. Hidden Hills Extension				18	18
8. Woodland Hills GC Extension			323	323	323
9. Pierce College Extension					666
Total Demands (AFY - average)	**6900**	**7186**	**7738**	**8104**	**8770**
Total Demands (mgd - peak)	**15.4**	**16.0**	**17.3**	**18.1**	**19.6**
Supplies (mgd)					
Tapia WRF (wastewater only)	12	12	12	12	12
Westlake Wells Supplement (via Tapia WRF)	1.1	1.1	1.1	1.1	0
Morrison PS - potable supplement	<2.9	<2.9	<2.9	<2.9	<2.9
Cordillera Tank -potable supplement	<1.7	<1.7	1.7	1.7	0
Reservoir 2- potable supplement	0	0	<3.6	<3.6	0
Oak Park Tank - potable supplement				<1.5	
Seasonal Storage Reservoir					<17
Total Supplies (mgd - peak)	**<17.7**	**<17.7**	**<21.3**	**<22.8**	**<29**



ITEM 4A

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Future Pipeline Extensions Overall Map
Las Virgenes Recycled Water System

Figure 1

ITEM 4A

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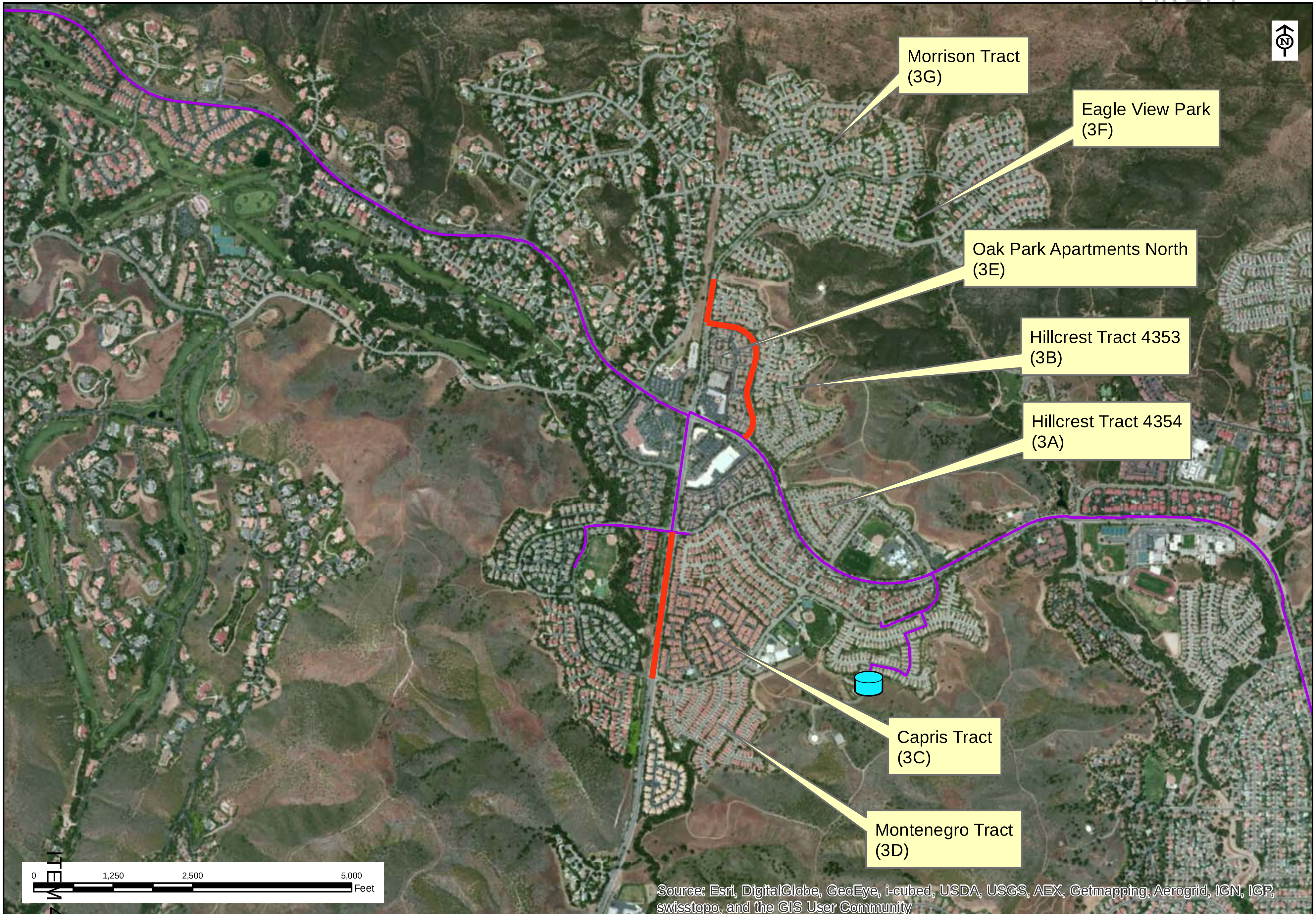
Thousand Oaks Blvd Extension
Las Virgenes Recycled Water System
Figure 2

DRAFT



ITEM 4A

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Oak Park HOA Conversions
Las Virgenes Recycled Water System
Figure 3

ITEM 4A

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Conejo Creek Park Extension
Las Virgenes Recycled Water System
Figure 4

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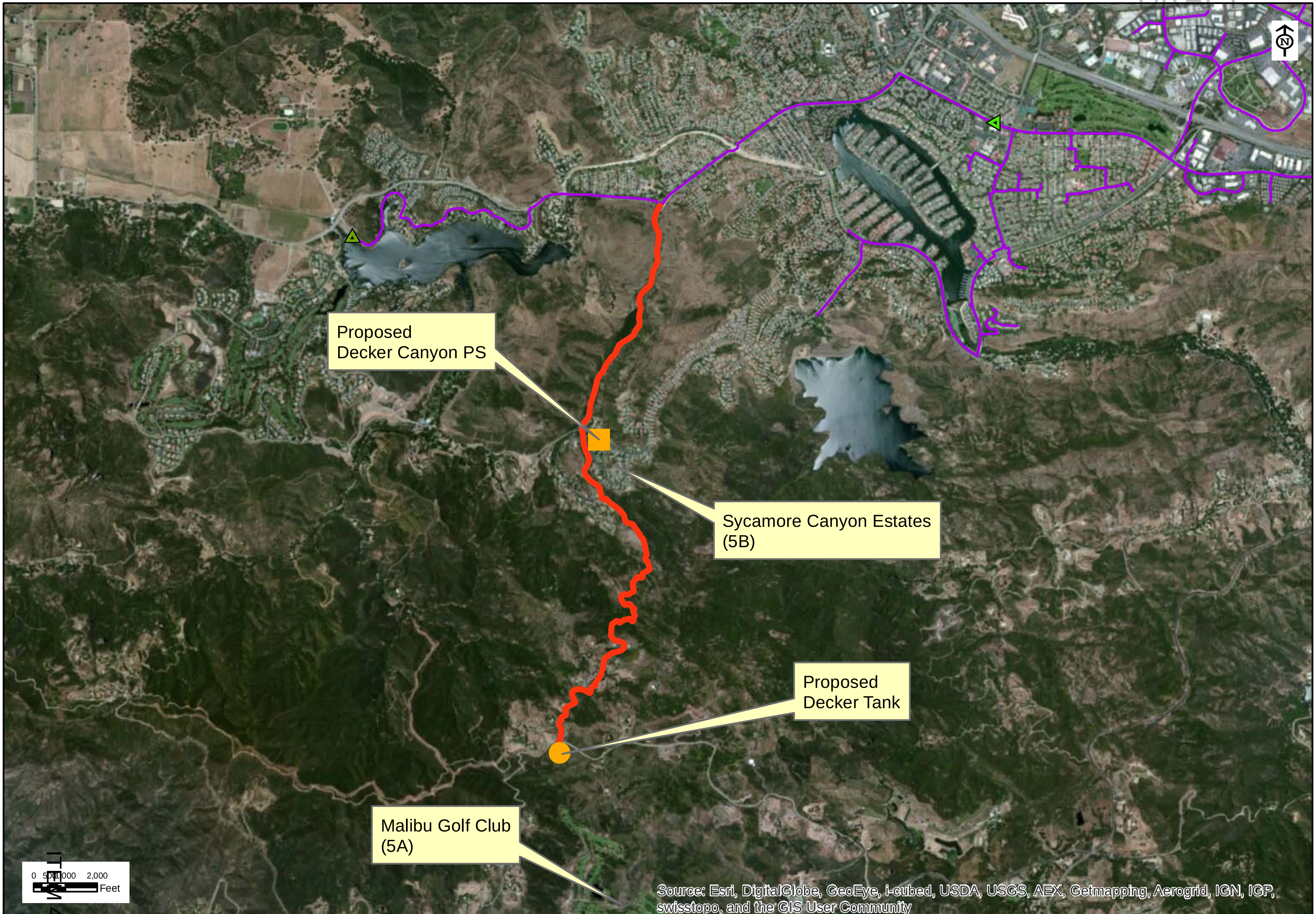

ITEM 4A

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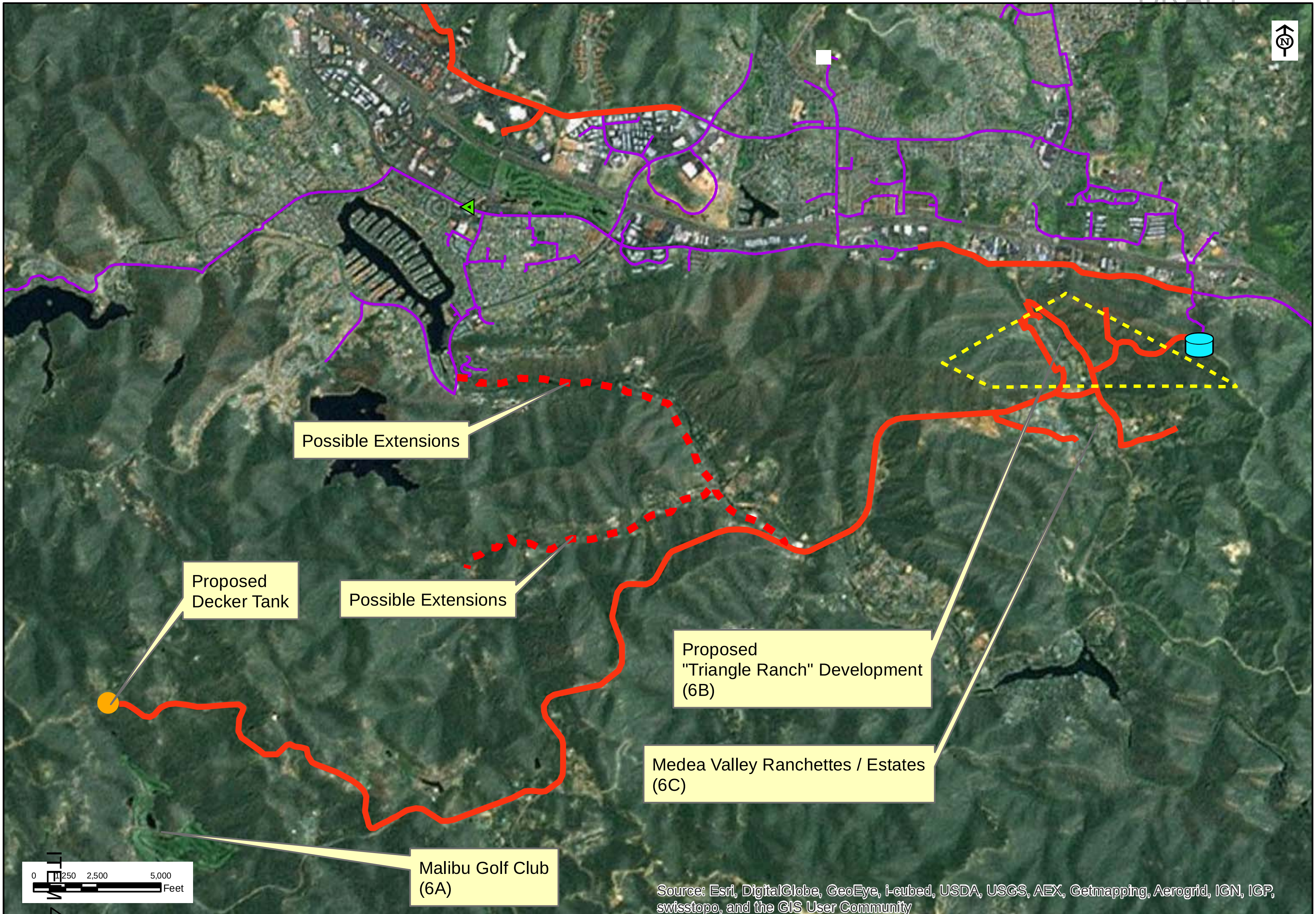
Decker Canyon Extension
Las Virgenes Recycled Water System
Figure 5



ITEM 4A

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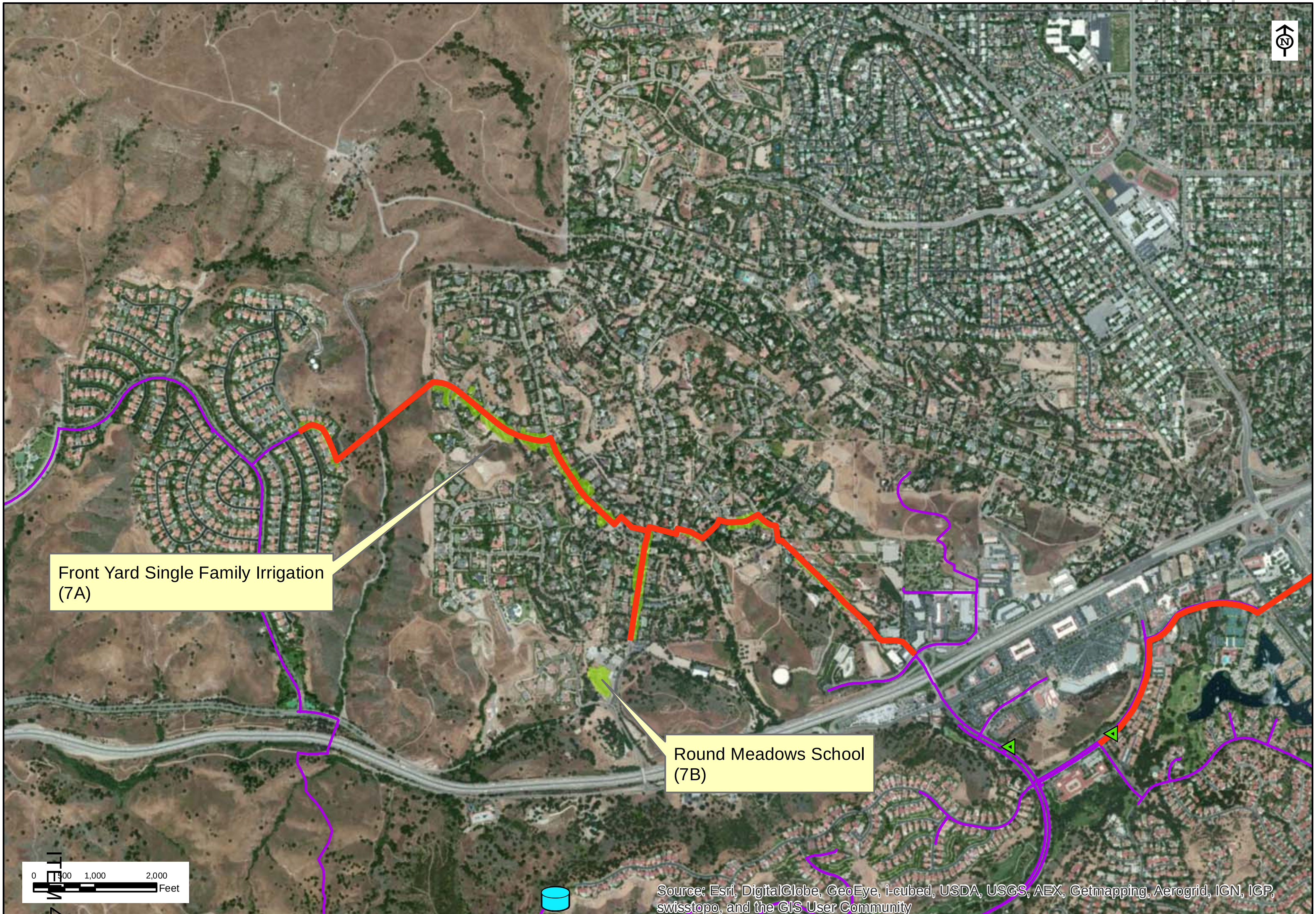
Alternative Decker Canyon Extension
Las Virgenes Recycled Water System
Figure 6



ITEM 4A

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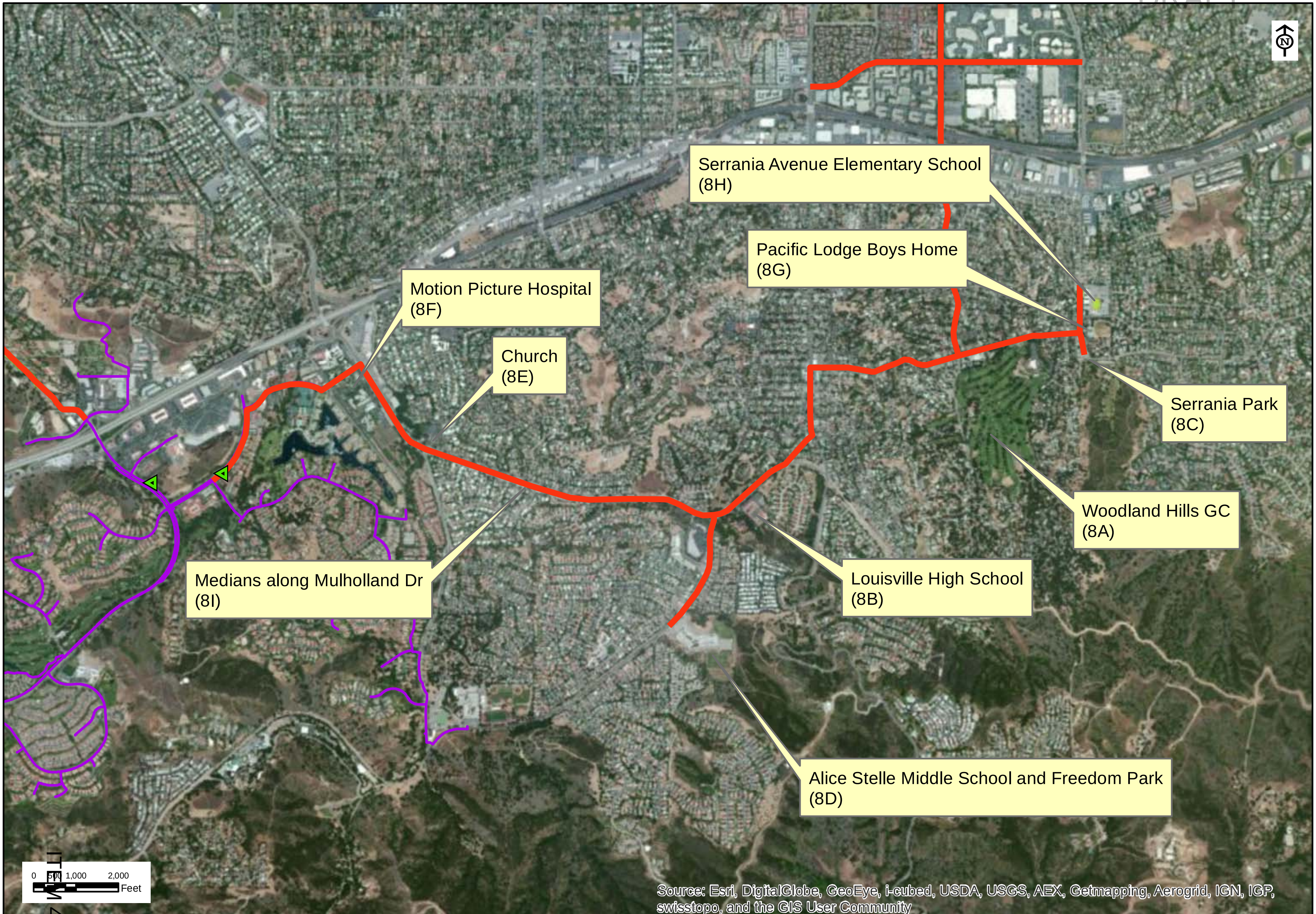
Hidden Hills Extension
Las Virgenes Recycled Water System
Figure 7



ITEM 4A

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Woodland Hills GC Extension
Las Virgenes Recycled Water System
Figure 8

ITEM 4A

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Pierce College Extension
Las Virgenes Recycled Water System
Figure 9

September 3, 2013 JPA Board Meeting

TO: JPA Board of Directors

FROM: Facilities & Operations

Subject: Tapia Channel Mixing Improvements: Approval of Request for Proposals

SUMMARY:

One of the capital improvement projects included in the approved Fiscal Year 2013-14 JPA Budget is the Tapia Channel Mixing Improvements Project. The purpose of the project is to replace the existing Tapia Water Reclamation Facility (WRF) channel air mixing system, which has reached the end of its useful life as noted in the Tapia WRF Process Air Evaluation completed in 2011 by Carollo Engineers.

This project consists of replacing the air piping, droplegs and diffusers in five channels at Tapia WRF. The channel mixing system is a critical component of the treatment process as it keeps solids in suspension as the liquid flows from one process tank to another. Without adequate mixing, solids will settle in the channels, reducing the useful volume of the channels and forming solids blankets that can cause severe odor problems.

The Request for Proposals is necessary to engage a consultant to design and plan the replacement of the channel mixing system and include necessary items for its installation, such as channel cleaning and bypass pumping, since the plant cannot be taken out of service for the work.

RECOMMENDATION(S):

Approve the Request for Proposals for the Tapia Channel Mixing Improvements Project.

FINANCIAL IMPACT:

The approved JPA Fiscal Year 2013-14 Budget provides funding in the amount of $454,000 for CIP No. 10538, Tapia Channel Mixing Improvements. LVMWD and Triunfo Sanitation District are allocated with cost splits of 70.6% and 29.4%, respectively.

Prepared By: Brett Dingman, Water Reclamation Manager

ATTACHMENTS:

Tapia Channel Mixing Improvements RFP

Request for Proposals
Tapia Water Reclamation Facility: Channel Mixing Improvements

Proposals Due November 6, 2013 at 3:00 p.m.

Las Virgenes Municipal Water District
4232 Las Virgenes Road
Calabasas, CA 91302
818-251-2100

I. GENERAL AND BACKGROUND

The Las Virgenes Municipal Water District (LVMWD) is a special district established in 1958. The service area includes 122-square miles in western Los Angeles County and includes the incorporated cities of Hidden Hills, Calabasas, Agoura Hills and Westlake Village, as well as unincorporated areas. The district provides potable water, recycled water and wastewater service to a population of approximately 65,000. The Triunfo Sanitation District (TSD), located within Ventura County, has a joint powers authority (JPA) with the LVMWD in wastewater and recycled water service. The TSD service area is 50-square miles with a population of 30,000. The JPA operates the Tapia Water Reclamation Facility (Tapia WRF) and The Rancho Las Virgenes Composting Facility.

The Tapia WRF was originally constructed in 1965 to treat 0.5 million gallons per day (MGD). Several expansions have increased the plant to its current capacity of 16.1 MGD, treating wastewater to the tertiary level. Tapia currently treats approximately 7.5 MGD which is disposed of through three different methods: recycled water use, or discharge to the Los Angeles River or Malibu Creek. The District owns and operates an extensive recycled water system which is used to dispose of approximately 60%-70% of plant effluent each year. The remainder of the Tapia's effluent is disposed of by discharging to the Los Angeles River or Malibu Creek (Malibu Creek discharge is only allowed from November 15th to April 15th each year). Discharge to Malibu Creek and the Los Angeles River are regulated under a National Pollutant Elimination System (NPDES) permit issued by the Water Quality Control Board. Biosolids generated at Tapia are pumped approximately four miles to the Rancho Las Virgenes Composting Facility where they are processed by mesophilic anaerobic digestion, dewatering (centrifugation) and composting to produce an "exceptional quality" compost product.

Process air at Tapia is used to support the biological processes and to provide mixing in the aeration basins, re-aeration basins, the grit chamber effluent, primary influent feed channels, the selector channel (Mixed Liquor feed), Aeration basin feed channels, mixed liquor channel (aeration basin effluent channel), and RAS channel. Process air is also used to provide scouring air for filter backwashing.

In 2011, Carollo Engineers completed the Tapia WRF – Process Air Evaluation, a three part report which reviewed the air supply and delivery system at Tapia. Task 1 of this report (included with this RFP) addressed the process channel mixing systems for the grit chamber, the primary clarifier feed channel, the aeration basin feed channel, the mixed liquor channel and the return activated sludge (RAS) channel (Section 4.2 starting on page 1-23). The report concluded that the aging channel mixing system at the Tapia WRF has reached the end of its useful life and recommend that the JPA replace the mixing systems within these channels.

II. SCOPE OF WORK

The JPA wishes to solicit proposals for design to replace the existing channel mixing systems in the grit chamber, the primary clarifier feed channel, the aeration basin feed channel, the mixed liquor channel and the return activated sludge (RAS) channel with a new conventional spiral-roll channel mixing system. The design should include the replacement of the existing air diffusers, valves, piping and flow meters. The anticipated scope of work includes:

- Using the 2011 Carollo Engineers Task 1 report as a basis, provide a recommendation for the materials to be used in the design of this project.
- Provide complete, ready to bid, plans and specifications necessary to construct the recommended replacement. Five (5) hard copies of the final plans and specifications shall be submitted to the JPA, as well as a digital copy of both. (Specifications shall be in MS Word format)
- Plans and specifications should include the cleaning of the existing channels, the replacement of the existing channel air diffusers, valves, piping and flow meters.
- The treatment process cannot be interrupted, so bypass pumping shall be included in the plans and specifications where necessary.
- Provide and opinion of probable cost.
- Provide a suggested construction sequence that creates the least impact on plant operations
- Provide support services during bidding & construction.

Meetings with District staff during the course of the project should be included.

III. MINIMUM CONSULTANT QUALIFICATIONS

The proposals shall be evaluated by district staff on the following criteria:

1) The quality of performance on similar projects in the past.
2) Expertise, qualifications and experience of proposed staff.
3) The ability to meet time schedules and complete the work within established budgets.
4) The ability to provide a comprehensive and understandable scope of work.
5) The firm's history and resource capacity to perform the requested service.
6) The experience and qualifications of assigned personnel.
7) Qualifications and use of sub-consultants (if any).
8) Professional liability insurance in the amount of $1 million.
9) Ability to execute the standard Agreement for Professional Services (Attachment)

IV. INFORMATION TO BE SUBMITTED

Please submit five (5) copies of your proposal no later than 3:00 p.m. on November 6, 2013. Include the following:

1) Legal name of your firm, address, telephone number and the name of at least one principal.
2) A recommended scope of work, which clearly displays an understanding of the project.
3) A tentative schedule including milestones for completion

4) Names and résumés of individual(s) proposed to perform the services.
5) Names, qualifications and principals of any sub-consultants to be utilized in providing the service(s).
6) Cost to perform the services, indicating level of effort.
7) Schedule of rates.
8) Similar projects for reference.

V. EVALUATION CRITERIA

Proposals will be evaluated based upon the following:

1. The quality of performance on past projects, including those on which the proposed team has worked together.
2. The ability to propose and meet time schedules.
3. The ability to complete work within established budgets.
4. The ability to provide a comprehensive and understandable scope of work, including development of a program, which emphasizes economy of scale and efficiency of effort.
5. The firm's history and resource capacity to perform the requested service.
6. Cost of proposal in terms of overall value to the district.
7. The firm's internal quality control process.
8. The experience and qualifications of assigned personnel.
9. Qualifications and use of sub-consultants.
10. Interviews may be performed at the District's discretion.

VI. RFP SCHEDULE

Anticipated RFP schedule is as follows:

RFP Available	9/10/2013
Pre-Proposal Meeting at Tapia WRF	10/9/2013
Proposals Due	11/6/2013
Recommendation to Board for Engineering Services	12/2/2013

Any questions can be directed to Brett Dingman, Water Reclamation Manager at (818) 251-2330 or via e-mail at bdingman@lvmwd.com.

September 3, 2013 JPA Board Meeting

TO: JPA Board of Directors

FROM: Facilities & Operations

Subject: Woodland Hills Country Club Recycled Water System Extension: Approval of Term Sheets

SUMMARY:

On June 3, 2013, the JPA Board authorized staff to draft wholesale purchase and capital facility agreements with the Los Angeles Department of Water and Power (LADWP) to serve recycled water to the Woodland Hills Country Club. Staff has completed initial negotiations with LADWP and prepared the attached draft term sheets outlining the key deal points for inclusion in the agreements.

The term sheets provide for LADWP to pay the entire capital cost of the project, including the cost of proposed JPA-owned facilities, and the JPA to sell LADWP recycled water at a rate equal to the JPA wholesale rate plus the cost of potable water supplement for an initial 30-year term. The JPA would be responsible for the preliminary design, environmental documentation for compliance with CEQA, and final design and construction of the project. The JPA's share of the project costs would be reimbursed by LADWP.

The next step in the process is to develop an agreement to perform the preliminary design and CEQA environmental documentation and to selecting a consulting firm to perform the work.

RECOMMENDATION(S):

Approve the term sheets for the Woodland Hills Country Club Recycled Water System Extension.

FINANCIAL IMPACT:

None at this time; development of the preliminary design and CEQA environmental documentation agreement requires only staff time.

DISCUSSION:

At the February 7, 2011 and June 3, 2013 JPA Board meetings, staff presented the concept of serving wholesale recycled water to the Woodland Hills Country Club (WHCC). The concept involves the JPA selling recycled water to LADWP at the JPA service boundary, and LADWP providing retail recycled water service to the WHCC. A 24,300-foot pipeline extension, with 5,300 feet within the JPA service area, is necessary to serve the WHCC. The WHCC would have a maximum annual demand of 250 acre-feet, and additional LADWP customers could increase that demand by 50 to 75 acre-feet. As authorized by the JPA Board, staff negotiated the attached term sheets with LADWP that will serve as the basis for preparation of wholesale purchase and capital facilities agreements.

The general terms of the wholesale purchase agreement are as follows:

- LADWP will reimburse the JPA for the capital cost of proposed facilities within the JPA's service area.
- The wholesale price of recycled water will be equal to the JPA wholesale price (at a pre-determined point in time) plus the cost of potable supplement, currently estimated to be $670/AF.
- The wholesale price of recycled water will escalate each year based on the CPI.
- LADWP will receive any available MWD Local Resource Program (LRP) funding. With the entire capital cost being paid by LADWP, the JPA does not need to rely on the LRP funding for capital recovery.
- The initial term of the agreement will be 30 years.

The general terms of the capital facilities agreement are as follows:

- The JPA will be the lead agency for CEQA, and LADWP will be a responsible agency.
- The JPA will be responsible for the preliminary design, final design and construction of the proposed facilities within both JPA and LADWP service areas.
- LADWP will pay the JPA a 10% administrative charge based on the cost of the facilities constructed within the LADWP service area.
- Costs associated with preliminary design, final design and construction of the facilities within the JPA service area will be reimbursed by LADWP; the same costs for facilities within the LADWP service area will be paid for by LADWP.
- The JPA and LADWP will need to jointly agree to award any design and construction contracts.

The next step in the process is to complete preliminary design and CEQA environmental documentation. An agreement for the work will need to be developed by staff and approved by the JPA Board. Additionally, a request for proposals (RFP) will need to be released for the work. Staff recommends that the JPA Board approve the term sheets, so staff can proceed with the preparation of a draft agreement between LADWP and the JPA to complete preliminary design and CEQA environmental documentation and prepare an RFP to hire a consulting engineering firm to perform the work.

Prepared By: David R. Lippman, Director of Facilities & Operations

ATTACHMENTS:

WHCC Terms Sheet

Terms Sheet: Recycled Water Wholesale Purchase Agreement

1. Agreement
    a. The intent of this agreement is for the wholesale sale of Recycled Water to LADWP from the JPA.
2. Pricing
    a. Mutually agreed price per acre-foot or fraction thereof. Price per acre-foot will be equal to the cost of wholesale recycled water plus a potable supplement component (currently estimated at $670 per acre-foot.)
3. Capital Cost
    a. LADWP will reimburse the JPA for the capital expenditure within the JPA service area
4. Escalation
    a. Annual price escalation based on Bureau of Labor Statistics, Consumer Price Index for All Urban Consumers (CPI-U); Los Angeles, Riverside, Orange Counties
5. Supplemental Supply
    a. JPA will provide supplemental supply during normal operating conditions
6. Planned or unplanned disruption
    a. During planned or unplanned disruption the JPA shall make every effort to resume recycled water delivery as soon as possible and shall keep LADWP informed as to the status of the event.
7. Water quality
    a. Water quality shall comply with JPA's RWQCB Water Reclamation Requirements and Title 22 at the point of regulatory compliance
    b. Water quality reports required by the RWQCB and/or SWRCB shall be made available to LADWP
    c. LADWP, the JPA and WHCC shall form an operating committee that meets periodically to review and operations and address any issues
8. Payments
    a. JPA shall invoice every 30 days and LADWP shall make payment within 45 days
9. Metering
    a. Wholesale sales shall be measured by a JPA meter at the service area boundary
10. LRP Funding
    a. LADWP shall apply for LRP funding
    b. LADWP shall receive all LRP funds
11. Ownership
    a. JPA shall own, operate and maintain facilities in their service area
    b. LADWP shall own, operate and maintain facilities in their service area
12. Termination
    a. Each party shall have the right to terminate the agreement with 180 day notice unless a shorter notice is mutually agreed
13. Term
    a. 30 years

   b. Provide a mutually agreed renewal option for the same term as the original term

14. Point of Use Regulatory Compliance
    a. LADWP shall assure their retail customers comply with all necessary regulatory requirements for the use of recycled water
15. Minimum Pressure
    a. A minimum pressure of 100 psi shall be provided at the JPA/LADWP boundary
16. Each agency to indemnify each other, insure each other, pay their own attorney fees

Terms Sheet: Design & Construction Agreement

1. Agreement
    a. The intent of this agreement is to define responsibilities for the preliminary design, CEQA, design and construction of the facilities necessary to convey wholesale recycled water to the WHCC in LADWP's service area from the JPA
2. Preliminary Design
    a. The JPA will be responsible to complete necessary preliminary design for the facilities to convey wholesale recycled water to WHCC from the JPA
    b. Facilities within the JPA service area shall be designed to JPA standards and facilities within the LADPW service area shall be designed to LADWP standards
3. CEQA
    a. The JPA shall be the lead agency for the project with LADWP being a responsible agency
4. Design
    a. The JPA will be responsible to complete design for the facilities to convey wholesale recycled water to WHCC from the JPA
    b. Facilities within the JPA service area shall be designed to JPA standards and facilities within the LADWP service area shall be designed to LADWP standards
5. Construction
    a. The JPA shall be responsible to bid and hire a contractor to construct the project.
    b. The JPA shall be responsible to construct any metering and backflow protection facilities for JPA retail customers
    c. LADPW shall be responsible to construct any metering and backflow protection facilities for LADWP retail customers
6. Permits and Rights of Way
    a. The JPA shall obtain all necessary encroachment permits and right of way within their service area
    b. LADPW shall obtain all necessary encroachment permits and right of way within their service area
    c. The construction contractor shall obtain traffic control permits and develop traffic control plans assisted as necessary by the JPA and LADWP
7. Cost Share
    a. Preliminary design and CEQA costs shall be shared between the JPA and LADWP on prorated basis based on the ratio of pipe length in each service area to the total pipe length. The JPA costs shall be reimbursed by LADWP.
    b. JPA shall pay for the cost of design for facilities within their service area reimbursed by LADWP
    c. LADWP shall pay for the cost of design for facilities within their service area
    d. JPA shall pay for the cost of construction including services during construction and any necessary mitigation measures within their service area reimbursed by LADWP
    e. LADWP shall pay for the cost of construction including services during construction and any necessary mitigation measures within their service area

- f. JPA shall pay any fees associated with permits with in their service area reimbursed by LADWP
- g. LADWP shall pay for any fees associated with permits with in their service area
- h. Common permits, such as the RWQCB SSWP permit shall be paid for on the same basis as preliminary design and CEQA cost
- i. LADWP shall pay an administrative cost to the JPA of 10% of their share of project

8. Payment
    - a. The JPA shall bill LADWP every 30 days with payment due in 45 days
9. Use of consultants
    - a. The JPA reserves the right to use consultants of their choice in preforming the preliminary design, CEQA, design and construction management.
    - b. Both parties need to agree to award preliminary design, CEQA, design and construction management contracts if the parties do not agree then
        - i. The project can be rebid if mutually agreed
        - ii. The agreements become void and all outstanding costs are to be paid
10. Award of Construction Contract
    - a. Both parties need to agree to award the construction contract if the parties do not agree then
        - i. The project can be rebid if mutually agreed
        - ii. The agreements become void and all outstanding costs are to be paid
11. Each agency shall indemnify each other, insure each other, pay their own attorney fees
12. LADWP may elect to perform the design of their facilities. In case LADWP and the JPA shall coordinate the design effort to assure a complete, integrated bid and construction package.

INFORMATION ONLY

September 3, 2013 JPA Board Meeting

TO: JPA Board of Directors

FROM: Finance & Administration

Subject: Renewal of Sodium Bisulfite Contract

<u>SUMMARY</u>:

On July 12, 2011, the LVMWD board awarded a one-year contract with two one-year renewal options to Jones Chemicals Incorporated (JCI) for the purchase of sodium bisulfite which was subsequently approved by the JPA board. The JPA uses sodium bisulfite at the Tapia Water Reclamation Facility for dechlorination of recycled water prior to discharge to Malibu Creek or the L.A. River. The initial term and first renewal were successfully completed and staff negotiated the final renewal option with no increase in cost. On July 10, 2013 the final renewal option was executed by staff.

<u>FINANCIAL IMPACT</u>:

The approved Fiscal Year 2013-14 Budget provides funding of $171,660 for the purchase of Sodium Bisulfite. Based on a three year annual average use of 123,500 gallons, the estimated cost for Fiscal Year 2013-14 is $167,960. This estimated amount is slightly under budget.

<u>DISCUSSION</u>:

JCI has consistently and reliably provided this product and service to the JPA. While the chemical market has remained flat in the last year based on the Producer Price Index (PPI), transportation, staffing, and other related costs have risen. As a result, staff believes the existing contract pricing is favorable given current economic conditions. JCI agreed to honor the same terms and conditions, including holding the current price of $1.36 per gallon delivered. The term of the renewal will be from July 29, 2013 through July 28, 2014.

Prepared By: Gretchen Bullock, Buyer

INFORMATION ONLY

September 3, 2013 JPA Board Meeting

TO: JPA Board of Directors

FROM: Finance & Administration

Subject: Renewal of Sodium Hypochlorite Contract

SUMMARY:

On July 24, 2011, the LVMWD board awarded a one-year contract with two one-year renewal options to Jones Chemicals Incorporated (JCI) for the purchase of sodium hypochlorite which was subsequently approved by the JPA board. The JPA uses sodium hypochlorite for disinfection of effluent at the Tapia Water Reclamation Facility. The initial term was successfully completed and staff negotiated the first renewal option with no increase in cost. On July 10, 2013 the final renewal option was executed by staff.

FINANCIAL IMPACT:

The approved Fiscal Year 2013-14 Budget provides funding of $335,685 for Tapia Water Reclamation Facility for the purchase of sodium hypochlorite. Based on a three year annual average use of 475,000 gallons, the estimated cost for Fiscal Year 2013-14 is $276,450. This amount is under the budgetary figure.

DISCUSSION:

JCI has consistently and reliably provided this product and service to the JPA. While the chemical market has remained flat in the last year based on the Producer Price Index (PPI), transportation, staffing, and other related costs have risen. As a result, staff believes the existing contract pricing is favorable given current economic conditions. JCI agreed to honor the same terms and conditions , including holding the current price of $.582 per gallon delivered (.57 plus 2.1% CA Mill Assessment). The term of the renewal will be from August 9, 2013 through August 8, 2014.

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