

# CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

**AGENDA**  
**REGULAR MEETING**  
**BOARD OF WATER COMMISSIONERS**  
**Tuesday, APRIL 19, 2016 – 9:30 a.m.**  
**MARGARET H. CHANDLER WATER RECLAMATION PLANT**  
**399 CHANDLER PLACE**  
**San Bernardino, California**

BOARD OF WATER COMMISSIONERS

TONI CALLICOTT  
 President

Commissioners  
 LOUIS A. FERNANDEZ  
 WAYNE HENDRIX, P.E.  
 JUDITH VALLES  
 DAVID E. MLYNARSKI



STACEY R. ALDSTADT  
 General Manager  
 ROBIN L. OHAMA  
 Deputy General Manager  
 MIGUEL GUERRERO, P.E.  
 Director of Water Utility  
 JOHN A. CLAUS  
 Director of Water Reclamation  
 TERRI WILLOUGHBY  
 Director of Finance  
 JENNIFER L. SHEPARDSON  
 Director of Environmental &  
 Regulatory Compliance

*“Trusted, Quality Service since 1905”*

**Welcome to a meeting of the Board of Water Commissioners of the City of San Bernardino.**

- The City of San Bernardino Municipal Water Department recognizes its obligation to provide equal access to those individuals with disabilities. Please contact the General Manager’s Office (909-384-5191) two working days prior to the meeting for any requests for reasonable accommodation, to include interpreters.
- All documents for public review are on file with the Water Department located on the 5th floor of City Hall, 300 North “D” Street, San Bernardino or may be accessed online at [http://www.ci.san-bernardino.ca.us/water/newsalerts/agendas\\_n\\_minutes.asp](http://www.ci.san-bernardino.ca.us/water/newsalerts/agendas_n_minutes.asp)
- Please turn off or mute your cell phone while the meeting is in session.
- Any member of the public desiring to speak to the Board of Water Commissioners concerning any matter not on the agenda, but which is within the subject matter jurisdiction of the Board of Water Commissioners, may address the body at the end of the meeting during the period reserved for public comments. Said total period for public comments shall not exceed forty-five (45) minutes, unless such time limit is extended by the Board of Water Commissioners. A three-minute limitation shall apply to each member of the public, unless such time limit is extended by the Board of Water Commissioners. No member of the public shall be permitted to “share” his/her three minutes with any other member of the public.
- The Board of Water Commissioners may refer any item raised by the public to staff for appropriate action or have the item placed on the next agenda of the Board of Water Commissioners. However, no other action shall be taken nor discussion held by the Board of Water Commissioners on any item which does not appear on the agenda unless the action is otherwise authorized in accordance with the provisions of subdivision (b) of Section 54954.2 of the Government Code.
- Public comments will not be received on any item on the agenda when a public hearing has been conducted and closed.

CALL TO ORDER: \_\_\_\_\_ a.m./p.m.

Attendee Name	Present	Absent	Late	Arrived
President Toni Callicott				
Commissioner Louis Fernández				
Commissioner Wayne Hendrix				
Commissioner Judith Valles				
Commissioner David E. Mlynarski				
General Manager Stacey Aldstadt				
Deputy General Manager Robin Ohama				
Director of WRP John Claus				
Director of WU Miguel Guerrero				
Director of Finance Terri Willoughby				
Director of ERC Jennifer Shepardson				

## OTHERS:

1. CLOSED SESSION: \_\_\_\_\_ a.m./p.m.

Pursuant to Government Code Section(s):

- A. Conference with legal counsel – existing litigation – pursuant to Government Code Section 54956.9(a): *In Re City of San Bernardino, California*, United States Bankruptcy Court, Central District of California (Riverside), Case No. 6: 12-bk-28006-MJ. *City of San Bernardino v. San Bernardino Valley Municipal Water District, et al.*, San Bernardino County Superior Court Case No. CIVDS1605532.
- B. Conference with legal counsel – anticipated litigation – significant exposure to litigation – pursuant to Subdivision (b) (1), (2), (3) (A-F) of Government Code Section 54956.9.
- C. Conference with legal counsel – anticipated litigation – initiation of litigation – pursuant to subdivision (d) (4) of Government Code Section 54956.9.
- D. Conference with legal counsel – personnel – pursuant to Government Code Section 54957.
- E. Conference with legal counsel and security consultant on matters posing a threat to the security of essential public services, including water, drinking water, and wastewater treatment pursuant to Government Code Section 54957 (a).
- F. Conference with labor negotiator – pursuant to Government Code Section 54957.6(a).

**END OF CLOSED SESSION  
RECONVENE MEETING**

CALL TO ORDER: \_\_\_\_\_ a.m./p.m.

Attendee Name	Present	Absent	Late	Arrived
President Toni Callicott				
Commissioner Louis Fernández				
Commissioner Wayne Hendrix				
Commissioner Judith Valles				
Commissioner David E. Mlynarski				
General Manager Stacey Aldstadt				
Deputy General Manager Robin Ohama				
Director of WRP John Claus				
Director of WU Miguel Guerrero				
Director of Finance Terri Willoughby				
Director of ERC Jennifer Shepardson				

OTHERS:

2. ANNOUNCEMENTS BY MEMBERS OF THE BOARD OF WATER COMMISSIONERS:
3. CONSENT CALENDAR

**MOTION:** That the motions indicated by consent calendar items 3A through 3G be adopted, except for \_\_\_\_\_.

MOTION: \_\_\_\_\_ SECONDED: \_\_\_\_\_

A. WAIVE FULL READING OF RESOLUTIONS

**MOTION:** That full reading of the resolutions on the regular or supplemental agendas of the Board of Water Commissioners be waived.

B. PAYROLL

**MOTION:** Approve the payroll for the pay periods March 21, 2016 through April 3, 2016 and April 4, 2016 through April 17, 2016.

C. CONTRACTS AND BILLS

**MOTION:** Approve the payment of contracts and bills to be presented at this meeting.

D. MINUTES

**MOTION:** Approve the minutes of the meetings of April 5, 2016 of the Board of Water Commissioners.

E. PERSONNEL ACTION - APPOINTMENT: John Ericson, Water Utility Worker I, Section 3024, Range 132, effective April 18, 2016. This position is in the budget and based on the needs and staffing for this section, the position is still justifiable under the budget.

**MOTION:** Approve the Personnel Action as submitted.

F. NOTICE OF COMPLETION – CONTRACT NO. 1633 – PERIMETER ROAD PUMP STATION UPGRADES PROJECT (CO 10701): The final acceptance date of February 17, 2016, direct staff to file a Notice of Completion, and release the retention in accordance with Contract No. 1633.

**MOTION:** Approve the Notice of Completion as submitted.

G. NOTICE OF COMPLETION – CONTRACT NO. 1637 – CHANDLER PLACE AND “E” STREET TRAFFIC SIGNAL AND STREET IMPROVEMENTS PROJECT (EPN 2013-008): The final acceptance date of February 29, 2016, direct staff to file a Notice of Completion, and release the retention in accordance with Contract No. 1637.

**MOTION:** Approve the Notice of Completion as submitted.

**END OF CONSENT CALENDAR**

4. ADDITIONS TO THE AGENDA: (if any) in accordance with Section 54954.2 (b) (2) of the Government Code (Brown Act), a two-thirds vote (or a unanimous vote if less than two-thirds are present) is required to add an item for action provided that there is a need to take immediate action and that the need for action came to the attention of the agency after the agenda was posted.

**MOTION:** Approve an additional item(s) to be added to the agenda in accordance with Government Code Section 54954.2(b) (2).

MOTION:\_\_\_\_\_ SECONDED:\_\_\_\_\_

5. EXTENSION NO. 1 TO CONTRACT NO. 1628 – ANNUAL CONTRACT FOR PAVEMENT REPAIR AND RESURFACING SERVICES – GM SAGER CONSTRUCTION CO., INC. AND HARDY & HARPER, INC.: The Board of Water Commissioners entered into a one-year contract, Contract No. 1628, with G.M. Sager Construction Co., Inc. (GM Sager) as Primary Contractor, and Hardy & Harper Inc. (Hardy & Harper) as Secondary Contractor, for Annual Pavement Repair and Resurfacing Services. This contract had a provision for one (1) additional one (1) year extension.

Extension No. 1 has been prepared which will extend the contract from June 1, 2016 to May 31, 2017 under the same terms and conditions. This is the final extension for Contract No. 1628.

**MOTION:** Approve Extension No. 1 to Contract No. 1628 with G.M. Sager Construction Co., Inc. and with Hardy & Harper, Inc., extending the contract from June 1, 2016 to May 31, 2017 under the same terms and conditions; and authorize the President and Secretary to execute the extensions.

MOTION:\_\_\_\_\_ SECONDED:\_\_\_\_\_

6. MEMORANDUM OF UNDERSTANDING REGARDING LAND DESIGNATION OF 1350 SOUTH “E” STREET AND STERLING PROPERTIES: At the February 16, 2016 joint regular meeting of the Mayor and Common Council (MCC) of the City of San Bernardino, the MCC acting as the Successor Agency to the Redevelopment Agency of San Bernardino (Successor Agency) adopted a resolution to authorize the transfer of certain real property assets from the Successor Agency to the City of San Bernardino (City). Included in this transfer was the property located in the City at 1350 South “E” Street (“E” Street Property).

At the March 21, 2016 joint regular meeting of the MCC, the MCC adopted a resolution to designate the “E” Street Property for Department use, remove the property located east of North Sterling Avenue and north of Foothill Drive for Department use, and authorize the City Manager to execute a Memorandum of Understanding (MOU) between the MCC and the Board of Water Commissioners regarding the land designations.

**MOTION:** Approve the “E” Street Property and Sterling Property land designations; and authorize the President and Secretary to execute the Memorandum of Understanding.

MOTION:\_\_\_\_\_SECONDED:\_\_\_\_\_

7. WATER SUPPLY ASSESSMENT – WATERMAN AND BASELINE

NEIGHBORHOOD TRANSFORMATION PLAN: Senate Bills 610 and 221 amended state law, effective January 1, 2002, to improve the linkage between certain land use decisions made by cities and counties, and the correlative water supply availability. Both statutes require detailed information regarding water supply availability and reliability, with respect to certain development projects, to be included in the administrative record to serve as evidentiary basis for an approval action by the city or county for such projects. SB 610 and 221 have been codified in Water Code §109 et. seq.

Water supply reliability is assessed through Water Supply Assessments (WSA) which must be furnished to local governments for inclusion in any environmental documentation for certain types of projects and subject to the California Environmental Quality Act (CEQA). The primary source document for a WSA is typically a water supplier’s adopted Urban Water Management Plan (UWMP).

On February 10, 2016, the Water Department received a letter from the City’s Community Development Department requesting the preparation of a WSA for the Waterman and Baseline Neighborhood Transformation Plan (Project). The project applicant, National Community Renaissance (National Core), previously submitted the proposed development to the City.

**MOTION:** Approve the resolution adopting the WSA for the Waterman and Baseline Neighborhood Transformation Plan.

MOTION:\_\_\_\_\_SECONDED:\_\_\_\_\_

8. APPROVAL OF WAIVER OF CONFLICT PERTAINING TO WATER AND SEWER

FINANCING: On April 5, 2016, the Board of Water Commissioners approved an agreement with Orrick, Herrington & Sutcliffe LLP (Orrick) to serve as bond counsel in the proposed 2016 Water and Sewer Financing. It has been brought to staff’s attention that Orrick also serves as legal counsel for the Department’s chosen underwriting firm, Raymond James, which creates a conflict.

It has been determined that none of the work performed on behalf of the Department will be performed by the attorneys who represent Raymond James, and none of the attorneys representing Raymond James will perform work for the Department in conjunction with the financing.

**MOTION:** Approve the Waiver of Conflict Pertaining to Water And Sewer Financing; and authorize the General Manager to sign on behalf of the Department.

MOTION:\_\_\_\_\_SECONDED:\_\_\_\_\_

9. WATER RATE ADJUSTMENT: On January 5, 2010, the Board of Water Commissioners approved a three-step water rate increase, the last of which was effective January 1, 2012. As part of staff's FY 2013/14 budget presentation, staff expressed the need to establish updated water revenue requirements.

In June 2013, the Department retained SAIC Energy, Environment & Infrastructure, LLC, now known as Leidos, to, among other tasks, update revenue requirements for the water fund. In 2014, the Board approved an additional contract with FG Solutions, to complete an update to the rate study. In 2015, staff directed Leidos to rework the rate structure so that the Minimum Monthly Charge more fully covers the Water Utility's fixed costs. Adjustments were also made to the conservation charge based on expected increases in the cost of water production.

**MOTION:** Approve the date of June 21, 2016 for a Public Hearing to be held in the Council Chambers at 10:00 a.m. to hear public comments relative to the proposed water rate increases; and authorize staff to send official notices of the proposed rates and notices of Public Hearing to all property owners.

MOTION:\_\_\_\_\_SECONDED:\_\_\_\_\_

10. MARCH 2016 DROUGHT MONITORING REPORT: This report continues to monitor and track the effects of the ongoing drought by monitoring groundwater levels in select wells located in the Department's service area. The Board implemented Stage IIA extreme mandatory restrictions as a result of the State Water Resources Control Board (SWRCB) emergency regulations. **(INFORMATION ONLY)**

11. REPORTS:

A. Report of the President:

B. Report of the Commissioners:

C. Report of the Directors:

D. Report of the General Manager:

12. PUBLIC COMMENTS ON ITEMS NOT ON THE AGENDA:

13. ADJOURNMENT: The meeting adjourned at \_\_\_\_\_ a.m./p.m.

**NOTE:** The next regular meeting of the Board of Water Commissioners is scheduled for *9:30 a.m., May 3, 2016* in the Margaret H. Chandler Water Reclamation Plant Conference Room, 399 Chandler Place, San Bernardino, California, 92408.

MINUTES  
BOARD OF WATER COMMISSIONERS  
OF THE CITY OF SAN BERNARDINO

REGULAR MEETING  
April 5, 2016  
Water Reclamation Plant Conference Room  
399 Chandler Place  
San Bernardino, California  
9:30 a.m.

The Regular Meeting of the Board of Water Commissioners of the City of San Bernardino was called to order by President Callicott at 9:30 a.m. on April 5, 2016 in the Water Reclamation Conference Room, 399 Chandler Place, San Bernardino, California.

ROLL CALL: Roll call was taken by the Secretary with the following being present: President Callicott; Commissioners Valles, Fernández, Hendrix, and Mlynarski; staff Aldstadt, Ohama, Claus, Guerrero, and Willoughby; Steven Graham, City Attorney’s Office; Pat Rogers, Information Technology Manager; Amy Smith, Executive Secretary; Andy Hitchings, Somach Simmons & Dunn.

Absent: Director Shepardson

Members of the Public: Jose Martinez, East Valley Water District  
William Smith, East Valley Water District

1. CLOSED SESSION: President Callicott adjourned the Regular Meeting of the Board of Water Commissioners to a Closed Session. At 9:31 a.m., the Regular Meeting of the Board of Water Commissioners was recessed and a Closed Session was called to order in accordance with the following Government Code Sections:

C. Conference with legal counsel – anticipated litigation – initiation of litigation – pursuant to subdivision (d) (4) of Government Code Section 54956.9 (one case). Upon motion by Commissioner Valles, duly seconded by Commissioner Mlynarski, it was unanimously voted to approve initiation of litigation.

ROLL CALL: Roll call was taken with the following present: President Callicott; Commissioners Valles, Fernández, Hendrix, and Mlynarski; staff Aldstadt, Ohama, Claus, Guerrero, and Willoughby; Steven Graham, City Attorney’s Office; Amy Smith, Executive Secretary; Andy Hitchings, Somach Simmons & Dunn.

Absent: Director Shepardson

ADJOURN CLOSED SESSION: At 10:35 a.m., the Closed Session of the Board of Water Commissioners adjourned to the Regular Meeting of the Board of Water Commissioners in the Water Department Board Room.

ROLL CALL: Roll call was taken by the Secretary with the following being present: President Callicott; Commissioners Valles, Fernández, and Mlynarski; staff Aldstadt, Ohama, Claus, Guerrero, and Willoughby; Steven Graham, City Attorney’s Office; Pat Rogers, Information Technology Manager; Amy Smith, Executive Secretary; Andy Hitchings, Somach Simmons & Dunn.

Absent: Commissioner Hendrix  
Director Shepardson

Members of the Public: Jose Martinez, East Valley Water District  
William Smith, East Valley Water District

Commissioner Hendrix left at 10:35 a.m.  
General Manager Aldstadt and Andy Hitchings left at 10:41 a.m.

2. ANNOUNCEMENTS BY MEMBERS OF THE BOARD OF WATER COMMISSIONERS: None

3. CONSENT CALENDAR: Upon motion by Commissioner Valles, duly seconded by Commissioner Mlynarski, it was voted to approve the following Consent Calendar, Agenda Items 3A through 3F:

A. WAIVE FULL READING OF RESOLUTIONS: Waive full reading of the resolutions on the regular or supplemental agendas of the Board of Water Commissioners.

B. PAYROLL

	<u>Water Fund</u>	<u>Sewer Fund</u>	<u>Total</u>
Claims: 268540-269017			
Accounts Payable	\$2,927,654.41	\$1,162,155.21	\$4,089,809.62
Gross Payroll: 02/22/16-03/06/2016	<u>496,023.83</u>	<u>366,855.28</u>	<u>862,879.11</u>
TOTALS	<u>\$3,423,678.24</u>	<u>\$1,529,010.49</u>	<u>\$4,952,688.73</u>

Payroll for the pay period March 7, 2016 through March 20, 2016.

C. CONTRACTS AND BILLS: Contracts and bills presented at this meeting.

D. MINUTES: March 15, 2016

E. PERSONNEL ACTIONS

1. APPOINTMENT: Denise Martinez, Office Assistant, Section 2060, Range 128, effective April 4, 2016. This position was in the budget and based on the needs and staffing for this section, the position was justifiable under the budget.
2. PROMOTION: Eduardo Huizar, Water Utility Worker I, Range 132, to the position of Water Utility Water Treatment Operator I, Range 139, ratified effective March 21, 2016. This position was in the budget and based on the needs and staffing for this section, the position was justifiable under the budget.
3. PROMOTION: Cody Ineichen, Water Reclamation Plant Mechanic II, Range 150, to the position of Water Reclamation Plant Mechanic III, Range 154, ratified effective March 21, 2016. This position was in the budget and based on the needs and staffing for this section, the position was justifiable under the budget.

4. PROMOTION: Nathan Ties, Water Reclamation Plant Mechanic I, Range 146, to the position of Water Reclamation Plant Mechanic II, Range 150, ratified effective March 21, 2016. This position was in the budget and based on the needs and staffing for this section, the position was justifiable under the budget.
5. PROMOTION: Daryl Smith, Senior Electrical/Instrumentation Technician, Range 148, to the position of Water Reclamation Plant Mechanic II, Range 150, ratified effective March 21, 2016. This position was in the budget and based on the needs and staffing for this section, the position was justifiable under the budget.
6. PROMOTION: Jesse Mobley, Water Utility Worker II, Range 138, to the position of Water Reclamation Plant Mechanic I, Range 146, effective April 4, 2016. This position was in the budget and based on the needs and staffing for this section, the position was justifiable under the budget.
7. VOLUNTARY DEMOTION: Kazi Rasheedi, Water Reclamation Process Control Supervisor, Range 259, to the position of Water Reclamation Lead Operator, Range 155, ratified effective February 8, 2016. The Water Reclamation Lead Operator was not filled and Mr. Rasheedi was placed into that vacant position.

F. RESOLUTION NO. 881: A RESOLUTION OF THE BOARD OF WATER COMMISSIONERS OF THE CITY OF SAN BERNARDINO RECOGNIZING JOANNE CHAVEZ FOR MORE THAN THIRTY-FIVE YEARS OF DEDICATED SERVICE TO THE CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT.

*END OF CONSENT CALENDAR*

4. ADDITIONS TO THE AGENDA: None.
5. APPROVAL OF PROFESSIONAL SERVICES AGREEMENT WITH RAYMOND JAMES TO PROVIDE UNDERWRITING SERVICES FOR THE PLANNED ISSUANCE OF THE 2016 WATER AND SEWER REVENUE BONDS: The City of San Bernardino Municipal Water Department (Department) requested to retain the financial services firm Raymond James to provide underwriting services for a proposed bond issuance of Water and Sewer Revenue bonds in 2016. These bonds would provide funding for critical capital projects, including the relocation of the Customer Service division from City Hall.

A Request for Proposal for underwriting services was issued on February 17, 2016. Urban Futures, the City's bankruptcy consultant, assisted Department staff in compiling and reviewing the proposals. A total of five firms responded and Raymond James was selected due to their experience and individualized approach.

The total amount of the proposal from Raymond James is \$139,614.20 per issuance, for a total of \$279,228.40, which would be divided equally between the Water and Sewer Funds. Funding was available in the Fiscal Year 2015/16 CIP Project, "Customer Service Relocation" in both Water and Sewer Funds for any minimal initial costs that may be incurred. The debt was expected to be issued in FY 2016/17 and the remainder of the costs would be funded through the debt issuance and would be included at the budget at that time.

Upon motion by Commissioner Mlynarski, duly seconded by Commissioner Valles, it was unanimously voted to approve the Professional Services Agreement with Raymond James for underwriting services. The President and Secretary were authorized to execute the agreement.

6. WRITE-OFF OF UNCOLLECTIBLE ACCOUNTS RECEIVABLE: USAA CASUALTY INSURANCE: On November 23, 2015, Finance staff invoiced USAA Casualty Insurance (USAA) in the amount of \$5,779.03 for damage to a fire hydrant that occurred in September 2015. In this case, USAA denied liability because the damage was caused by an unknown hit and run driver rather than their insured party. Staff was unable to pursue the other driver to collect because they had no contact information. Staff recommended that the invoice be written off as a loss.

Per Policy 54.020, *Write-Off of Uncollectible Accounts Receivable*, Board of Water Commissioner approval was needed for any write-off over \$1,000.00.

Upon motion by Commissioner Valles, duly seconded by Commissioner Fernández, it was unanimously voted to approve the write-off of Invoice #25448 to USAA Casualty Insurance in the amount of \$5,779.03.

7. APPROVAL OF AGREEMENT WITH NORTON ROSE FULBRIGHT US LLP TO SERVE AS BOND COUNSEL FOR PROPOSED 2016 WATER AND SEWER REVENUE BONDS: The City of San Bernardino Municipal Water Department (Department) requested to retain the services of Norton Rose Fulbright US LLP to serve as bond counsel for the proposed Water and Sewer Revenue Bonds. Victor Hsu, Partner, would serve as lead counsel for the transaction. Mr. Hsu previously served as counsel for the Department and was approved by the City as special legal counsel. A proposal was provided to charge a fixed fee of \$80,000.00 for each transaction, totaling \$160,000.00 for both Water and Sewer.

Funding was available in the Fiscal Year 2015/16 CIP Project, “Customer Service Relocation” in both Water and Sewer Funds for any minimal initial costs incurred. The debt was expected to be issued in Fiscal Year 2016/17 and the majority of the costs would be funded through the debt issuance and would be included at the budget at that time.

Upon motion by Commissioner Valles, duly seconded by Commissioner Fernández, it was unanimously voted to approve the agreement with Norton Rose Fulbright US LLP for legal representation as bond counsel. The General Manager was authorized to execute the agreement.

8. APPROVAL OF AGREEMENT WITH ORRICK, HERRINGTON & SUTCLIFFE LLP TO SERVE AS DISCLOSURE COUNSEL FOR PROPOSED 2016 WATER AND SEWER REVENUE BONDS: The City of San Bernardino Municipal Water Department (Department) requested to retain the services of Orrick, Herrington & Sutcliffe LLP (Orrick) to serve as disclosure counsel for the proposed Water and Sewer Revenue Bonds. Disclosure counsel’s role would primarily be to provide advice on the Department’s disclosure obligations and to prepare the official statement for the issuance. Orrick was currently serving as the City’s legal counsel on refinancing of the Redevelopment Agency debt and were approved as special legal counsel. A proposal was provided to charge a fixed fee of \$60,000.00 for each transaction, totaling \$120,000.00 for both Water and Sewer.

Funding was available in the Fiscal Year 2015/16 CIP Project, "Customer Service Relocation" in both Water and Sewer Funds for any minimal initial costs incurred. The debt was expected to be issued in Fiscal Year 2016/17 and the majority of the costs would be funded through the debt issuance and would be included at the budget at that time.

Upon motion by Commissioner Valles, duly seconded by Commissioner Fernández, it was unanimously voted to approve the agreement with Orrick, Herrington & Sutcliffe LLP for legal services as disclosure counsel. The General Manager was authorized to execute the agreement.

9. REPORTS:

A. Report of the President: None

B. Report of the Commissioners: None

C. Report of the Directors: Director Claus informed the Board that the Department's Environmental Impact Report is scheduled to be released on Tuesday, April 12, 2016.

D. Report of the General Manager: None

10. PUBLIC COMMENTS: This is the time specified for public comments concerning specific items not on the agenda or matters of general interest. There being none, the matter was closed.

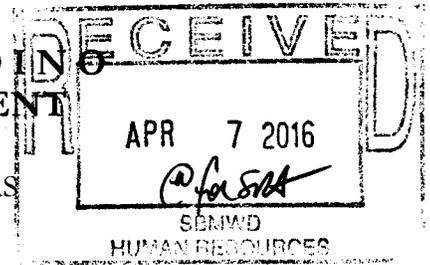
11. ADJOURN MEETING: The meeting adjourned at 10:43 a.m. to the next Regular Meeting to be held on Tuesday, April 19, 2016, at 9:30 a.m. in Margaret H. Chandler Water Reclamation Plant Conference Room, 399 Chandler Place, San Bernardino, California, 92408.

BY: \_\_\_\_\_  
TONI CALLICOTT  
President

BY: \_\_\_\_\_  
ROBIN L. OHAMA  
Deputy City Clerk & Ex-Officio Secretary

CITY OF SAN BERNARDINO  
MUNICIPAL WATER DEPARTMENT

BOARD OF WATER COMMISSIONERS  
STAFF REPORT



**TO:** Stacey R. Aldstadt, General Manager  
**FROM:** Miguel Guerrero, Director, Water Utility  
**SUBJECT:** PERSONNEL ACTION – APPOINTMENT OF JOHN ERICSON TO WATER UTILITY WORKER I (SECTION 3024)  
**DATE:** April 6, 2016  
**COPIES:** Tim Connor, Sally Duran, Human Resources

---

**BACKGROUND:**

Selection interviews were conducted on January 21, 2016 by Tim Potter, Tim Barta, and Kristina Hernandez to fill one existing vacancy in Water Utility Distribution Water Loss Management (Section 3024) for the position of Water Utility Worker I. A second Selection interview with the top candidate was conducted on March 15, 2016 by Tim Connor. The position is in the budget. I have reviewed the needs of and staffing for these sections and believe, based on those, that the position is still justifiable under the budget. The panel is recommending the appointment of John Ericson to fill the position.

**RECOMMENDATION:**

Staff recommends that the Board of Water Commissioners make the following motion:

**Approve the appointment of John Ericson to the position of Water Utility Worker I, Range 132, effective April 18, 2016.**

Respectfully submitted,

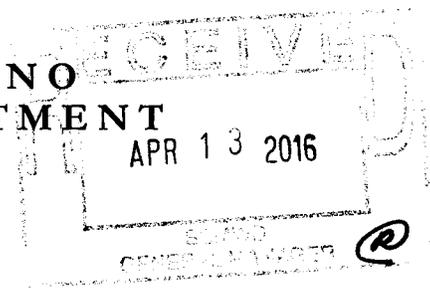
A handwritten signature in black ink, appearing to read "Miguel J. Guerrero".

Miguel J. Guerrero, P.E.  
Director, Water Utility

MJG:jgt

CITY OF SAN BERNARDINO  
MUNICIPAL WATER DEPARTMENT

BOARD OF WATER COMMISSIONERS  
STAFF REPORT



**TO:** Stacey R. Aldstadt, General Manager  
**FROM:** Robin L. Ohama, Deputy General Manager  
**SUBJECT:** NOTICE OF COMPLETION – CONTRACT NO. 1633  
PERIMETER ROAD PUMP STATION UPGRADES PROJECT (CO10701)  
**DATE:** April 11, 2016  
**CC:** M. Guerrero, G. Gage, S. Miller, M. Honis

---

---

**BACKGROUND:**

Staff has completed a final inspection of the contract work performed by Fleming Environmental, Inc, for the Perimeter Road Pump Station Upgrades Project, and recommend acceptance of the project. The project was completed on February 17, 2016.

**RECOMMENDATION:**

Staff recommends that the Board of Water Commissioners make the following motion:

- Approve the project with a Final Acceptance date of February 17, 2016, direct staff to file a Notice of Completion, and release the retention in accordance with Contract No. 1633.

Respectfully submitted,

A handwritten signature in cursive script that reads "Robin Ohama".

Robin L. Ohama  
Deputy General Manager

sdm  
Attachment

FREE RECORDING REQUESTED PURSUANT TO GOVERNMENT CODE SECTION 27383

RECORDING REQUESTED BY AND WHEN RECORDED MAIL TO:

NAME Robin L. Ohama
Deputy General Manager
STREET City of San Bernardino
ADDRESS Municipal Water Department
P. O. Box 710
CITY, STATE & ZIP CODE San Bernardino, CA 92402

SPACE ABOVE THIS LINE FOR RECORDER'S USE

Accessor's Parcel Number: N/A

NOTICE OF COMPLETION

Notice, pursuant to Civil Code Section 3093, must be filed within 10 days after completion. (See reverse side for complete requirements.)

Notice is hereby given that:

- 1. The undersigned is owner or corporate officer of the owner of the interest or estate stated below in the property hereinafter described:
2. The full name of the owner is City of San Bernardino Municipal Water Department
3. The full address of the owner is 300 North D Street, San Bernardino, California 92402
4. The nature of the interest or estate of the owner is: In fee.
In Fee

(If other than fee, strike "in fee" and insert, for example, "Purchaser under contract of purchase," or "lessee")

- 5. The full names and full addresses of all persons, if any, who hold title with the undersigned as joint tenants or as tenants in common are:

NAMES ADDRESSES
N/A N/A

- 6. The full names and full addresses of the predecessors in interest of the undersigned, if the property was transferred subsequent to the commencement of the work or improvements herein referred to:

NAMES ADDRESSES
N/A N/A

- 7. A work of improvement on the property hereinafter described was completed on February 17, 2016. The work done was:

Construction of Perimeter Booster Pump Stations Project, Specification No. 1633

- 8. The name of the contractor, if any, for such work of improvement was: Fleming Environmental, Inc.

March 12, 2015

(if no contractor for work of improvement as a whole, insert "none")

(Date of Contract)

- 9. The property on which said work of improvement was completed is in the City of San Bernardino
County of San Bernardino, State of CA, and is described as follows:

- 10. The street address of said property is N/A
(if no street address has been officially assigned, insert "none")

Dated: (Signature of owner or corporate officer of owner named in paragraph 2 or his agent)
Stacey R. Aldstadt, General Manager, City of San Bernardino Municipal Water Department

VERIFICATION

I, the undersigned, say: I am the General Manager, the declarant of the foregoing notice of completion; ("President of", "Manager of", "Partner of", "Owner of", etc.)

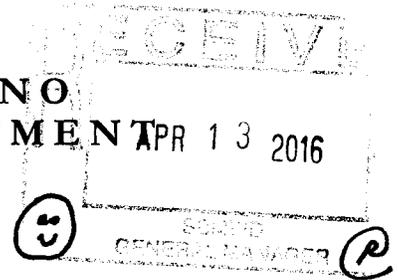
I have read said notice of completion and know the contents thereof; the same is true of my own knowledge. I declare under penalty of perjury that the foregoing is true and correct.

Executed on 2016, at San Bernardino, CA (City) (State)

(Personal signature of the individual who is swearing that the contents of the notice of completion are true)
Stacey R. Aldstadt, General Manager, City of San Bernardino Municipal Water Department

**CITY OF SAN BERNARDINO  
MUNICIPAL WATER DEPARTMENT**

**BOARD OF WATER COMMISSIONERS  
STAFF REPORT**



**TO:** Stacey R. Aldstadt, General Manager

**FROM:** Robin L. Ohama, Deputy General Manager

**SUBJECT:** NOTICE OF COMPLETION – CONTRACT NO. 1637  
CHANDLER PLACE AND “E” STREET TRAFFIC SIGNAL AND STREET  
IMPROVEMENTS PROJECT (EPN 2013-008)

**DATE:** April 11, 2016

**CC:** J. Claus, M. Guerrero, G. Gage, F. Lopez, M. Honis

---

**BACKGROUND:**

Staff has completed a final inspection of the contract work performed by Hillcrest Contracting, Inc., for THE CHANDLER PLACE AND “E” STREET TRAFFIC SIGNAL AND STREET IMPROVEMENTS PROJECT, and recommend acceptance of the project. The project was completed on February 29, 2016.

**RECOMMENDATION:**

Staff recommends that the Board of Water Commissioners make the following motion:

- Approve the project with a Final Acceptance date of February 29, 2016, direct staff to file a Notice of Completion, and release the retention in accordance with Contract No. 1637.

Respectfully submitted,

A handwritten signature in cursive script that reads "Robin Ohama".

Robin L. Ohama  
Deputy General Manager

sdm  
Attachment

FREE RECORDING REQUESTED PURSUANT  
TO GOVERNMENT CODE SECTION 27383

RECORDING REQUESTED BY  
AND WHEN RECORDED MAIL TO:

NAME Robin L. Ohama  
Deputy General Manager  
STREET City of San Bernardino  
ADDRESS Municipal Water Department  
P. O. Box 710  
CITY, STATE & ZIP CODE San Bernardino, CA 92402

SPACE ABOVE THIS LINE FOR RECORDER'S USE

Accessor's Parcel Number: N/A

### NOTICE OF COMPLETION

Notice, pursuant to Civil Code Section 3093, must be filed within 10 days after completion. (See reverse side for complete requirements.)

Notice is hereby given that:

1. The undersigned is owner or corporate officer of the owner of the interest or estate stated below in the property hereinafter described:
2. The full name of the owner is City of San Bernardino Municipal Water Department
3. The full address of the owner is 300 North D Street, San Bernardino, California 92402
4. The nature of the interest or estate of the owner is: In fee.

In Fee

(If other than fee, strike "in fee" and insert, for example, "Purchaser under contract of purchase," or "lessee")

5. The full names and full addresses of all persons, if any, who hold title with the undersigned as joint tenants or as tenants in common are:

NAMES	ADDRESSES
N/A	N/A

6. The full names and full addresses of the predecessors in interest of the undersigned, if the property was transferred subsequent to the commencement of the work or improvements herein referred to:

NAMES	ADDRESSES
N/A	N/A

7. A work of improvement on the property hereinafter described was completed on February 29, 2016. The work done was:

Chandler Place and "E" Street Traffic Signal and Street Improvements Project, Specification No. 1637

8. The name of the contractor, if any, for such work of improvement was: Hillcrest Contracting, Inc.

June 16, 2015

(if no contractor for work of improvement as a whole, insert "none")

(Date of Contract)

9. The property on which said work of improvement was completed is in the City of San Bernardino

County of San Bernardino, State of CA, and is described as follows: \_\_\_\_\_

10. The street address of said property is N/A

(if no street address has been officially assigned, insert "none")

Dated: \_\_\_\_\_

(Signature of owner or corporate officer of owner named in paragraph 2 or his agent)

Stacey R. Aldstadt, General Manager, City of San Bernardino Municipal Water Department

### VERIFICATION

I, the undersigned, say: I am the General Manager, the declarant of the foregoing notice of completion;  
("President of", "Manager of", "Partner of", "Owner of", etc.)

I have read said notice of completion and know the contents thereof, the same is true of my own knowledge. I declare under penalty of perjury that the foregoing is true and correct.

Executed on \_\_\_\_\_, 2016, at San Bernardino, CA  
(City) (State)

(Personal signature of the individual who is swearing that the contents of the notice of completion are true)

Stacey R. Aldstadt, General Manager, City of San Bernardino Municipal Water Department

CITY OF SAN BERNARDINO  
MUNICIPAL WATER DEPARTMENT

BOARD OF WATER COMMISSIONERS  
STAFF REPORT

APR - 5 2016

*Robin L. Ohama*

**TO:** Stacey R. Aldstadt, General Manager

**FROM:** Robin L. Ohama, Deputy General Manager

**SUBJECT:** EXTENSION NO. 1 TO CONTRACT NO. 1628 – ANNUAL CONTRACT FOR PAVEMENT REPAIR AND RESURFACING SERVICES – GM SAGER CONSTRUCTION CO., INC AND HARDY & HARPER, INC.

**DATE:** April 4, 2016

**COPIES:** M. Guerrero, T. Connor, M. Honis

---

**BACKGROUND:**

The Board of Water Commissioners entered into a one-year contract, Contract No. 1628, with G.M. Sager Construction Co., Inc (GM Sager) as Primary Contractor, and Hardy & Harper, Inc. (Hardy & Harper) as Secondary Contractor, for Annual Pavement Repair and Resurfacing Services. This contract had a provision for one (1) additional one (1) year extension. Both GM Sager and Hardy & Harper have provided excellent service, and have agreed to extend the contract for one year under the same terms and conditions. Extension No. 1 has been prepared which will extend the contract from June 1, 2016 to May 31, 2017 under the same terms and conditions. This is the final extension for Contract No. 1628.

**RECOMMENDATION:**

Staff recommends that the Board of Water Commissioners make the following motion:

- Approve Extension No. 1 to Contract No. 1628 with G.M. Sager Construction Co., Inc. and with Hardy & Harper, Inc., extending the contract from June 1, 2016 to May 31, 2017 under the same terms and conditions, and authorize the President and Secretary to execute the extensions.

Respectfully submitted,

*Robin L. Ohama*

Robin L. Ohama  
Deputy General Manager

Attachments

sdm

**EXTENSION NO. 1  
TO CONTRACT NO. 1628**



BY AND BETWEEN

CITY OF SAN BERNARDINO  
MUNICIPAL WATER DEPARTMENT  
300 NORTH D STREET  
SAN BERNARDINO, CA 92401

AND GM SAGER CONSTRUCTION CO. INC.  
PO BOX 7670  
LAVERNE, CA 91750

AGREEMENT TO FURNISH ALL LABOR, EQUIPMENT, MATERIALS REQUIRED FOR THE ANNUAL CONTRACT FOR PAVEMENT REPAIR AND RESURFACING SERVICES PROJECT, SAN BERNARDINO, CALIFORNIA. All terms and conditions of Contract No. 1628 dated May 5, 2015 are to remain the same, except as follows:

Extension No. 1 will extend the contract for a period of one (1) year commencing on June 1, 2016 and ending on May 31, 2017.

CITY OF SAN BERNARDINO  
BOARD OF WATER COMMISSIONERS

GM SAGER CONSTRUCTION CO.,  
INC.

By: \_\_\_\_\_  
Toni Callicott  
President

By: Michael Sager  
Name  
Title Corporate Secretary

By: \_\_\_\_\_  
Robin L. Ohama  
Secretary

(SEAL)

(SEAL)

**EXTENSION NO. 1  
TO CONTRACT NO. 1628**



BY AND BETWEEN

CITY OF SAN BERNARDINO  
MUNICIPAL WATER DEPARTMENT  
300 NORTH D STREET  
SAN BERNARDINO, CA 92401

AND

HARDY & HARPER, INC.  
1312 EAST WARNER AVE  
SANTA ANA, CA 92427

AGREEMENT TO FURNISH ALL LABOR, EQUIPMENT, MATERIALS REQUIRED FOR THE ANNUAL CONTRACT FOR PAVEMENT REPAIR AND RESURFACING SERVICES PROJECT, SAN BERNARDINO, CALIFORNIA. All terms and conditions of Contract No. 1628 dated May 5, 2015 are to remain the same, except as follows:

Extension No. 1 will extend the contract for a period of one (1) year commencing on June 1, 2016 and ending on May 31, 2017.

CITY OF SAN BERNARDINO  
BOARD OF WATER COMMISSIONERS

HARDY & HARPER., INC.

By: \_\_\_\_\_  
Toni Callicott  
President

By:   
Name Steve Kirschner  
Title Vice President

By: \_\_\_\_\_  
Robin L. Ohama  
Secretary

(SEAL)

(SEAL)

CITY OF SAN BERNARDINO  
MUNICIPAL WATER DEPARTMENT

BOARD OF WATER COMMISSIONERS  
STAFF REPORT

APR - 5 2016  
@ for SNA

**TO:** Stacey R. Aldstadt, General Manager  
**FROM:** Miguel J. Guerrero, Director of Water Utility  
**SUBJECT:** MEMORANDUM OF UNDERSTANDING REGARDING LAND DESIGNATION OF 1350 SOUTH "E" STREET AND STERLING PROPERTIES  
**DATE:** April 5, 2016  
**COPIES:** Robin Ohama (w/o attach), Greg Gage (w/o attach), Sally Duran (w/attach)

---

**BACKGROUND:**

At the February 16, 2016 joint regular meeting of the Mayor and Common Council (MCC) of the City of San Bernardino, the MCC acting as the Successor Agency to the Redevelopment Agency of San Bernardino (Successor Agency) adopted a resolution to authorize the transfer of certain real property assets from the Successor Agency to the City of San Bernardino (City). Included in this transfer was the property located in the City at 1350 South "E" Street ("E" Street Property).

Given the close proximity of the "E" Street Property to the San Bernardino Municipal Water Department's (Department) administration building and Water Reclamation Plant, located at 397 Chandler Place and 399 Chandler Place, respectively, a redesignation of City properties is proposed to designate the "E" Street Property for Department use. In exchange, a property currently designated for Department use, located east of North Sterling Avenue and north of Foothill Drive (Sterling Property), will no longer be designated for the Department.

At the March 21, 2016 joint regular meeting of the MCC, the MCC adopted a resolution to designate the "E" Street property for Department use, remove the Sterling property designation for Department use, and authorize the City Manager to execute a Memorandum of Understanding (MOU) between the MCC and the Department Board of Water Commissioners regarding the land designations.

Stacey R. Aldstadt, General Manager

Page 2

April 5, 2016

**SUBJECT: MEMORANDUM OF UNDERSTANDING REGARDING LAND  
DESIGNATIONS OF 1350 SOUTH "E" STREET AND STERLING  
PROPERTIES**

**RECOMMENDATION:**

It is recommended that the Board of Water Commissioners consider the following motion for approval:

**Approve the "E" Street Property and Sterling Property land designations and authorize the President and Secretary to execute the Memorandum of Understanding.**

Respectfully submitted,



Miguel J. Guerrero, P.E.  
Director, Water Utility

MJG:swd  
Attach.

## MEMORANDUM OF UNDERSTANDING

### REGARDING LAND DESIGNATIONS OF CERTAIN PROPERTIES

This MEMORANDUM OF UNDERSTANDING ("MOU") is made and entered into this 21<sup>st</sup> day of March, 2016, BY AND BETWEEN:

the MAYOR AND COMMON COUNCIL OF THE CITY OF SAN BERNARDINO ("COMMON COUNCIL"), acting as the highest governing body of the CITY OF SAN BERNARDINO, a charter city, with regards to general government services;

and,

the BOARD OF WATER COMMISSIONERS OF THE CITY OF SAN BERNARDINO ("WATER BOARD"), acting as the highest governing body of the SAN BERNARDINO MUNICIPAL WATER DEPARTMENT, a department of the CITY OF SAN BERNARDINO created by the CHARTER OF THE CITY OF SAN BERNARDINO (individually the COMMON COUNCIL and WATER BOARD may be referred to as a "PARTY" and collectively the COMMON COUNCIL and WATER BOARD may be referred to as the "PARTIES").

#### RECITALS:

WHEREAS, the MAYOR AND COMMON COUNCIL OF THE CITY OF SAN BERNARDINO have determined that it is in the best interests of the CITY OF SAN BERNARDINO to designate certain real property located at 1350 South "E" Street in the CITY OF SAN BERNARDINO, defined hereinafter as the "E" STREET PROPERTY and with a fair market value of ONE MILLION SEVENTY-THREE THOUSAND FIVE HUNDRED DOLLARS (\$1,073,500) as determined by independent appraisal, for the use of the SAN BERNARDINO MUNICIPAL WATER DEPARTMENT; and,

WHEREAS, the BOARD OF WATER COMMISSIONERS OF THE CITY OF SAN BERNARDINO has determined that approximately 115.20 acres of real property located East of North Sterling Avenue and North of Foothill Drive in the CITY OF SAN BERNARDINO, defined hereinafter as the STERLING PROPERTY and with a fair market value of NINE HUNDRED SEVENTY-NINE THOUSAND TWO HUNDRED (\$979,200) as determined by an independent appraisal, is no longer necessary for use by the SAN BERNARDINO MUNICIPAL WATER DEPARTMENT; and,

WHEREAS, by the CHARTER OF THE CITY OF SAN BERNARDINO, the COMMON COUNCIL is the highest governing body of the CITY OF SAN BERNARDINO with respect to general tax revenues, expenditures, assets, and liabilities, collectively accounted for in the GENERAL FUND; and,

WHEREAS, by the CHARTER OF THE CITY OF SAN BERNARDINO, the WATER BOARD is the highest governing body of the CITY OF SAN BERNARDINO with respect to water utility and sewer treatment revenues, expenditures, assets, and liabilities, collectively accounted for in the WATER FUND and SEWER FUND, respectively; and,

MEMORANDUM OF UNDERSTANDING BETWEEN THE COMMON COUNCIL AND WATER BOARD REGARDING LAND  
DESIGNATIONS OF CERTAIN PROPERTIES

WHEREAS, it has been the practice of the CITY OF SAN BERNARDINO to document transfers between the GENERAL FUND, WATER FUND, AND SEWER FUND with Memorandums of Understanding between the COMMON COUNCIL and the WATER BOARD to demonstrate compliance with Proposition 218 (Article XIII D, Section 6 of the Constitution of the State of California).

NOW, THEREFORE, the PARTIES agree as follows:

1. The recitals set forth in "RECITALS" are, by this reference, incorporated into and deemed a part of this MOU.
2. The COMMON COUNCIL shall, by resolution, designate that certain real property and improvements located at 1350 S. "E" Street, in the City of San Bernardino, County of San Bernardino, State of California, more particularly described on Attachment "1" attached hereto and incorporated herein by this reference as though set forth in full (the "'E" STREET PROPERTY") for use by the SAN BERNARDINO MUNICIPAL WATER DEPARTMENT.
3. The WATER BOARD accepts the designation of the "E" Street Property for use by the SAN BERNARDINO MUNICIPAL WATER DEPARTMENT.
4. The COMMON COUNCIL shall, by resolution, remove the designation for use by the SAN BERNARDINO MUNICIPAL WATER DEPARTMENT of that certain real property and improvements comprising approximately 115.20 acres located East of North Sterling Avenue, North of Foothill Drive, in the City of San Bernardino, County of San Bernardino, State of California, a portion of the property with assessor's parcel number 0155-361-28, more particularly described in Attachment "2" attached hereto and incorporated herein by this reference as though set forth in full (the "STERLING PROPERTY").
5. The WATER BOARD accepts the removal of the designation for use by the SAN BERNARDINO MUNICIPAL WATER DEPARTMENT of the STERLING PROPERTY.

[Signature Page Follows]

# MEMORANDUM OF UNDERSTANDING

## REGARDING LAND DESIGNATIONS OF CERTAIN PROPERTIES

By and between the City of San Bernardino and the Board of Water Commissioners of the City of San Bernardino for the land designation of certain properties.

BOARD OF WATER COMMISSIONERS OF THE  
CITY OF SAN BERNARDINO:

Date: \_\_\_\_\_

\_\_\_\_\_  
Toni Callicott, President

Date: \_\_\_\_\_

\_\_\_\_\_  
Robin L. Ohama, Secretary

MAYOR AND COMMON COUNCIL OF THE  
CITY OF SAN BERNARDINO:

Date: 3-29-16

Mark Scott  
\_\_\_\_\_  
Mark Scott, City Manager

APPROVED AS TO FORM:  
Gary D. Saenz, City Attorney

ATTEST:

By: Stena Crider  


\_\_\_\_\_  
Robin L. Ohama, Secretary

**CITY OF SAN BERNARDINO  
MUNICIPAL WATER DEPARTMENT**

BOARD OF WATER COMMISSIONERS  
STAFF REPORT

APR 11 2016

*@ for SMA*

**TO:** Stacey R. Aldstadt, General Manager

**FROM:** Miguel J. Guerrero, Water Utility Director

**SUBJECT:** WATER SUPPLY ASSESSMENT – WATERMAN AND BASELINE NEIGHBORHOOD TRANSFORMATION PLAN

**DATE:** April 8, 2016

**COPIES:** Greg Gage (w/o attach), Sydney Morrison (w/attach), Sally Duran (w/attach)

---

**BACKGROUND:**

Senate Bills 610 and 221 amended state law, effective January 1, 2002, to improve the linkage between certain land use decisions made by cities and counties, and the correlative water supply availability. Both statutes require detailed information regarding water supply availability and reliability, with respect to certain development projects, to be included in the administrative record to serve as evidentiary basis for an approval action by the city or county for such projects. SB 610 and 221 have been codified in Water Code §10910 et seq.

Water supply reliability is assessed through Water Supply Assessments (WSA) which must be furnished to local governments for inclusion in any environmental documentation for certain types of projects, pursuant to Water Code §10912(a) and subject to the California Environmental Quality Act (CEQA). The primary source document for a WSA is typically a water supplier's adopted Urban Water Management Plan (UWMP). The Department's current UWMP is a 2010 update approved by the Board of Water Commissioners in June 2011, with a subsequent approved amendment in November 2012.

On February 10, 2016, the Water Department received a letter (Appendix A of WSA) from the City's Community Development Department requesting the preparation of a WSA for the Waterman and Baseline Neighborhood Transformation Plan (Project). The project applicant, National Community Renaissance (National Core), previously submitted the proposed development to the City.

**Project Description**

The Waterman and Baseline Neighborhood Transformation Plan (Project) proposes up to 1,375,000 square feet of industrial space, up to 2,200,000 square feet of commercial space, and up to 2,400 new housing units within approximately 710 acres of land. The Project boundaries are loosely formed by Sierra Way to the west; Tippecanoe Avenue, East Twin Creek, and Warm Creek to the east; 3rd Street to the south; and Highland Avenue to the north. A conceptual site plan is included in Figure 1 of WSA.

Stacey R. Aldstadt, General Manager

Page 2

April 8, 2016

**SUBJECT: WATER SUPPLY ASSESSMENT – WATERMAN AND BASELINE  
NEIGHBORHOOD TRANSFORMATION PLAN**

### **Water Demand Projections**

According to Water Code §10910(c)(2), if the projected water demand associated with the proposed project was accounted for in the most recently adopted UWMP, the water supplier may use the demand projections from the UWMP in preparing a WSA.

The Department used ultimate build-out conditions from the City's 2005 General Plan and 2013 Updated Housing Element as the basis for water demand projections in the 2010 UWMP and the 2015 Water Facilities Master Plan. Therefore, water demands for any proposed project that is consistent with the General Plan (and more specifically the land use districts or zoning) would be included in the total water demand projections of the 2010 UWMP and the 2015 Water Facilities Master Plan.

The Project development is consistent with the City's General Plan land uses, as the total project area combines various types of residential, commercial, public facilities, and industrial land uses. As submitted by National Core in its request for a WSA, overall water demand for the project based on ultimate build-out conditions is 3.3 million gallons per day (mgd), or 2,275 gallons per minute (gpm). Existing current demand is 2.1 mgd, or 1,428 gpm. Therefore, the project is anticipated to increase water demand by approximately 1.2 mgd over existing conditions. The net daily water demand increase represents an annual demand increase of approximately 1,367 acre-feet per year (ac-ft/yr). Demand projections for the project are summarized in Appendix B of WSA. Calculations of these demands are consistent with the 2010 UWMP and the 2015 Water Facilities Master Plan.

### **RECOMMENDATION:**

Staff has developed and reviewed the Waterman and Baseline Neighborhood Transformation Plan WSA, and has concluded that the projected water demand for the project was included in the Department's latest UWMP and that sufficient water supply is available for the Project.

Water Code §10910(g)(1) requires that "the governing body of each public water system shall submit the assessment to the city or county no later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting."

Staff recommends that the Board of Water Commissioners make the following motion:

**Approve the resolution adopting the WSA for the Waterman and Baseline  
Neighborhood Transformation Plan.**

Stacey R. Aldstadt, General Manager

Page 3

April 8, 2016

**SUBJECT: WATER SUPPLY ASSESSMENT - WATERMAN AND BASELINE  
NEIGHBORHOOD TRANSFORMATION PLAN**

Respectfully submitted,



Miguel J. Guerrero, P.E.  
Director, Water Utility

MJG:TB:swd

Attach.

1 RESOLUTION NO. \_\_\_\_\_

2 A RESOLUTION OF THE BOARD OF WATER COMMISSIONERS, CITY OF SAN  
3 BERNARDINO ADOPTING THE WATER SUPPLY ASSESSMENT FOR THE WATERMAN  
4 AND BASELINE NEIGHBORHOOD TRANSFORMATION PLAN, DATED APRIL 5,  
5 2016 FOR THE CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

6 WHEREAS, the City of San Bernardino Municipal Water  
7 Department (SBMWD) is the water supplier that is responsible for  
8 preparing Water Supply Assessments (WSA) for the City of San  
9 Bernardino (City). The SBMWD Board of Water Commissioners of the  
10 approved the 2010 Urban Water Management Plan (UWMP) in June  
11 2011, and an amended version in November 2012 which is the  
12 primary source document for this WSA; and

13 WHEREAS, the Waterman and Baseline Neighborhood  
14 Transformation Plan (Project) is consistent with the City's 2005  
15 General Plan and the 2013 Housing Element land uses. The  
16 projected total water demands for the entire project were  
17 determined based on anticipated water use fixtures and landscape  
18 demands for the entire development, which was estimated to be  
19 2,275 gallons per minute or 3,670 acre-feet per year; and

20 WHEREAS, the SBMWD reserves the right to revisit the WSA if  
21 any changes occur to the Project. The Department reserves the  
22 right to review any changes. The purpose of the review is to  
23 determine if the Department has a sufficient water supply to  
24 accommodate the project changes and revise the WSA accordingly in  
25 accordance with the provisions of the Water Code §10910 et seq.

26 WHEREAS, it is concluded that the projected water demands of  
27 the Project are included in the total water demand projections of  
28 the 2010 UWMP; and

29 / / /

30 / / /

1 WHEREAS, Staff has reviewed the Project WSA prepared in-  
2 house by the SBMWD Water Utility Engineering Section and  
3 concludes that the projected water demand for the Project was  
4 included in SBMWD's 2010 UWMP and that sufficient water supply is  
5 available for the Project's water demand, in addition to other  
6 projected municipal water demands for the service area during the  
7 normal, single-dry and multiple-dry years for the next 20 years.

8 NOW, THEREFORE, BE IT RESOLVED that the Board of Water  
9 Commissioners of the City of San Bernardino hereby adopts the  
10 Water Supply Assessment for the Waterman and Baseline  
11 Neighborhood Transformation Plan dated April 5, 2016, a copy of  
12 which is attached hereto, marked Exhibit "A", and incorporated  
13 herein as though fully set forth at length.

14 I HEREBY CERTIFY that the foregoing resolution was duly  
15 adopted by the City of San Bernardino Municipal Water Department  
16 Board of Water Commissioners at a regular meeting thereof held on  
17 the 19th of April 2016 by the following vote, to-wit:

18 AYES: \_\_\_\_\_

19 NAYS: \_\_\_\_\_

20 ABSENT: \_\_\_\_\_

21  
22  
23 \_\_\_\_\_  
24 Robin L. Ohama  
25 Clerk & Ex-Officio Secretary

26 (SEAL)

# **EXHIBIT A**

1 RESOLUTION NO. \_\_\_\_\_

2 A RESOLUTION OF THE BOARD OF WATER COMMISSIONERS, CITY OF SAN  
3 BERNARDINO ADOPTING THE WATER SUPPLY ASSESSMENT FOR THE WATERMAN  
4 AND BASELINE NEIGHBORHOOD TRANSFORMATION PLAN, DATED APRIL 5,  
5 2016 FOR THE CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

6 WHEREAS, the City of San Bernardino Municipal Water  
7 Department (SBMWD) is the water supplier that is responsible for  
8 preparing Water Supply Assessments (WSA) for the City of San  
9 Bernardino (City). The SBMWD Board of Water Commissioners of the  
10 approved the 2010 Urban Water Management Plan (UWMP) in June  
11 2011, and an amended version in November 2012 which is the  
12 primary source document for this WSA; and

13 WHEREAS, the Waterman and Baseline Neighborhood  
14 Transformation Plan (Project) is consistent with the City's 2005  
15 General Plan and the 2013 Housing Element land uses. The  
16 projected total water demands for the entire project were  
17 determined based on anticipated water use fixtures and landscape  
18 demands for the entire development, which was estimated to be  
19 2,275 gallons per minute or 3,670 acre-feet per year; and

20 WHEREAS, the SBMWD reserves the right to revisit the WSA if  
21 any changes occur to the Project. The Department reserves the  
22 right to review any changes. The purpose of the review is to  
23 determine if the Department has a sufficient water supply to  
24 accommodate the project changes and revise the WSA accordingly in  
25 accordance with the provisions of the Water Code §10910 et seq.

26 WHEREAS, it is concluded that the projected water demands of  
27 the Project are included in the total water demand projections of  
28 the 2010 UWMP; and

29 / / /

30 / / /

1 WHEREAS, Staff has reviewed the Project WSA prepared in-  
2 house by the SBMWD Water Utility Engineering Section and  
3 concludes that the projected water demand for the Project was  
4 included in SBMWD's 2010 UWMP and that sufficient water supply is  
5 available for the Project's water demand, in addition to other  
6 projected municipal water demands for the service area during the  
7 normal, single-dry and multiple-dry years for the next 20 years.

8 NOW, THEREFORE, BE IT RESOLVED that the Board of Water  
9 Commissioners of the City of San Bernardino hereby adopts the  
10 Water Supply Assessment for the Waterman and Baseline  
11 Neighborhood Transformation Plan dated April 5, 2016, a copy of  
12 which is attached hereto, marked Exhibit "A", and incorporated  
13 herein as though fully set forth at length.

14 I HEREBY CERTIFY that the foregoing resolution was duly  
15 adopted by the City of San Bernardino Municipal Water Department  
16 Board of Water Commissioners at a regular meeting thereof held on  
17 the 19th of April 2016 by the following vote, to-wit:

18 AYES: \_\_\_\_\_

19 NAYS: \_\_\_\_\_

20 ABSENT: \_\_\_\_\_

21

22

23

\_\_\_\_\_  
Robin L. Ohama  
Clerk & Ex-Officio Secretary

24

(SEAL)

25

26

27

28

# **EXHIBIT A**

**San Bernardino Municipal Water Department  
Water Supply Assessment  
Water Code §10910 et seq.**

To: (Lead Agency)  
Mr. Oliver Mujica  
City of San Bernardino  
Development Services Department  
300 North "D" Street, 3rd Floor  
San Bernardino, CA 92418

(Applicant)  
Ms. Alexa Washburn  
National Community Renaissance  
9421 Haven Avenue  
Rancho Cucamonga, CA 91730

**Project Information**

Project Title: Waterman + Baseline Neighborhood Transformation Plan  
Development Type: Residential, Commercial, Industrial, & Public Facilities

**Water Supply Assessment**

On \_\_\_\_\_, the Board of Water Commissioners of the San Bernardino Municipal Water Department approved the within assessment and made the following determination regarding the above-described Project:

- The projected water demand for this Project **was** included in San Bernardino Municipal Water Department's latest adopted Urban Water Management Plan.
- The projected water demand for this Project **was not** included in San Bernardino Municipal Water Department's latest adopted Urban Water Management Plan.
- A sufficient water supply **is** available for the Project's water demand, as well as existing and other projected water demands for the service area during normal, single-dry and multiple-dry years for the next 20 years.
- A sufficient water supply **is not** available for the Project's water demand. [Plan for acquiring and developing sufficient water supply attached. Water Code § 10911 (a)]

The foregoing determination is based on the following Water Supply Assessment information.

\_\_\_\_\_  
*Robin L. Ohama*  
Deputy City Clerk & Ex-Officio Secretary

\_\_\_\_\_  
*Date*

# **Water Supply Assessment**

## **Waterman + Baseline Neighborhood Transformation Plan**

### **Background**

Senate Bills 610 and 221 amended state law, effective January 1, 2002, to improve the linkage between certain land use decisions made by cities and counties and water supply availability. Both statutes require detailed information regarding supply availability and reliability with respect to certain developments to be included in the administrative record to serve as evidentiary basis for an approval action by the city or county on such projects.

Under SB 610, water supply assessments must be furnished to local governments for inclusion in any environmental documentation for certain types of projects, as defined in Water Code § 10912[a] and subject to the California Environmental Quality Act (CEQA).

A fundamental source document for compliance with SB 610 is the Urban Water Management Plan (UWMP). If the UWMP is properly prepared, it can be used by the water supplier to meet the standards set forth in SB 610.

The City of San Bernardino Municipal Water Department (SBMWD) is the water supplier that is responsible for preparing water supply assessments for the City of San Bernardino (City). The Board of Water Commissioners of SBMWD approved the 2010 UWMP in June 2011; this document is the primary source of reference for this water supply assessment.

On February 10, 2016, a letter was received by SBMWD requesting that the Department prepare a water supply assessment pursuant to the provisions of the Water Code § 10910 et seq. for the Waterman + Baseline Neighborhood Transformation Plan (see Appendix A). The project applicant, National Community Renaissance (National Core), submitted the project for proposed development to the City's Development Services Department.

### **Project Description**

The Waterman + Baseline Neighborhood Transformation Plan (Project) proposes up to 1,375,000 square feet of industrial space, up to 2,200,000 square feet of commercial space, and up to 2,400 new housing units within approximately 710 acres of land, located near the geographic center of San Bernardino (Figure 1). The Plan area boundaries are loosely formed by Sierra Way to the west, Tippecanoe Avenue and East Twin Creek and Warm Creek to the east, 3rd Street to the south, and Highland Avenue to the north.

### **Water Demand Projections**

According to Water Code §10910(c)(2), if the projected water demand associated with the proposed project was accounted for in the most recently adopted UWMP, the water supplier may use the demand projections from the UWMP in preparing the water supply assessment.

SBMWD used ultimate build-out conditions from the City's 2005 General Plan and 2013 Updated Housing Element as the basis for water demand projections in the 2010 UWMP and the 2015 Water Facilities Master Plan. Therefore, water demands for any proposed project that is consistent with the General Plan (and more specifically the land use districts or zoning) would be included in the total water demand projections of the 2010 UWMP and the 2015 Water Facilities Master Plan.

The project development is consistent with the City's General Plan land uses, as the total project area combines various types of residential, commercial, Public Facilities, and industrial land uses. As submitted by National Core in its request for a water supply assessment, overall water demand for the project based on ultimate build-out conditions is 3.3 million gallons per day (mgd), or 2,275 gallons per minute (gpm). Existing current demand is 2.1 mgd, or 1,428 gpm. Therefore, the project is anticipated to increase water demand by approximately 1.2 mgd over existing conditions. The net daily water demand increase represents an annual demand increase of approximately 1,367 acre-feet per year (ac-ft/yr). Demand projections for the project are summarized in Appendix B. Calculations of these demands are consistent with the 2010 UWMP and the 2015 Water Facilities Master Plan.

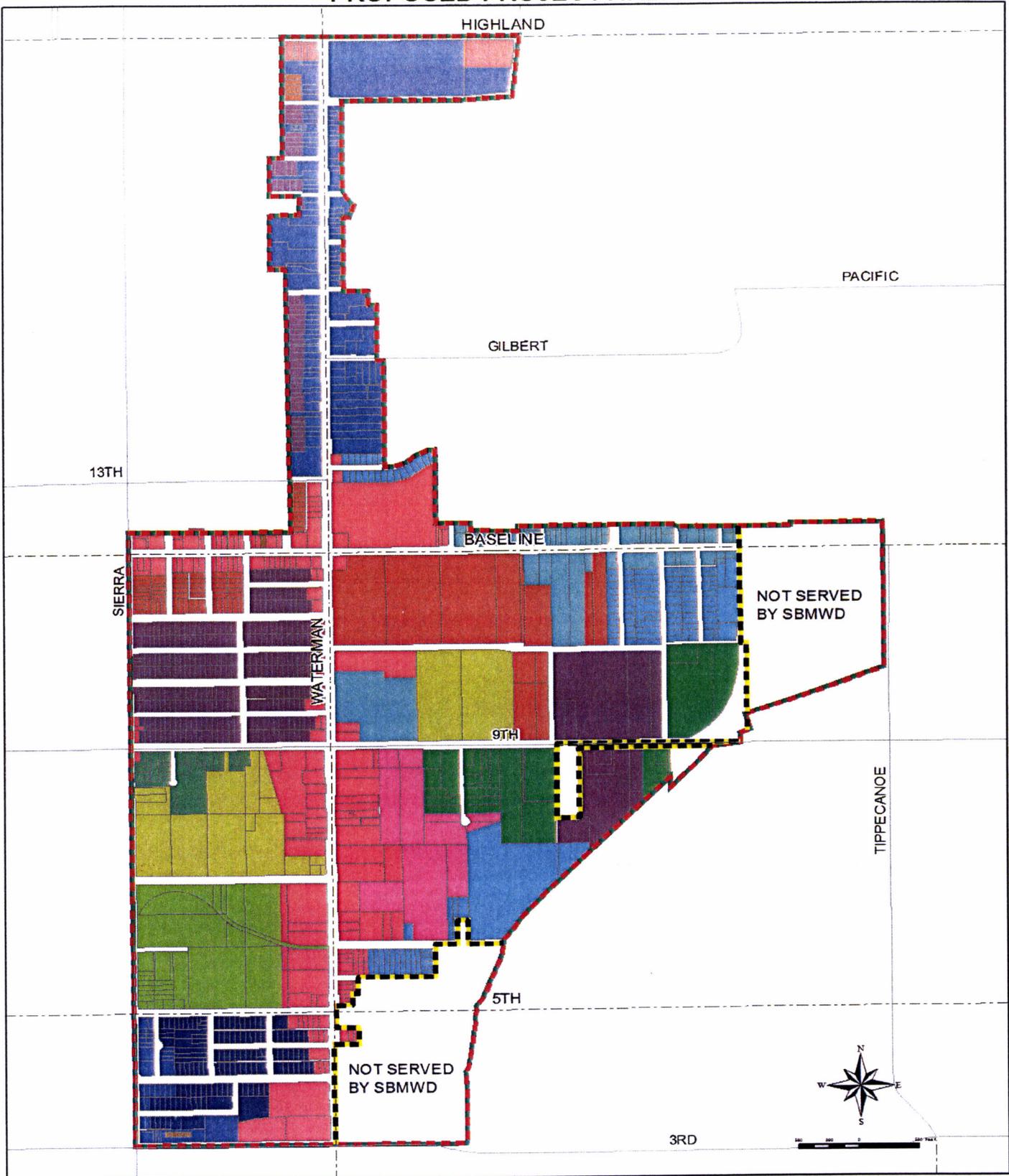
The Project area is shown in Figure 1, which also shows the land use districts for the City.

The project parcels all fall within the major land use districts in the City's 2005 General Plan referred to as:

- RS (Residential Suburban) – This land use district allows for single family residences in a high quality suburban setting at 4.5 dwelling units per acre.
- RU (Residential Urban) – This land use district allows for single and multi-family attached and detached residences including townhouses, stacked flats, courtyard homes, small lot subdivisions, and mobile home parks at 8 dwelling units per acre.
- RM (Residential Medium) – This land use district allows for multi-family dwellings including apartments and condominiums at 12 dwelling units per acre.
- RMH (Residential Medium High) – This land use district allows for multi-family dwellings including apartments and condominiums at 24 dwelling units per acre.
- RH (Residential High) – This land use district allows for multi-family dwellings including apartments and condominiums at 31 dwelling units per acre.
- CG (Commercial General) – This land use district allows for local and regional serving retail, personal service, entertainment, office, related commercial uses and limited residential uses with a conditional use permit.
- CH (Commercial Heavy) – This land use district allows for large scale, regional serving retail and service uses and limited commercial and industrial uses that are characterized by an extensive use of outdoor or indoor space for their sales, service, and/or storage.
- CO (Commercial Office) – This land use district allows for professional offices including financial, legal, insurance, medical, and other similar uses.
- PF (Public Facilities) – This land use district allows for public facilities, governmental institutions, transportation facilities, public schools (K-12), public or private colleges and universities, museums, and public libraries.

- PP (Public Parks) – This land use district allows for public parks and recreational facilities.
- IL (Industrial Light) – This land use district allows a variety of light industrial uses, including warehousing/distribution, assembly, light manufacturing, research and development, mini storage, repair facilities conducted within enclosed structures, as well as supporting retail and personal uses.
- IH (Industrial Heavy) – This land use district allows a variety intense industrial activities that could potentially generate significant impacts such as excessive noise, dust, and other nuisances such as rail yards and multi-modal transportation centers.

**FIGURE 1 - WATERMAN + BASELINE NEIGHBORHOOD TRANSFORMATION PLAN  
PROPOSED PROJECT AREA**



**Legend**

- |                       |                   |                   |                         |                             |
|-----------------------|-------------------|-------------------|-------------------------|-----------------------------|
| Commercial General -1 | Commercial Office | Public Facilities | Residential Medium      | Residential Urban           |
| Commercial General -2 | Industrial Heavy  | Public Park       | Residential Medium High | SBMWD Service Area Boundary |
| Commercial Heavy      | Industrial Light  | Residential High  | Residential Suburban    | Plan Boundary               |

## Climate Conditions

The climate of the City is considered arid west. Table 1 summarizes the climate for the City.

**Table 1**  
**Average Climate Data for SBMWD Service Area**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Standard Monthly Average ETo (inches) <sup>1</sup>	2.09	4.28	5.85	6.28	5.37	7.46	6.75	7.65	5.81	4.21	2.77	2.35	60.87
Average Rainfall (inches) <sup>2</sup>	3.5	3.7	3.28	0.93	0.41	0.09	0.04	0.22	0.41	0.71	1.2	1.94	16.43
Average Temperature (F) <sup>2</sup>	54.4	56.2	58.0	62.7	67.5	73.8	79.6	80.1	76.3	68.4	59.4	54.5	-

1. - Obtained from CIMIS Station 44 at UCR as of March 15, 2016.

2. - Weather Station San Bernardino F S 226, Station Number 047723, NOAA 1981-2015 Climate Normals.

## Population Projections within SBMWD Service Area

Table 2 presents the population projection for the SBMWD service area. A population growth rate for the area served by SBMWD was defined based on SCAG projected populations for years 2015, 2020, and 2035, as contained in the 2015 Integrated Growth Forecast. It should be noted that the service area is different than that of the City's boundary. Based on GIS data, SBMWD serves 90 percent of the City of San Bernardino and the remaining service area consists of unincorporated San Bernardino County. The population growth rate provided by SCAG was applied to existing population in the City of San Bernardino to project population through year 2040. Because SBMWD serves 90 percent of the City, it is assumed that the population served by SBMWD will be 90 percent of the City's population projection.

**Table 2**  
**Population Projections for SBMWD Service Area**

	2015	2020	2025	2030	2035	2040
Population	196,453	207,715	213,366	221,400	234,937	248,474

## Customer Accounts

Table 3 summarizes the projection of customer accounts for SBMWD. These accounts were projected based on land use categories from the City's General Plan and the historical correlation between land use and service accounts.

**Table 3**  
**Projection of SBMWD Customer Accounts**

Customer Class	Year				
	2015	2020*	2025*	2030*	2035*
Residential	38,493	42,997	44,616	46,296	48,039
Commercial/Industrial	5,007	4,672	4,848	5,030	5,220
Institutional/Governmental	12	91	95	98	102
Other	1,130	1,225	1,271	1,319	1,368
Total	44,642	48,985	50,830	52,743	54,729

\*Source: SBMWD Urban Water Management Plan, 2010.

## Projected Water Use

The Water Conservation Bill of 2009 (also referred to as SBX7-7) was enacted as part of the November 2009 Comprehensive Water Package. The Water Conservation Bill of 2009 provides the regulatory framework to support a statewide reduction in urban per capita water use. Each retail water supplier must demonstrate compliance with SBX7-7 by determining its existing baseline water consumption and then establish a future water use target in gallons per capita per day and report that information in its 2010 UWMP.

Should SBMWD's recycled water program develop prior to year 2020, SBMWD would achieve its interim and compliance water use SBX7-7 targets without any additional conservation actions. However, because the recycled water program is in the planning stages, as described later, SBMWD is still planning to undertake additional conservation actions to ensure compliance with SBX7-7.

In January 2014, the Governor of California declared a State of Emergency throughout the State due to severe drought conditions and subsequently issued Executive Orders B-26-14, B-28-14, and then B-29-15. Executive Order B-29-15 mandates that the State Water Resources Control Board (Water Board) shall impose restrictions to achieve a statewide 25 percent reduction in potable urban water usage through October 2016. These restrictions will require water suppliers throughout California to reduce usage as compared to amounts used in 2013. This regulation is intended to be temporary, and was not intended to replace SBX7-7.

Since the inception of this emergency drought regulation, the Water Board has issued some allowable adjustments to the overall conservation requirements based on climate, growth, and new water supplies. Due to this adjustment, SBMWD's current conservation standard is 26 percent. The conservation standard has been met through a comprehensive drought monitoring program that includes public awareness, education, and conservation efforts.

Table 4 summarizes the total water demand projections for SBMWD, as depicted in the 2010 UWMP. As discussed previously, water demand projections in the 2010 UWMP were based on ultimate build-out conditions presented in the City's General Plan. It should be noted that the projection totals are without conservation.

**Table 4**  
**Annual SBMWD Water Demands (Acre-Feet)**

Customer Class	Year				
	2015	2020*	2025*	2030*	2035*
Residential	21,177	36,644	38,023	39,455	40,940
Commercial/Industrial	6,111	9,124	9,468	9,824	10,194
Institutional/Governmental	810	2,437	2,529	2,624	2,723
Landscape	4,954	6,466	6,710	6,962	7,224
Other	629	629	629	629	629
Future Known Developments	625	2,083	2,083	2,083	2,083
Unaccounted/system loss	3,169	3,666	3,797	3,934	4,076
<b>Total</b>	<b>37,475</b>	<b>61,049</b>	<b>63,239</b>	<b>65,511</b>	<b>67,869</b>

\* Source: SBMWD Urban Water Management Plan, 2010.

## Existing Water Supply

SBMWD's current water supply consists solely of water extracted from the underlying underground aquifer, the Bunker Hill Groundwater Basin (BHG Basin). SBMWD produces its water supply from 54 groundwater wells located throughout its service area. The wells range from 50 to 1,300 feet in depth and have production capacities ranging from 50 to 3,500 gpm. Table 5 presents historical groundwater pumping for SBMWD.

Table 5  
SBMWD Groundwater Pumped (Acre-Feet)

	2008	2009	2010	2011	2012	2013	2014	2015
Groundwater Pumped	56,310	52,357	47,654	48,767	48,758	45,835	44,131	36,036
% of Total Water Supply	100%	100%	100%	100%	100%	100%	100%	100%

## Groundwater Management

Management of the BHG Basin is coordinated through the San Bernardino Valley Municipal Water District (Valley District or District), which was formed in 1954 to plan long-range water supply for the San Bernardino Valley including the BHG Basin. Valley District is a State Water Project (SWP) contractor that was incorporated under the Municipal Water District Act of 1911 (California Water Code Section 7100 et. seq., as amended). The District's responsibility for long-range water supply planning includes importing supplemental water and management of the groundwater basins within its boundaries. It has specific responsibilities for monitoring groundwater supplies in the San Bernardino and Colton-Rialto basins and maintaining flows at Riverside Narrows on the Santa Ana River.

The BHG Basin contains in excess of 5 million acre feet (ac-ft) of high-quality water of which approximately 1.5 million ac-ft of water is extractable. The BHG Basin is replenished naturally by local precipitation and by stream flow from rain and snow melt in the San Bernardino Mountains watershed. Water can also be artificially recharged by rerouting stream flows to recharge percolation basins and thorough SWP turnouts.

Prior to 1963, the lack of native surface water and imported water for many years led to groundwater overdraft within the District's boundaries. In more recent years, increased groundwater recharge has led to high groundwater levels in the lower (southern) portion of the BHG Basin, also known as the pressure zone, where the aquifer is confined and artesian. While groundwater levels in the pressure zone are being managed through increased pumping, they may cause artesian flow in local wells, infrastructure infiltration, and the potential for liquefaction during seismic events. Within the past 70 years, a high groundwater condition has occurred at least three (3) times in the area south and east of the intersection of Mill Street and "D" Street in the City. A high groundwater condition occurs when the groundwater elevation exceeds the ground surface elevation. SBMWD participates with other local water agencies in a dewatering program to lower the water levels in the confined pressure zone. Valley District has sold extracted high groundwater water to downstream water agencies and will likely do so again if high groundwater conditions reoccur.

Since 1970, Valley District has been calculating the change in groundwater storage within the San Bernardino Basin Area (SBBA), which includes the BGH Basin and the Lytle Creek Sub-Basin, using a specific yield model. This model calculates both the cumulative change in groundwater storage and the annual change in storage. The cumulative change in groundwater storage is a measurement of groundwater lost or gained in the SBBA compared to the base year of 1934. The year 1934 was selected by the District as the base year to correspond with the California Department of Water Resources (DWR) base period of 1934-35 through 1959-60. The cumulative change in storage since 1934 for the SBBA is approximately negative 650,000 acre-feet (ac-ft) as illustrated in Figure 2. This figure indicates a new historic low for the basin, as of the year 2014. However, conditions have been similar in the past, nearing negative 600,000 ac-ft in the mid-1960s. The decrease in cumulative change in storage since 1998 has resulted from an increased reliance on groundwater production combined with below average precipitation. Drier winter months have led to a heavier reliance on pumping during the winter than in the past. Values for the cumulative change in storage through 2015 were not available at the time of this report.

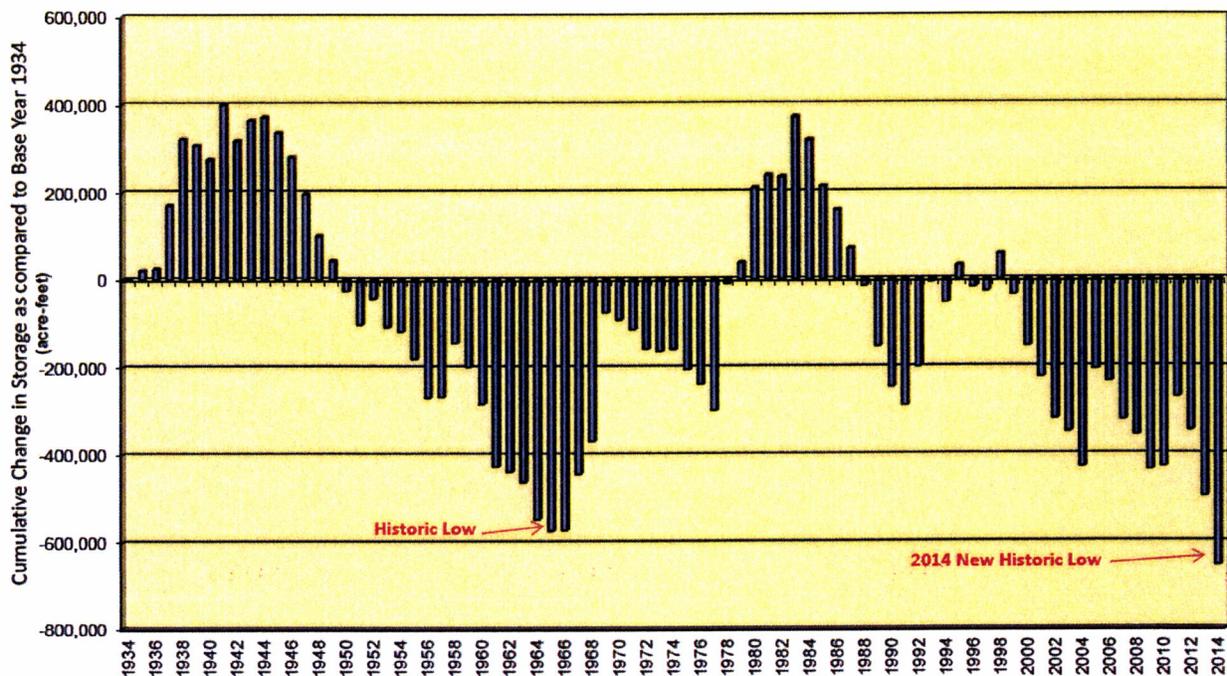
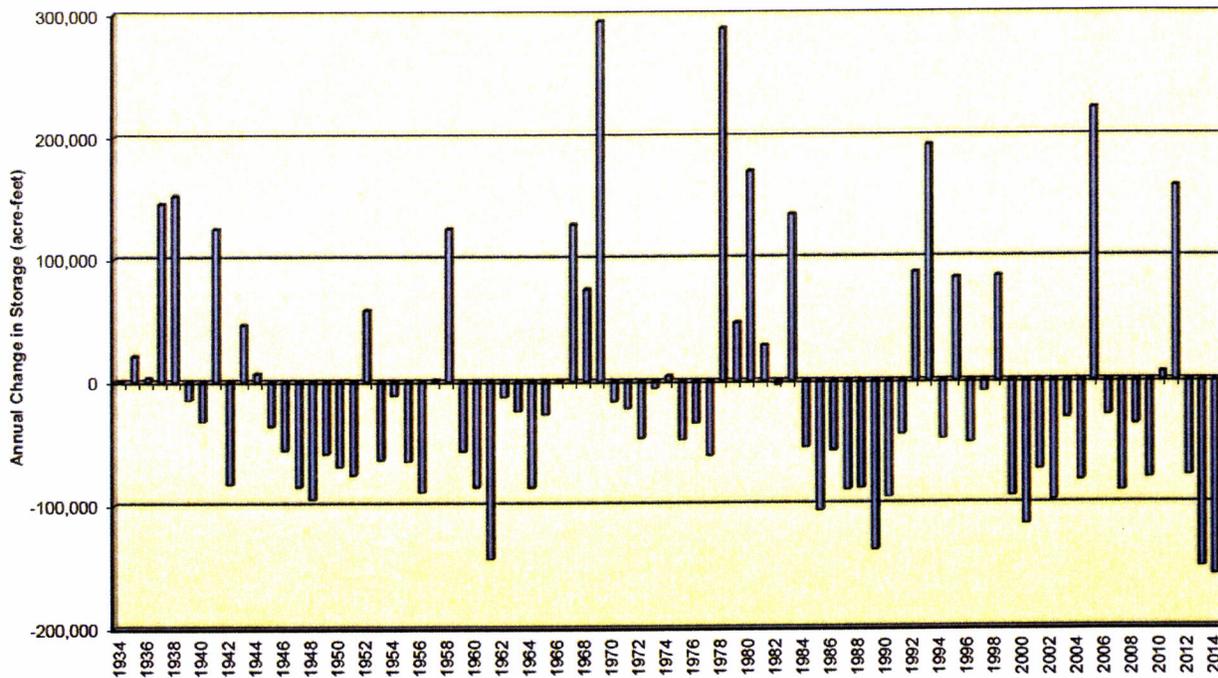


Figure 2  
Cumulative Change in Storage for the San Bernardino Basin Area

The annual change in storage is the change in storage from the prior year. In 2014, despite conservation efforts across the SBBA, the amount of storage in the basin declined by approximately 10,000 ac-ft as illustrated in Figure 3. The decrease in annual storage can be mainly attributed to the ongoing severe drought condition and the resulting reduction in precipitation and natural recharge.



**Figure 3**  
**Annual Change in Storage for the San Bernardino Basin Area**

In 2014, the verified extractions for the SBBA by other than plaintiff’s agencies within the District’s jurisdiction were 152,260 ac-ft. This is less than the adjusted annual right of 167,238 ac-ft by 14,978 ac-ft, and will be added to Valley District’s accumulated credits. The accumulated credits result from extractions that are less than Valley District’s adjusted right, during previous years. The accumulated credits can then be applied during years when the verified extractions exceed the adjusted annual right of 167,238 ac-ft.

Water quality extracted from the BHG Basin by SBMWD is of excellent mineral quality with total dissolved solids (TDS) averaging less than 350 milligrams per liter (mg/L).

### Groundwater Judgments

Groundwater management issues (mainly export) in the BHG Basin are primarily governed by the judgment in *Western Municipal Water District et al. v. East San Bernardino County Water District et al.*, entered on April 17, 1969 (Western Judgment). Other adjudications affecting the management of this basin include *City of San Bernardino v. City of Riverside*, County of San Bernardino Case No. 13754; *Orange County Water District v. City of Chino*, County of Orange Case No. 117628 (the Orange County Judgment); and a Consent Decree (Decree) entered in *City of San Bernardino v. United States of America*, United States District Court Central District, CV 96-8867 and CV 96-5205 (consolidated) among the US Environmental Protection Agency, the US Department of the Army, the City of San Bernardino, and the California Department of Toxic Substances Control. An Integrated Regional Water Management Plan of the Upper Santa Ana River Watershed was first adopted in 2008. In January 2015, an updated and more comprehensive IRWMP was approved. An Integrated Regional Water Management Plan of the entire Santa Ana River Watershed, the “One Water One

Watershed" (OWOW) Plan, was originally adopted in December 2010. The updated plan, OWOW 2.0 Plan, was adopted in February 2014.

Under the Western Judgment, the District has the responsibility to ensure that adequate quantities of water are available for extractions in the SBBA above the basin safe yield of 232,100 ac-ft/yr. As defined, this includes both the BHG Basin and the Lytle Creek Sub-Basin. Within Valley District's boundaries, the adjusted right is 167,238 ac-ft/yr, with the remainder of the water rights assigned to plaintiff agencies outside of its service area. If water agencies within Valley District's service area exceed the allotted groundwater production, the District is required to augment the supply sources by spreading imported water from the SWP and/or obtaining water from other sources. Under the Western Judgment, the production rights of individual agencies within the District's service area are not allocated. The Western Judgment also sets the maximum amount of water that can be exported from the Basin. A copy of the Western Judgment can be found in the 2010 RUWMP.

The City of San Bernardino v. the City of Riverside Judgment (1922) and subsequent amendments set the maximum amount of water that can be pumped by both cities from the Antil region and, to some extent, limits the geographic areas in which both parties may pump.

The 1969 Orange County Judgment was a physical solution adopted by the court to resolve claims of inter-basin allocation of obligations and rights in the Santa Ana Watershed. Essentially, the Lower Area (below Prado Dam) is ensured annual delivery of a base flow at Prado Dam of 42,000 ac-ft plus all storm flow reaching Prado Dam. Valley District, Chino Basin Municipal Water District (now Inland Empire Utilities Agency), and Western Municipal Water District guarantee that those flows are met, with Valley District being responsible for delivery of approximately 16,000 ac-ft/yr to the Riverside Narrows. SBMWD, through an agreement with Valley District, is obligated to discharge the 16,000 ac-ft/yr from its wastewater tertiary treatment facility (RIX facility).

The Consent Decree (Decree) among the US Environmental Protection Agency, the US Department of the Army, the City of San Bernardino, and the California Department of Toxic Substances Control settled a lawsuit filed by the City of San Bernardino against Federal defendants. The Decree requires the City of San Bernardino to develop a groundwater management plan for a management zone that is a subset of City limits to ensure the integrity and effectiveness of the interim remedial action implemented in the Newmark Groundwater Contamination Superfund Site. The groundwater management plan must regulate the amount of new pumping in the management zone, as well as spreading activities. As a result, the City of San Bernardino has developed a groundwater management program that regulates new wells within the management area and spreading, such that these activities would not adversely affect the Newmark remedy. In 2008, the Upper Santa Ana Water Resources Association adopted an Integrated Regional Water Management Plan to address major water management issues for the communities of the Upper Santa Ana River Watershed. Valley District, as the regional wholesale water agency, led the planning effort and received a grant from DWR to prepare the plan. The main benefit of the plan was the development of a process for managing the local and imported water sources in the SBBA. A secondary benefit is to identify regional projects and to receive grant funding for these projects. The plan was carefully developed through the participation of water managers and

stakeholders and has two main management objectives: the first is to improve water reliability during drought periods and reduce liquefaction, and the second is to protect water quality and maximize conjunctive use opportunities. The IRWMP serves as the guide for long-term water resources planning in the Upper Santa Ana River Watershed.

The IRWMP for the entire Santa Ana Watershed is known as the OWOW Plan. The plan attempts to encompass all sub-regions, political jurisdictions, water agencies, and non-governmental stakeholders (including private sector, environmental groups, and the public at large) in the watershed. The OWOW Plan also views all types of water (imported, local surface and groundwater, stormwater, and wastewater effluent) as components of a single water resource which is linked to the land use and habitat, and tries to limit impacts to natural hydrology while striving towards sustainability.

The OWOW 1.0 Plan, adopted in December 2010, was developed by a diverse group of stakeholders led by a Steering Committee composed of public officials from counties and cities in the watershed, representatives from the environmental, regulatory and business communities, and representatives from the Santa Ana Watershed Authority (SAWPA). The Steering Committee was supported by technical experts grouped into ten disciplines (known as Pillars), ranging from water supply and quality, to climate change, and environmental justice.

The OWOW 2.0 Plan, adopted in February 2014, reflects a collaborative planning process that addresses all aspects of water resources within the watershed. The plan represents collaboration across jurisdictions, political boundaries involving multiple agencies, stakeholders, individuals, and groups working in unison to address the issues and differing perspectives of all the entities involved through mutually-beneficial solutions. The plan includes planning of future water demands and supplies over a 20-year time horizon within the watershed as a hydrologic and interconnected system. The plan reflects new and innovative approaches to meet growing demands in the region by leading with a water demand reduction strategy, rather than relying solely on imported water deliveries.

### Recycled Water

Wastewater in the region is coordinated with several neighboring communities, with SBMWD treating wastewater from the City of San Bernardino, City of Loma Linda, East Valley Water District, and portions of unincorporated San Bernardino County. Wastewater is collected and treated at the San Bernardino Water Reclamation Plant using secondary treatment. After secondary treatment, non-disinfected effluent from the plant is sent to the Rapid Infiltration Extraction Tertiary Treatment Facility (RIX) for tertiary treatment. RIX is jointly owned by SBMWD and the City of Colton. Currently, all RIX effluent, which meets California Title 22 standards, is discharged into the Santa Ana River. SBMWD is not using any of the RIX effluent for landscape irrigation in its service area because of the location of the RIX facility and cost of distribution. However, it should be noted that the use of recycled water is an integral component in the overall management of the BHG Basin through the implementation of the IRWMP.

Although a recycled water program has not yet been implemented, SBMWD is actively undertaking design and environmental studies for the Clean Water Factory, a project that will treat effluent from the San Bernardino Water Reclamation Plant to a quality

approved for recharge by the California State Water Resources Control Board (Water Board) and the Santa Ana Regional Water Quality Control Board (RWQCB).

The Clean Water Factory will convey recycled water to the northern portion of the SBMWD service area for recharge at the Waterman Basins and the East Twin Creek Spreading Grounds. Recycled water spread at these locations will artificially recharge the BHG Basin, increasing sustainability within the Upper Santa Ana River Watershed.

## Planned Water Supply

Both the SBMWD and Valley District are planning to develop a number of water supply projects in order to meet the region's growing water demands. These include new wells, recycled water, and groundwater recharge.

### SBMWD's Planned Supplies

The 2015 Water Master Plan documents projected water demands within the existing service area and identifies supply sources to meet them. The Water Master Plan develops a long-range water supply plan and capital improvement plan to reliably meet the needs of SBMWD's service area to build out conditions.

Table 6 summarizes the planned water supplies for SBMWD through 2030. SBMWD will continue to rely on the BHG Basin to fulfill the majority of its future supply needs. SBMWD will continue to evaluate recycled water opportunities, based on potential demands and cost.

Table 6  
Planned Water Supply (Acre-Feet)

Water Supply Sources	2015	2020	2025	2030	2035
Groundwater	50,233	52,671*	54,730*	56,866*	59,082*
Recycled Water	0	5,600	5,600	5,600	5,600
Total	50,233	58,271	60,330	62,466	64,682

\*Source: IRWMP, 2015

### SBVMWD Water Supplies

In the Mid 1990s, Valley District completed a Regional Water Facilities Master Plan (Master Plan) for the BHG Basin that identified a number of transmission facilities to move groundwater from the pressure zone to various locations in the valley. The recently completed IRWMP builds on the previous study and includes an analysis of local water retailers' current and projected build-out water demands. The study identified over 100 local and regional capital projects to conjunctively manage water resources in the San Bernardino Basin. Projects identified include new surface water treatment facilities, groundwater storage and extraction facilities, water conservation, flood control utilization, and water conveyance facilities, including regional and local transmission facilities, pump station, and reservoir facilities. Some of the main projects that will increase the long-term reliability of water resources in the area include:

- Enhanced Groundwater Recharge Project. The objective of this project is to construct more basins along the Santa Ana River to maximize capture of this water before it is naturally conveyed downstream. The City Creek Turnout is the

first phase of this project that has been planned, designed, and currently waiting for approval before construction can begin. Once constructed it is estimated that this project will spread approximately 8,688 ac-ft/yr of State Water Project (SWP) water.

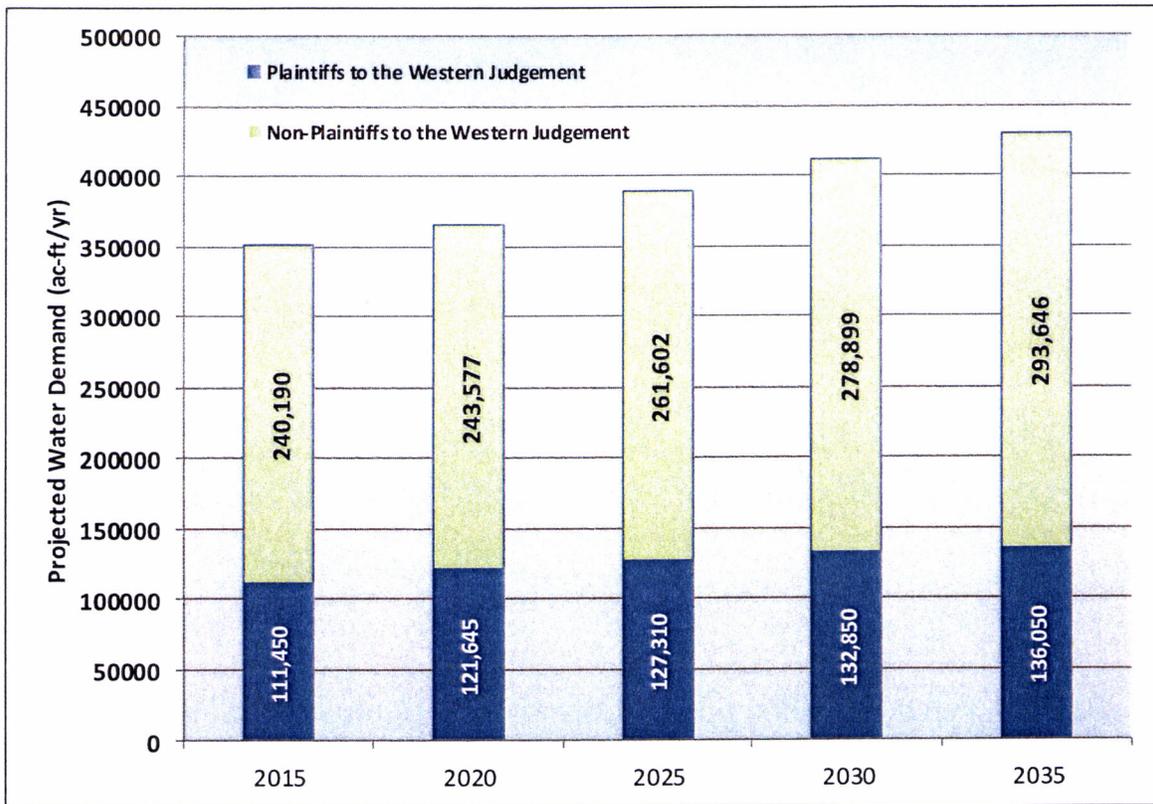
- **Central Feeder Pipeline.** This project consists of the construction of approximately 56,000 ft. of pipeline ranging in size from 54 to 78 inches. The project will tie the existing Baseline Feeder south extension to the proposed Citrus reservoir in the Mentone area. This pipeline will be used to convey water from the pressure zone to the east end of the valley. Phase 1 is complete and Phase II has not yet begun.
- **Recycled Water Use.** The construction of a number of wastewater treatment plants are being considered to have the recycled water source closer to its end use.

## **Reliability of Water Supply**

The reliability of the SBMWD water supply is dependent on two factors: the adequacy of system capacity (wells, pipelines, pump stations, etc.) and the availability of water supply from the BHG Basin, where groundwater is produced. Water supply assessments must demonstrate supply reliability under normal, single-dry year, and multiple-dry year weather scenarios. The availability of water supply from the BHG Basin is highly dependent of the regional management of water sources in the area by Valley District.

Under the Western Judgment, the SBMWD can extract as much water as needed from the BHG Basin to meet its current and projected demands, as Valley District has the responsibility to ensure that adequate quantities of water are available for extractions above the SBBA basin safe yield of 232,100 ac-ft/yr. Therefore, the reliability of supply sources to the SBMWD is highly dependent on the reliability of imported water sources and Valley District's ability to meet its obligation under the Western Judgment.

The Western Judgment fixes the maximum amount of groundwater that can be exported from the SBBA by the plaintiffs at 64,862 ac-ft/yr. Within Valley District's boundaries, the adjusted right is 167,238 ac-ft/yr; the amount that the non-plaintiff agencies can extract from the SBBA (BHG Basin and the Lytle Creek Sub-Basin) before Valley District has to obtain additional water sources to maintain the long-term safe yield of the basin. Figure 5 illustrates projected water demands from the San Bernardino Valley area by both plaintiffs and non-plaintiffs. This figure illustrates water demands by non-plaintiffs increasing from 240,200 ac-ft/yr in 2015 to an estimated 293,700 ac-ft/yr by the year 2035.



(Source: IRWMP, 2015 Table 3-2)

Figure 5  
Projected Water Demand in the San Bernardino Valley Area

### Valley District's Local Water Supply Sources

The IRWMP identifies three (3) main sources of local water available to Valley District: groundwater, surface supply, and new/reclaimed supply. Below is a list, brief summary of local water supply sources available to meet projected water demands through 2035.

- SBBA Surface Water refers to surface water from local mountain streams available for potable use. Surface water is currently used by the East Valley Water District, West Valley Water District, and the City of Redlands.
- Seven Oaks Supply refers to additional surface water that could be available from the Seven Oaks Dam to spread in the basin for groundwater recharge. Supplies from this project depend on conditions placed on the applications by the State Water Resources Control Board.
- SBBA Groundwater refers to groundwater pumped from the BHG Basin and Lytle Creek Sub-Basin.
- SBBA Return Flows refers to return flows from extractions above the safe yield of the SBBA and from direct deliveries of imported water. The Annual Report of the Western San Bernardino Watermaster for calendar year 2015 estimates a 36 percent return flow from these sources to recharge the groundwater basin.
- Rialto-Colton, Riverside North, and Yucaipa basins include extractions from these basins to be used within Valley District's service area.

- Other Groundwater refers to groundwater extractions from an area between the Chino Basin and Lytle Creek Sub-Basin commonly referred to as “No Man’s Land”.
- Recycled Water includes direct delivery of recycled water for irrigation and/or industrial use and for groundwater recharge.

The reliability of local supply sources on a long-term basis is considered very high in the SBBA because of the relatively large amount of storage in this basin that allows local water purveyors to meet their demand obligations during extended droughts. Therefore, it is assumed that the total local supplies will be available during average, single dry-year, and multiple dry-year scenarios.

#### Valley District’s Imported Water Supply

The amount of SWP water delivered to State Water Contractors in a given year depends on a number of factors, including the demand for the supply, amount of rainfall, snowpack, runoff, water in storage, pumping capacity from the Delta, and legal/regulatory constraints on SWP operation. Water delivery reliability depends on three general factors: the availability of water, the ability to convey water to the desired point of delivery, and the magnitude of demand for the water. Urban SWP contractors’ requests for SWP water, which were low in the early years of the SWP, have been steadily increasing over time.

Since the 2010 RUWMP was prepared in 2011, the DWR has updated its State Water Project Final Delivery Capability Report. The biennial Report assists SWP contractors in assessing the reliability of the SWP component of their overall supplies. The 2015 SWP Capability Report updates DWR’s estimate of the current (2015) water delivery capability of the SWP. The updated analysis shows that the primary component of the annual SWP deliveries (referred to as Table A deliveries) will be essentially the same under current and future conditions, when compared to the preceding report (State Water Project Delivery Reliability Report 2013). The report discusses factors having the potential to affect SWP delivery reliability:

- Water availability at the source.
- Regulatory restrictions on SWP and Central Valley Project (CVP) operations due to State regulation and federal biological opinions to protect endangered fish such as Delta smelt and spring-run salmon;
- Water rights with priority over the SWP.
- Climate change and sea level rise, which is altering the hydrologic conditions in the State;
- The vulnerability of Delta levees to failure due to floods and earthquakes.

“Water delivery reliability” is defined as the annual amount of water that can be expected to be delivered with a certain frequency. SWP delivery reliability is calculated using computer simulations based on 82 years of historical data.

The 2015 SWP Capability Report recognizes continuing challenges to the ability of the SWP to deliver full contractual allotments of SWP water. For current conditions, the

noted factors that have the most significant impact on these reductions are both the inherently variable availability of water at the source, and the restrictive operational requirements contained in the federal biological opinions. Deliveries estimated for the 2015 Report expressly account for the operational restrictions of the biological opinions issued by the U.S. Fish and Wildlife Service in December 2008 and the National Marine Fisheries Service in June 2009 governing the SWP and Central Valley Project operations.

For future conditions, the 2015 SWP Capability Report conservatively assumes that the restrictions imposed by the biological opinions will still be in place, and includes the potential effects of climate change to estimate future deliveries. The changes in run-off patterns and amounts are included along with the noted rise in sea level. Sea level rise has the potential to require more water to be released to repel salinity from entering the Delta in order to meet the water quality objectives established for the Delta.

These updated analyses in the 2015 SWP Capability Report indicate that the SWP, using existing facilities operated under current regulatory and operational constraints and future anticipated conditions, and with all contractors requesting delivery of their full Table A amounts in most years, could deliver 45 percent of Table A amounts on a long-term average basis.

An ongoing planning effort to increase long-term supply reliability for both the SWP and CVP is taking place through the Bay Delta Conservation Plan (BDCP) and the Delta Plan. The co-equal goals of the BDCP are to improve water supply and restore habitat in the Delta. The BDCP is being prepared through a collaboration of state, federal, and local water agencies, state and federal fish agencies, environmental organizations, and other interested parties. Several "isolated conveyance system" alternatives are being considered in the BDCP which would divert water from North of the Delta and convey it "around" the Delta to a point where water is pumped for the SWP and CVP. The new conveyance facilities would allow for greater flexibility in balancing the needs of the estuary with reliable water supplies. In December 2010, DWR released a "Highlights of the BDCP" document which summarizes the activities and expected outcomes of the BDCP. The results of preliminary analysis included in the document indicate the proposed conveyance facilities may increase the combined average long-term water supply to the SWP and CVP from 3.5 million ac-ft/yr to 5.9 million ac-ft/yr. This would represent an increase in reliability for State Water Project contractors from 45 percent (Table A current amount) to 75 percent. The draft BDCP and its associated EIR/S were released for public review in late 2013, and public comments were received in mid-2014. The reports are targeted to be final in 2016. Then, a decision to proceed with the program will be made.

The final Delta Plan was adopted by the Delta Stewardship Council on May 16, 2013. The Delta Plan contains a set of 14 regulatory policies that will be enforced by the Delta Stewardship Council's appellate authority and oversight. These 14 regulations to be implemented into the Delta Plan were approved by the State Office of Administrative Law (OAL) on September 1, 2013, and became legally enforceable regulations. 73 non-regulatory recommendations are also included in the Delta Plan which were deemed essential to achieving the coequal goals.

The Delta Stewardship Council also initiated the Delta Levees Investment Strategy (DLIS) in 2014 with a goal to combine economics, engineering, and decision-making techniques in order to identify funding priorities, and assemble a comprehensive investment strategy for the Delta Levees.

In addition to the overall long-term average presented in the 2015 SWP Capability Report, it also includes Delivery Reliability Reports (DRRs) for each of the individual SWP contractors based upon the unique conditions that impact each contractor. The DRR for Valley District indicated average reliability would be 45 percent in 2015 and will continue through 2035. Table 8 provides the projected SWP water available to Valley District over the next 25 years, based on the Valley District's maximum Table A amounts from 2010 to 2035 and the supply reliability analyses provided in the 2015 SWP Report and associated DRR.

Table 8 summarizes estimated SWP supply availability to Valley District in a single-dry year (based on a repeat of the worst-case historic hydrologic conditions of 1977) and over a multiple-dry year period (based on a repeat of the worst-case historic four-year drought of 1931 to 1934). During a dry or critical year as defined by the Sacramento River Index, the SWP will be able to supply an average of 11,286 ac-ft (year 2015) to Valley District. During a multiple dry year period (1931 to 1934), Valley District's SWP supply is estimated to be about 33,858 ac-ft/yr (year 2015).

The values shown in Tables 8 address the DWR estimates at the 2015 level for the current conditions. It is the best information and best estimates available to use in developing water management plans and this assessment.

**Table 8**  
**Wholesale Supply Reliability:**  
**Single-Dry Year and Multiple-Dry Year Conditions<sup>(a)</sup>**

<u>Wholesaler</u>	<u>Single-Dry Year<sup>(b)</sup></u>	<u>Multiple-Dry Year<sup>(c)</sup></u>
<u>California State Water Project (SWP)</u>		
2015		
% of Table A Amount Available	11%	33%
Anticipated Deliveries (Acre-Feet)	11,286	33,858

**Notes:**

- (a) The percentages of Table A amount projected to be available are taken from Delivery Reliability Reports prepared for Valley District by DWR as part of the "The State Water Project Delivery Capability Report 2015" (July 2015). Supplies are calculated by multiplying Valley District's Table A amount (102,600 ac-ft/yr) by these percentages.
- (b) Based on the worst case historic single dry year of 1977.
- (c) Supplies shown are annual averages over four consecutive dry years, based on the worst case historic four-year dry period of 1931-1934.

While the primary supply of water available from the SWP is allocated Table A supply, SWP supplies in addition to Table A water are periodically available, including "Article 56C" carryover water, "Article 21" water, "Turnback Pool" water, and DWR "Dry Year Purchase Programs". Pursuant to the long-term water supply contracts, SWP

contractors have the opportunity to carry over a portion of their allocated water approved for delivery in the current year for delivery during the next year. Valley District has exercised this option in the past. Contractors can also "carryover" water under Article 56C of the SWP long-term water supply contract with advance notice when they submit their initial request for Table A water, or within the last three (3) months of the delivery year. The carryover program was designed to encourage the most efficient and beneficial use of water and to avoid obligating the contractors to "use or lose" the water by December 31 of each year. The water supply contracts state the criteria of carrying over Table A water from one year to the next. Normally carryover water, which is water that has been exported during the year, has not been delivered to the contractor during that year, and has remained stored in the SWP share of San Luis Reservoir to be delivered during the following year. Storage for carryover water no longer becomes available to the contractors if it interferes with storage of SWP water for project needs (DWR 2010).

Article 21 water (which refers to the SWP contract provision defining this supply) is water that may be made available by DWR when excess flows are available in the Delta (i.e. when Delta outflow requirements have been met, SWP storage south of the Delta is full, and conveyance capacity is available beyond that being used for SWP operations and delivery of allocated and scheduled Table A supplies). Article 21 water is made available on an unscheduled and interruptible basis and is typically available only in average to wet years, generally only for a limited time in the late winter. Since 1999, Valley District has taken 256 ac-ft of Article 21 water.

The Turnback Pool is a program available to State Water Contractors who signed the "Monterey Amendment". The program helps facilitate the sale of excess Table A supplies and establishes a sale price for the water. Valley District did not sign the Monterey Amendment; however, Valley District is able to sell any excess water to other SWP contractors. Currently, Valley District has an agreement with the Metropolitan Water District of Southern California (MWDSC) which gives MWDSC "first right of refusal" to purchase Table A supplies deemed "excess" to Valley District's needs.

As urban contractor demands increase in the future, the amount of water turned back and available for purchase will likely diminish. In critical dry years, DWR has formed Dry Year Water Purchase Programs for contractors needing additional supplies. Through these programs, water is purchased by DWR from willing sellers in areas that have available supplies and is then sold by DWR to contractors willing to purchase those supplies.

Because the availability of these supplies is somewhat uncertain, they are not included as supplies to Valley District in this Plan. However, Valley District's access to these supplies when they are available may enable it to improve the reliability of its SWP supplies beyond the values used throughout this report.

## Impacts of Waterman + Baseline Neighborhood Transformation Plan Demands

As discussed, incremental water demands from the Project are estimated at 1,367 ac-ft/yr.; this amount represents an estimated 0.5 percent increase in the total water demand in Valley District's service area. The additional demand would result in an average deficit that can be easily addressed through water conservation, groundwater recharge, and/or future recycled water direct use.

### **Conclusion**

Based on the supply reliability of Valley District and SBMWD supply sources, as presented in this water supply assessment, it is concluded that SBMWD has sufficient water supplies to meet the water demands of the Project, along with the other projected municipal water demands.

However, it should be noted the SBMWD reserves the right to revisit and review the Water Supply Assessment if any changes occur to the project. The purpose of the review would be to determine if SBMWD has a sufficient water supply to accommodate the project changes and revise the Water Supply Assessment accordingly in accordance with the provisions of the Water Code §10910 et seq.

**This review is only an assessment of the water supply availability and does not address the water infrastructure needs.**

## **Primary Source Documents**

SBMWD Urban Water Management Plan, 2010

SBMWD Water Master Plan, 2015 Final Report

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

City of San Bernardino General Plan (November 2005)

2013-2021 Housing Element, City of San Bernardino (February 2014)

Upper Santa Ana River Watershed Integrated Regional Water Management Plan, January 2015, San Bernardino Valley Municipal Water District

The State Water Project Delivery Capability Report – 2015, July 2015

Santa Ana Watershed Integrated Regional Water Management Plan (IRWMP), also known as “One Water One Watershed” (OWOW) Plan, November 2010 & OWOW 2.0 Plan February, 2014

**Appendix A**

**Letter Requesting Water Supply Assessment**

**CITY OF SAN BERNARDINO**  
**Community Development Department – Planning Division**  
**Interoffice Memorandum**

TO: Stacey Aldstadt, General Manager, Water Department

FROM: Oliver Mujica, Planning Division Manager

SUBJECT: Water Supply Assessment for Waterman + Baseline Project

DATE: February 10, 2016

---

National Core has proposed the Waterman + Baseline Neighborhood Transformation Specific Plan that proposes a maximum build out of up to 4,341 residential units, 3,570,448 square feet of non-residential uses, and associated transportation/mobility and infrastructure improvements. The proposed project area includes approximately 710 acres located near the center of San Bernardino around the intersection on Waterman Avenue and Baseline Avenue. Specifically, the proposed project boundaries are formed by Sierra Way to the west, Tippecanoe Avenue and the flood control channel on the east, 3<sup>rd</sup> Street to the south, and Highland Avenue to the north. The western boundary is approximately 1.1 miles away from the Interstate 215 freeway and the northern boundary is approximately 0.6 miles from Foothill and Martin Avenue. The project will require a General Plan Amendment to change the land use designation of the properties within the project area to Specific Plan. An Environmental Impact Report is being prepared.

This project exceeds the threshold of 650,000 sq. ft. to be defined as a “project” pursuant to section 10912(5) of the Water Code. Therefore, a Water Supply Assessment (WSA) is required pursuant to Public Resources Code section 21151.9 and Water Code section 10910, et seq. National Core would appreciate the expedited preparation of the WSA, and has submitted project information and water demand estimates transmitted via a previous e-mail.

National Core will be responsible for the costs associated with the WSA. Please contact me with cost information and I will process a transfer of funds on deposit for this project, or will arrange for direct payment by National Core.

**Appendix B**

**Water Demands for Waterman Gardens**

# memorandum

date March 30, 2016

to Ted Brunson, SBMWD

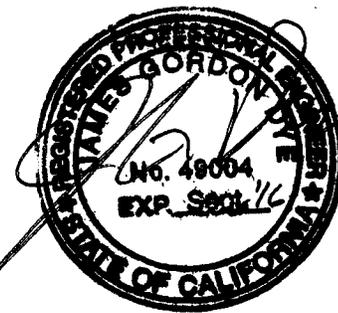
from Sarah Walker, Planning Project Manager, National CORE  
Jamey Dye, PE, WSP | Parsons Brinckerhoff

subject Revised Water Supply Assessment for the Waterman + Baseline Neighborhood Transformation Plan

In accordance with Senate Bill 610, and based upon City Staff recommendations, National Community Renaissance has prepared a partial draft Water Supply Assessment (WSA) for the Waterman + Baseline Neighborhood Transformation Plan. We have provided information about the Plan area location, existing land uses and water demand as well as proposed land use changes and projected water demand assuming maximum build-out under the Specific Plan.

This information is being provided to the San Bernardino Municipal Water Department (SBMWD) to complete the WSA, primarily in assessing whether there is sufficient water capacity to meet the demand for water generated by the proposed Plan. This analysis is typically based on information provided in the City's Urban Water Management Plan.

Please do not hesitate to contact Sarah at (626) 318-8413, or Jamey at (909) 888-1106 with any questions or concerns.



9421 Haven Avenue, Rancho Cucamonga, CA 91730

909.483.2444 Fax: 909.483.2448 nationalcore.org

COMMUNITY

CORE

RENAISSANCE

NATIONAL COMMUNITY RENAISSANCE

**Senate Bill 610**  
**WATER SUPPLY ASSESSMENT**

**WATERMAN + BASELINE NEIGHBORHOOD TRANSFORMATION PLAN**  
**City of San Bernardino**

## **1. INTRODUCTION**

The City of San Bernardino is proposing to establish a Specific Plan to encourage the revitalization of a 700-acre area around the intersection of Waterman Ave and Baseline Street. The Waterman + Baseline Neighborhood Transformation Plan (the Plan) is intended to provide comprehensive, consistent and multi-faceted redevelopment strategies for the neighborhoods surrounding the intersection of Waterman Avenue and Baseline Street. Toward that end, the Plan establishes a land use and development framework, identifies needed transportation and infrastructure improvements, and recommends strategies needed to develop the Plan area. Section 65451 of the Government Code requires that specific plans include text and diagrams that specify all of the following:

- The distribution, location, and extent of the uses of land, including open space, within the area covered by the plan
- The proposed distribution, location, and extent and intensity of major components of public and private transportation, sewage, water, drainage, solid waste disposal, energy, and other essential facilities proposed to be located within the area covered by the plan and needed to support the land uses described in the plan
- Standards and criteria by which development will proceed, and standards for the conservation, development, and utilization of natural resources, where applicable
- A program of implementation measures including regulations, programs, public works projects, and financing measures necessary to carry out the specific plan
- A statement of the relationship of the specific plan to the general plan.

- This Plan is designed to meet the requirements of the State of California Government Code. The Specific Plan is adopted by City Council ordinance and thereby establishes the zoning regulations for the development of the Plan area.

Waterman + Baseline Neighborhood Transformation Plan establishes a long term vision for the neighborhood, allowing for a maximum build-out of up to 1,375,000 square feet of employment and industrial space, and up to 2,200,000 square feet of commercial space. The Plan also envisions as many as 2,400 new housing units at select new residential locations. This Plan also includes provisions to ensure that existing, longstanding residents' are able to remain in the area and participate in the expected economic growth.

According to California Water Code Section 10910 (Water Code) a Water Supply Assessment (WSA) must be prepared for all proposed developments above a defined size. A WSA is required for any project with 500 or more dwelling units, 500 or more hotel rooms, 500,000 square feet of commercial shopping center space, or a mixed use project with a combination of these uses (with equivalent water demands). The Plan is a qualifying project and therefore a WSA is required. Cities and counties are mandated to identify the public water system that might provide a project's water supply and request preparation of a WSA.

The City of San Bernardino Municipal Water Department (SBMWD) is the primary water purveyor for the City of San Bernardino and it has been identified as a potential water supplier for much of the Plan area. Therefore, the City, as the California Environmental Quality Act (CEQA) lead agency, is required to consider the adequacy of the water supply for the Plan through a WSA, and to consider adopting the resulting WSA if it shows that there is adequate water supply. The Water Code also requires that a WSA consider project and non-project demands on proposed water supply sources over a period of 20 years in 5 year increments. SBMWD estimates that the Project will require approximately 30 years to achieve full buildout, and as a result, this WSA considers all existing and planned future uses of the projected water supplies through 2045.

This WSA quantifies reasonably foreseeable Project and non-project water demands in the City of San Bernardino, documents water supply sources, assesses sufficiency of supply to meet demand, evaluates drought impacts, and provides a comparison of water supply and demand in normal, dry, and multiple dry years through the 30 year period ending in 2045.

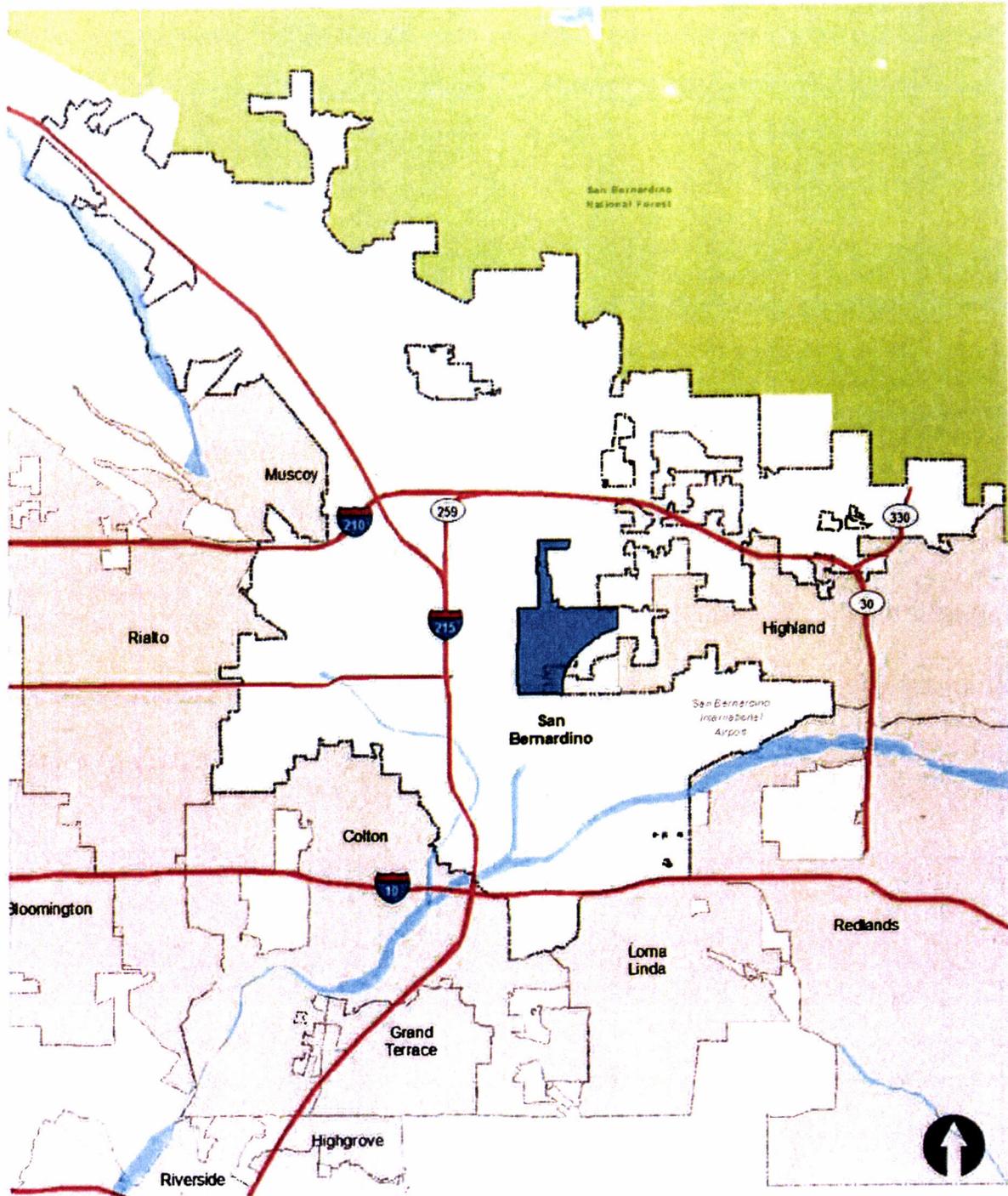
## **2. THE PLANNING AREA**

The Plan area is located in the center of the City of San Bernardino and within the Riverside-San Bernardino metropolitan area, also referred to as the "Inland Empire". San Bernardino is a large city with a population of just under 210,000 residents occupying approximately 81 square miles on the floor of the San Bernardino Valley. Serving as the County seat, San Bernardino is the 17<sup>th</sup> largest city in California, and the 99<sup>th</sup> largest city in the United States. Jurisdictions neighboring San Bernardino include the cities of Rialto, Colton, Loma Linda, Redlands, Highland, and Muscoy.

The Plan Area is strategically located within the Inland Empire providing excellent access to downtown San Bernardino, the San Bernardino and Ontario airports, Los Angeles and Orange Counties by major freeways. It contains historic residential neighborhoods and structures; existing building stock with potential for creative and economically viable reuse; convenient connections to local and regional transportation networks; adjacencies to major economic development centers; and a diverse demographic of residents. **Figure 1, *Regional Location Map***, illustrates the regional location of the Plan area.

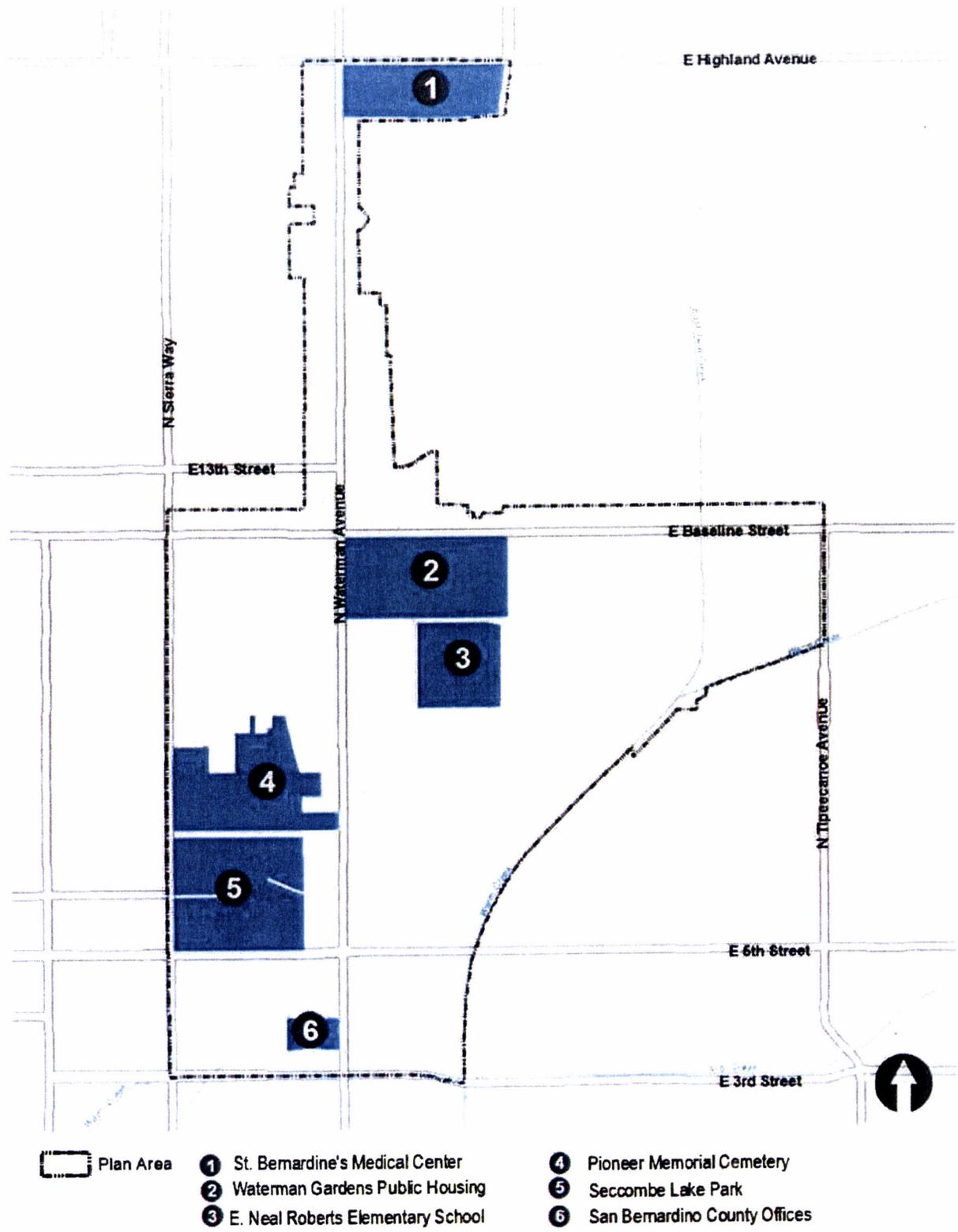
The Plan area boundaries are loosely formed by Sierra Way to the west, Tippecanoe Avenue and the flood control channel on the east, 3<sup>rd</sup> Street to the south and Highland Avenue to the north. The Plan area is comprised of approximately 710 acres situated near the geographic center of the City of San Bernardino. **Figure 2, *Community Context Map***, illustrates the boundaries and landmarks within the Plan area.

**FIGURE 1 - REGIONAL LOCATION MAP**



- |  |  |   |
|--|--|---|
|  Plan Area              |  Unincorporated Land        |  Highways    |
|  Surrounding Cities     |  National Parks and Forests |  Major Roads |
|  City of San Bernardino |  Interstates                |   |

**FIGURE 2 – COMMUNITY CONTEXT MAP**



### 3. EXISTING WATER DEMAND

Potable water is provided by SBMWD to 605-acres of the total 710-acre Plan area (the remainder of the Plan area is served by East Valley Water District). Based on the existing development and conditions occurring in the SBMWD portion of the Plan area, the water demand is approximately 2.0 million gallons per day. Existing water demand, by land use type is shown in Table 1, *Existing Water Demand*. Figure 3, *Existing Land Uses*,

**TABLE 1 – SBMWD WATER DEMAND BASED ON EXISTING CONDITIONS**

LAND USE	ACRES	DEMAND FACTOR (GPD/ACRE)	TOTAL PROJECT DEMAND (GPD)
Residential <sup>1</sup>	218.74	5,427	1,187,102
Commercial/Retail/Office <sup>2</sup>	119.10	3,204	381,596
Industrial /Auto-related uses <sup>3</sup>	74.11	1,126	83,448
Public Facilities/Parks <sup>4</sup>	125.81	3,204	403,095
Vacant Land <sup>5</sup>	67.93	0	0
<b>TOTAL</b>	<b>605.69</b>		<b>2,055,241</b>

gpd = gallons per day

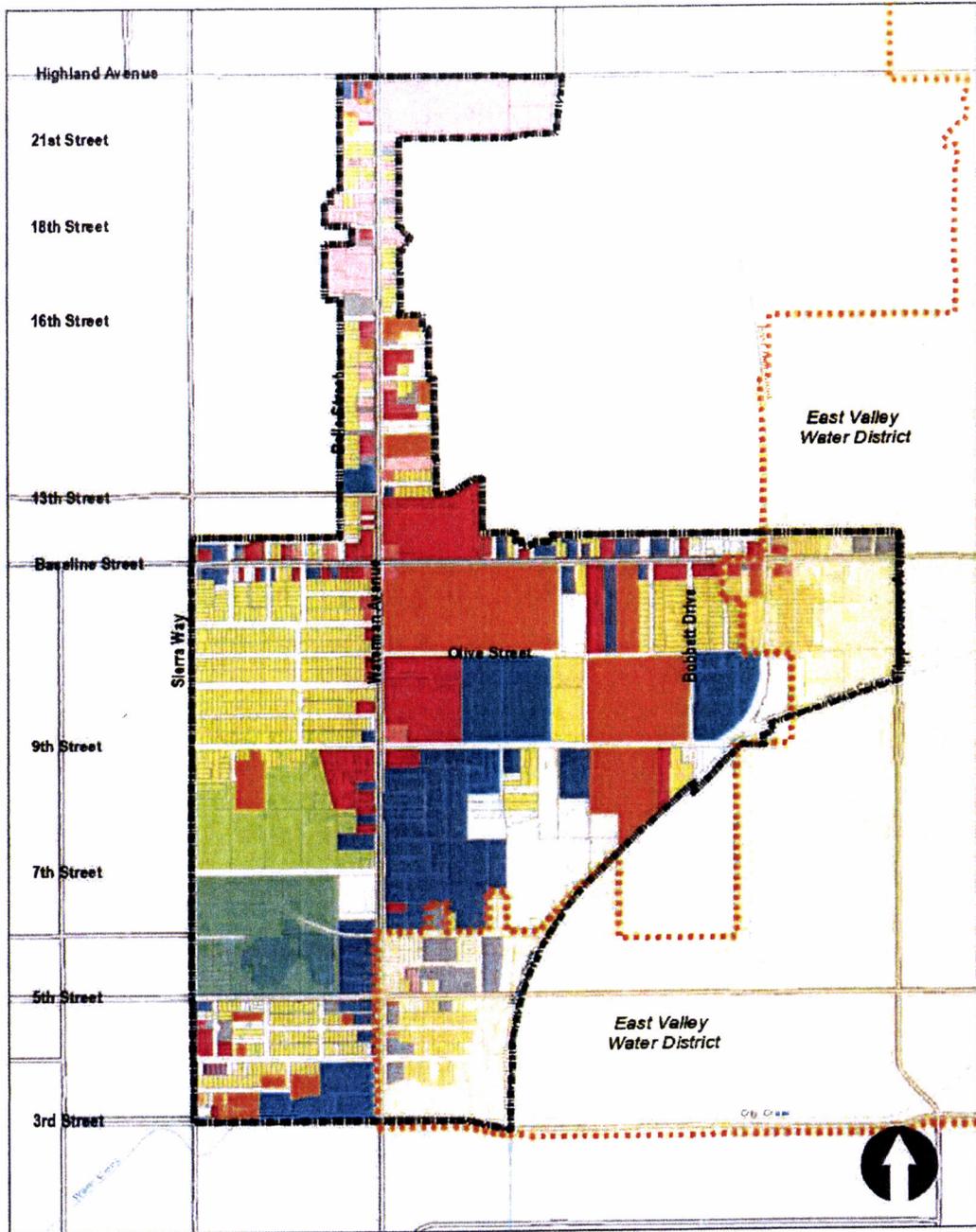
Source: SBMWD Water Facilities Master Plan, 2015

Notes:

- 1 - Used *Residential Medium (RM)* factor
- 2 - Used *Commercial Office (CO)* Factor
- 3 - Used *Industrial Heavy (IH)* factor
- 4 - Assumed Public Facilities would be closely related to *Commercial/Office* uses
- 5 - assumed no water usage

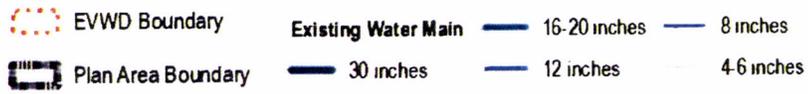
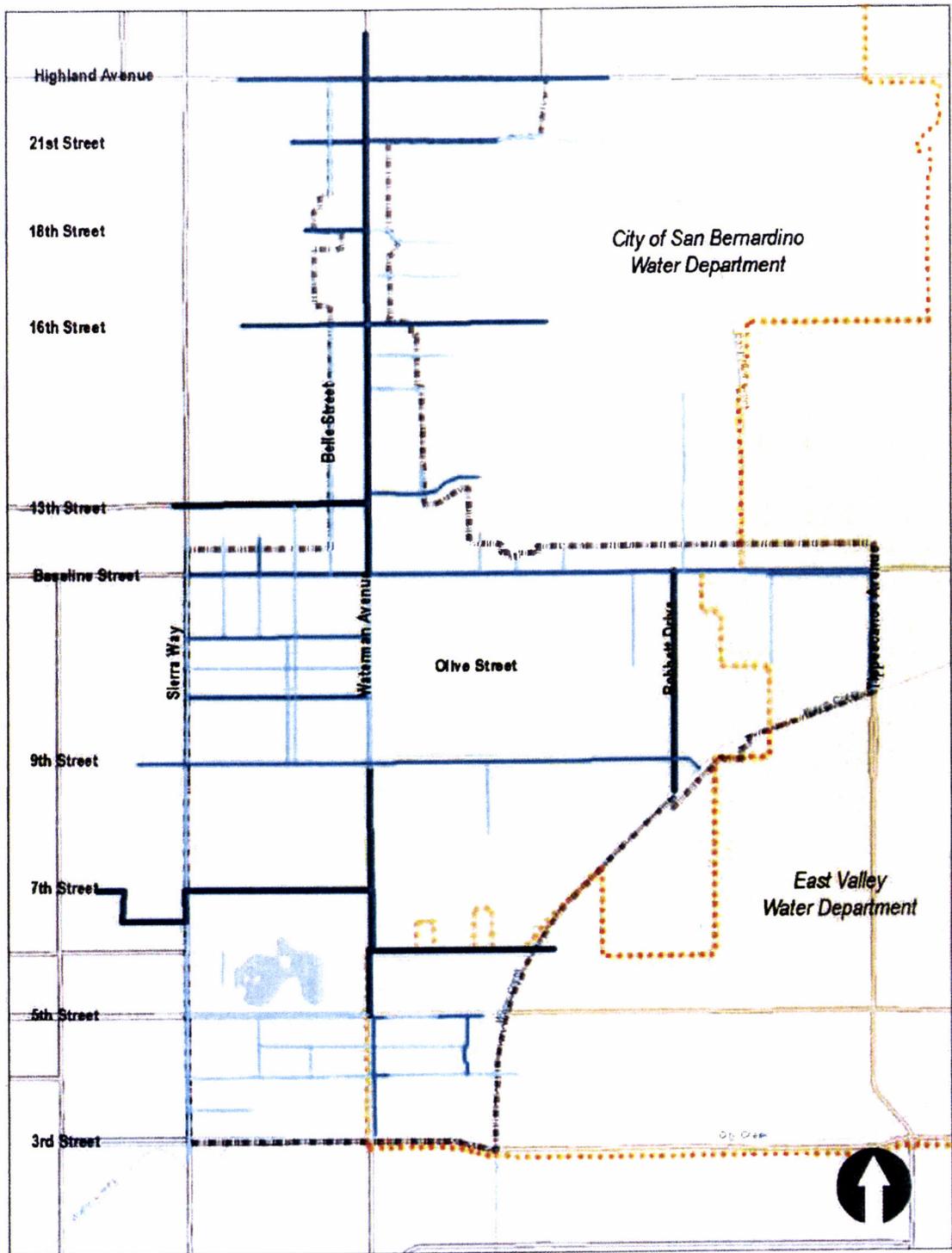
Within the Plan area, there are approximately 110,000 linear feet of existing pipelines ranging from 4 inches to over 30 inches in size. The location of existing water pipelines are depicted in Figure 4, *Existing Water Facilities*. Based on the data provided by the SBMWD, the majority of the existing water pipelines located within Plan area and the immediate vicinity are either unlined, under-sized, made with asbestos, and/or are typically greater than 50 years in age. The condition of these facilities suggests that the existing infrastructure system is not capable of providing the level of service required to meet the domestic needs and fire demand required by modern development.

**FIGURE 3- EXISTING LAND USES**



- |                    |                       |                     |                  |
|--------------------|-----------------------|---------------------|------------------|
| Plan Area Boundary | Cemetery              | MF Residential      | Retail           |
| EVWD Boundary      | Government            | Medical Office      | Industrial       |
| Vacant             | Religious Institution | Professional Office | Auto-related Use |
| Park               | SF Residential        | Restaurant          | Parking          |

**FIGURE 4 - EXISTING WATER FACILITIES**



#### 4. PROPOSED WATER DEMAND

The Plan represents the implementation of the General Plan's goals and policies for the 710-acre Plan area, of which 605-acres are within the SBMWD service area. The Plan establishes the area's land use and development regulations. It replaces regulations contained in the San Bernardino Development Code (Title 19, Land Use/Subdivision). The Plan shall guide all land use and development decision-making processes for the area. The Specific Plan does not replace or augment building safety codes or other non-planning related codes. All applications for new construction, substantial modifications to existing buildings, and changes in land use shall be reviewed for conformance with this Specific Plan. The Plan will be adopted under the authority of the City's Zoning Ordinance (Specific Plans 19.64), which establishes Specific Plans as a tool to regulate land use and development.

To facilitate the redevelopment of the Plan area, five new zones will be established. The mix of uses developed specifically for the Plan area is intended to create a balanced environment for residents to live, work and play in a walkable environment that is safe and enjoyable. *Figure 5, Proposed Land Use Plan*, shows the zoning proposed for the Plan Area.

- **NEIGHBORHOOD RESIDENTIAL** – This zone is intended to promote the preservation and enhancement of existing single family neighborhoods while allowing for the development of new residential units up to 14 dwelling units per acre. This zone can also be implemented as a buffer between existing neighborhoods and higher intensity surrounding uses and provides a transition between residential and non-residential uses. This zone does not allow for the development of new non-residential uses.
- **CORRIDOR MIXED USE** - The Corridor Mixed Use zone is intended to encourage the development of a mix of neighborhood serving commercial and residential uses along Baseline Street and Waterman Avenue. This zone accommodates both vertical and horizontal mixed use development up to 20 dwelling units per acre and a floor area ratio (FAR) of 0.5. Existing businesses and new construction would incorporate streetscape improvements to encourage walkability along these two major corridors.
- **URBAN MIXED USE** - The urban mixed use zone is intended to develop a pedestrian-oriented environment with a variety of housing options, commercial shops and eating establishments. Mixed use development will be encouraged including residential uses up to 30 dwelling units an acre and non-residential uses up to an FAR of 0.75. These zones are intended to create a sense of place and identify the Specific Plan Area as a distinct location within the City.

- **EMPLOYMENT** - The employment zone is intended to promote the development of employment generating uses including office, commercial, and business park uses (mix of business and support services) to establish new job opportunities in close proximity to new and existing residential development. This zone allows for non-residential uses up to an FAR of 0.75.
- **OPEN SPACE** - The open space zone is intended to preserve and create recreational and open space opportunities throughout the Specific Plan Area. New development is not permitted, unless it is tied to a recreational uses and/or enhancement of existing facilities, such as a linear trail, ball parks, pocket parks, tot lots, and other similar uses.

Water infrastructure within the Plan area will require significant investment to meet the demand based on the proposed Land Use Plan. As shown in Table 2, *Water Demand Based on Plan Build-out*, assuming maximum build-out of the Land Use Plan, the Plan area is anticipated to increase water demand by approximately 1.2 million gallons per day over existing conditions. The resulting water demand for the Plan is approximately 3.2 million gallons per day.

**TABLE 2 – SBMWD WATER DEMAND BASED ON PLAN BUILD-OUT**

LAND USE	ACRES	DEMAND FACTOR (GPD/ACRE)	TOTAL PROJECT DEMAND (GPD)
Corridor Mixed Use <sup>1</sup>	162.44	5,904	959,046
Employment <sup>2</sup>	70.38	3,204	225,498
Urban Mixed Use <sup>3</sup>	149.33	6,991	1,043,966
Neighborhood Residential <sup>4</sup>	148.83	5,427	807,700
Open Space/Public Facility <sup>5</sup>	74.71	3,204	239,371
<b>TOTAL</b>	<b>605.69</b>		<b>3,275,581</b>

gpd = gallons per day

Source: SBMWD Water Facilities Master Plan, 2015.

Notes:

1 - Used Residential Med High (RMH) factor

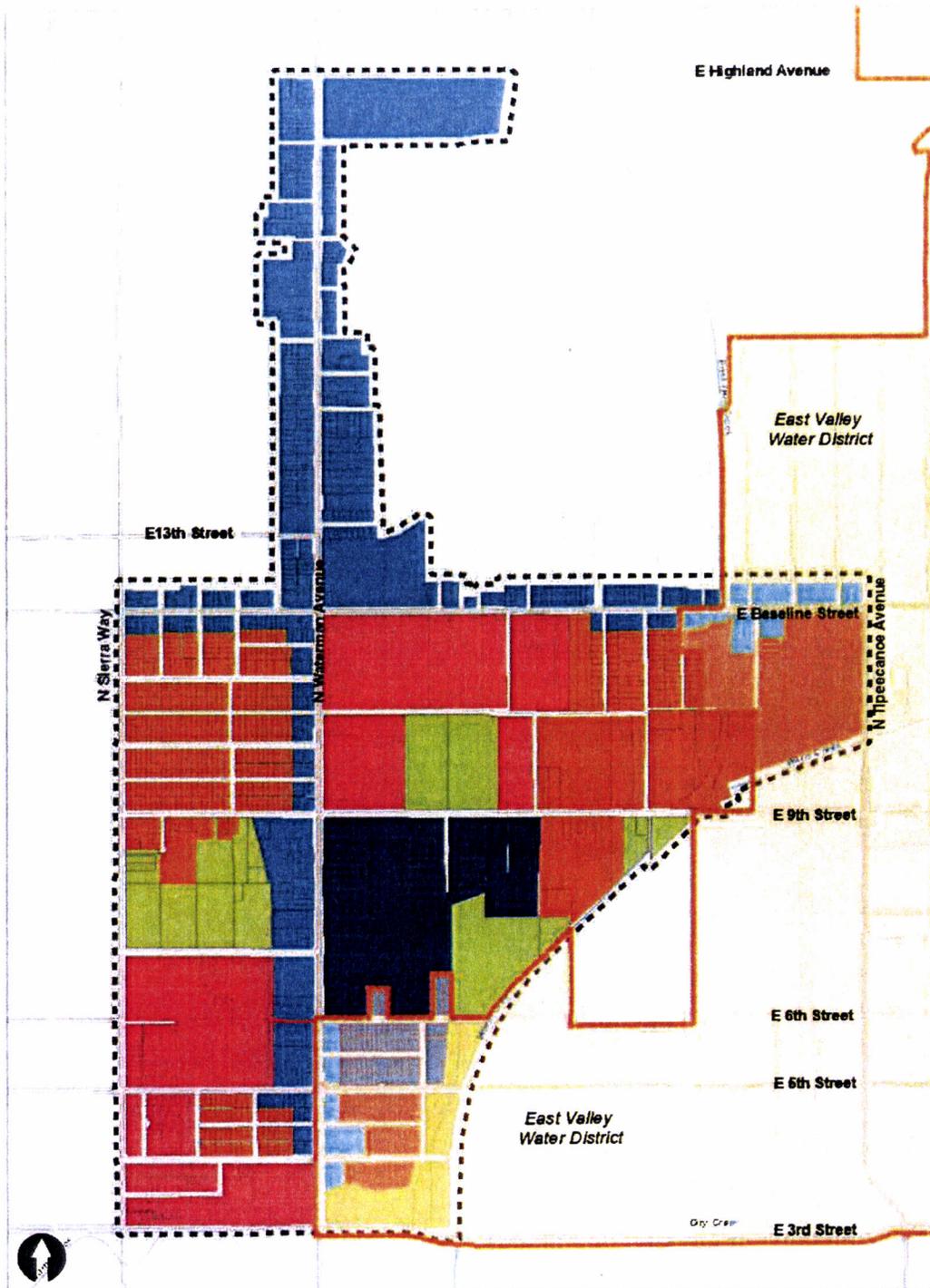
2 - Used Commercial Office (CO) Factor

3 - Used Residential High (RH) factor

4 - Used Residential Medium (RM) factor

5 - Assumed Public Facilities would be closely related to Commercial/Office uses

**FIGURE 5- PROPOSED LAND USE PLAN**



- |                            |                      |                          |                 |
|----------------------------|----------------------|--------------------------|-----------------|
| Plan Boundary              | <b>Land Use Plan</b> | Neighborhood Residential | Urban Mixed Use |
| East Valley Water District | Open Space           | Corridor Mixed Use       | Employment      |

Based on the water demand of the proposed land uses shown in Table 2, and taking into account the water demand of existing land uses shown in Table 1, Table 3, shows the net water demand required for the Plan area, based on maximum build-out assumptions.

CONDITION	AVERAGE FLOW (GPD)	YEARLY FLOW (AFY)
Proposed	3,275,581	3,669
Existing	2,055,241	2,302
<b>(Net) Total</b>	<b>1,220,340</b>	<b>1,367</b>

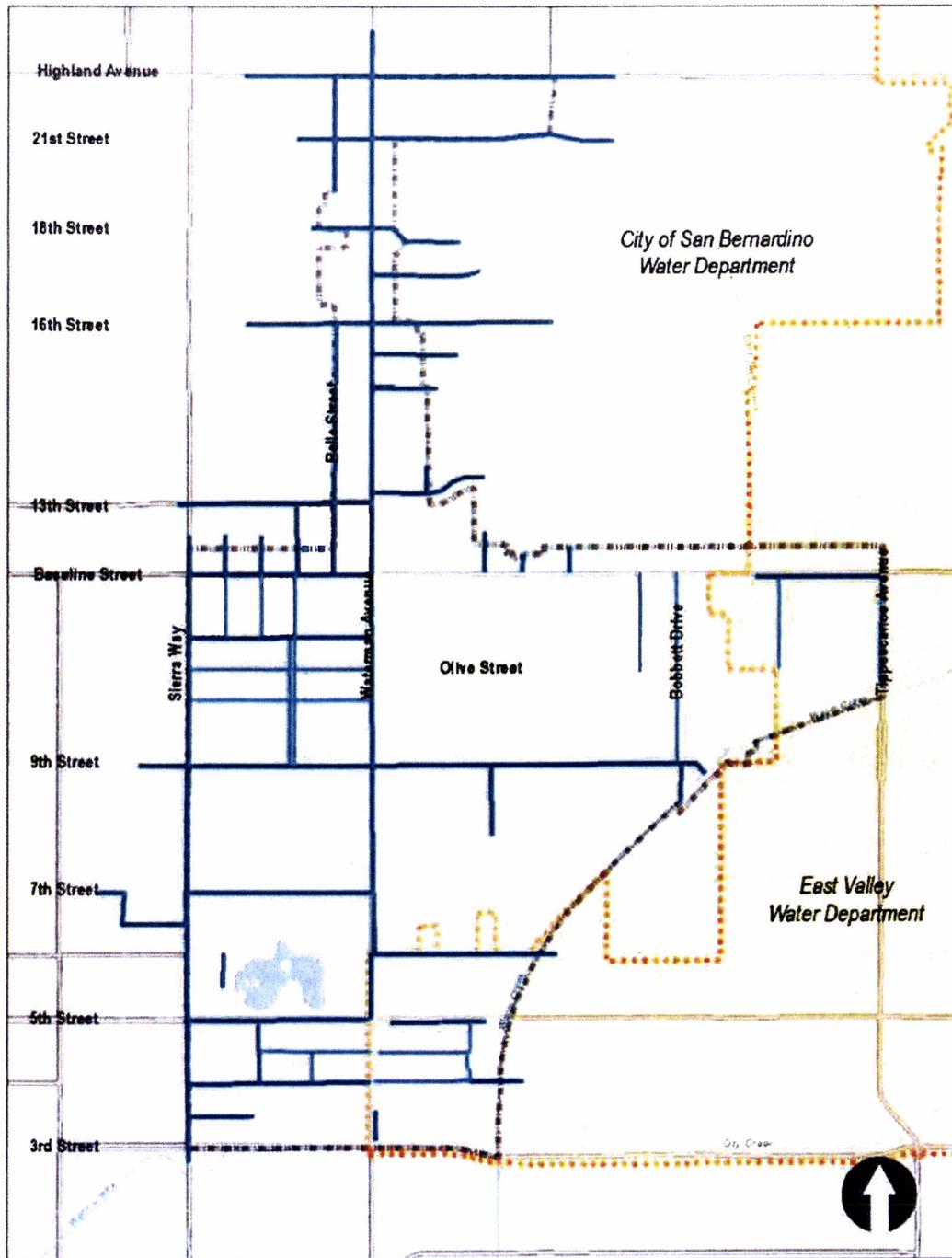
gpd = gallons per day; and AFY = acre-feet per year.

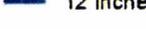
The age and condition of the existing water pipelines necessitates that a large extent of the system within the Plan area may need to be replaced over time as new development, or redevelopment, occurs. The proposed water system is depicted on **Figure 6, Proposed Water Lines**. Based on the system depicted on Figure 4, there is a need to replace approximately 78,300 linear feet of water pipelines. At an assumed construction cost of \$280 per liner foot (2015 dollars), the cost of the water system infrastructure is approximately \$22 million. It is common for SBMWD to place conditions of approval on each development to replace the infrastructure that is immediately adjacent to the project boundary.

Regional transmission lines over 12 inches in size are typically replaced via impact fees collected by SBMWD; whereas the local service lines, that provide service to individual homes and businesses, are typically provided by the developer at the time of project construction. And in the case of this Specific Plan, where a high degree of “redevelopment” is anticipated, any replacement of the local service line would be assumed to be needed at the time of such “redevelopment”.

The greatest level of “redevelopment” and/or new construction is anticipated in the Corridor Mixed Use, Urban Mixed Use, and Employment Land Uses; while the Neighborhood Residential areas are slated primarily for preservation of existing single family neighborhoods. It is anticipated that the local service lines will only be replaced on a project-by-project basis as determined necessary. Replacement of the local service lines are assumed to be 12 inch pipe lines within any of the Mixed Use / Employment land use areas, and 8 inch pipe lines with the Neighborhood Residential areas.

**FIGURE 6 - PROPOSED WATER FACILITIES**



-  Plan Area Boundary
-  EVWD Boundary
-  Proposed Water Main - 12 inches
-  Proposed Water Main - 8 inches

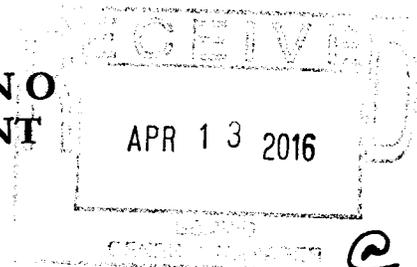
## 5. URBAN WATER MANAGEMENT PLAN REVIEW

Potable water is provided to 605-acres within the Plan area by the City of San Bernardino Municipal Water Department (SBMWD). SBMWD is a municipal utility established in 1905 and have a service area of approximately 45 square miles. SBMWD provides water to the majority of Plan area; however, East Valley Water District (EVWD) provides service to 105-acres located in the southerly and easterly portion of the Plan area as depicted in Figures 5 and 6.

According to their 2015 Water Facilities Master Plan, SBMWD relies solely on water extracted from the underlying aquifer, the Bunker Hill Groundwater Basin, to meet its water demands. Currently it receives 100 percent of its water from the Basin. This water is distributed via SBMWD's water distribution system consisting of pipelines, storage reservoirs, pumping stations, hydroelectric generating stations, manual and automatic control valves, fire hydrants, and water meters located throughout 19 individual pressure zones. In addition to providing water to its customers, SBMWD also delivers water to other agencies, including EVWD blending purposes due to water quality issues. In return, EVWD has delivered groundwater to SBMWD at a 2.5:1 ratio to compensate the Department for energy costs and production costs associated with the difference in elevation at the point of delivery.

**(Analysis to be added regarding the supply of water and SBMWD's ability to provide water to the Plan area)**

**CITY OF SAN BERNARDINO  
MUNICIPAL WATER DEPARTMENT  
BOARD OF WATER COMMISSIONERS  
STAFF REPORT**



**TO:** Stacey R. Aldstadt, General Manager  
**FROM:** Terri A. Willoughby, Director of Finance  
**SUBJECT:** APPROVAL OF WAIVER OF CONFLICT PERTAINING TO WATER AND SEWER FINANCINGS  
**DATE:** April 12, 2016

---

**BACKGROUND:**

On April 5, 2016, the Board of Water Commissioners approved an agreement with Orrick, Herrington & Sutcliffe LLP ("Orrick") to serve as bond counsel in the proposed 2016 Water and Sewer Financings. It has been brought to staff's attention that Orrick also serves as legal counsel for the Department's chosen underwriting firm, Raymond James, which creates a conflict.

It has been determined that none of the work performed on behalf of the Department will be performed by the attorneys who represent Raymond James, and none of the attorneys representing Raymond James will perform work for the Department in conjunction with the financing. In order to move forward with the Orrick contract, staff is requesting that the Board approve the attached letter approving the waiver of the conflict.

**RECOMMENDATION:**

Staff recommends the Board approve the attached letter and authorize the Department's General Manager, to sign on behalf of the Department.

Respectfully submitted,

Terri A. Willoughby  
Director of Finance

Attachment: Letter, Orrick, Herrington & Sutcliffe LLP, April 13, 2016



ORRICK, HERRINGTON & SUTCLIFFE LLP  
777 SOUTH FIGUEROA STREET  
SUITE 3200  
LOS ANGELES, CALIFORNIA 90017  
  
tel +1-213-629-2020  
fax +1 213-612-2499  
WWW.ORRICK.COM

**VIA EMAIL AND US MAIL**

Bill W. Bothwell  
(213) 612-2403  
wbothwell@orrick.com

April 13, 2016

Gary D. Saenz  
San Bernardino City Attorney  
City of San Bernardino  
300 North D Street, Sixth Floor  
San Bernardino, California 92418

Hank Morgan  
Associate Corporate Counsel  
Raymond James & Associates, Inc.  
880 Carillon Parkway  
St. Petersburg, Florida 33716

Re: Waiver of Conflict Pertaining to Water and Sewer Financings  
for the City of San Bernardino Municipal Water Department Bonds

Dear Mr. Mr. Saenz and Mr. Morgan:

As Orrick, Herrington & Sutcliffe LLP ("Orrick") has discussed with you, we are requesting your written waiver of the conflicts of interest described herein. The Municipal Water Department of the City of San Bernardino (the "City") has requested Orrick to represent it as Disclosure Counsel in connection with the issuance by the City of two series of bonds (the "Bonds") to finance water and sewer projects for the City of San Bernardino. Orrick has also been requested to represent Raymond James & Associates, Inc. ("Raymond James") as Underwriter's Counsel in connection with the Bonds. Norton Rose Fulbright will act as Bond Counsel to the City in connection with the Bonds.

None of the work to be performed by Orrick for the City in connection with the issuance of the Bonds will be performed by attorneys in the firm who represent Raymond James in connection with the issuance of the Bonds, and none of the work to be performed by Orrick for Raymond James in connection with the issuance of the Bonds will be performed by attorneys in the firm who represent the City in connection with the issuance of the Bonds. Orrick's work as Disclosure Counsel will be to prepare the City's offering documents for the Bonds and provide a so-called "10b-5 opinion" in Orrick's customary form to Raymond James. Orrick's work as Underwriter's Counsel will be to draft the bond purchase agreements for the Bonds. Orrick's services as Disclosure Counsel will not include any review of the bond purchase agreements for the Bonds (except as it relates to the "10b-5 opinion"), because Bond Counsel and the City Attorney will review the bond purchase agreements on behalf of the City. Orrick's services as Underwriter's Counsel will include reviewing and commenting on the offering documents. Both the City and Raymond James will require that the offering documents include all information which would be considered material to a potential purchaser of the Bonds.



O R R I C K

Gary D. Saenz  
Hank Morgan  
April \_\_, 2016  
Page 2

Orrick will protect the confidences of both the City and Raymond James as required by the applicable rules of professional conduct and applicable law. Orrick will not disclose to the City any client confidences concerning Raymond James, nor will Orrick disclose to Raymond James any client confidences concerning the City. To the extent that at some point in the future these restrictions would cause Orrick to be unable to represent effectively either the City or Raymond James, Orrick will so notify both the City and Raymond James, and, unless both the City and Raymond James provide a further waiver at such time, will withdraw from representing both the City and Raymond James. Each of the City and Raymond James hereby consents to such withdrawal should it become necessary.

The engagements of Orrick on behalf of each of the City and Raymond James relate strictly to the issuance of the Bonds. In the event of any dispute between the City and Raymond James relating to the Bonds, Orrick will be unable to, and will not, represent either the City or Raymond James in connection with such dispute.

Each of the City and Raymond James, after consultation with you as their respective counsel, have graciously agreed to Orrick's representation of the City and Raymond James as described in this letter. Accordingly, we request that you so indicate by signing the enclosed copy of this letter and returning it immediately by e-mail and then mailing the copy with your signature to us. By doing so, you agree as follows:

- (1) each of the City and Raymond James acknowledges Orrick's disclosure of the potential conflicts of interest described herein;
- (2) each of the City and Raymond James agrees to waive any potential or actual conflicts of interest arising from Orrick's representation of the City and Raymond James as set forth herein;
- (3) each of the City and Raymond James consents to Orrick representing both the City and Raymond James in connection with the issuance of the Bonds and will not directly or indirectly seek to disqualify Orrick from representing each of the City and Raymond James in connection with the issuance of the Bonds, as long as such representation complies with the terms of this letter; and
- (4) each of the City and Raymond James are fully informed regarding the legal implications of this waiver of conflict of interest, and acknowledge that they have obtained the advice of independent legal counsel prior to executing this letter.



O R R I C K

Gary D. Saenz  
Hank Morgan  
April \_\_, 2016  
Page 3

We very much appreciate your agreement as requested herein and your assistance and cooperation in expediting this request. If you have any questions, please do not hesitate to call the undersigned.

Sincerely,

Bill Bothwell

APPROVED, ACCEPTED AND AGREED TO

this \_\_\_\_ day of April, 2016.

By: City of San Bernardino Municipal Water Department  
Name: Stacey Aldstadt, General Manager  
Its: \_\_\_\_\_

By: City of San Bernardino  
Name: Gary Saenz, City Attorney  
Its: \_\_\_\_\_



O R R I C K

Gary D. Saenz  
Hank Morgan  
April \_\_, 2016  
Page 4

APPROVED, ACCEPTED AND AGREED TO

this \_\_\_\_ day of April, 2016.

By: Raymond James & Associates, Inc.

Name: \_\_\_\_\_

Its: \_\_\_\_\_

**CITY OF SAN BERNARDINO  
MUNICIPAL WATER DEPARTMENT**

RECEIVED  
APR 13 2016

**BOARD OF WATER COMMISSIONERS  
STAFF REPORT**

**TO:** Stacey R. Aldstadt, General Manager  
**FROM:** Terri A. Willoughby, Director of Finance  
**SUBJECT:** WATER RATE ADJUSTMENT  
**DATE:** April 11, 2016

---

**BACKGROUND:**

On January 5, 2010, the Board of Water Commissioners approved a three-step water rate increase, the last of which was effective January 1, 2012. As part of staff's FY 2013/14 budget presentation, staff expressed the need to establish updated water revenue requirements.

In June 2013, the Department retained SAIC Energy, Environment & Infrastructure, LLC, now known as Leidos, a nationally recognized utility engineering and rate consulting firm, to, among other tasks, update revenue requirements for the water fund. In 2014, the Board approved an additional contract with FG Solutions, a firm organized by the former principal of Leidos to complete an update of the rate study. In 2015, staff directed Leidos to rework the rate structure so that the Minimum Monthly Charge more fully covers the Water Utility's fixed costs. This change in structure is necessary to stabilize the Utility's revenue stream, in light of decreasing usage from mandated conservation. Adjustments were also made to the conservation charge based on expected increases in the cost of water production.

There are several components that make up the Water Rates:

- **Minimum Monthly Charge:** This charge is the fixed component and is the same for each customer class, depending on meter size. The bulk of the Department's residential customers have a 5/8" meter.
- **Commodity Charge:** Most customers pay a Commodity Charge of \$1.15 per hundred cubic feet ("hcf") of water use.
- **Replenishment Charge:** Water Department customers also pay a charge of \$.09 per hcf which is used to fund purchases of State Water Project water used for replenishment purposes.
- **Conservation Charge:** In 2010, the Department implemented a two-tier Commodity Charge rate, as noted above. While the Commodity Charge is applied to all water use, the Conservation Charge is only applied to water use above a specified level, which varies by water meter size. An additional \$.35 per hcf is applied to this usage.
- **Elevation Charge:** The Department serves customers in various elevations and pressure zones. As a result, the costs to pump water vary throughout the Department's service area.

The Department applies various Elevation Charges to these zones which are based on the actual costs to pump water to that particular geographic area.

The concept of the change in rate structure was presented to the Board of Water Commissioners earlier in the year and was discussed as part of the Board's strategic planning session. The attached Water Rate Study represents a gradual shift to a higher fixed component (Minimum Monthly Charge) while still maintaining appropriate incentives through assessment of the Conservation Charge which will assist the Department in meeting its conservation mandates. The revised structure would gradually increase revenue recovery from the fixed component from 32 percent (current level) to approximately 50 percent within a six-year period.

**DISCUSSION:**

Attachment "A" contains a Water Rate Study conducted by FG Solutions, which summarizes projected water revenue requirements for six years (FY 2016-2021), documents fiscal policy issues that affect the revenue requirements, and provides detailed support calculations. The study balances the need to meet key financial targets with the need to minimize impacts to ratepayers.

FG Solutions reviewed historical operating expenses, existing assets, existing debt service, projected expenditures, potential financing strategies, required capital improvements, local economic factors and system revenues, both historic and projected. The revenue requirement analysis was an iterative process and draft versions were revised based on comments and input provided by staff. Next, the revenue requirement was compared with the revenues generated by the existing rates to calculate the amount of additional revenues needed from rate increases. In general, rate increases were minimized while meeting reserve and debt service coverage requirements. The table below shows the overall impact of the proposed rate adjustments on the average residential customer.

Average Monthly Bill		Proposed		
Hcf/month	Current	FY 16/17	FY 17/18	FY 18/19
16	\$35.59	\$39.11	\$43.07	\$47.36
Annual % Increase		10%	10%	10%

The results of the analysis include:

1. A recommendation to increase the Minimum Monthly Charge incrementally as shown in Table 11 of the attached report. For the majority of residential customers, the Minimum Monthly Charge would increase from the current rate of \$12.90 to \$16.09 effective August 1, 2016, \$19.58 effective July 1, 2017 and \$23.39 effective July 1, 2018. This meets the Department's debt service coverage and funds required capital projects while maintaining an appropriate level of cash.

Water Rate Adjustment

April 11, 2016

Page 3 of 3

2. A recommendation to increase the Replenishment Charge from the current \$.09 per hcf to \$.11 per hcf effective August 1, 2016; \$.14 per hcf effective July 1, 2017, and \$.17 per hcf effective July 1, 2018. These increases are necessary to accommodate projected increases in the cost of State Water Project water.
3. A recommendation to increase the Conservation Charge from \$.35 per hcf to \$.49 per hcf effective August 1, 2016. No subsequent increases are proposed.
4. There are no recommended increases to either the Commodity Charge (\$1.15 per hcf) or the Elevation Charges (various).
5. A discussion regarding the Department's water Capital Improvement Program (CIP). The Department provided its CIP and FG Solutions used the projected capital expenditures through FY 20/21 to complete this Study. The total projected capital expenditures through FY 20/21 are approximately \$75 million.
6. A discussion of the Department's reserve balances, and Debt Service Coverage Ratios. The rate study ensures that the Water Fund's Debt Service Coverage Ratio will meet or exceed its legal requirements under the existing bond covenants as well as meeting key financial targets.
7. A discussion of existing and proposed debt financing of the proposed CIP. The Department anticipates issuing debt to fund much of the proposed CIP. Debt issuances are sized and timed to both fund the CIP and minimize rate increases. Debt service payments would be paid through rate revenues and other non-rate revenues.

The information presented in the report supports the following staff recommendations:

Staff recommends:

1. A three-step adjustment in the Minimum Monthly Charge as reflected in Attachment B, effective August 1, 2016, July 1, 2017 and July 1, 2018. For the majority of residential customers, the Minimum Monthly Charge will increase from the current \$12.90 to \$16.09 effective August 1, 2016, \$19.58 effective July 1, 2017 and \$23.39 effective July 1, 2018. A three-step adjustment to the Replenishment Charge per HCF: \$.02 on July 1, 2016; \$.05 on July 1, 2017 and \$.03 on July 1, 2018.
2. A one-time adjustment to the Conservation Charge from \$.35 to \$.49 per HCF effective July 1, 2016.

The Department has developed the following timeline for adoption of the adjustment for water fees and charges.

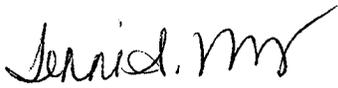
January 19, 2016	Board of Water Commissioners Strategic Planning Session
February 16, 2016	Board of Water Commissioners Presentation
April 19, 2016	Board of Water Commissioners-Approval of Study and Set Public Hearing Date for June 21, 2016
TBD	Citizen's Rate Review Committee Meeting
May 5, 2016	Public notification of rate adjustment hearing
June 21, 2016	Public hearing and rate adoption
August 1, 2016	Rate implementation

**RECOMMENDATION:**

Staff recommends that the Board of Water Commissioners make the following motion:

**Approve the date of June 21, 2016 for a Public Hearing to be held in the Council Chambers at 10:00 a.m. to hear public comments relative to the proposed water rate increases, and authorize staff to send official notices of the proposed rates and notices of Public Hearing to all property owners.**

Respectfully submitted,



Terri A. Willoughby  
Director of Finance

Attachment A: FG Solutions Water Rate Study  
Attachment B: Proposed three-step rate schedule

# Water Rate Study

City of San Bernardino Municipal Water Department



April 2016





# Water Rate Study

City of San Bernardino Municipal Water Department



April 2016



This report has been prepared for the use of the client for the specific purposes identified in the report. The conclusions, observations and recommendations contained herein attributed to FG Solutions, LLC constitute the opinions of FG Solutions, LLC. To the extent that statements, information and opinions provided by the client or others have been used in the preparation of this report, FG Solutions, LLC has relied upon the same to be accurate, and for which no assurances are intended and no representations or warranties are made. FG Solutions, LLC makes no certification and gives no assurances except as explicitly set forth in this report.

---

© 2016 FG Solutions, LLC  
All rights reserved.

# Water Rate Study

## City of San Bernardino Municipal Water Department

Table of Contents

---

*Table of Contents*  
*List of Tables*

**WATER RATE STUDY .....1**

- Background.....1
- Methodology and Key Assumptions .....1
- Revenue Projections .....3
- Expense Projections.....7
- Reserves.....11
- Financial Projection.....12
- Proposed Water Rate Schedule .....14
- Example Monthly Water Bill Comparison.....18
- Ongoing Considerations .....20

**Appendix A**

## List of Tables

Table 1	Financial Policies .....	3
Table 2	Current Water Rate Schedule .....	6
Table 3	Rate Revenues under Current Rates .....	7
Table 4	O&M Expenses – Basis for Projection .....	8
Table 5	Projected Operation and Maintenance Expenses.....	9
Table 6	Projected Capital Improvements.....	10
Table 7	Existing and Projected Debt Service Payments.....	11
Table 8	Revenue Requirement Projections.....	13
Table 9	Financial Performance Indicators .....	14
Table 10	Proposed Revision to Conservation Charge .....	15
Table 11	Proposed Water Rate Schedule.....	18
Table 12	Monthly Single-Family Residential Bill Comparison .....	19

# WATER RATE STUDY

---

## Background

The City of San Bernardino Municipal Water Department (“Department”) provides services to approximately 46,000 connections throughout the City of San Bernardino. The Department is a semi-autonomous agency governed by a five-member Board of Water Commissioners (“BOWC”).

As part of its ongoing management of the water system, the Department has recognized the need to evaluate expenditures, revenues, and water rates to ensure that the Department can continue to provide safe and reliable water service.

Since the most recent water rate study was completed in approximately 2010, there have been ongoing changes in the Department’s water system, and the Department seeks to update its water rate schedule. In 2013, the Department hired Leidos Engineering, LLC (“Leidos”) to complete this update. In 2014, the Leidos project manager founded FG Solutions, LLC (“FG Solutions”), and subsequently, the Department hired FG Solutions to complete the project.

The results of this Study are summarized in this report, the purposes of which are:

- To summarize the projected water revenue requirements for the six-year study period for fiscal years (“FY”) 2015/16 through 2020/21<sup>1</sup>.
- To show a proposed schedule of water rates effective for FY 2016/17 through FY 2018/19 for BOWC consideration.
- To outline potentially changing conditions with financial implications and recommendations for ongoing monitoring of these items.

## Methodology and Key Assumptions

To provide for the continued operation of a utility on a sound financial basis, revenues must be sufficient to meet the cash requirements for operation and maintenance (O&M) expense, debt service requirements, debt service coverage requirements, reserves, and cash funded capital expenditures not financed with debt. The sum of these cost components for a given year is referred to as a utility’s revenue requirement.

Historical and budgeted financial and operational data were provided by the Department and used by FG Solutions to develop the projected revenue requirement for the six-year study period. The revenue requirement analysis was an iterative process and draft versions were revised based on comments and input provided by

---

<sup>1</sup> The Department’s fiscal year begins on July 1. Although FY 15/16 is nearly over as of the date of this report, the results of this Rate Study depend on data from FY 15/16.

Department staff. Next, the revenue requirement was compared with the revenues generated by the existing rates to generate additional revenues needed from rate increases. The reserve requirements, described below, are met in the later years of the six-year projection period as the proposed rates were developed to generate these reserve levels over time.

Key assumptions used in this Study are listed below. Additional assumptions are provided in the printout of the rate calculations that comprise Appendix A.

### Expenses

- Projected O&M expenditures are primarily based on the Department's FY 15/16 budget, and some specific adjustments to the Department's budget were made based on other known or anticipated conditions. Additional detail for O&M expense projections is included in later sections of this report.
- Inflation projected at 2.1 percent per year, unless otherwise noted.
- Projected capital expenditures through FY 20/21 were obtained from the Department's Water Capital Improvement Program ("CIP") provided in February 2016.
- Debt issuances are sized and timed to fund the projected capital expenditures and balance the magnitude of projected rate increases, reserve accounts, and Debt Service Coverage Ratio ("DSCR") values. Additional detail is found below.

### Revenue Assumptions

- Projected water rate revenues for FY 15/16 are based on an analysis of past and present water consumption and revenues. An account-by-account analyses of water consumption patterns was completed to project water revenues.
- Systemwide customer growth of 1% per year.
- No change in per-connection water consumption compared with FY 15/16.
- Non-rate revenues are based on the Department's FY 15/16 budget with adjustments made where appropriate based on review of year to date FY 15/16 revenues.
- The following two types of revenues are projected to increase with inflation: (a) revenue from the Sewer Fund as reimbursement for certain administrative services initially funded by the Water Fund, and (b) reimbursement for certain Department non-capital expenses associated with the Consent Decree.

### Policy Assumptions

The proposed water rates are influenced by the financial policy targets shown in Table 1. The Reserve Policy has been adopted by the BOWC. The other policies in Table 1 have not been formally adopted by the Department, but were used in the development of the adopted rate structure.

Table 1  
Financial Policies

Policy Issue	Importance of Financial Policy	Financial Policy Target
Debt Service Coverage Ratio (DSCR)	A minimum DSCR is a requirement of lenders. Exceeding the minimum DSCR provides additional flexibility for the Department to accommodate changing conditions such as unanticipated expenses and may help the Department obtain more favorable future debt terms.	A 1.75 minimum for ratemaking purposes is used to ensure sufficient revenue is collected to cover debt service expenditures. This ratio is expected to exceed the requirements in existing and/or future debt covenants. Department staff report that existing debt covenants specify a 1.1 minimum.
Amount of Future Debt Issued	A pay-as-you-go capital funding strategy (without issuing debt) requires higher up-front rate increases but decreases future costs.	Debt is issued to fund certain capital improvements, as described below.
Reserve Balance	Reserves provide more flexibility for the Department to react to changing conditions with financial implications (such as changes in capital costs, development activity, or the economy).	Described in further detail below.

## Revenue Projections

Revenue projections are a critical part of the revenue requirement analysis. The three aspects of revenue projections described in the sections below are non-rate revenues, rate revenues under the current rate schedule (effective since January 1, 2012), and rate revenues from proposed rate increases.

### Non-Rate Revenues

The key sources of water revenues other than water rates are the following:

- **Interest Income.** The Department invests its capital and operating reserves and earns interest income on these reserves. For the remainder of the Study period, annual interest income is estimated to be 2.0 percent of Water Fund reserves.
- **Other Operating Revenues.** The Department is projected to receive approximately \$2.0 million per year in other operating revenues. These revenues include:
  - **Service Charges.** Examples of Service Charges include connection charges, customer application fees, and disconnection fees.
  - **Administrative Services - Sewer.** This is a reimbursement from the Sewer Fund for certain administrative services provided for the sewer utility but originally paid for by the Water Fund.
  - **Other Sources.** Additional revenue sources are broken lock charges, returned check charges, backflow protection administration fees, plan check fees,

hydroelectric generation revenues, and income from other services provided by the Department.

- **Capital Grants.** The Department aggressively pursues grant funding for capital projects. Grant funding is competitive and is difficult to obtain. No further grant funding is incorporated into this Study to avoid developing water rates based on funding that is not guaranteed. Any future grant funding the Department receives will help reduce the rate impacts of capital projects.
- **Consent Decree.** A Consent Decree was awarded through judgment by the United States District Court to settle the City's and the State's claims arising from the groundwater contamination allegedly caused by the U.S. Army. The Consent Decree contains a number of provisions obligating the City to operate and maintain the Newmark Groundwater Superfund site. The City (through the Department) is reimbursed for certain O&M and capital costs.
- **Non-Operating Income.** The Department receives additional revenues from the following: interest income, as described above; rental income, primarily from communication services providers; acquisition fees; and service installation fees.

In most cases, non-rate revenues are projected to be equal to the FY 15/16 budget and remain at that level through the six-year rate study period. Some revenues, such as the administrative services from sewer, are projected to increase with inflation. Some revenues were adjusted for FY 15/16 only based on a review of actual year-to-date performance, with the Department's expectation that subsequent years will more closely resemble the FY 15/16 budget.

Additional detail of projected non-rate revenues is included in Appendix A.

### Rate Revenues under Current Rates

Rates that became effective on January 1, 2012 are shown in Table 2. These rates are used to project the revenues found in the Department's FY 15/16 budget. In this Study, projected water rate revenues for FY 15/16 are based on an analysis of past and present water consumption and revenues. An account-by-account analyses of water consumption patterns was completed to project water revenues.

There are several components to the Department's water rates:

- **Minimum Monthly Charge.** This charge is the same for each customer class, and varies depending on meter size. For a 1/2-inch meter, the Minimum Monthly Charge is \$12.90.
- **Commodity Charge.** Most customers pay a Commodity Charge of \$1.15 per hundred cubic feet ("hcf") of water use. Some customers who have prior agreements with the Department pay a reduced amount.
- **Replenishment Charge.** In addition to the Commodity Charge, customers pay a \$0.09 per hcf Replenishment Charge, which is used to fund additional purchases of State Water Project ("SWP") water for aquifer replenishment purposes.

- **Conservation Charge.** In 2010, the Department implemented a two-tier commodity charge rate. As described above, the Commodity Charge is applied to all water use. Above a certain amount of usage (as shown in Table 2, and which varies by water meter size), an additional \$0.35 per hcf Conservation Charge is applied.
- **Elevation Charge.** The Department serves customers at a variety of elevations and in numerous pressure zones. As a result, the costs to pump water varies throughout the Department's service area. The Department applies an Elevation Charge to all water use that depends on geographic location. The Elevation Charge ranges from \$0.11 to \$0.23 per hcf.

The Minimum Monthly Charge is an example of a fixed charge, that does not depend on water use. The Commodity Charge, Replenishment Charge, Conservation Charge, and Elevation Charge are examples of variable charges that depend on water use. In FY 15/16, approximately 31 percent of the Department's water sales revenues is expected to come from fixed charges.

Table 2  
Current Water Rate Schedule

Line	Customer Type	Unit	Existing Rate (1)
1	Single Family Residences, Multiple Family Connections, Commercial, Landscape, and Industrial Service Minimum Monthly Charge		
3	1/2 " & 5/8" meter	per Month	\$12.90
4	3/4" meter	per Month	\$16.15
5	1" meter	per Month	\$22.60
6	1 1/2" meter	per Month	\$38.80
7	2" meter	per Month	\$58.20
8	3" meter	per Month	\$103.50
9	4" meter	per Month	\$158.20
10	6" meter	per Month	\$330.00
11	8" meter	per Month	\$524.15
12	10" meter	per Month	\$750.65
13			
14	Commodity Charge	per HCF	\$1.15
15			
16	Replenishment Charge	per HCF	\$0.09
17			
18	Assessment Districts	per HCF	\$0.45
19			
20	Conservation Charge and Tiers		
21	Conservation Charge	per HCF	\$0.350
22	Conservation Tiers (cutoff) (2)		
23	Residential	HCF per Month	32
24	MDU (2 per unit)	HCF per Month	42
25	MDU (2+) per unit	HCF per Month	17
26	Non-Residential		
27	1/2 " & 5/8" meter	HCF per Month	24
28	3/4" meter	HCF per Month	36
29	1" meter	HCF per Month	65
30	1 1/2" meter	HCF per Month	150
31	2" meter	HCF per Month	250
32	3" meter	HCF per Month	740
33	Commercial		
34	1/2 " & 5/8" meter	HCF per Month	42
35	3/4" meter	HCF per Month	55
36	1" meter	HCF per Month	130
37	1 1/2" meter	HCF per Month	275
38	2" meter	HCF per Month	445
39	3" meter	HCF per Month	875
40	4" meter	HCF per Month	2,400
41	6" meter	HCF per Month	9,000
42			
43	Elevation Charge (all water users)		
44	Zone 1	per HCF	\$0.11
45	Zone 2	per HCF	\$0.19
46	Zone 3	per HCF	\$0.17
47	Zone 4	per HCF	\$0.14
48	Zone 5	per HCF	\$0.23
49	Zone 6	per HCF	\$0.23
50			
51	Additional Charges		
52	Surcharge - Area Outside City (no Zone)	% of \$/hcf	50%
53	Unmetered Construction Rate	per Month	\$50.00

Notes:

(1) Source: City of San Bernardino Municipal Water Department Rule and Regulation No. 21

General Water Service/Water Rates. Rates effective January 1, 2012. HCF means hundred cubic feet.

(2) The Conservation Charge is applicable to water use exceeding the cutoff value.

Table 3 summarizes water rate revenues under the current rate schedule. Shown in this table are FY 13/14 actual revenues, the FY 14/15 budget, and projected for FY 15/16. The majority of rate revenues are labeled as “Water Sales – Regular” which consists of the Minimum Monthly Charge and the Commodity Charge. The revenues from the Replenishment Charge, Conservation Charge, and Elevation Charge are also shown in Table 3. The Department receives smaller amounts of revenue from fire service charges, sales to other municipalities, and from sales through the Encanto Booster Station.

**Table 3**  
**Rate Revenues under Current Rates**

Type of Rate Revenue	Historical FY 2013/14	Budget FY 2014/15	Projected FY 2015/16
Water Sales - Regular	\$27,562,842	\$27,600,000	\$22,325,518
Replenishment Fee	1,701,462	1,700,000	1,155,468
Water Conservation Charge	1,192,046	1,200,000	1,140,000
Elevation Charge	2,820,407	2,800,000	2,036,160
Water Sales - Fire Service	461,679	460,000	464,600
Water Sales - Municipal	914,016	900,000	548,000
Geothermal Heat Sales	140,314	140,000	90,000
Water Sales - Geothermal	20	0	0
Water Sales - Other	683,897	600,000	120,000
<b>Total: Rate Revenue</b>	<b>\$35,476,683</b>	<b>\$35,400,000</b>	<b>\$27,879,746</b>

The projected FY 15/16 revenues are less than previous amounts because water consumption patterns are different from those of FY 13/14.

The average consumption per single-family residential connection decreased from 21 hcf/month in 2013 to 16 hcf/month in 2015.

### Rate Revenues from Proposed Rate Increases

Rate revenues resulting from proposed rate increases are shown later in this report.

## Expense Projections

### O&M Expenses

Operation and maintenance (“O&M”) expenses for FY 14/15 were obtained from the Department, as was the FY 15/16 budget. These records, along with conversations with Department staff, were used to identify any significant deviations in O&M expenses compared with the Department’s FY 15/16 budget.

Table 4 shows the basis for projection of O&M expenses for the Study period, and beyond. Additional detail is included in the Appendix and a summary of O&M expenses by Department section is shown in Table 5.

**Table 4**  
**O&M Expenses – Basis for Projection**

Type of Expense	FY 15/16 Projection	Succeeding Years	Notes
All Expenses Not Described Below	FY 15/16 Budget	Previous Year + Inflation	
Personnel Costs	FY 15/16 Budget - Vacancies	Previous Year + Infl; Fill Vacancies	1
PERS	% of Salary times Actuarial Projections	% of Salary times Actuarial Projections	2
Customer Relations and Billing	FY 15/16 Budget	Previous Year + Inflation + Growth	3
Electricity	FY 15/16 Budget	Previous Year + Inflation + Growth	3
Chemicals	FY 15/16 Budget	Previous Year + Inflation + Growth	3
City-Provided Services	Per 2015 Agreement	Per 2015 Agreement	4
Supplemental Water Purchases	Calculated: Rate * Sales	Calculated: Rate * Sales	5
Water Loss Management	FY 15/16 Budget	Less Non-Recurring \$	6

Notes:

1. There are a number of budgeted, but unfilled, positions within the Water Division. The cost of vacant positions is excluded from financial projections, and it is assumed that the vacancies will be filled during FY 16/17 and 17/18, with some level of vacancies occurring on an ongoing basis in subsequent years.
2. PERS projections were obtained from CalPERS actuarial data provided by the Department. Generally, PERS costs are increasing faster than inflation.
3. In addition to inflation, these expenses are projected to increase with growth at a rate of 1% per year.
4. The Department and the City negotiated an agreement that defines these costs through FY 15/16. For the purposes of this rate study, payments in future years are not projected to change.
5. Supplemental water purchase costs are projected to equal Replenishment Charge revenues. Replenishment Charge revenues are discussed in more detail below.
6. Certain expenses in the FY 15/16 are expected to be non-recurring after FY 16/17.

As shown in Table 5, the majority of O&M expenses pay for services provided by the Department’s Administrative Services and Water Utility Divisions. The Water Fund also pays for a portion of the Electrical, Instrumentation, and SCADA Section which is housed in the Department’s Water Reclamation Division.

Overall, O&M expenses through FY 20/21 are projected to increase at an average rate of 3.8 percent per year. This is higher than the projected 2.1% annual inflation rate. Although most expenses are projected to increase at the rate of inflation, several factors cause the projected increases that exceed inflation:

- Increase in supplemental water purchase costs from \$250,000 in FY 14/15 to over \$2,000,000 per year by FY 20/21 to provide resources to purchase over 12,000 acre-feet per year and accommodate increases in water purchase costs from the Department’s respective SWP Contractor, San Bernardino Valley Municipal Water District (“Valley District”). This is the most significant reason that projected increases in O&M expenses exceed the rate of inflation.
- Additional personnel costs after vacant positions are filled.
- PERS expenses that increase faster than inflation.
- Some expenses, such as billing expenses, that are also projected to increase with customer growth.

**Table 5  
Projected Operation and Maintenance Expenses**

Line	Division and Section	Section Number	Projected					
			FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21
1	Administration Division							
2	Board of Water Commissioners	1010	\$59,300	\$60,540	\$61,800	\$63,100	\$64,420	\$65,780
3	Administration	1050	516,297	530,280	544,080	558,080	572,420	584,440
4	Administration Services	1055	188,708	195,800	202,570	209,380	216,400	220,940
5	Environmental and Regulatory Compliance	1060	573,245	592,210	610,500	628,980	647,970	661,570
6	Human Resources	1070	196,551	203,270	209,730	216,260	222,970	227,650
7	Finance	2010	607,799	627,550	646,640	665,930	685,760	700,150
8	Information Technology	2030	852,278	876,220	899,740	923,590	948,040	967,950
9	Purchasing, Warehouse & Fleet	2040	340,022	351,540	362,620	373,820	385,310	393,400
10	Fleet	2045	962,542	985,470	1,008,450	1,031,840	1,055,770	1,077,950
11	Customer Relations	2050	187,107	200,050	208,520	217,210	226,240	233,310
12	Water Conservation	2055	290,898	298,260	305,590	313,040	320,660	327,390
13	Customer Service	2060	837,963	866,930	894,760	922,870	951,760	971,740
14	Billing	2070	792,711	821,990	850,280	879,370	909,470	937,850
15	Cashiering	2080	305,662	316,620	327,110	337,700	348,580	355,910
16	Field and Meter Services	2090	1,053,341	1,090,750	1,126,630	1,162,810	1,200,040	1,225,240
17	General Administration Expense	2510	5,373,500	5,440,400	5,508,700	5,578,430	5,649,640	5,722,350
18	Subtotal Administration Division		\$13,137,924	\$13,457,880	\$13,767,720	\$14,082,410	\$14,405,450	\$14,673,620
19								
20	Water Utility Division							
21	Water Utility Administration	3010	\$608,904	\$627,470	\$645,530	\$663,830	\$682,610	\$696,930
22	Distribution Administration	3020	447,789	463,740	479,030	494,450	510,310	521,030
23	Distribution Service and Repair	3021	2,426,614	2,500,980	2,573,310	2,646,510	2,721,660	2,778,810
24	Distribution Maintenance	3023	2,144,349	2,212,050	2,277,710	2,344,110	2,412,290	2,462,950
25	Water Loss Management	3024	387,239	145,880	150,330	154,830	159,450	162,600
26	Water Administration	3040	347,178	359,500	371,320	383,250	395,510	403,820
27	Production and Treatment	3041	7,585,781	8,119,841	8,737,672	9,369,113	9,881,757	10,119,910
28	Plant and Facility Maintenance	3042	1,162,342	1,196,710	1,230,280	1,264,260	1,299,150	1,326,430
29	Specialty Construction	3043	683,065	706,630	729,290	752,160	775,680	791,970
30	Engineering	3060	1,394,057	1,423,330	1,453,210	1,483,740	1,514,900	1,546,710
31	Quality and Backflow	3063	1,257,467	1,296,950	1,335,260	1,374,010	1,413,790	1,443,480
32	Subtotal, Water Utility Division		\$18,444,785	\$19,053,081	\$19,982,942	\$20,930,263	\$21,767,107	\$22,254,640
33								
34	Water Reclamation Division							
35	Electrical, Instrumentation, and SCADA	4042	\$582,160	\$603,130	\$623,210	\$643,440	\$664,270	\$678,210
36	Subtotal Water Reclamation Division		\$582,160	\$603,130	\$623,210	\$643,440	\$664,270	\$678,210
37								
38	Adjustment for Vacancies		(\$1,480,000)	(\$1,110,000)	(\$600,000)	(\$600,000)	(\$600,000)	(\$600,000)
39								
40	Total, O&M Expenses		\$30,684,869	\$32,004,091	\$33,773,872	\$35,056,113	\$36,236,827	\$37,006,470

**Capital Improvements and Capital Improvement Funding**

The Department provided its Capital Improvement Plan (“CIP”), covering the years through FY 20/21. This CIP contains 60 projects incorporated into this Study, and in Table 6, the projects are grouped into one of five categories shown in the table.

**Table 6  
Projected Capital Improvements**

Capital Expenditure Category	Projected						FY 15/16-20/21 Total	Notes
	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21		
Total Capital Expenditures, FY 15/16 Dollars								1
Replacement/Rehabilitation Assets	\$4,142,000	\$7,352,000	\$11,312,000	\$9,047,000	\$5,537,000	\$2,047,000	\$39,437,000	
New System Assets	3,457,000	5,045,000	395,000	4,045,000	395,000	5,895,000	19,232,000	
Generators	0	300,000	300,000	300,000	300,000	0	1,200,000	
Rolling Stock	145,000	145,000	330,000	0	0	0	620,000	
Pipeline Construction Crew	0	500,000	500,000	500,000	500,000	500,000	2,500,000	
Subtotal, Capital Expenditures, FY 15/16 Dollars	\$9,142,500	\$14,740,500	\$14,235,500	\$15,290,500	\$8,130,500	\$9,840,500	\$71,380,000	
Total Capital Expenditures, Inflation Adjusted Dollars								2
Replacement/Rehabilitation Assets	\$4,142,000	\$7,506,000	\$11,792,000	\$9,629,000	\$6,017,000	\$2,271,000	\$41,357,000	
New System Assets	3,457,000	5,151,000	412,000	4,305,000	429,000	6,541,000	20,295,000	
Generators	0	306,000	313,000	319,000	326,000	0	1,264,000	
Rolling Stock	145,000	148,000	344,000	0	0	0	637,000	
Pipeline Construction Crew	0	511,000	521,000	532,000	543,000	555,000	2,662,000	
Subtotal, Capital Expenditures, Inflation Adjusted Dollars	\$9,142,500	\$15,050,000	\$14,840,000	\$16,273,000	\$8,834,000	\$10,919,000	\$75,058,500	

Notes:

(1) Source: Department's CIP, excluding projects funded by non-Department agencies or developers.

(2) Projected inflation rate of 2.1 percent per year.

The majority of projected capital expenditures are either the replacement or rehabilitation of existing assets, or construction of new system assets. The Department also plans to replace eight of its portable generators by FY 19/20. Rolling stock expenditures for vehicles are also projected, as is the implementation of a pipeline construction crew to complete pipeline construction projects in-house.

The CIP provided by the Department was in FY 15/16 dollars, and Table 6 shows how inflation was applied to develop projected capital expenditures used in this rate study.

Not included in this rate study are Department projects that are funded by outside agencies or that are funded by developers, since these capital projects do not affect water rates.

The Department anticipates issuing debt to fund much of this CIP. In general, debt issuances are sized and timed to fund the CIP and minimize rate increases. The anticipated debt proceeds would fund approximately 69 percent of the estimated capital project cost through FY 20/21. Debt service payments would be paid through rate revenue and other non-rate revenues.

**Existing and Projected Debt Service**

Table 7 shows existing debt service, consisting of three California Infrastructure and Economic Development Bank (“CIEDB”) loans and notes payable to Valley District. Existing debt service is currently approximately \$2.3 million per year which drops to approximately \$2.1 million year in FY 17/18.

**Table 7  
Existing and Projected Debt Service Payments**

Line	Existing Debt Service	Type of Payment	Projected					Notes	
			FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20		FY 20/21
1	2002 CIEDB	Principal	\$594,440	\$614,290	\$634,810	\$656,010	\$677,930	incl. in total	1
2	2007 CIEDB	Principal	492,780	506,130	519,850	533,940	548,400	incl. in total	1
3	2012 CIEDB	Principal	435,110	446,470	458,120	470,080	482,350	incl. in total	1
4	2002 CIEDB	Interest/Annual Fee	\$153,710	\$133,850	\$113,340	\$92,138	\$70,218	incl. in total	1
5	2007 CIEDB	Interest/Annual Fee	179,754	166,219	152,317	138,060	123,600	incl. in total	1
6	2012 CIEDB	Interest/Annual Fee	233,468	221,963	210,158	197,920	185,650	incl. in total	1
7	SBVMWD Note Payable	Principal and Interest	229,227	229,227	0	0	0	incl. in total	1
8	Total, Existing Debt Service		\$2,318,489	\$2,318,149	\$2,088,595	\$2,088,148	\$2,088,148	\$2,088,148	
9									
10	Debt Service For use in DSCR Calculations		\$2,089,262	\$2,088,922	\$2,088,595	\$2,088,148	\$2,088,148	\$2,088,148	2

Line	Proposed Debt Service	Issue Date	Amount	Interest Rate	Total Principal and Interest Payment							
					FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20		FY 20/21
11	CIEDB	16/17	\$10,000,000	3.5%			773,200	773,200	773,200	773,200	773,200	3
12	CIEDB	18/19	\$10,000,000	3.5%					781,790	781,790	781,790	3
13	Revenue Bond/Private Placement	16/17	\$0	6.0%			0	0	0	0	0	3
14	Revenue Bond/Private Placement	17/18	\$13,000,000	6.0%			1,035,000	1,035,000	1,035,000	1,035,000	1,035,000	3
15	Revenue Bond/Private Placement	18/19	\$4,000,000	6.0%				318,460	318,460	318,460	318,460	3
16	Revenue Bond/Private Placement	19/20	\$7,000,000	6.0%					557,310	557,310	557,310	3
17	Revenue Bond/Private Placement	20/21	\$8,000,000	6.0%							636,920	3
18	Total				\$0	\$773,200	\$1,808,200	\$2,908,450	\$3,465,760	\$4,102,680		

Notes:

- (1) Source: Department's FY 14/15 Comprehensive Annual Financial Report. Annual expenses are available through FY 19/20, and starting in FY 20/21 are grouped into five-year totals. For this analysis, FY 20/21 debt service payments are assumed to equal FY 19/20
- (2) In SBVMWD Note Payable appears to be not included in the debt service coverage ratio calculation in the Department's Financial Statements.
- (3) Issuance terms for CIEDB debt: 3.5% interest over 20 years, with 10% capitalized bond reserve and 1% cost of issuance. Private placement financing assumes 6% interest over 30 years, no cost of issuance, senior lien (per 2013 conversation with City). Also includes capitalized bond reserve of 8.75% of bond proceeds (per 2014 conversation with City).

The Department is anticipating \$10 million in CIEDB funding in FY 16/17 and another \$10 million in FY 18/19. Anticipated CIEDB loan terms are 3.5 percent interest over 20 years, with a 10 percent capitalized bond reserve and 1 percent cost of issuance.

Remaining debt financing would come from either a revenue bond or a private placement issuance. For the purposes of this rate study, anticipated terms are 6 percent interest over 30 years, with an 8.75 percent capitalized bond reserve and no additional costs of issuance.

## Reserves

The Department has created several water system reserves, and has established desired reserve amounts and timelines for accumulating them. In this Rate Study, the Department is projected to balance the benefits of maintaining and accumulating reserves per these policies with the financial impacts of doing so. A description of these reserves, the desired minimum reserve balances, and projected reserve balances through the Study period follows:

- **Operating Reserve.** The minimum Operating Reserve balance is 45 days of O&M expenses. This minimum balance is projected to be maintained

throughout the Study period, gradually increasing to approximately \$4.6 million by the end of the rate study planning period in FY 20/21.

- **Revenue Stabilization Reserve.** The minimum Revenue Stabilization Reserve balance is 20 percent of annual water sales revenue. The Department would like to gradually accumulate this reserve by FY 16/17. However, because of changed water consumption patterns and decreased water consumption, there is projected to be insufficient reserves to keep a revenue stabilization reserve through the remainder of the Study period.
- **Emergency Reserve.** The minimum Emergency Reserve balance is two percent of the total plant in service. The Department is phasing in the accumulation of this reserve over a ten-year period, where FY 14/15 is the third year and FY 20/21 is the ninth year. By FY 20/21 the Department's goal is for the reserve to contain 90 percent of its ultimate goal of two percent of plant in service. This reserve is not projected to be funded at the levels described by the Department's phase in schedule. By the end of FY 20/21, the projected reserve balance is 80 percent of the goal of two percent of plant in service.
- **Capital Replacement Reserve.** The minimum Capital Replacement Reserve balance is 20 percent of the cash-funded CIP. After FY 15/16, this reserve is projected to be unfunded through the remainder of the Study period.
- **Unrestricted Fund Balance.** The balance of Department reserves, for the purposes of this rate study, as Unrestricted Fund Balance. There is no minimum balance established for Unrestricted Funds, but in this Study, the intent is to keep this balance above \$0.

By the end of FY 20/21, the Department is projected to have a total of approximately \$10.2 million in water reserve balances, as shown in further detail in Table 9 below.

## Financial Projection

To provide for the continued operation of a utility on a sound financial basis, revenues must be sufficient to meet the cash requirements for operation and maintenance (O&M) expense, debt service and debt service coverage requirements, reserves, and cash funded capital expenditures.

Table 8 shows the Department's revenue requirement projections through FY 20/21. Lines 1 through 15 show sources of funds, including beginning year reserves, water rate revenues, other revenues, and debt proceeds.

The financial projection includes rate increases effective each July 1 starting in 2016 that are described in further detail below.

Lines 17 through 25 show the projected uses of funds. These uses of funds include O&M expenses shown in Table 5 of this report, existing and proposed debt service shown in Table 7 of this report, and capital expenditures. Line 27 shows the projected end year reserve balance.

**Table 8**  
**Revenue Requirement Projections**

Line	Projected						Notes	
	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21		
1	<b>SOURCES OF FUNDS</b>							
2	Beginning Fund Balance	\$17,789,720	\$7,951,348	\$4,620,713	\$5,021,275	\$6,055,363	\$8,205,457	
3	Operating Revenues							
4	Water Rate Revenues (Includes Rate Increases)	22,873,518	25,290,963	27,963,973	30,919,563	32,938,756	35,089,867	1
5	Elevation Charge Revenues	2,036,160	2,056,522	2,077,085	2,097,857	2,118,838	2,140,027	2
6	Replenishment Fee Revenues	1,155,468	1,426,361	1,833,522	2,248,683	2,538,367	2,563,750	2
7	Water Conservation Charge	1,140,000	1,613,053	1,629,180	1,645,470	1,661,920	1,678,540	2
8	Other Operating Revenues	2,266,550	2,720,330	2,734,350	2,748,610	2,763,120	2,777,880	2
9	Non-Operating Revenues							
10	Investment Income	355,790	159,030	92,410	100,430	121,110	164,110	2
11	Service Installation and Acquisition Fees	500,000	1,700,000	1,700,000	1,700,000	1,700,000	1,700,000	
12	Non-Capital Grant Fund (AIG)	1,500,000	1,531,500	1,563,660	1,596,500	1,630,030	1,664,260	
13	Other Non-Operating Revenues	480,000	340,000	340,000	340,000	340,000	340,000	
14	Debt Proceeds	0	10,000,000	13,000,000	14,000,000	7,000,000	8,000,000	3
15	Total Sources of Funds	\$50,097,206	\$54,789,105	\$57,554,893	\$62,418,388	\$58,867,503	\$64,323,891	
16								
17	<b>USES OF FUNDS</b>							
18	O&M Expenditures	\$30,684,869	\$32,004,091	\$33,773,872	\$35,056,113	\$36,236,827	\$37,006,470	4
19	Debt Service							
20	Existing Debt	2,318,489	2,318,149	2,088,595	2,088,148	2,088,148	2,088,148	3
21	Proposed Debt	0	796,152	1,831,151	2,945,764	3,503,071	4,139,993	3
22	Capital Expenditures							
23	Cash Funded	9,142,500	5,050,000	1,840,000	2,273,000	1,834,000	2,919,000	5
24	Debt Funded	0	10,000,000	13,000,000	14,000,000	7,000,000	8,000,000	5
25	Total Expenditures	\$42,145,858	\$50,168,392	\$52,533,617	\$56,363,026	\$50,662,046	\$54,153,611	5
26								
27	<b>ENDING FUND BALANCE</b>	\$7,951,348	\$4,620,713	\$5,021,275	\$6,055,363	\$8,205,457	\$10,170,280	6

Notes:

- (1) Refer to Table 10 below for the projected rate schedule that is anticipated to generate this rate revenue income
- (2) Refer to the Appendix for more detail on other operating revenues and non-operating revenues
- (3) Refer to Table 7
- (4) Refer to Table 5
- (5) Refer to Table 6
- (6) Refer to Table 9 below

Table 9 shows the various reserve balances and the projected Debt Service Coverage Ratio. The Debt Service Coverage Ratio is projected to exceed the Department's bond covenants throughout the study period, exceed 1.5 beginning in FY 16/17, and exceed 1.75 beginning in FY 20/21.

Table 9  
Financial Performance Indicators

Line	Projected						Notes	
	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21		
37	<b>USES OF FUNDS</b>							
38	O&M Expenditures	\$30,684,869	\$32,004,091	\$33,773,872	\$35,056,113	\$36,236,827	\$37,006,470	
39	Debt Service							
40	Existing Debt	\$2,318,489	\$2,318,149	\$2,088,595	\$2,088,148	\$2,088,148	\$2,088,148	
41	Proposed Debt	\$0	\$796,152	\$1,831,151	\$2,945,764	\$3,503,071	\$4,139,993	
42								
43	Capital Projects	\$9,142,500	\$15,050,000	\$14,840,000	\$16,273,000	\$8,834,000	\$10,919,000	
44								
45	Total Expenditures	\$42,145,858	\$50,168,392	\$52,533,617	\$56,363,026	\$50,662,046	\$54,153,611	
46								
47								
48	<b>FINANCIAL PERFORMANCE INDICATORS</b>							
49	EOY Reserve Balance (Target in Parentheses)							
50	Operating Reserve (45 Days of Operating Expenses)	\$3,783,070	\$3,945,710	\$4,163,900	\$4,321,990	\$4,467,550	\$4,562,440	1
51	Rate Stabilization Reserve (20% of Water Sales)	360,759	0	0	0	0	0	2
52	Emergency Replacement Reserve (2% of Total Capital Assets)	2,257,772	672,715	845,338	1,697,383	3,695,496	5,566,475	3
53	Capital Replacement Reserve (Avg of Next 5 Years PAYG CIP)	1,519,600	0	0	0	0	0	4
54	Unencumbered Reserves	30,146	2,289	12,037	35,990	42,411	41,366	5
55	Total EOY Reserve Balance	\$7,951,348	\$4,620,713	\$5,021,275	\$6,055,363	\$8,205,457	\$10,170,280	
56								
57	Debt Service Coverage Ratio							
58	Gross Revenue	\$32,307,486	\$36,837,758	\$39,934,179	\$43,397,113	\$45,812,140	\$48,118,434	
59	Less O&M Expenses	(30,684,869)	(32,004,091)	(33,773,872)	(35,056,113)	(36,236,827)	(37,006,470)	
60	Revenue Available for Debt Service	\$1,622,617	\$4,833,667	\$6,160,307	\$8,341,000	\$9,575,313	\$11,111,964	
61								
62	First Tier Debt Service	\$2,089,262	\$2,885,074	\$3,919,746	\$5,033,912	\$5,591,219	\$6,228,141	
63								
64	Debt Service Coverage Ratio	0.78	1.68	1.57	1.66	1.71	1.78	
65	DSCR Criterion: Minimum	1.75	1.75	1.75	1.75	1.75	1.75	

## Proposed Water Rate Schedule

### Conservation Charge

When implemented in 2010, the Conservation Charge was designed to apply to water use that exceeded 50 percent of the customer class average for 2009, creating a 2<sup>nd</sup> tier that included this charge. It was set at \$0.35/hcf in order to provide a conservation signal. In this rate study, the Conservation Charge is re-evaluated, with a focus on defining costs associated with high water consumption.

### Water Conservation Program

The Department's water conservation program is contained in Section 2055. The Department has 1 FTE devoted to conservation efforts, and the Department provides community outreach and advertising. Total costs in the Department's FY 15/16 budget are \$290,898.

### Water Loss Management

The Department's water loss management program is contained in Section 3024. The Department has 2 FTEs devoted to these efforts, and the Department's FY 15/16 budget also includes \$250,000 for a city-wide median and turf removal conservation project. The total cost in the Department's FY 15/16 budget is \$413,739.

Well Rehabilitation

In recent years, the water table has been dropping in the aquifers the Department’s wells pump from. The Department is planning on a series of well rehabilitation projects that will lower the submersible pumps and vertical turbine pump bowls. The estimated cost to complete 10 of these rehabilitation projects per year is approximately \$790,000.

Additional Electricity from Pumping from Deeper Wells

A lower water table means that water has to be pumped a greater height to reach the water distribution system. This in turn requires additional electricity costs. The annual cost of this electricity, assuming a 50-foot increase in pumping head, electricity costs of approximately \$0.086/kWh, 60% pump/motor efficiency, and the volume of water sold in the 2<sup>nd</sup> rate tier, is approximately \$56,000 per year.

Additional Costs from Using Peaking Wells

The Department has wells that operate year-round and wells that operate seasonally. The wells that operate seasonally are, on average, more expensive to operate than those that operate year round<sup>2</sup>. The additional cost to operate these seasonal wells, applied to the volume of water sold in the 2<sup>nd</sup> rate tier during the summer, is approximately \$127,000 per year.

Water Sold in the 2<sup>nd</sup> Tier

Based on an account-by-account review of the Department’s billing records, in FY 13/14, a total of 3,422,170 end tier.

Calculation of Conservation Charge

Table 10 summarizes the revised conservation charge, calculated to be \$0.49/hcf.

Table 10  
Proposed Revision to Conservation Charge

<u>Component of Conservation Charge</u>	<u>Amount</u>
Billing Unit 2055, Water Conservation, FY 15/16 Budget	\$291,000
Billing Unit 3024, Water Loss Management, FY 15/16 Budget	\$414,000
Estimated Annual Cost for Well Rehabilitation	\$790,000
Estimated Additional Electricity from Pumping from Deeper Wells	\$56,000
Estimated Additional Costs from Using Peaking Wells	\$127,000
Total	\$1,678,000
<b>Calculation of Conservation Charge</b>	
Costs Included in Conservation Charge	\$1,678,000
Projected 2nd Tier Consumption, hcf	3,422,170
Conservation Charge, \$/hcf	\$0.49

<sup>2</sup> This discussion excludes the Department’s EPA wells, which the Department is required to operate year round. These EPA wells are more expensive to operate because of the cost of the treatment facilities. The Department is reimbursed for certain costs associated with operating these wells.

### Replenishment Fee

Replenishment Fee revenues are used solely for purchase of regional water for aquifer recharge. The proposed increase is from the current \$0.09/hcf to \$0.11/hcf on July 1, 2016, with further increases to \$0.14/hcf and \$0.17/hcf on July 1, 2017 and July 1, 2018. The increases are in anticipation of increases in the cost of regional water from Valley District, while maintaining the ability to purchase, subject to availability, approximately 12,000 acre-feet of water each year.

### Elevation Charge

No changes to the Elevation Charge are proposed.

### Minimum Monthly Charge and Commodity Charge

Combined, the Minimum Monthly Charge and the Commodity Charge make up the majority of the Department's water sales revenues. The Minimum Monthly Charge is a fixed charge, which does not vary by water use. The Commodity Charge (along with the Conservation Charge, Replenishment Fee, and Elevation Charge) are variable charges, which are assessed per unit of water used. Currently, approximately 32 percent of the Department's water rate revenue is from fixed charges.

Water utilities are often faced with a tradeoff when establishing rate structures. Higher fixed charges provide greater revenue stability, where water sales revenues are more constant and do not fluctuate as water use fluctuates. This is desirable, given that many of a utility's costs are fixed – they remain necessary even if water consumption fluctuates. Variable costs, by contrast, are those that fluctuate with water consumption.

However, higher fixed charges reduce the ability of a customer to control their water bill by reducing water consumption. Higher fixed charges also result in lower variable charges, which may not provide as much of an incentive for customers to use water wisely.

Most of the Department's costs are fixed costs. In FY 15/16, for example the Department's total expenditures are approximately \$42 million (see Table 8). Variable costs for electricity, supplemental water purchases, and treatment chemicals (such as chlorine and granular activated carbon) are approximately \$6 million. The remainder of the expenses are labor, materials, supplies, equipment, services, debt service, and capital expenses.

Regardless of water consumption, debt service must be paid, and the majority of labor, materials, supplies, equipment, and services are necessary to operate and maintain the water system. Capital expenditures for service reliability, repair and replacement, and regulatory compliance are also required, though capital spending to add system capacity is often deferred if water consumption decreases.

The Department recognizes that most of its costs are fixed costs, but only about a third of its revenue are from fixed charges. Mindful of the tradeoffs described above, the

Department desires to gradually increase revenue recovery from fixed charges to approximately 50 percent over a six-year period.

The proposed water rate schedule shown in Table 11 shows how this would occur through 2018. Minimum Monthly Charge and Commodity Charge increases effective July 1 of 2016, 2017, and 2018 are proposed. The rate increases are proposed to be applied to the various components of the rate structure as follows:

- Commodity Charge: Remains at \$1.15/hcf
- Minimum Monthly Charge: For a 5/8"x3/4" meter (the size most customers use), the Minimum Monthly Charge increases from the current \$12.90 to \$16.09, \$19.58, and \$23.39 on 7/1/16, 7/1/17, and 7/1/18, respectively. Minimum Monthly Charges for other meter sizes would increase proportionately.
- Replenishment charge: increases from the current \$0.09/hcf to \$0.11/hcf on July 1, 2016, with further increases to \$0.14/hcf and \$0.17/hcf on July 1, 2017 and July 1, 2018. Replenishment Charge revenues are used solely for purchase of regional water for aquifer recharge.
- Elevation charge: unchanged
- Conservation charge: as described in Table 10 above, increases from \$0.35/hcf to \$0.49/hcf on July 1, 2016. No subsequent increases are proposed in 2017 or 2018.

Table 11  
Proposed Water Rate Schedule

	Current	Proposed		
		Effective Date		
		7/1/2016	7/1/2017	7/1/2018
<b>Monthly Minimum Charge</b>				
<u>Water Meter Size</u>				
1/2" & 5/8"	\$12.90	\$16.09	\$19.58	\$23.39
3/4"	\$16.15	\$20.15	\$24.51	\$29.28
1"	\$22.60	\$28.19	\$34.30	\$40.98
1 1/2"	\$38.80	\$48.40	\$58.88	\$70.35
2"	\$58.20	\$72.60	\$88.32	\$105.52
3"	\$103.50	\$129.12	\$157.06	\$187.66
4"	\$158.20	\$197.36	\$240.07	\$286.83
6"	\$330.00	\$411.68	\$500.78	\$598.33
8"	\$524.15	\$653.88	\$795.40	\$950.34
10"	\$750.65	\$936.44	\$1,139.12	\$1,361.01
<b>Commodity Charge (\$/hcf)</b>	\$1.15	\$1.15	\$1.15	\$1.15
<b>Replenishment Charge (\$/hcf)</b>	\$0.09	\$0.11	\$0.14	\$0.17
<b>Elevation Charge (\$/hcf)</b>				
Zone 1	\$0.11	\$0.11	\$0.11	\$0.11
Zone 2	\$0.19	\$0.19	\$0.19	\$0.19
Zone 3	\$0.17	\$0.17	\$0.17	\$0.17
Zone 4	\$0.14	\$0.14	\$0.14	\$0.14
Zone 5	\$0.23	\$0.23	\$0.23	\$0.23
Zone 6	\$0.23	\$0.23	\$0.23	\$0.23
<b>Conservation Charge (\$/hcf exceeding cutoff)</b>	\$0.35	\$0.49	\$0.49	\$0.49

Not included in Table 11 are the remaining projected increases to the Minimum Monthly Charge that would take effect (if adopted) in 2019 and 2020. Further increases to \$25.80 and \$28.35 are projected and are presented here for informational purposes. Similarly, an increase in the Replenishment Charge to \$0.19/hcf is projected in 2019. Included below is further discussion of ongoing considerations that the Department should monitor as it evaluates its water rates in the future.

## Example Monthly Water Bill Comparison

In 2015, the average monthly water consumption for a single-family residence in San Bernardino was 16 hcf/month. Table 12 shows example monthly water bills for a customer with a 1/2-inch x 5/8-inch water meter served by the Department and using 16 hcf/month. Under current rates, the monthly bill is \$35.59. Proposed increases would result in a monthly bill of \$39.67 effective 7/1/16, with subsequent increases to \$43.65 on 7/1/17 and \$49.15 on 7/1/18.

This table shows that the Department’s monthly water bill for this average residential customer is lower than most neighboring agencies, even after the proposed three water rate increases. It is important to note that most of the neighboring water systems have either adopted rate increases that will take effect in the future, or are currently reviewing their water rates.

**Table 12**  
**Monthly Single-Family Residential Bill Comparison (1)**

Utility	Monthly Bill	Consumption hcf/month	Notes
SBMWD Existing	\$35.59	16	Average of six elevation charge zones
SBMWD Proposed	\$39.11	16	Proposed, effective 7/1/16
SBMWD Proposed	\$43.07	16	Proposed, effective 7/1/17
SBMWD Proposed	\$47.36	16	Proposed, effective 7/1/18
Fontana Water Company	\$65.33	16	Not including any potential drought surcharges
Cucamonga Valley Water District	\$54.93	16	Includes Stage 6 Drought Surcharge; increases to \$66.28 by 7/1/18
East Valley Water District	\$53.53	16	Increases to \$59.49 by 7/1/16 (indoor allocation ~10 hcf/month)
Rialto	\$50.78	16	Increases to \$51.55 on 1/1/17
Colton	\$42.46	16	
Redlands	\$36.06	16	Increases to \$44.25 by 7/1/18
Riverside	\$33.24	16	Average of summer and winter rates; currently reviewing water rates

Note:

(1) For the Department, the monthly bill is on a customer with a 5/8-inch water meter using 16 hcf/month, paying the average of the six elevation charges. For other jurisdictions, the monthly charge for a 3/4-inch water meter was used if no monthly charge for a 5/8-inch water meter exists or, as is the case of EVWD, single-family residential customers typically have 3/4-inch meters. Note that Fontana Water Company’s monthly bill does not include any potential drought surcharges, but Cucamonga Valley Water District’s (CVWD) monthly bill includes the Stage 6 Drought Surcharge. If this drought stage declaration is lifted by CVWD, the monthly bill will decrease from what is shown in this table.

Table 12 shows that the monthly water bill impact from the proposed first rate increases is approximately \$4 per month. Because the majority of the increase is in the Monthly Service Charge, the financial impact will be approximately \$4 per month for most single-family residential customers, regardless of water consumption. Financial impacts will be higher than \$4 per month for customers with higher water use (over 32 hcf/month) that pay the Conservation Charge.

As a further comparison, in 2013, the average consumption for a single-family residence was 21 hcf/month. The current monthly water bill for a customer using 21 hcf/month is \$42.69.

Comparisons with other jurisdictions can be useful, but they do not in themselves explain why utility rates are set at the levels they are. Each utility is unique and has its own set of circumstances that influence rate setting. In particular, the following are not apparent from a monthly bill comparison:

- Age of infrastructure and needed capital investments in order to maintain service and comply with regulatory mandates.
- The condition of the infrastructure and the extent to which a utility chooses to invest in repairs and replacements to its infrastructure.
- For a utility providing water services, the specific sources of water supply, the degree that the utility relies on imported water, and the types of water treatment facilities that exist.

- Whether a utility is currently deferring capital investment and whether large capital expenditures loom in the future.
- How efficient a utility is in providing service.
- Specifically to the comparison shown in Table 11, whether future rate increases are anticipated for any of the other jurisdictions shown.

## Ongoing Considerations

The financial plan shown in Table 8 above extends through FY 20/21, and rate increases are proposed through FY 17/18. There are a number of factors that will change over the next few years that have financial implications. The extent to which these factors change will influence the Department's next review of water rates. Although there are two additional rate increases presented in this report for informational purposes, the Department will review water rates in the future. At a future date, the Department will determine the magnitude and timing of future rate increases beyond those proposed for 2016, 2017, and 2018 in this report.

The Department should continue to monitor its financial status on an ongoing basis, and should continue to monitor the following:

- **State drought regulations.** State emergency drought regulations are continually being reviewed and adjusted. Future adjustments in the regulations may affect water consumption.
- **Water consumption patterns.** Financial projections are based on 2015 water consumption patterns. Changes in water consumption patterns will affect revenues. If water use increases in the future water revenues may be higher than what is projected in this analysis.
- **Customer growth.** This rate study assumes 1.0 annual customer growth through FY 20/21. Customer growth increases the size of the customer base and growth rates exceeding 1.0 percent per year will result in higher connection fee revenue and rate revenues. Conversely, customer growth less than 1.0 percent per year could result in lower revenues than projected in this report.
- **Changes in regional water supply availability and pricing.** The Replenishment Charge projection incorporate anticipated increases in the cost of supplemental water purchases, and they assume that supplemental water deliveries are available.
- **Capital project cost certainty.** The Capital Improvement Plan contains estimates of future project costs. The actual costs will not be known until the projects are designed, bid, and built.
- **Inflation rates.** The projected rates are based on a 2.1 percent annual inflation rate. Changes in inflation rates will have financial implications.
- **Interest rates.** Interest rates that differ from assumptions used in this Study will have financial implications.



# City of San Bernardino Municipal Water Department Water Rate Model

## Fiscal Years 15/16 through 20/21

Model prepared by FG Solutions, LLC in April 2016



TABLE A-1	Assumptions and General Parameters
TABLE A-2	Existing Water Rate Schedule
TABLE A-3	Projected Revenues, Including Water Sales Revenues Under Existing Rate Schedule (Excluding Interest Income)
TABLE A-4	Historical and Projected Operation and Maintenance Expenses
TABLE A-5	Capital Improvement Plan Funding
TABLE A-6	Existing and Future Debt Service
TABLE A-7	Projected Operating Statement - Cash Basis
TABLE A-8	Rate Design Calculations
TABLES A-3 B-E	Additional Revenue Calculations Supporting Table A-3

TABLE A-1  
City of San Bernardino Municipal Water Department - Water Rate Model  
Assumptions and General Parameters

Line							
1	Miscellaneous						
2	Rounding		(1)				
3	Rounding, Rate Structures		2				
4	Total Existing Water Depreciable and Non-Depreciable Assets	\$273,078,981		FY 15/16 CAFR, p 14			
5	Interest Income (%)		2%				
6	Fiancial Performance Criterion: DSCR Target		1.75				
7	Fiancial Performance Criterion: DSCR Covenant		1.10				
8	General Inflation (%)		2.1%				
9	6/30/15 Reserve Balance	\$17,789,720		FY 15/16 CAFR, p 14			
10							
11	Debt Issuance Terms						
12	CIEDB						
13	Annual Interest Rate (%)		3.5%				
14	Repayment Period (Years)		20				
15	Capitalized Bond Reserves (% of Principal)		10.0%				
16	Annual Loan Fee Rate (% of outstanding principal)		0.0%				
17	Cost of Issuance (%)		1.0%				
18	Bank Financing Private Placement Revenue Bond						
19	Annual Interest Rate (%)		6.0%				
20	Repayment Period (Years)		30				
21	Capitalized Bond Reserve (% of Proceeds)		8.75%				
22	Cost of Issuance (%)		0.0%				
23							
24	Reserve Balance Policies						
25	Operating Reserve Minimum (days of operating expenses)		45				
26	Revenue Stabilization Reserve (Percent of Sewer Sales)		10%				
27	Emergency Reserve (Percent of Total Plant in Service)		3%				
28	Capital Replacement Reserve (%of the Cash-Funded 5-Yr CIP)		20%	5-Yr PAYG = \$12,848,000 ; 20% =		\$2,569,600	
29							
30							
31	Other Operating Expense Assumptions	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21
32	PERS (1)	24.209%	26.5%	28.4%	30.2%	32.0%	32.0%
33	Customer Growth, Residential	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
34	Customer Growth, Non-Res	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
35	Residential Consumption (2)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
36	Non-Res Consumption (2)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
37	Activated Carbon Cost Incr.	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
38							
39	Revenue Adjustments: FY 13/14 to FY 15/16 (3)	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21
40	% Regular Water Sales \$ from Consumption \$ (4)	71.1%	71.1%	71.1%	71.1%	71.1%	71.1%
41	Water Use Change	-28.0%	-28.0%	-28.0%	-28.0%	-28.0%	-28.0%
42	Regular Water Sales \$ Change	-19.9%	-19.9%	-19.9%	-19.9%	-19.9%	-19.9%
43	Elevation Charge \$ Change	-28.0%	-28.0%	-28.0%	-28.0%	-28.0%	-28.0%
44	Replenishment Fee \$ Change	-28.0%	-28.0%	-28.0%	-28.0%	-28.0%	-28.0%
45	Conservation Charge \$ Change (5)	-52.5%	-52.5%	-52.5%	-52.5%	-52.5%	-52.5%

Notes:

(1) Per Department, 12/10/14, based on CalPERS Actuarial Valuation dated 6/30/13

(2) Systemwide customer growth, and not a measure of per-capita or per-connection consumption growth

TABLE A-2  
City of San Bernardino Municipal Water Department - Water Rate Model  
Existing Water Rate Schedule

Line	Customer Type	Unit	Existing Rate (1)
1	Single Family Residences, Multiple Family Connections, Commercial,		
2	Landscape, and Industrial Service Minimum Monthly Charge		
3	1/2 " & 5/8" meter	per Month	\$12.90
4	3/4" meter	per Month	\$16.15
5	1" meter	per Month	\$22.60
6	1 1/2" meter	per Month	\$38.80
7	2" meter	per Month	\$58.20
8	3" meter	per Month	\$103.50
9	4" meter	per Month	\$158.20
10	6" meter	per Month	\$330.00
11	8" meter	per Month	\$524.15
12	10" meter	per Month	\$750.65
13			
14	Commodity Charge	per HCF	\$1.15
15			
16	Replenishment Charge	per HCF	\$0.09
17			
18	Assessment Districts	per HCF	\$0.45
19			
20	Conservation Charge and Tiers		
21	Conservation Charge	per HCF	\$0.350
22	Conservation Tiers (cutoff) (2)		
23	Residential	HCF per Month	32
24	MDU (2 per unit)	HCF per Month	42
25	MDU (2+) per unit	HCF per Month	17
26	Non-Residential		
27	1/2 " & 5/8" meter	HCF per Month	24
28	3/4" meter	HCF per Month	36
29	1" meter	HCF per Month	65
30	1 1/2" meter	HCF per Month	150
31	2" meter	HCF per Month	250
32	3" meter	HCF per Month	740
33	Commercial		
34	1/2 " & 5/8" meter	HCF per Month	42
35	3/4" meter	HCF per Month	55
36	1" meter	HCF per Month	130
37	1 1/2" meter	HCF per Month	275
38	2" meter	HCF per Month	445
39	3" meter	HCF per Month	875
40	4" meter	HCF per Month	2,400
41	6" meter	HCF per Month	9,000
42			
43	Elevation Charge (all water users)		
44	Zone 1	per HCF	\$0.11
45	Zone 2	per HCF	\$0.19
46	Zone 3	per HCF	\$0.17
47	Zone 4	per HCF	\$0.14
48	Zone 5	per HCF	\$0.23
49	Zone 6	per HCF	\$0.23
50			
51	Additional Charges		
52	Surcharge - Area Outside City (no Zone)	% of \$/hcf	50%
53	Unmetered Construction Rate	per Month	\$50.00

Notes:

- (1) Source: City of San Bernardino Municipal Water Department Rule and Regulation No. 21  
General Water Service/Water Rates. Rates effective January 1, 2012. HCF means hundred cubic feet  
(2) The Conservation Charge is applicable to water use exceeding the cutoff value

TABLE A-3  
City of San Bernardino Municipal Water Department - Water Rate Model  
Projected Revenues, Including Water Sales Revenues Under Existing Rate Schedule (Excluding Interest Income)

Line		Historical	Historical	Historical	Budget	Projected	Budget	Projected						FY 15/16 -	Notes	
		FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 14/15	FY 15/16	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21	Annual Growth		
1	Water Sales Revenues															
2	Water Sales - Regular (Existing Rates)	\$25,993,264	\$27,111,743	\$27,562,842	\$27,600,000	\$26,220,000	\$27,006,600	\$27,876,000	\$28,154,760	\$28,436,310	\$28,720,670	\$29,007,880	\$29,297,960	-3.4%	2	
3	FY 15/16 Adjustment							(\$5,550,482)	(\$5,605,987)	(\$5,662,047)	(\$5,718,667)	(\$5,775,854)	(\$5,833,613)			
4	Replenishment Fee (Existing)	1,543,813	1,605,944	1,701,462	1,700,000	1,615,000	1,615,000	1,155,468						17.3%	3	
5	Recalculated								1,426,361	1,833,522	2,248,683	2,538,367	2,563,750		3	
6	Conservation Charge (Existing)	850,777	1,117,879	1,192,046	1,200,000	1,140,000	1,140,000	1,140,000						8.0%	4	
7	Recalculated								1,613,053	1,629,180	1,645,470	1,661,920	1,678,540			
8	Elevation Charge	2,587,573	2,779,266	2,820,407	2,800,000	2,660,000	2,660,000	2,828,000	2,856,280	2,884,840	2,913,690	2,942,830	2,972,260	1.0%	5	
9	FY 15/16 Adjustment							(791,840)	(799,758)	(807,755)	(815,833)	(823,992)	(832,233)		5	
10	Water Sales - Fire Service	441,634	443,780	461,679	460,000	460,000	464,600	464,600	469,250	473,940	478,680	483,470	488,300	1.0%	6	
11	Water Sales - Municipal	554,384	944,236	914,016	900,000	855,000	855,000	900,000	900,000	900,000	900,000	900,000	900,000	0.0%	7	
12	FY 15/16 Adjustment							(352,000)	(352,000)	(352,000)	(352,000)	(352,000)	(352,000)			
13	Water Sales - Unauthorized	500	0	0	0	0	0	0	0	0	0	0	0	n/a	8	
14	Geothermal Heat Sales	124,989	139,659	140,314	140,000	140,000	140,000	90,000	140,000	140,000	140,000	140,000	140,000	9.2%	7, 8	
15	Water Sales - Geothermal	790	770	20	0	0	0	0	0	0	0	0	0	n/a	8	
16	Water Sales - Other	1,343,133	249,509	683,897	600,000	600,000	600,000	120,000	120,000	120,000	120,000	120,000	120,000	0.0%	8, 9	
17	Subtotal: Water Sales Revenues	\$33,440,857	\$34,392,786	\$35,476,683	\$35,400,000	\$33,690,000	\$34,481,200	\$27,879,746	\$28,921,958	\$29,595,989	\$30,280,693	\$30,842,620	\$31,142,964	2.2%		
18																
19	Other Operating Revenues															
20	Service Charges	\$988,597	\$911,152	\$998,078	\$950,000	\$950,000	\$950,000	\$890,000	\$950,000	\$950,000	\$950,000	\$950,000	\$950,000	1.3%	7, 10	
21	Broken Lock Charges	93,194	80,908	64,979	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	0.0%	7, 10	
22	Returned Check Charges	14,950	14,300	13,131	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	0.0%	10	
23	Fire Hydrant Flow Test	4,590	5,610	5,982	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	0.0%	10	
24	Application Charge	19,890	20,170	14,753	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	0.0%	10	
25	Will Serve Letter Charge	900	2,170	1,289	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	0.0%	10	
26	Income from Services	108,244	96,990	100,424	95,000	95,000	95,000	45,000	95,000	95,000	95,000	95,000	95,000	16.1%	7, 10	
27	Backflow Admin Fee	83,014	86,171	88,453	85,000	85,000	85,000	85,000	85,000	85,000	85,000	85,000	85,000	0.0%	10	
28	Plan Check Fee	438,994	288,769	214,822	250,000	250,000	250,000	10,000	250,000	250,000	250,000	250,000	250,000	90.4%	7, 10	
29	Hydro Sales	70,388	49,243	21,341	50,000	50,000	50,000	10,000	50,000	50,000	50,000	50,000	50,000	38.0%	7, 10	
30	Administrative Services - Sewer	1,841,593	1,920,579	428,657	426,000	426,000	434,950	434,950	444,080	453,410	462,930	472,650	482,580	2.1%	11	
31	Total: Other Operating Revenue	\$3,664,354	\$3,476,062	\$1,951,909	\$1,973,000	\$1,973,000	\$1,981,950	\$1,591,950	\$1,991,080	\$2,000,410	\$2,009,930	\$2,019,650	\$2,029,580	5.0%		
32																
33	Non-Operating Revenues															
34	Service Installation Fees	\$905,163	\$661,689	\$472,267	\$500,000	\$500,000	\$500,000	\$300,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	10.8%	7, 10	
35	Acquisition Fees	1,067,000	1,228,400	1,253,856	1,200,000	1,200,000	1,200,000	200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	43.1%	7, 10	
36	Developer Installed		845,716	86,723	0	1,097,500	0	0	0	0	0	0	0	n/a	10	
37	EPA Contract - Capital Cost		661,498	235,312	970,000	75,000	895,000	0	0	0	0	0	0	n/a	12	
38	AI&G CD Implementation	0	0	0	2,248,000	0	2,178,700	0	0	0	0	0	0	n/a	12	
39	Other	1,041,667	24,218	345,650	50,000	26,000	0	140,000	0	0	0	0	0	n/a	13	
40	AI&G O&M CD Implementation	1,838,223	3,110,201	2,169,327	1,500,000	1,700,000	1,500,000	1,500,000	1,531,500	1,563,660	1,596,500	1,630,030	1,664,260	2.1%	14	
41	Rental Income	133,400	122,826	147,544	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	0.0%	10	
42	Gain (Loss) Asset Disposition	(268,953)	(261,946)	152,971	0	0	0	0	0	0	0	0	0	n/a	10	
43	Refunds Received		156,783	192,391	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	0.0%	10	
44	Reimbursement Insurance		399	7,305	0	0	0	0	0	0	0	0	0	n/a	10	
45	Easements		6,200	4,200	0	0	0	0	0	0	0	0	0	n/a	10	
46	Discounts Earned		12,731	10,953	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	0.0%	10	
47	Cashier Overages (Shortages)		(663)	0	0	0	0	0	0	0	0	0	0	n/a	10	
48	Miscellaneous Revenue		5,218	6,439	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	0.0%	10	
49	Non-Taxable Sales - Materials		9,512	18,435	0	0	0	0	0	0	0	0	0	n/a	10	
50	Scrap Metal Sales		20,852	36,613	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	0.0%	10	
51	Capital Grants	136,967				746,201		0	0	0	0	0	0	n/a	10	
52	Total: Non-Operating Revenues	\$4,853,467	\$6,603,634	\$5,139,986	\$6,808,000	\$5,684,701	\$6,613,700	\$2,480,000	\$3,571,500	\$3,603,660	\$3,636,500	\$3,670,030	\$3,704,260	8.4%		
53	Summary															
54	Subtotal: Operating Revenue	\$37,105,211	\$37,868,848	\$37,428,592	\$37,373,000	\$35,663,000	\$36,463,150	\$29,471,696	\$30,913,038	\$31,596,399	\$32,290,623	\$32,862,270	\$33,172,544	2.4%		
55	Subtotal: Non-Operating Revenue	\$4,853,467	\$6,603,634	\$5,139,986	\$6,808,000	\$5,684,701	\$6,613,700	\$2,480,000	\$3,571,500	\$3,603,660	\$3,636,500	\$3,670,030	\$3,704,260	8.4%		
56	Total Revenues	\$41,958,678	\$44,472,482	\$42,568,578	\$44,181,000	\$41,347,701	\$43,076,850	\$31,951,696	\$34,484,538	\$35,200,059	\$35,927,123	\$36,532,300	\$36,876,804	2.9%		

TABLE A-3  
 City of San Bernardino Municipal Water Department - Water Rate Model  
 Projected Revenues, Including Water Sales Revenues Under Existing Rate Schedule (Excluding Interest Income)

Line	Historial	Historial	Historial	Budget	Projected	Budget	Projected					FY 15/16 - FY 20/21 Annual Growth	Notes
	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 14/15	FY 15/16	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21	

Notes:

- (1) FY 11/12 and FY 12/13 source: City of San Bernardino Municipal Water Department Rate Expense by Division (Excel Spreadsheet), provided in 2013  
 FY 13/14 source: 2014 Revenue report, provided by Department 12/29/14. 14/15 and FY 15/16 source: FY 15/16 budget provided by Department in February 2016.  
 FY 14/15 projection is the Department's projection developed in conjunction with its FY 15/16 budget.
- (2) Projected FY 15/16 water sales revenues are based on the Department's FY 14/15 budget, with an adjustment made to reflect actual consumption patterns from FY 15/16.  
 The calculations of this adjustment are included in other tables in this analysis. Projected revenues also incorporate anticipated customer growth of 1% per year.  
 Projected regular water sales revenues in this table do not incorporate proposed rate increases.
- (3) Replenishment Fee is recalculated in this rate analysis, and the projected Replenishment Fee shown in this table is based on the recalculation shown in Table A8.
- (4) Conservation Charge revenues are based on FY 15/16 budget and a review of year to date consumption patterns from FY 15/16.  
 The Conservation Charge is recalculated beginning FY 16/17, see Table A8
- (5) Elevation Charge revenues are based on the FY 14/15 budget less an adjustment to reflect actual consumption patterns from FY 15/16.
- (6) Projected 14/15 equals the FY 14/15 budget. Future years increased according to a 1% annual customer growth.
- (7) Projections also adjusted by FG Solutions based on review of year to date FY 15/16 revenues.
  
- (8) Projected revenues equal the FY 14/15 budget.
- (9) Water Sales - Other is revenue accumulated from the sale of excess water through the Encanto Booster Pump, which pumps 24/7. Projections based on FY 15/16 year to date revenues and Department's anticipated future conditions.
- (10) Projected to remain at FY 15/16 levels through the remainder of the Rate Study period.
- (11) Administrative Services - Sewer is revenue to reimburse the Water Department for the expense of the Sewer's Administrative Services. Revenue increasing at 3%/year, per Department.
- (12) Related to consent decree. These revenues pay for specific capital projects. These types of capital projects will occur in the future, but neither the revenue (from EPA or other sources) or expenses (in the capital improvement program) are included in this analysis. FY 14/15 value of \$2,248,000 is not included in the Rate Study because the capital project it pays for is not included.
- (13) Energy rebates received during FY 15/16 that are non-recurring
- (14) Related to consent decree. These revenues pay for specific O&M projects, which in future years, are included in O&M projections.

TABLE A-4  
City of San Bernardino Municipal Water Department - Water Rate Model  
Historical and Projected Operation and Maintenance Expenses

Line	Section	Section Number	Proj. Actual	Budgeted	FY 15/16	Projected	Escalation (2)	Projected					FY 15/16 -	Notes
			FY 14/15 (1)	FY 15/16 (1)	Basis			FY 15/16	Basis	FY 16/17	FY 17/18	FY 18/19	FY 19/20	
1	Administrative Divisions													
2	Board of Water Commissioners	1010												
3	Salary - Full Time	1010	\$676	\$675	Budget	\$675	Inflation	690	\$700	\$710	\$720	\$740	1.9%	
4	Fringe - Other	1010	44,153	55,125	Budget	\$55,125	Inflation	56,280	57,460	58,670	59,900	61,160	2.1%	
5	All Other Expenses	1010	1,592	3,500	Budget	\$3,500	Inflation	3,570	3,640	3,720	3,800	3,880	2.1%	
6	Administration	1050												
7	Salary - Full Time	1050	116,282	134,361	Budget	\$134,361	Inflation	137,180	140,060	143,000	146,000	149,070	2.1%	5
8	Salary - Other	1050	0	0	Budget	\$0	Inflation	0	0	0	0	0	n/a	
9	PERS	1050	25,580	32,527	Budget	\$32,527	PERS	36,350	39,780	43,190	46,720	47,700	8.0%	3
10	Fringe - Other	1050	12,392	15,309	Budget	\$15,309	Inflation	15,630	15,960	16,300	16,640	16,990	2.1%	
11	All Other Expenses	1050	82,308	334,100	Budget	\$334,100	Inflation	341,120	348,280	355,590	363,060	370,680	2.1%	4
12	Administration Services	1055												
13	Salary - Full Time	1055	114,264	133,643	Budget	\$133,643	Inflation	136,450	139,320	142,250	145,240	148,290	2.1%	
14	Salary - Other	1055	0	0	Budget	\$0	Inflation	0	0	0	0	0	n/a	
15	PERS	1055	24,394	32,354	Budget	\$32,354	PERS	36,160	39,570	42,960	46,480	47,450	8.0%	3
16	Fringe - Other	1055	8,310	10,211	Budget	\$10,211	Inflation	10,430	10,650	10,870	11,100	11,330	2.1%	
17	All Other Expenses	1055	5,434	12,500	Budget	\$12,500	Inflation	12,760	13,030	13,300	13,580	13,870	2.1%	
18	Environmental and Regulatory Compliance	1060												
19	Salary - Full Time	1060	246,418	295,550	Budget	\$295,550	Inflation	301,760	308,100	314,570	321,180	327,920	2.1%	5
20	Salary - Other	1060	20	500	Budget	\$500	Inflation	510	520	530	540	550	1.9%	
21	PERS	1060	52,936	71,550	Budget	\$71,550	PERS	79,970	87,500	95,000	102,780	104,930	8.0%	3
22	Fringe - Other	1060	36,136	52,045	Budget	\$52,045	Inflation	53,140	54,260	55,400	56,560	57,750	2.1%	
23	All Other Expenses	1060	58,226	153,600	Budget	\$153,600	Inflation	156,830	160,120	163,480	166,910	170,420	2.1%	5
24	Human Resources	1070												
25	Salary - Full Time	1070	73,626	111,082	Budget	\$111,082	Inflation	113,410	115,790	118,220	120,700	123,230	2.1%	5
26	Salary - Other	1070	0	0	Budget	\$0	Inflation	0	0	0	0	0	n/a	
27	PERS	1070	15,788	26,892	Budget	\$26,892	PERS	30,050	32,880	35,700	38,620	39,430	8.0%	3
28	Fringe - Other	1070	13,220	26,177	Budget	\$26,177	Inflation	26,730	27,290	27,860	28,450	29,050	2.1%	
29	All Other Expenses	1070	17,908	32,400	Budget	\$32,400	Inflation	33,080	33,770	34,480	35,200	35,940	2.1%	
30	Finance	2010												
31	Salary - Full Time	2010	266,300	298,490	Budget	\$298,490	Inflation	304,760	311,160	317,690	324,360	331,170	2.1%	
32	Salary - Other	2010	100	0	Budget	\$0	Inflation	0	0	0	0	0	n/a	
33	PERS	2010	55,854	72,261	Budget	\$72,261	PERS	80,760	88,370	95,940	103,800	105,970	8.0%	3
34	Fringe - Other	2010	34,826	50,548	Budget	\$50,548	Inflation	51,610	52,690	53,800	54,930	56,080	2.1%	
35	All Other Expenses	2010	192,788	186,500	Budget	\$186,500	Inflation	190,420	194,420	198,500	202,670	206,930	2.1%	
36	Information Technology	2030												
37	Salary - Full Time	2030	213,064	258,542	Budget	\$258,542	Inflation	263,970	269,510	275,170	280,950	286,850	2.1%	
38	Salary - Other	2030	40	0	Budget	\$0	Inflation	0	0	0	0	0	n/a	
39	PERS	2030	44,640	62,591	Budget	\$62,591	PERS	69,950	76,540	83,100	89,900	91,790	8.0%	3
40	Fringe - Other	2030	37,266	57,845	Budget	\$57,845	Inflation	59,060	60,300	61,570	62,860	64,180	2.1%	
41	All Other Expenses	2030	538,392	473,300	Budget	\$473,300	Inflation	483,240	493,390	503,750	514,330	525,130	2.1%	
42	Purchasing, Warehouse & Fleet	2040												
43	Salary - Full Time	2040	144,078	186,724	Budget	\$186,724	Inflation	190,650	194,650	198,740	202,910	207,170	2.1%	5
44	Salary - Other	2040	186	0	Budget	\$0	Inflation	0	0	0	0	0	n/a	
45	PERS	2040	30,136	45,204	Budget	\$45,204	PERS	50,520	55,280	60,020	64,930	66,290	8.0%	3
46	Fringe - Other	2040	18,696	30,594	Budget	\$30,594	Inflation	31,240	31,900	32,570	33,250	33,950	2.1%	
47	All Other Expenses	2040	32,992	77,500	Budget	\$77,500	Inflation	79,130	80,790	82,490	84,220	85,990	2.1%	
48	Fleet	2045												
49	Salary - Full Time	2045	149,498	115,526	Budget	\$115,526	Inflation	117,950	120,430	122,960	125,540	128,180	2.1%	
50	Salary - Other	2045	0	0	Budget	\$0	Inflation	0	0	0	0	0	n/a	
51	PERS	2045	23,798	27,958	Budget	\$27,958	PERS	31,260	34,200	37,130	40,170	41,020	8.0%	3
52	Fringe - Other	2045	18,666	29,858	Budget	\$29,858	Inflation	30,490	31,130	31,780	32,450	33,130	2.1%	

TABLE A-4  
 City of San Bernardino Municipal Water Department - Water Rate Model  
 Historical and Projected Operation and Maintenance Expenses

Line	Section	Section Number	Proj. Actual	Budgeted	FY 15/16	Projected	Escalation (2)	Projected					FY 15/16 - FY 20/21	Notes
			FY 14/15 (1)	FY 15/16 (1)	Basis	FY 15/16	Basis	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21	Annual Growth	
53	All Other Expenses	2045	492,422	789,200	Budget	\$789,200	Inflation	805,770	822,690	839,970	857,610	875,620	2.1%	
54	Customer Relations	2050												
55	Salary - Full Time	2050	99,864	110,449	Budget	\$110,449	Infl, Cust Growth	113,900	117,450	121,120	124,900	128,800	3.1%	7
56	Salary - Other	2050	0	0	Budget	\$0	Infl, Cust Growth	0	0	0	0	0	n/a	7
57	PERS	2050	21,970	22,384	Budget	\$22,384	PERS	30,180	33,360	36,580	39,970	41,220	13.0%	3
58	Fringe - Other	2050	16,320	17,174	Budget	\$17,174	Infl, Cust Growth	17,710	18,260	18,830	19,420	20,030	3.1%	7
59	All Other Expenses	2050	11,234	37,100	Budget	\$37,100	Infl, Cust Growth	38,260	39,450	40,680	41,950	43,260	3.1%	7
60	Water Conservation	2055												
61	Salary - Full Time	2055	0	53,596	Budget	\$53,596	Inflation	54,720	55,870	57,040	58,240	59,460	2.1%	
62	Salary - Other	2055	0	0	Budget	\$0	Inflation	0	0	0	0	0	n/a	
63	PERS	2055	0	12,975	Budget	\$12,975	PERS	14,500	15,870	17,230	18,640	19,030	8.0%	3
64	Fringe - Other	2055	0	16,227	Budget	\$16,227	Inflation	16,570	16,920	17,280	17,640	18,010	2.1%	
65	All Other Expenses	2055	0	208,100	Budget	\$208,100	Inflation	212,470	216,930	221,490	226,140	230,890	2.1%	
66	Customer Service	2060												
67	Salary - Full Time	2060	464,764	485,985	Budget	\$485,985	Inflation	496,190	506,610	517,250	528,110	539,200	2.1%	5
68	Salary - Other	2060	20,158	20,373	Budget	\$20,373	Inflation	20,800	21,240	21,690	22,150	22,620	2.1%	
69	PERS	2060	99,720	117,652	Budget	\$117,652	PERS	131,490	143,880	156,210	169,000	172,540	8.0%	
70	Fringe - Other	2060	126,688	157,853	Budget	\$157,853	Inflation	161,170	164,550	168,010	171,540	175,140	2.1%	
71	All Other Expenses	2060	27,960	56,100	Budget	\$56,100	Inflation	57,280	58,480	59,710	60,960	62,240	2.1%	
72	Billing	2070												
73	Salary - Full Time	2070	111,426	130,183	Budget	\$130,183	Infl, Cust Growth	134,250	138,440	142,760	147,220	151,810	3.1%	7
74	Salary - Other	2070	22	5,815	Budget	\$5,815	Infl, Cust Growth	6,000	6,190	6,380	6,580	6,790	3.1%	7
75	PERS	2070	24,306	30,108	Budget	\$30,108	PERS	35,580	39,320	43,110	47,110	48,580	10.0%	3
76	Fringe - Other	2070	22,370	27,205	Budget	\$27,205	Infl, Cust Growth	28,050	28,930	29,830	30,760	31,720	3.1%	7
77	All Other Expenses	2070	518,666	599,400	Budget	\$599,400	Infl, Cust Growth	618,110	637,400	657,290	677,800	698,950	3.1%	7
78	Cashiering	2080												
79	Salary - Full Time	2080	177,132	193,922	Budget	\$193,922	Inflation	197,990	202,150	206,400	210,730	215,160	2.1%	
80	Salary - Other	2080	82	0	Budget	\$0	Inflation	0	0	0	0	0	n/a	
81	PERS	2080	37,052	46,946	Budget	\$46,946	PERS	52,470	57,410	62,330	67,430	68,850	8.0%	
82	Fringe - Other	2080	37,346	43,494	Budget	\$43,494	Inflation	44,410	45,340	46,290	47,260	48,250	2.1%	
83	All Other Expenses	2080	16,890	21,300	Budget	\$21,300	Inflation	21,750	22,210	22,680	23,160	23,650	2.1%	
84	Field and Meter Services	2090												
85	Salary - Full Time	2090	605,836	654,157	Budget	\$654,157	Inflation	667,890	681,920	696,240	710,860	725,790	2.1%	
86	Salary - Other	2090	5,834	0	Budget	\$0	Inflation	0	0	0	0	0	n/a	
87	PERS	2090	128,724	158,365	Budget	\$158,365	PERS	176,990	193,670	210,260	227,480	232,250	8.0%	
88	Fringe - Other	2090	170,276	210,119	Budget	\$210,119	Inflation	214,530	219,040	223,640	228,340	233,140	2.1%	
89	All Other Expenses	2090	25,924	30,700	Budget	\$30,700	Inflation	31,340	32,000	32,670	33,360	34,060	2.1%	
90	General Administration Expense	2510												
91	Salary - Full Time	2510	0	0	Budget	\$0	Inflation	0	0	0	0	0	n/a	
92	Fringe - Other	2510	1,686,135	1,840,000	Budget	\$1,840,000	Inflation	1,878,640	1,918,090	1,958,370	1,999,500	2,041,490	2.1%	
93	Office Rent/Expenses	2510	240,700	246,500	Budget	\$246,500	Inflation	251,680	256,970	262,370	267,880	273,510	2.1%	
94	Professional Services	2510	357,194	378,400	Budget	\$378,400	Inflation	386,350	394,460	402,740	411,200	419,840	2.1%	
95	Franchise Fees	2510		2,188,000	Budget	\$2,188,000	None	2,188,000	2,188,000	2,188,000	2,188,000	2,188,000	0.0%	
96	All Other Expenses	2510	2,636,949	1,352,600	Budget	\$1,352,600	Inflation	1,381,000	1,410,000	1,439,610	1,469,840	1,500,710	2.1%	8
97	Uncollectible Charge Offs	2510	0	150,000	Budget	\$150,000	Inflation	153,150	156,370	159,650	163,000	166,420	2.1%	
98	OH Property Plant, Equipment	2510		(270,000)	Budget	(\$270,000)	Inflation	(275,670)	(281,460)	(287,370)	(293,400)	(299,560)	n/a	
99	Capital Labor	2510		(512,000)	Budget	(\$512,000)	Inflation	(522,750)	(533,730)	(544,940)	(556,380)	(568,060)	n/a	
100	Subtotal Administrative Division		\$10,934,947	\$13,137,924	Budget	\$13,137,924	Inflation	\$13,457,880	\$13,767,720	\$14,082,410	\$14,405,450	\$14,673,620	2.2%	
101														
102	Water Utility Division													
103	Water Utility Administration	3010												
104	Salary - Full Time	3010	\$235,390	\$247,340	Budget	\$247,340	Inflation	\$252,530	\$257,830	\$263,240	\$268,770	\$274,410	2.1%	

TABLE A-4  
 City of San Bernardino Municipal Water Department - Water Rate Model  
 Historical and Projected Operation and Maintenance Expenses

Line	Section	Section Number	Proj. Actual	Budgeted	FY 15/16	Projected	Escalation (2)	Projected				FY 15/16 - FY 20/21	Notes	
			FY 14/15 (1)	FY 15/16 (1)	Basis	FY 15/16	Basis	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21		Annual Growth
105	Salary - Other	3010	0	0	Budget	\$0	Inflation	0	0	0	0	0	n/a	
106	PERS	3010	49,128	59,878	Budget	\$59,878	PERS	66,920	73,220	79,500	86,010	87,810	8.0%	
107	Fringe - Other	3010	23,494	27,686	Budget	\$27,686	Inflation	28,270	28,860	29,470	30,090	30,720	2.1%	
108	All Other Expenses	3010	260,748	274,000	Budget	\$274,000	Inflation	279,750	285,620	291,620	297,740	303,990	2.1%	9
109	Distribution Administration	3020												
110	Salary - Full Time	3020	237,372	280,186	Budget	\$280,186	Inflation	286,070	292,080	298,210	304,470	310,860	2.1%	
111	Salary - Other	3020	0	0	Budget	\$0	Inflation	0	0	0	0	0	n/a	
112	PERS	3020	49,832	67,830	Budget	\$67,830	PERS	75,810	82,950	90,060	97,430	99,480	8.0%	
113	Fringe - Other	3020	64,594	80,073	Budget	\$80,073	Inflation	81,750	83,470	85,220	87,010	88,840	2.1%	
114	All Other Expenses	3020	23,532	19,700	Budget	\$19,700	Inflation	20,110	20,530	20,960	21,400	21,850	2.1%	
115	Distribution Service and Repair	3021												
116	Salary - Full Time	3021	883,794	1,000,522	Budget	\$1,000,522	Inflation	1,021,530	1,042,980	1,064,880	1,087,240	1,110,070	2.1%	
117	Salary - Other	3021	131,800	100,000	Budget	\$100,000	Inflation	102,100	104,240	106,430	108,670	110,950	2.1%	
118	PERS	3021	187,242	242,216	Budget	\$242,216	PERS	270,710	296,210	321,590	347,920	355,220	8.0%	3
119	Fringe - Other	3021	212,966	280,276	Budget	\$280,276	Inflation	286,160	292,170	298,310	304,570	310,970	2.1%	
120	All Other Expenses	3021	846,091	803,600	Budget	\$803,600	Inflation	820,480	837,710	855,300	873,260	891,600	2.1%	
121	Distribution Maintenance	3023												
122	Salary - Full Time	3023	851,172	969,235	Budget	\$969,235	Inflation	989,590	1,010,370	1,031,590	1,053,250	1,075,370	2.1%	
123	Salary - Other	3023	41,800	30,000	Budget	\$30,000	Inflation	30,630	31,270	31,930	32,600	33,280	2.1%	
124	PERS	3023	183,168	234,642	Budget	\$234,642	PERS	262,240	286,950	311,540	337,040	344,120	8.0%	3
125	Fringe - Other	3023	176,434	237,172	Budget	\$237,172	Inflation	242,150	247,240	252,430	257,730	263,140	2.1%	
126	All Other Expenses	3023	682,234	673,300	Budget	\$673,300	Inflation	687,440	701,880	716,620	731,670	747,040	2.1%	
127	Water Loss Management	3024												
128	Salary - Full Time	3024	0	80,885	Budget	\$80,885	Inflation	82,580	84,310	86,080	87,890	89,740	2.1%	
129	Salary - Other	3024	0	0	Budget	\$0	Inflation	0	0	0	0	0	n/a	
130	PERS	3024	0	19,581	Budget	\$19,581	PERS	21,880	23,940	26,000	28,120	28,720	8.0%	3
131	Fringe - Other	3024	0	30,773	Budget	\$30,773	Inflation	31,420	32,080	32,750	33,440	34,140	2.1%	
132	All Other Expenses	3024	0	256,000	Budget	\$256,000	Inflation	10,000	10,000	10,000	10,000	10,000	-47.7%	6
133	Water Administration	3040												
134	Salary - Full Time	3040	216,140	215,606	Budget	\$215,606	Inflation	220,130	224,750	229,470	234,290	239,210	2.1%	
135	Salary - Other	3040	0	0	Budget	\$0	Inflation	0	0	0	0	0	n/a	
136	PERS	3040	44,718	52,196	Budget	\$52,196	PERS	58,330	63,830	69,300	74,970	76,550	8.0%	3
137	Fringe - Other	3040	38,474	56,876	Budget	\$56,876	Inflation	58,070	59,290	60,540	61,810	63,110	2.1%	
138	All Other Expenses	3040	12,940	22,500	Budget	\$22,500	Inflation	22,970	23,450	23,940	24,440	24,950	2.1%	
139	Production and Treatment	3041												
140	Utilities - Electric (Account)	3041	4,487,026	4,250,000	Budget	\$4,250,000	Infl. Consumption	4,382,640	4,519,420	4,660,470	4,805,920	4,955,910	3.1%	10
141	Granular Activated Carbon (Account)	3041	1,037,910	420,000	Budget	\$420,000	Cnsmtpt,CarbonInfl	436,930	454,540	472,860	491,920	511,740	4.0%	10, 11
142	Ion Exchange Resin	3041	40,000	0	Budget	\$0								
143	Supplemental Water	3041	250,000	1,100,000	Budget	\$1,100,000	Table A8	1,426,361	1,833,522	2,248,683	2,538,367	2,563,750	18.4%	12
144	Other Accounts	3041	496,786	484,200	Budget	\$484,200	Inflation	494,370	504,750	515,350	526,170	537,220	2.1%	
145	Salary - Full Time	3041	847,152	854,719	Budget	\$854,719	Inflation	872,670	891,000	909,710	928,810	948,320	2.1%	
146	Salary - Other	3041	24,106	20,000	Budget	\$20,000	Inflation	20,420	20,850	21,290	21,740	22,200	2.1%	
147	PERS	3041	182,642	206,919	Budget	\$206,919	PERS	231,260	253,040	274,730	297,220	303,460	8.0%	3
148	Fringe - Other	3041	209,230	249,943	Budget	\$249,943	Inflation	255,190	260,550	266,020	271,610	277,310	2.1%	
149	Plant and Facility Maintenance	3042												
150	Salary - Full Time	3042	343,662	425,921	Budget	\$425,921	Inflation	434,870	444,000	453,320	462,840	472,560	2.1%	
151	Salary - Other	3042	840	1,500	Budget	\$1,500	Inflation	1,530	1,560	1,590	1,620	1,650	1.9%	
152	PERS	3042	73,940	103,111	Budget	\$103,111	PERS	115,240	126,100	136,900	148,110	151,220	8.0%	3
153	Fringe - Other	3042	91,988	107,310	Budget	\$107,310	Inflation	109,560	111,860	114,210	116,610	119,060	2.1%	
154	Electrical Services	3042	205,030	250,000	Budget	\$250,000	Inflation	255,250	260,610	266,080	271,670	277,380	2.1%	
155	All Other Expenses	3042	142,264	274,500	Budget	\$274,500	Inflation	280,260	286,150	292,160	298,300	304,560	2.1%	
156	Specialty Construction	3043												

TABLE A-4  
City of San Bernardino Municipal Water Department - Water Rate Model  
Historical and Projected Operation and Maintenance Expenses

Line	Section	Section Number	Proj. Actual	Budgeted	FY 15/16	Projected	Escalation (2)	Projected				FY 15/16 - FY 20/21	Notes	
			FY 14/15 (1)	FY 15/16 (1)	Basis	FY 15/16	Basis	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21		Annual Growth
157	Salary - Full Time	3043	328,020	394,657	Budget	\$394,657	Inflation	402,940	411,400	420,040	428,860	437,870	2.1%	
158	Salary - Other	3043	226	1,500	Budget	\$1,500	Inflation	1,530	1,560	1,590	1,620	1,650	1.9%	
159	PERS	3043	68,702	95,543	Budget	\$95,543	PERS	106,780	116,840	126,850	137,240	140,120	8.0%	
160	Fringe - Other	3043	81,274	111,365	Budget	\$111,365	Inflation	113,700	116,090	118,530	121,020	123,560	2.1%	
161	All Other Expenses	3043	58,476	80,000	Budget	\$80,000	Inflation	81,680	83,400	85,150	86,940	88,770	2.1%	
162	Engineering	3060												
163	Salary - Full Time	3060	721,534	790,631	Budget	\$790,631	Inflation	807,230	824,180	841,490	859,160	877,200	2.1%	5
164	Salary - Other	3060	6,736	6,218	Budget	\$6,218	Inflation	6,350	6,480	6,620	6,760	6,900	2.1%	
165	PERS	3060	155,746	191,404	Budget	\$191,404	Inflation	195,420	199,520	203,710	207,990	212,360	2.1%	
166	Fringe - Other	3060	111,410	137,304	Budget	\$137,304	Inflation	140,190	143,130	146,140	149,210	152,340	2.1%	
167	All Other Expenses	3060	176,350	268,500	Budget	\$268,500	Inflation	274,140	279,900	285,780	291,780	297,910	2.1%	
168	Quality and Backflow	3063												
169	Salary - Full Time	3063	400,246	558,914	Budget	\$558,914	Inflation	570,650	582,630	594,870	607,360	620,110	2.1%	
170	Salary - Other	3063	3,334	4,600	Budget	\$4,600	Inflation	4,700	4,800	4,900	5,000	5,110	2.1%	
171	PERS	3063	81,260	135,307	Budget	\$135,307	PERS	151,220	165,470	179,650	194,360	198,440	8.0%	3
172	Fringe - Other	3063	83,456	142,346	Budget	\$142,346	Inflation	145,340	148,390	151,510	154,690	157,940	2.1%	
173	All Other Expenses	3063	423,794	416,300	Budget	\$416,300	Inflation	425,040	433,970	443,080	452,380	461,880	2.1%	
174	Subtotal, Water Utility Division		\$16,586,203	\$18,444,785		\$18,444,785		\$19,053,081	\$19,982,942	\$20,930,263	\$21,767,107	\$22,254,640	3.8%	
175														
176	Water Reclamation Division													
177	Electrical, Instrumentation, and SCADA	4042												
178	Salary - Full Time	4042	\$292,946	\$373,880	Budget	\$373,880	Inflation	\$381,730	\$389,750	\$397,930	\$406,290	\$414,820	2.1%	
179	Salary - Other	4042	7,952	12,383	Budget	\$12,383	Inflation	12,640	12,910	13,180	13,460	13,740	2.1%	
180	PERS	4042	61,998	90,513	Budget	\$90,513	PERS	101,160	110,690	120,170	130,010	132,740	8.0%	
181	Fringe - Other	4042	60,936	87,384	Budget	\$87,384	Inflation	89,220	91,090	93,000	94,950	96,940	2.1%	
182	All Other Expenses	4042	12,658	18,000	Budget	\$18,000	Inflation	18,380	18,770	19,160	19,560	19,970	2.1%	
183	Subtotal, Water Reclamation Division		\$436,490	\$582,160		\$582,160		\$603,130	\$623,210	\$643,440	\$664,270	\$678,210	3.1%	
184														
185	Adjustment for Vacancies					(\$1,480,000)		(\$1,110,000)	(\$600,000)	(\$600,000)	(\$600,000)	(\$600,000)	n/a	13
186														
187	Total, O&M Expenses		\$27,957,640	\$32,164,869		\$30,684,869		\$32,004,091	\$33,773,872	\$35,056,113	\$36,236,827	\$37,006,470	3.8%	
188														
189	Total O&M Expenses Less Supplemental Water Purchases							\$30,577,730	\$31,940,350	\$32,807,430	\$33,698,460	\$34,442,720	n/a	

Line	Section	Section Number	Proj. Actual	Budgeted	Projected	Projected				FY 15/16 - FY 20/21			
			FY 14/15 (1)	FY 15/16 (1)	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21	Annual Growth		
190	Administration Division												
191	Board of Water Commissioners	1010	\$46,421	\$59,300	\$59,300	\$60,540	\$61,800	\$63,100	\$64,420	\$65,780	2.1%		
192	Administration	1050	236,562	516,297	\$516,297	530,280	544,080	558,080	572,420	584,440	2.5%		
193	Administration Services	1055	152,402	188,708	\$188,708	195,800	202,570	209,380	216,400	220,940	3.2%		
194	Environmental and Regulatory Compliance	1060	393,736	573,245	\$573,245	592,210	610,500	628,980	647,970	661,570	2.9%		
195	Human Resources	1070	120,542	196,551	\$196,551	203,270	209,730	216,260	222,970	227,650	3.0%		
196	Finance	2010	549,868	607,799	\$607,799	627,550	646,640	665,930	685,760	700,150	2.9%		
197	Information Technology	2030	833,402	852,278	\$852,278	876,220	899,740	923,590	948,040	967,950	2.6%		
198	Purchasing, Warehouse & Fleet	2040	226,088	340,022	\$340,022	351,540	362,620	373,820	385,310	393,400	3.0%		
199	Fleet	2045	684,384	962,542	\$962,542	985,470	1,008,450	1,031,840	1,055,770	1,077,950	2.3%		
200	Customer Relations	2050	149,388	187,107	\$187,107	200,050	208,520	217,210	226,240	233,310	4.5%		
201	Water Conservation	2055	0	290,898	\$290,898	298,260	305,590	313,040	320,660	327,390	2.4%		
202	Customer Service	2060	739,290	837,963	\$837,963	866,930	894,760	922,870	951,760	971,740	3.0%		
203	Billing	2070	676,790	792,711	\$792,711	821,990	850,280	879,370	909,470	937,850	3.4%		

TABLE A-4  
City of San Bernardino Municipal Water Department - Water Rate Model  
Historical and Projected Operation and Maintenance Expenses

Line	Section	Section Number	Proj. Actual	Budgeted	FY 15/16	Projected	Escalation (2)		Projected			FY 15/16 -	Notes	
			FY 14/15 (1)	FY 15/16 (1)	Basis	FY 15/16	Basis	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21		Annual Growth
204	Cashiering	2080	268,502	305,662		\$305,662		316,620	327,110	337,700	348,580	355,910	3.1%	
205	Field and Meter Services	2090	936,594	1,053,341		\$1,053,341		1,090,750	1,126,630	1,162,810	1,200,040	1,225,240	3.1%	
206	General Administration Expense	2510	4,920,978	5,373,500		\$5,373,500		5,440,400	5,508,700	5,578,430	5,649,640	5,722,350	1.3%	
207	Subtotal Administration Division		\$10,934,947	\$13,137,924		\$13,137,924		\$13,457,880	\$13,767,720	\$14,082,410	\$14,405,450	\$14,673,620	2.2%	
208														
209	Water Utility Division													
210	Water Utility Administration	3010	\$568,760	\$608,904		\$608,904		\$627,470	\$645,530	\$663,830	\$682,610	\$696,930	2.7%	
211	Distribution Administration	3020	375,330	447,789		\$447,789		463,740	479,030	494,450	510,310	521,030	3.1%	
212	Distribution Service and Repair	3021	2,261,893	2,426,614		\$2,426,614		2,500,980	2,573,310	2,646,510	2,721,660	2,778,810	2.7%	
213	Distribution Maintenance	3023	1,934,808	2,144,349		\$2,144,349		2,212,050	2,277,710	2,344,110	2,412,290	2,462,950	2.8%	
214	Water Loss Management	3024	0	387,239		\$387,239		145,880	150,330	154,830	159,450	162,600	-15.9%	
215	Water Administration	3040	312,272	347,178		\$347,178		359,500	371,320	383,250	395,510	403,820	3.1%	
216	Production and Treatment	3041	7,574,852	7,585,781		\$7,585,781		8,119,841	8,737,672	9,369,113	9,881,757	10,119,910	5.9%	
217	Plant and Facility Maintenance	3042	857,724	1,162,342		\$1,162,342		1,196,710	1,230,280	1,264,260	1,299,150	1,326,430	2.7%	
218	Specialty Construction	3043	536,698	683,065		\$683,065		706,630	729,290	752,160	775,680	791,970	3.0%	
219	Engineering	3060	1,171,776	1,394,057		\$1,394,057		1,423,330	1,453,210	1,483,740	1,514,900	1,546,710	2.1%	
220	Quality and Backflow	3063	992,090	1,257,467		\$1,257,467		1,296,950	1,335,260	1,374,010	1,413,790	1,443,480	2.8%	
221	Subtotal, Water Utility Division		\$16,586,203	\$18,444,785		\$18,444,785		\$19,053,081	\$19,982,942	\$20,930,263	\$21,767,107	\$22,254,640	3.8%	
222														
223	Water Reclamation Division													
224	Electrical, Instrumentation, and SCADA	4042	\$436,490	\$582,160		\$582,160		\$603,130	\$623,210	\$643,440	\$664,270	\$678,210	3.1%	
225	Subtotal Water Reclamation Division		\$436,490	\$582,160		\$582,160		\$603,130	\$623,210	\$643,440	\$664,270	\$678,210	3.1%	
226														
227	Adjustment for Vacancies					(\$1,480,000)		(\$1,110,000)	(\$600,000)	(\$600,000)	(\$600,000)	(\$600,000)	n/a	
228														
229	Total, O&M Expenses					\$30,684,869		\$32,004,091	\$33,773,872	\$35,056,113	\$36,236,827	\$37,006,470	3.8%	

Notes:

- (1) Source: City of San Bernardino Municipal Water Department FY 14/15 Budget and FY 15/16 Budget
- (2) Based on discussions with Department staff. In general, the FY 15/16 budget is the basis for projections and most expenses are adjusted only for inflation unless otherwise noted.
- (3) PERS expenses are provided as a percentage of salaries, per CalPERS Actuarial Valuations. See Table A-1 for specific percentages.
- (4) The recent increase in expenses is for consulting and other professional services which Department staff believe will be ongoing.
- (5) Recent change and/or variability in expenses is primarily due to how expenses are allocated between water, sewer, and RIX funds.
- (6) FY 16/17 and beyond costs per Department staff, 03/09/16
- (7) Also escalated for changes in residential customer growth
- (13) FY 14/15 includes non-recurring capital project.
- (14) The majority of this is related to a consent decree and funded by others.
- (15) Expenses also proportional to water consumption
- (16) Activated carbon is expected to escalate at a different rate from the rate of general inflation. See Table A-1.
- (17) Refer to Table A8 for documentation of projected costs. These costs are fully recovered from the Replenishment Fee.
- (18) Vacancies are budgeted positions that are unfilled. As of Dec 2014, there were 41 vacancies out of 282 budgeted Department positions. For the purposes of this analysis, the same amount of vacancies exist as of March 2016. Salary + benefits + PERS costs of vacancies are excluded from the 15/16 projections. For FY 16/17, 25% of the vacancies are filled. In other years, there are assumed to always be eight vacant positions at \$75K/position/year.

TABLE A-5  
City of San Bernardino Municipal Water Department - Water Rate Model  
Capital Improvement Plan Funding

Line	Capital Expenditure Category	FY 15/16-20/21						Notes
		FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21	
1	Total Capital Expenditures, FY 15/16 Dollars							1
2	Replacement/Rehabilitation Assets	\$4,142,000	\$7,352,000	\$11,312,000	\$9,047,000	\$5,537,000	\$2,047,000	\$39,437,000
3	New System Assets	3,457,000	5,045,000	395,000	4,045,000	395,000	5,895,000	19,232,000
4	Generators	0	300,000	300,000	300,000	300,000	0	1,200,000
5	Rolling Stock	145,000	145,000	330,000	0	0	0	620,000
6	Pipeline Construction Crew		500,000	500,000	500,000	500,000	500,000	2,500,000
7	Operating Budget Capital Expenditures							
8	Section 2030: Information Technology	400,000	400,000	400,000	400,000	400,000	400,000	2,400,000
9	Section 2045: Fleet	190,000	190,000	190,000	190,000	190,000	190,000	1,140,000
	Section 3024: Water Loss Management	26,500	26,500	26,500	26,500	26,500	26,500	159,000
10	Section 2510: OH Property, Plant, Equipment	270,000	270,000	270,000	270,000	270,000	270,000	1,620,000
11	Section 2510: Capital Labor	512,000	512,000	512,000	512,000	512,000	512,000	3,072,000
12	Subtotal, Capital Expenditures, FY 15/16 Dollars	\$9,142,500	\$14,740,500	\$14,235,500	\$15,290,500	\$8,130,500	\$9,840,500	\$71,380,000
13								
14	Total Capital Expenditures, Inflation Adjusted Dollars							
15	Replacement/Rehabilitation Assets	\$4,142,000	\$7,506,000	\$11,792,000	\$9,629,000	\$6,017,000	\$2,271,000	\$41,357,000
16	New System Assets	3,457,000	5,151,000	412,000	4,305,000	429,000	6,541,000	20,295,000
17	Generators	0	306,000	313,000	319,000	326,000	0	1,264,000
18	Rolling Stock	145,000	148,000	344,000	0	0	0	637,000
19	Pipeline Construction Crew	0	511,000	521,000	532,000	543,000	555,000	2,662,000
20	Operating Budget Capital Expenditures							
21	Section 2030: Information Technology	400,000	408,000	417,000	426,000	435,000	444,000	2,530,000
22	Section 2045: Fleet	190,000	194,000	198,000	202,000	206,000	211,000	1,201,000
	Section 3024: Water Loss Management	26,500	27,000	28,000	28,000	29,000	29,000	167,500
23	Section 2510: OH Property, Plant, Equipment	270,000	276,000	281,000	287,000	293,000	300,000	1,707,000
24	Section 2510: Capital Labor	512,000	523,000	534,000	545,000	556,000	568,000	3,238,000
25	Subtotal, Capital Expenditures, Inflation Adjusted Dollars	\$9,142,500	\$15,050,000	\$14,840,000	\$16,273,000	\$8,834,000	\$10,919,000	\$75,058,500
26								
27	Debt Funded Capital							
28	CIEDB		\$10,000,000		\$10,000,000			\$20,000,000
29	Future Revenue Bond or Private Placement Debt	0	0	13,000,000	4,000,000	7,000,000	8,000,000	32,000,000
30	Subtotal: Debt Funded Capital	\$0	\$10,000,000	\$13,000,000	\$14,000,000	\$7,000,000	\$8,000,000	\$52,000,000
31								
32	Rate/Reserve Funded Capital							
33	Capital Improvement Plan	\$7,744,000	\$3,622,000	\$382,000	\$785,000	\$315,000	\$1,367,000	\$14,215,000
34	Operating Budget Capital Expenditures	\$1,398,500	\$1,428,000	\$1,458,000	\$1,488,000	\$1,519,000	\$1,552,000	\$8,843,500
35								
36	Total Capital Improvement Funding	\$9,142,500	\$15,050,000	\$14,840,000	\$16,273,000	\$8,834,000	\$10,919,000	\$75,058,500

Notes:

- (1) Source: Department staff, provided 02/08/16. Excludes projects funded by other agencies and projects funded by developers.  
Per direction from Department, also excludes certain Pipeline Replacement and Reservoir Seismic Upgrades which will be deferred from the schedule shown in the 2/8/16 CIP. No funding for the Administration Facility is included.
- (2) This is to hire an in-house construction crew of 7 FTEs to reduce construction costs for certain pipeline construction projects. Staff to be hired during FY 15/16.
- (3) There are capital outlays in the Department's Operating Budget that are separate, and in addition to, capital outlays in the Department's Capital Improvement Plan.
- (4) The Department anticipates being able to receive \$10,000,000 in CIEDB loans in FY 16/17 and FY 18/19.
- (5) Debt issuances are sized to balance rate increases, coverage requirements, and reserve requirements. 69% of CIP = debt funded

TABLE A-6  
City of San Bernardino Municipal Water Department - Water Rate Model  
Existing and Future Debt Service

Line	Existing Debt Service	Type of Payment	Projected					Notes	
			FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20		FY 20/21
1	2002 CIEDB	Principal	\$594,440	\$614,290	\$634,810	\$656,010	\$677,930	incl. in total	1
2	2007 CIEDB	Principal	492,780	506,130	519,850	533,940	548,400	incl. in total	1
3	2012 CIEDB	Principal	435,110	446,470	458,120	470,080	482,350	incl. in total	1
4	2002 CIEDB	Interest/Annual Fee	\$153,710	\$133,850	\$113,340	\$92,138	\$70,218	incl. in total	1
5	2007 CIEDB	Interest/Annual Fee	179,754	166,219	152,317	138,060	123,600	incl. in total	1
6	2012 CIEDB	Interest/Annual Fee	233,468	221,963	210,158	197,920	185,650	incl. in total	1
7	SBVMWD Note Payable	Principal and Interest	229,227	229,227	0	0	0	incl. in total	1
8	Total, Existing Debt Service		\$2,318,489	\$2,318,149	\$2,088,595	\$2,088,148	\$2,088,148		
9									
10	Debt Service For Use in DSCR Calculations		\$2,089,262	\$2,088,922	\$2,088,595	\$2,088,148	\$2,088,148		2

Line	Proposed Debt Service	Issue Date	Amount	Interest Rate	Total Principal and Interest Payment							
					FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21	
11	CIEDB	16/17	\$10,000,000	3.5%			773,200	773,200	773,200	773,200	773,200	3
12	CIEDB	18/19	\$10,000,000	3.5%					781,790	781,790	781,790	3
13	Revenue Bond/Private Placement	16/17	\$0	6.0%			0	0	0	0	0	3
14	Revenue Bond/Private Placement	17/18	\$13,000,000	6.0%			1,035,000	1,035,000	1,035,000	1,035,000	1,035,000	3
15	Revenue Bond/Private Placement	18/19	\$4,000,000	6.0%				318,460	318,460	318,460	318,460	3
16	Revenue Bond/Private Placement	19/20	\$7,000,000	6.0%					557,310	557,310	557,310	3
17	Revenue Bond/Private Placement	20/21	\$8,000,000	6.0%							636,920	3
18	Total				\$0	\$773,200	\$1,808,200	\$2,908,450	\$3,465,760	\$4,102,680		

TABLE A-7  
City of San Bernardino Municipal Water Department - Water Rate Model  
Projected Operating Statement - Cash Basis

Line	Projected						Notes	
	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21		
1	<b>SOURCES OF FUNDS</b>							
2	Beginning Fund Balance (Restricted and Unrestricted)						1	
3		\$3,783,070	\$3,945,710	\$4,163,900	\$4,321,990	\$4,467,550		
4		360,759	0	0	0	0	2	
5	17,789,720	2,257,772	672,715	845,338	1,697,383	3,695,496	3	
6		1,519,600	0	0	0	0	4	
7		30,146	2,289	12,037	35,990	42,411	5	
8		\$17,789,720	\$7,951,348	\$4,620,713	\$5,021,275	\$6,055,363	\$8,205,457	
9								
10	Water Sales Revenues Rate Increases to be Applied to:	\$22,873,518	\$23,096,773	\$23,322,263	\$23,550,003	\$23,780,026	\$24,012,347	
11								
12	Revenues from Water Rate Increases							6
13		% of Regular	Months					
14	Year	Water Sales Rev.	Effective					
15	FY 15/16	0.0%	12.0	\$0	\$0	\$0	\$0	
16	FY 16/17	9.5%	12.0	\$2,194,190	\$2,215,610	\$2,237,250	\$2,259,100	
17	FY 17/18	9.5%	12.0		\$2,426,100	\$2,449,790	\$2,473,720	
18	FY 18/19	9.5%	12.0			\$2,682,520	\$2,708,720	
19	FY 19/20	5.5%	12.0				\$1,717,190	
20	FY 20/21	5.5%	12.0				\$1,829,330	
21	Subtotal, Revenues from Water Rate Increases	\$0	\$2,194,190	\$4,641,710	\$7,369,560	\$9,158,730	\$11,077,520	
22								
23	Other Water Sales Revenues							
24	Conservation Charge	1,140,000	1,613,053	1,629,180	1,645,470	1,661,920	1,678,540	7
25	Elevation Charge	2,036,160	2,056,522	2,077,085	2,097,857	2,118,838	2,140,027	8
26	Replenishment Fee	1,155,468	1,426,361	1,833,522	2,248,683	2,538,367	2,563,750	9
27	Other	674,600	729,250	733,940	738,680	743,470	748,300	10
28	Other Operating Revenue	1,591,950	1,991,080	2,000,410	2,009,930	2,019,650	2,029,580	10
29	Other Non-Operating Revenue, Excluding Interest	2,480,000	3,571,500	3,603,660	3,636,500	3,670,030	3,704,260	10
30	Interest Income	355,790	159,030	92,410	100,430	121,110	164,110	11
31								
32	Total Revenue	\$32,307,486	\$36,837,758	\$39,934,179	\$43,397,113	\$45,812,140	\$48,118,434	
33								
34	Debt Proceeds	0	10,000,000	13,000,000	14,000,000	7,000,000	8,000,000	12
35								
36	Total Sources of Funds	\$50,097,206	\$54,789,105	\$57,554,893	\$62,418,388	\$58,867,503	\$64,323,891	

TABLE A-7  
City of San Bernardino Municipal Water Department - Water Rate Model  
Projected Operating Statement - Cash Basis

Notes:

- (1) FY 15/16 beginning of year Fund Balance from FY 14/15 CAFR, page 14.
- (2) This reserve is funded as funds allow. In this rate study, it is given the lowest priority among the various reserve accounts.
- (3) Accumulation of this reserve phased in over a ten-year period. FY 15/16 is year 4 of 10. In this rate study, reserves are funded as funds allow and given the highest priority for funding other than the operating reserve
- (4) This reserve is funded as funds allow but is not funded in the course of this rate study.
- (5) Unencumbered Reserves are used in this rate study to show reserves that remain after all four reserve accounts are funded
- (6) Includes Regular Water Sales (Minimum Monthly Charge and Commodity Charge) and Municipal Water Sales
- (7) Projected Conservation Charge revenues include the proposed increased charge shown in Table A-ξ
- (8) No change in the Elevation Charges are proposed.
- (9) Refer to Table A-8 for recalculated Replenishment Fee.
- (10) Refer to Table A-3 for more detail on these revenues.
- (11) For rate setting purposes, assumed to be 2% per year on the beginning year fund balance.
- (12) Refer to Table A-5 and Table A-6. Debt financed amounts calculated by FG Solutions to minimize rate increases while meeting reserve and coverage requirements  
All new debt assumed to be issued on par with existing debt.

TABLE A-7  
City of San Bernardino Municipal Water Department - Water Rate Model  
Projected Operating Statement - Cash Basis

Line	Projected						Notes
	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21	
37	<b>USES OF FUNDS</b>						
38	\$30,684,869	\$32,004,091	\$33,773,872	\$35,056,113	\$36,236,827	\$37,006,470	
39	Debt Service						
40	\$2,318,489	\$2,318,149	\$2,088,595	\$2,088,148	\$2,088,148	\$2,088,148	
41	\$0	\$796,152	\$1,831,151	\$2,945,764	\$3,503,071	\$4,139,993	
42							
43	\$9,142,500	\$15,050,000	\$14,840,000	\$16,273,000	\$8,834,000	\$10,919,000	
44							
45	\$42,145,858	\$50,168,392	\$52,533,617	\$56,363,026	\$50,662,046	\$54,153,611	
46							
47							
48	<b>FINANCIAL PERFORMANCE INDICATORS</b>						
49	EOY Reserve Balance (Target in Parentheses)						
50	\$3,783,070	\$3,945,710	\$4,163,900	\$4,321,990	\$4,467,550	\$4,562,440	1
51	360,759	0	0	0	0	0	2
52	2,257,772	672,715	845,338	1,697,383	3,695,496	5,566,475	3
53	1,519,600	0	0	0	0	0	4
54	30,146	2,289	12,037	35,990	42,411	41,366	5
55	\$7,951,348	\$4,620,713	\$5,021,275	\$6,055,363	\$8,205,457	\$10,170,280	
56							
57	Debt Service Coverage Ratio						
58	\$32,307,486	\$36,837,758	\$39,934,179	\$43,397,113	\$45,812,140	\$48,118,434	
59	(30,684,869)	(32,004,091)	(33,773,872)	(35,056,113)	(36,236,827)	(37,006,470)	
60	\$1,622,617	\$4,833,667	\$6,160,307	\$8,341,000	\$9,575,313	\$11,111,964	
61							
62	\$2,089,262	\$2,885,074	\$3,919,746	\$5,033,912	\$5,591,219	\$6,228,141	
63							
64	0.78	1.68	1.57	1.66	1.71	1.78	
65	1.75	1.75	1.75	1.75	1.75	1.75	

**TABLE A-8**  
**City of San Bernardino Municipal Water Department - Water Rate Model**  
**Rate Design Calculations**

**Proposed Rate Design Change: Adjust Conservation Charge**

1  
2 Methodology: compile costs associated with providing seasonal peaking water as listed below. Divide by 2nd tier water use to generate the  
3 Conservation Charge. The calculation is based on FY 13/14 water use patterns. This is  
4 conservative - meaning that the \$/hcf Conservation Charge is lower than it would be if it were based on FY 15/16  
5 water use patterns. Therefore, the Conservation Charge would be defensible even if water use returned to the patterns  
6 observed during FY 13/14. Note that in this analysis, the terms Conservation Charge and 2nd Tier Charge are used interchangeably.  
7  
8

9 **Step 1. Compile Water Use Data**

10 **FY 13/14 Detail, 2nd Tier hcf (Compiled by FG Solutions based analysis of Department's FY 13/14 water consumption data)**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
13 ASSESSMENT DIST	0	0	0	0	0	0	0	0	0	0	0	0
14 CAP REBATE	0	0	0	0	0	0	0	0	0	0	0	0
15 COLTON-INTERTIE	0	0	0	0	0	0	0	0	0	0	0	0
16 COMMERCIAL/LAND/LT. INDST	67,440	63,309	66,197	46,705	23,839	11,842	18,791	16,431	8,147	16,345	28,541	42,656
17 EDUCATION-PUBLIC	43,168	53,568	48,872	42,562	21,387	9,318	7,610	10,580	7,637	10,223	27,033	41,619
18 GOLF COURSE	28,472	26,726	22,246	18,976	11,158	3,851	12,044	7,308	8,288	10,532	19,240	24,491
19 HYDRANT	0	0	0	0	0	0	0	0	0	0	0	0
20 INTERTIE-NO CONSUMPTION	0	0	0	0	0	0	0	0	0	0	0	0
21 INTERTIE-WITH CONSUMPTION	0	0	0	0	0	0	0	0	0	0	0	0
22 MULTI-FAMILY	31,582	33,467	35,303	23,386	14,904	7,525	11,207	8,970	6,634	7,302	13,043	23,515
23 MULTI-FAMILY 2 UNIT (WA)	5,524	6,060	7,925	4,219	3,258	2,037	3,080	2,271	1,964	1,791	2,498	4,490
24 MUNICIPAL	0	0	0	0	0	0	0	0	0	0	0	0
25 NON RESIDENTIAL	93,132	87,356	100,436	74,084	123,723	98,422	65,299	56,603	53,621	50,098	62,348	76,501
26 RESIDENTIAL-SINGLE FAMILY	214,919	198,468	205,270	117,886	70,599	36,013	74,406	43,224	28,655	43,116	96,450	162,434
27 WATER DEPARTMENT RATE	0	0	0	0	0	0	0	0	0	0	0	0
28 WATER-COUNTY HOSPITAL	0	0	0	0	0	0	0	0	0	0	0	0
29 WEST VALLEY INTERTIE	0	0	0	0	0	0	0	0	0	0	0	0
30 Total	484,237	468,954	486,249	327,818	268,868	169,008	192,437	145,387	114,946	139,407	249,153	375,706

32 **Projected FY 15/16, 2nd Tier hcf (Calculated by FG Solutions based on an analysis of Department's FY 13/14 water consumption data)**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
34 ASSESSMENT DIST	0	0	0	0	0	0	0	0	0	0	0	0
35 CAP REBATE	0	0	0	0	0	0	0	0	0	0	0	0
36 COLTON-INTERTIE	0	0	0	0	0	0	0	0	0	0	0	0
37 COMMERCIAL/LAND/LT. INDST	35,049	31,655	34,474	22,092	9,558	4,531	7,737	6,942	2,965	6,737	13,061	20,168
38 EDUCATION-PUBLIC	26,603	33,498	29,509	25,501	12,791	5,510	4,525	6,716	4,663	6,118	15,485	24,245
39 GOLF COURSE	20,085	18,828	15,603	13,248	7,619	2,358	8,257	4,847	5,553	7,169	13,438	17,219
40 HYDRANT	0	0	0	0	0	0	0	0	0	0	0	0
41 INTERTIE-NO CONSUMPTION	0	0	0	0	0	0	0	0	0	0	0	0
42 INTERTIE-WITH CONSUMPTION	0	0	0	0	0	0	0	0	0	0	0	0
43 MULTI-FAMILY	13,091	14,729	15,125	9,030	4,246	2,164	3,592	2,533	2,166	2,298	3,903	7,913
44 MULTI-FAMILY 2 UNIT (WA)	1,925	2,301	3,197	1,719	1,363	846	1,267	920	768	657	770	1,498
45 MUNICIPAL	0	0	0	0	0	0	0	0	0	0	0	0
46 NON RESIDENTIAL	52,809	48,808	56,566	40,751	77,201	61,342	36,025	31,133	29,429	28,049	34,013	42,567
47 RESIDENTIAL-SINGLE FAMILY	80,066	73,188	75,194	41,971	25,371	12,126	26,767	14,778	9,436	13,932	32,404	58,349
48 WATER DEPARTMENT RATE	0	0	0	0	0	0	0	0	0	0	0	0
49 WATER-COUNTY HOSPITAL	0	0	0	0	0	0	0	0	0	0	0	0
50 WEST VALLEY INTERTIE	0	0	0	0	0	0	0	0	0	0	0	0
51 Total	229,629	223,006	229,668	154,313	138,149	88,878	88,170	67,870	54,980	64,959	113,074	171,959

52

**TABLE A-8**  
**City of San Bernardino Municipal Water Department - Water Rate Model**  
**Rate Design Calculations**

FY 13/14 Detail, Total (Compiled by FG Solutions based analysis of Department's FY 13/14 water consumption data)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
ASSESSMENT DIST	35,997	36,132	37,845	33,293	27,728	16,708	19,066	20,361	12,279	15,977	21,257	26,833
CAP REBATE	9,934	9,475	10,009	7,712	6,349	4,663	6,140	5,579	5,260	5,522	7,354	9,238
COLTON-INTERTIE		0	0		0	0	15		0		0	0
COMMERCIAL/LAND/LT. INDST	187,009	186,515	189,753	160,758	123,341	87,101	95,433	94,885	71,546	92,255	123,080	152,705
EDUCATION-PUBLIC	76,260	89,041	85,544	77,870	49,774	31,199	28,145	30,116	25,767	31,665	59,522	77,837
GOLF COURSE	29,952	28,206	23,726	20,456	12,638	5,331	13,524	8,788	9,768	12,012	20,720	25,971
HYDRANT	9,165	8,916	26,958	14,315	6,597	11,059	11,237	7,050	7,067	5,272	7,186	6,011
INTERTIE-NO CONSUMPTION	23,761	23,573	22,618	19,690	13,996	14,193	12,096	14,223	13,070	6,228	1,781	925
INTERTIE-WITH CONSUMPTION	17	5	55	6	14	15	18	17	15	5	12	20
MULTI-FAMILY	218,200	224,780	224,012	199,810	183,326	152,367	181,101	163,764	154,972	155,317	179,897	207,930
MULTI-FAMILY 2 UNIT (WA)	42,262	42,081	45,563	35,545	31,454	25,713	30,144	28,276	26,463	26,467	32,516	39,212
MUNICIPAL	79,155	74,522	76,978	72,126	53,519	35,359	38,728	32,988	28,719	33,104	57,692	67,122
NON RESIDENTIAL	236,594	231,624	249,802	211,727	252,854	215,334	187,162	176,576	170,016	165,006	190,084	212,714
RESIDENTIAL-SINGLE FAMILY	1,011,023	978,137	997,447	800,937	659,603	497,502	642,249	560,865	502,830	576,964	758,075	914,093
WATER DEPARTMENT RATE	974	1,250	1,492	1,373	1,000	1,033	1,306	1,154	1,125	1,220	1,399	1,438
WATER-COUNTY HOSPITAL	0	0	0	0	0	0	0	0	0	0	0	0
WEST VALLEY INTERTIE	0	0	0	0	0	0	0	0	0	0	0	0
(blank)												
<b>Grand Total</b>	<b>1,960,303</b>	<b>1,934,257</b>	<b>1,991,802</b>	<b>1,655,618</b>	<b>1,422,193</b>	<b>1,097,577</b>	<b>1,266,364</b>	<b>1,144,642</b>	<b>1,028,897</b>	<b>1,127,014</b>	<b>1,460,575</b>	<b>1,742,049</b>

Projected FY 15/16, Total (Calculated by FG Solutions based on an analysis of Department's FY 13/14 water consumption data)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
ASSESSMENT DIST	25,918	26,015	27,248	23,971	19,964	12,030	13,728	14,660	8,841	11,503	15,305	19,320
CAP REBATE	7,152	6,822	7,206	5,553	4,571	3,357	4,421	4,017	3,787	3,976	5,295	6,651
COLTON-INTERTIE	0	0	0	0	0	0	11	0	0	0	0	0
COMMERCIAL/LAND/LT. INDST	134,646	134,291	136,622	115,746	88,806	62,713	68,712	68,317	51,513	66,424	88,618	109,948
EDUCATION-PUBLIC	54,907	64,110	61,592	56,066	35,837	22,463	20,264	21,684	18,552	22,799	42,856	56,043
GOLF COURSE	21,565	20,308	17,083	14,728	9,099	3,838	9,737	6,327	7,033	8,649	14,918	18,699
HYDRANT	6,599	6,420	19,410	10,307	4,750	7,962	8,091	5,076	5,088	3,796	5,174	4,328
INTERTIE-NO CONSUMPTION	17,108	16,973	16,285	14,177	10,077	10,219	8,709	10,241	9,410	4,484	1,282	666
INTERTIE-WITH CONSUMPTION	12	4	40	4	10	11	13	12	11	4	9	14
MULTI-FAMILY	157,104	161,842	161,289	143,863	131,995	109,704	130,393	117,910	111,580	111,828	129,526	149,710
MULTI-FAMILY 2 UNIT (WA)	30,429	30,298	32,805	25,592	22,647	18,513	21,704	20,359	19,053	19,056	23,412	28,233
MUNICIPAL	56,992	53,656	55,424	51,931	38,534	25,458	27,884	23,751	20,678	23,835	41,538	48,328
NON RESIDENTIAL	170,348	166,769	179,857	152,443	182,055	155,040	134,757	127,135	122,412	118,804	136,860	153,154
RESIDENTIAL-SINGLE FAMILY	727,937	704,259	718,162	576,675	474,914	358,201	462,419	403,823	362,038	415,414	545,814	658,147
WATER DEPARTMENT RATE	701	900	1,074	989	720	744	940	831	810	878	1,007	1,035
WATER-COUNTY HOSPITAL	0	0	0	0	0	0	0	0	0	0	0	0
WEST VALLEY INTERTIE	0	0	0	0	0	0	0	0	0	0	0	0
(blank)	0	0	0	0	0	0	0	0	0	0	0	0
<b>Grand Total</b>	<b>1,411,418</b>	<b>1,392,665</b>	<b>1,434,097</b>	<b>1,192,045</b>	<b>1,023,979</b>	<b>790,255</b>	<b>911,782</b>	<b>824,142</b>	<b>740,806</b>	<b>811,450</b>	<b>1,051,614</b>	<b>1,254,275</b>

**Step 2. Summarize Water Consumption**

	Total hcf	Consumption Chg hcf	2nd Tier Hcf
FY 13/14	17,831,291	17,316,723	3,422,170
Projected FY 15/16	12,838,530	12,468,041	1,624,655

Note: Assessment Districts and certain golf courses have water rates established by contract and pay a reduced consumption charge (not the current \$1.15/hcf) and aren't included in Consumption Charge calculation.

TABLE A-8  
City of San Bernardino Municipal Water Department - Water Rate Model  
Rate Design Calculations

105	Step 3. Identify Costs that are Related to 2nd Tier Water Use	
106		
107	<b>Item 3.1. Conservation Program Costs.</b>	
108	Billing Unit 2055, Water Conservation, FY 15/16 Budget	\$290,898 Note that FY 14/15 Budget was \$191,000 and projected FY 14/15 actual (as reported in FY 15/16 budget) was \$86,506
109		
110	<b>Item 3.2 Water Loss Management Costs</b>	
111	Billing Unit 3024, Water Loss Management, FY 15/16 Budget	\$413,739 Note that FY 14/15 Budget was \$150,200 and projected FY 14/15 actual (as reported in FY 15/16 budget) was \$6,000
112		
113	<b>Item 3.3 Well Rehabilitation to Lower Pumps in Response to Declining Aquifer Levels</b>	
114	Total Cost Identified by Department	\$4,426,550 Source: Department staff, well rehab costs.xls, June 2015. Incl 7% for Dept labor and overhead, and 15% contingency
115	Number of Sites Identified by Department	56 Source: Department staff, well rehab costs.xls, June 2015.
116	Average Cost per Site	\$79,046
117	Number of Sites per Year Completed	10 Source: Department staff, 06/25/15 email
118	Estimated Annual Cost for Well Rehabilitation	\$790,460 Equals average cost per site times the number of sites per year
119		
120	<b>Item 3.4 Include Additional Electricity Associated with Pumping Additional 50 feet of Head</b>	
121	Methodology: calculate cost per hour; multiply cost per hour by hcf/hour to get cost/hcf; multiply cost/hcf times 2nd tier consumption to get additional electricity cost	
122	<u>3.4.a. Calculation of cost per hour</u>	
123	Cost per hour (formula: $C = 0.746 Q h c / (3960 \mu_p \mu_m)$ )	
124	where	
125	$C = \text{cost per hour}$	Calculated result of formula
126	$Q = \text{volume flow (gpm)}$	Use 1,000 gpm as typical well capacity per Department well rehab cost.xls 1,133 = calculated avg/well rehab cost.xls
127	$h = \text{head (ft)}$	Use 50 feet; that's the increased well/pump depth the Department is planning for.
128	$c = \text{cost rate per kWh}$	Use \$0.0869/kWh, see below
129	$\mu_p = \text{pump efficiency}; \mu_m = \text{motor efficiency}$	(Use 60%, the ~ avg of well pump tests done in 2015, excluding EPA wells and wells producing < 200 AFY)
130		Source: Department), combining motor and pump efficiency calc ==> 60%
131		
132	<u>Supporting Calc: \$/kWh derivation</u>	
133	This calculation recognizes that some wells are baseline and operate all seasons; some wells are peak and operate summer only, and Southern California Edison (SCE) rate schedules are seasonal	
134	Baseline	\$0.079465 SCE TOU PA-3, Option B (Sheet 2). Average summer and winter, all times
135		Formula showing specific numbers pulled from SCE tariff sheets=0.0281+average(0.06109,0.04164)
136		\$0.0281/kWh is the delivery service energy charge. The other two numbers are winter season mid-peak and non-peak
137		generation energy charges.
138	Peak	\$0.094433 SCE TOU PA-3, Option B (Sheet 2). Summer only, all times
139		Formula showing specific numbers pulled from SCE tariff sheets=0.0281+average(0.10644,0.05671,0.03585)
140		\$0.0281/kWh is the delivery service energy charge. The other three numbers are summer season on-peak,
141		mid-peak, and non-peak generation energy charges.
142	Average	\$0.0869 Rounded to nearest \$0.0001
143		
144	Cost per hour	\$1.318687 $C = 0.746 Q h c / (3960 \mu_p \mu_m)$
145		
146	<u>3.4.b. Calculation of cost per hcf</u>	
147	Volume pumped per hour	
148	gallons	60,000 = 60 minutes * 1000 gpm
149	hcf	80 = 60 minutes * 1000 gpm / 748 gal/hcf
150	Cost per hcf	\$0.01644 = cost per hour divided by hcf/hour
151		
152	<u>3.4.c. Calculation additional electricity cost</u>	
153	Estimated Additional Electricity from Pumping from Deeper Wells	\$56,259 = cost/hcf times 2nd Tier consumption hcf before conservation adjustment
154		
155	Backcheck comparison. For this cost to be valid to include in the Conservation Charge, the production from the deeper wells needs to exceed the amount of 2nd Tier consumption.	
156	The amount of 2nd Tier consumption is	3,422,170 hcf, FY 13/14 consumption
157	The amount of 2nd Tier consumption is	7,856 afy, FY 13/14 consumption
158	From inspection of the Department's proposed well rehab projects, the capacity of the wells where rehabs are planned for exceeds 7,856 afy.	
159		

**TABLE A-8**  
**City of San Bernardino Municipal Water Department - Water Rate Model**  
**Rate Design Calculations**

160	Item 3.5. Higher Costs of Peaking Wells vs Baseline Wells	
161	Average \$/AF for peaking wells	\$48.01
162	Average \$/AF for baseline wells including EPA wells	\$48.47
163	Average \$/AF for baseline wells excluding EPA wells	\$25.15
164		
165	Delta, \$/AF peaking less \$/AF baseline excluding EPA wells	\$22.86
166		
167	2nd Tier Summer hcf (June - November)	June - November billing data approximately is May - October use
168	FY 13/14, hcf	2,411,832
169	FY 13/14, af	5,537
170	Projected FY 15/16, hcf	1,146,724
171	Projected FY 15/16, af	2,633
172		
173	Estimated Additional Costs from Using Peaking Wells	\$126,563 = \$/AF times 2nd tier summer hcf, before conservation adjustment
174		
175	Backcheck numbers to make sure collecting some peaking wells power costs through the Conservation Charge (Item 4.5) does not double-recover electricity costs, some of which	
176	are recovered through Zone Charges	
177	Zone Charge Revenue, FY 13/14	\$2,828,000
178	Compare with electricity costs (FY 14/15 actual)	\$4,487,026
179	So, the zone charge doesn't cover all electricity costs, and the total energy costs associated with the \$/AF costs is low. So applying this delta does not double count revenue	
180		
181		
182	<b>Step 4. Summarize Total Costs to be Included in Conservation Charge</b>	
183	<b>Component of Conservation Charge</b>	<b>Amount</b>
184	Billing Unit 2055, Water Conservation, FY 15/16 Budget	\$291,000
185	Billing Unit 3024, Water Loss Management, FY 15/16 Budget	\$414,000
186	Estimated Annual Cost for Well Rehabilitation	\$790,000
187	Estimated Additional Electricity from Pumping from Deeper Wells	\$56,000
188	Estimated Additional Costs from Using Peaking Wells	\$127,000
189	<b>Total</b>	<b>\$1,678,000</b> Each item is rounded to the nearest \$1,000.
190		
191	<b>Step 5. Calculate the Conservation Charge</b>	
192	Costs Included in Conservation Charge	\$1,678,000
193	Projected 2nd Tier Consumption, hcf	3,422,170
194	Conservation Charge, \$/hcf	\$0.49
195		
196		
197	<b>Proposed Rate Design Change: Recalculate Replenishment Fee</b>	
198	The Department is proposing to adjust the Replenishment Fee to accommodate projected increases in the cost of regional water.	
199	In FY 14/15, the Department's budget was \$1.5 million, which at current Table A rates from Valley District,	
200	would purchase approximately 12,669 acre-feet of water.	
201		
202	The intent of the revised Replenishment Fee schedule is to, by the end of the rate study planning period,	
203	collect sufficient revenues to purchase 12,000 to 13,000 acre-feet per year, given anticipated increases in Table A	
204	rates from Valley District.	
205		
206	<b>Step 1. Calculate FY 14/15 Anticipated AF/year</b>	
207	Current Supplemental Water Purchase Amount	\$1,500,000 Amount to be spent on supplemental water provided water is available
208	Current Table A Unit Cost (FY 14/15)	\$118.40 Source: Department, 8/12/15
209	Current AF/year Supplemental Water Purchases	12,669 Calculated
210		
211	<b>Step 2. Calculate Anticipated FY 15/16 Replenishment Fee Revenue Given Conservation Adjustment</b>	
212	Current Replenishment Fee, \$/hcf	\$0.09
213	hcf/year Water Sales (FY 15/16)	12,838,530
214	Anticipated FY 15/16 Replenishment Fee Revenue	\$1,155,468
215		

TABLE A-8  
City of San Bernardino Municipal Water Department - Water Rate Model  
Rate Design Calculations

	Proposed Replenishment Fee, \$/hcf	Projected Water Sales hcf/year	Projected Purchased Water \$	Table A \$/AF (Dept. 8/12/15)	Projected AF/Year Purchased	
216						
217						
218						
219						
220	FY 15/16	\$0.09	12,838,530	\$1,155,468	\$118.40	9,759
221	FY 16/17	\$0.11	12,966,915	\$1,426,361	\$150.00	9,509
222	FY 17/18	\$0.14	13,096,584	\$1,833,522	\$175.00	10,477
223	FY 18/19	\$0.17	13,227,550	\$2,248,683	\$200.00	11,243
224	FY 19/20	\$0.19	13,359,825	\$2,538,367	\$200.00	12,692
225	FY 20/21	\$0.19	13,493,424	\$2,563,750	\$200.00	12,819
226						

227 The Projected Purchased Water \$ are inputs into the O&M expense table in this Rate Model and are inputs to the Replenishment Fee  
 228 Revenues in this Rate Model. If water isn't available for purchase from Valley District, it is FG Solutions's understanding that Replenishment Fee  
 229 Funds would accumulate in a reserve account (not shown in the Operating Statement) dedicated for future water purchases.

232 Revised Minimum Monthly Charge and Commodity Charge Calculation. No Commodity Charge Increase

235 Step 1. Backcalculate Regular Water Sales Revenues Based on Customers and Projected Consumption

236 <u>Minimum Monthly Charge Revenues</u>					
	Meter Size	FY 15/16, # of Connections	Existing Rate	Minimum Monthly	Monthly Charge Rev. Annual
237					
238					
239	1/2" & 5/8"	39,218	\$12.90	\$505,912	\$6,070,946
240	3/4"	2,795	\$16.15	\$45,139	\$541,671
241	1"	2,241	\$22.60	\$50,647	\$607,759
242	1 1/2"	1,052	\$38.80	\$40,818	\$489,811
243	2"	617	\$58.20	\$35,909	\$430,913
244	3"	234	\$103.50	\$24,219	\$290,628
245	4"	149	\$158.20	\$23,572	\$282,862
246	6"	32	\$330.00	\$10,560	\$126,720
247	8"	14	\$524.15	\$7,338	\$88,057
248	10"	2	\$750.65	\$1,501	\$18,016
249		46,354		\$745,615	\$8,947,383

250 (Number of Connections excludes fire services, Colton Intertie, West Valley Intertie, and Golf Courses paying rates established by contract)

252 Commodity Charge (at \$1.15/hcf) Revenues

253					
254	Consumption, Projected FY 15/16, hcf			12,468,041	
255	Commodity Charge, \$/hcf			\$1.15	
256	Commodity Charge Revenues, Projected FY 15/16			\$14,338,247	
257					
258	Total Projected Regular Water Sales Revenues (Includes Municipal Sales)			\$23,285,630	
259					
260	Check:			\$22,873,518	
261	% Difference:			1.80%	

TABLE A-8  
City of San Bernardino Municipal Water Department - Water Rate Model  
Rate Design Calculations

263 Step 2. Adjust Number of Connections to Result in Calculated Revenues that Equal Projected Revenues

264 For the purposes of this calculation, the number of connections and consumption is adjusted by -1.8%

265 Minimum Monthly Charge Revenues

266 267 268 269 270 271 272 273 274 275 276 277 278 279	Meter Size	Adjusted		Minimum Monthly Charge Rev.	
		FY 15/16 # of Connections	Existing Rate	Monthly	Annual
	1/2" & 5/8"	38,511	\$12.90	\$496,792	\$5,961,503
	3/4"	2,745	\$16.15	\$44,332	\$531,981
	1"	2,201	\$22.60	\$49,743	\$596,911
	1 1/2"	1,033	\$38.80	\$40,080	\$480,965
	2"	606	\$58.20	\$35,269	\$423,230
	3"	230	\$103.50	\$23,805	\$285,660
	4"	146	\$158.20	\$23,097	\$277,166
	6"	31	\$330.00	\$10,230	\$122,760
	8"	14	\$524.15	\$7,338	\$88,057
	10"	2	\$750.65	\$1,501	\$18,016
				\$732,187	\$8,786,249

280 (Number of Connections excludes fire services, Colton Intertie, West Valley Intertie, and Golf Courses paying rates established by contract)

281	<u>Commodity Charge (at \$1.15/hcf) Revenues</u>	
283	Consumption, Projected FY 15/16, hcf, Adjusted	12,243,404
284	Commodity Charge, \$/hcf	\$1.15
285	Commodity Charge Revenues, Projected FY 15/16	\$14,079,915
286		
287	Total Projected Regular Water Sales Revenues (Includes Municipal Sales)	\$22,866,164
288		
289	Check:	\$22,873,518
290	% Difference:	-0.03%

291 Step 3. Define Transition Years Commodity Charges and Revenues from Commodity Charges

292 293 294	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21
295	Commodity Charge, \$/hcf	\$1.15	\$1.15	\$1.15	\$1.15	\$1.15
296						
297	Projected Water Sales, hcf/year, Adjusted	12,243,404	12,365,838	12,489,497	12,614,391	12,740,535
298						
299	Projected Commodity Charge Revenues	\$14,079,915	\$14,220,714	\$14,362,921	\$14,506,550	\$14,651,616
300						
301						

302 Step 4. Project the Number of Customers in Each Year Through FY 20/21

303 304 305 306	Meter Size	Adjusted		Projected Adjusted		Projected Adjusted	
		FY 15/16, # of Connections	FY 16/17, # of Connections	FY 17/18, # of Connections	FY 18/19, # of Connections	FY 19/20, # of Connections	FY 20/21, # of Connections
307	1/2" & 5/8"	38,511	38,896	39,285	39,678	40,075	40,476
308	3/4"	2,745	2,772	2,800	2,828	2,856	2,885
309	1"	2,201	2,223	2,245	2,267	2,290	2,313
310	1 1/2"	1,033	1,043	1,053	1,064	1,075	1,086
311	2"	606	612	618	624	630	636
312	3"	230	232	234	236	238	240
313	4"	146	147	148	149	150	152
314	6"	31	31	31	31	31	31
315	8"	14	14	14	14	14	14
316	10"	2	2	2	2	2	2

317  
318

TABLE A-8  
City of San Bernardino Municipal Water Department - Water Rate Model  
Rate Design Calculations

319 Step 5. Define the Meter Equivalent Ratio For Each Meter Size Using the Ratio of Existing Minimum Monthly Charges

320	Meter Equivalent	
321	Existing	Ratio,
322	Rate	5/8x3/4 = 1.0
323	1/2" & 5/8"	\$12.90
324	3/4"	\$16.15
325	1"	\$22.60
326	1 1/2"	\$38.80
327	2"	\$58.20
328	3"	\$103.50
329	4"	\$158.20
330	6"	\$330.00
331	8"	\$524.15
332	10"	\$750.65

335 Step 6. Project the Number of Meter Equivalents in Each Year Through FY 20/21

336	Projected					
337	FY 15/16, # of	FY 16/17, # of	FY 17/18, # of	FY 18/19, # of	FY 19/20, # of	FY 20/21, # of
338	Meter Size	Meter Equiv.				
339	1/2" & 5/8"	38,511	38,896	39,285	39,678	40,075
340	3/4"	3,437	3,471	3,506	3,541	3,576
341	1"	3,856	3,895	3,934	3,973	4,013
342	1 1/2"	3,107	3,138	3,169	3,201	3,233
343	2"	2,734	2,761	2,789	2,817	2,845
344	3"	1,845	1,863	1,882	1,901	1,920
345	4"	1,790	1,808	1,826	1,844	1,862
346	6"	793	801	809	817	825
347	8"	569	575	581	587	593
348	10"	116	117	118	119	120
349	Total	56,758	57,325	57,899	58,478	59,062

352 Step 7. Calculate the Revenue Requirement from Minimum Monthly Charges in Each Year and The Minimum Monthly Charge in \$/mo/Meter Equivalent

353	Projected						
354	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21	
355							
356	Rev Req: Monthly Service Chg + Commodity Chg	\$22,873,518	\$25,290,963	\$27,963,973	\$30,919,563	\$32,938,756	\$35,089,867
357	Less Commodity Charge Revenues	(\$14,079,915)	(\$14,220,714)	(\$14,362,921)	(\$14,506,550)	(\$14,651,616)	(\$14,798,132)
358	Revenue Requirement from Minimum Monthly Charges	\$8,793,603	\$11,070,249	\$13,601,052	\$16,413,013	\$18,287,140	\$20,291,735
359							
360	Number of Meter Equivalents	56,758	57,325	57,899	58,478	59,062	59,652
361	Minimum Monthly Charge, \$/Meter Equivalents	\$12.91	\$16.09	\$19.58	\$23.39	\$25.80	\$28.35

365 Step 8. Calculate Monthly Water Bills and % Increase in Monthly Water Bills

366	Proposed						
367	Hcf/month	Current	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21
368	5	\$19.99	\$23.28	\$26.92	\$30.88	\$33.39	\$35.94
369	10	\$27.08	\$30.48	\$34.26	\$38.37	\$40.99	\$43.53
370	15	\$34.18	\$37.67	\$41.60	\$45.86	\$48.58	\$51.12
371	16	\$35.59	\$39.11	\$43.07	\$47.36	\$50.10	\$52.64
372	20	\$41.27	\$44.86	\$48.94	\$53.36	\$56.17	\$58.71
373	25	\$48.36	\$52.05	\$56.28	\$60.85	\$63.76	\$66.31
374	30	\$55.45	\$59.24	\$63.63	\$68.34	\$71.35	\$73.90
375	50	\$90.12	\$94.31	\$99.29	\$104.61	\$108.02	\$110.56
376	100	\$178.53	\$183.73	\$190.21	\$197.02	\$201.44	\$203.98

TABLE A-8  
City of San Bernardino Municipal Water Department - Water Rate Model  
Rate Design Calculations

377  
378  
379  
380  
381  
382  
383  
384  
385  
386  
387  
388  
389  
390  
391  
392  
393  
394  
395  
396  
397  
398  
399  
400  
401  
402  
403  
404  
405

Hcf/month	FY 16/17	FY 17/18	Proposed			FY 19/20	FY 20/21	Cumulative 1st 3 Incr.	Cumulative All 5 Incr.
			FY 18/19	FY 19/20	FY 20/21				
5	16%	16%	15%	8%	8%		54%	80%	
10	13%	12%	12%	7%	6%		42%	61%	
15	10%	10%	10%	6%	5%		34%	50%	
16	10%	10%	10%	6%	5%		33%	48%	
20	9%	9%	9%	5%	5%		29%	42%	
25	8%	8%	8%	5%	4%		26%	37%	
30	7%	7%	7%	4%	4%		23%	33%	
50	5%	5%	5%	3%	2%		16%	23%	
100	3%	4%	4%	2%	1%		10%	14%	

CHECK: PERCENTAGE OF WATER RATE REVENUES FROM FIXED CHARGES

Alternative 2: No Commodity Charge Increase

Type of Revenue	FY 15/16	FY 16/17	Projected			
			FY 17/18	FY 18/19	FY 19/20	FY 20/21
Minimum Monthly Charge	\$8,793,603	\$11,070,249	\$13,601,052	\$16,413,013	\$18,287,140	\$20,291,735
Commodity Charge	14,079,915	14,220,714	14,362,921	14,506,550	14,651,616	14,798,132
Elevation Charge	2,036,160	2,056,522	2,077,085	2,097,857	2,118,838	2,140,027
Conservation Charge	1,140,000	1,613,053	1,629,180	1,645,470	1,661,920	1,678,540
Replenishment Fee	1,155,468	1,426,361	1,833,522	2,248,683	2,538,367	2,563,750
<b>Total</b>	<b>\$27,205,146</b>	<b>\$30,386,898</b>	<b>\$33,503,759</b>	<b>\$36,911,573</b>	<b>\$39,257,880</b>	<b>\$41,472,184</b>
% from Minimum Monthly Charge	32%	36%	41%	44%	47%	49%

ADDITIONAL TABLES SUPPORTING TABLE A-3  
 City of San Bernardino Municipal Water Department - Water Rate Model  
 Additional Revenue Calculations Supporting Table A-3

1 Table A-3B: Comparison of Actual FY 13/14 Revenues with Calculated Revenues from Consumption Data

6 Type of Water Sales Revenues	5 Calculated From FY 13/14 Customer Data (See Below)	Actual	Difference		Notes
			Dollars	Percent	
7 Monthly Charge	\$8,168,182	\$28,476,858	\$201,619	0.7%	1, 4
8 Consumption Charge	\$20,107,057				1, 4
9 Conservation Charge					
10 Multi-Unit	\$75,893	\$1,192,046	(\$5,713)	-0.5%	2, 5
11 All Other Customers	\$1,121,866				3
12 Replenishment Charge	\$1,604,816	1,701,462	\$96,646	5.7%	3
13 Zone Charge	\$2,772,659	2,820,407	\$47,748	1.7%	3
14 Fire Service Charges	\$449,745	461,679	\$11,934	2.6%	1
15 Total	\$34,300,219	\$34,652,452	\$352,233	1.0%	

- 16  
 17 Notes:  
 18 (1) Source: Data in Table 8 of this model  
 19 (2) Source: Data in revised dataset sent by Department staff in May 2015 that includes # of units in multi-unit connections  
 20 (3) Source: Data in >100 mb dataset sent by Department staff in May 2015  
 21 (4) Actual data is not disaggregated and includes municipal sales  
 22 (5) Billing data shows consumption of 216,838 hcf/year in the 2nd tier, for multi-unit customers. With a 28% reduction in water use for  
 23 this customer class, consumption in the 2nd tier would be reduced to 80,789 hcf/year  
 24 (6) Billing data shows consumption of 3,205,332 hcf/year in the 2nd tier. With a 28% reduction in water use for  
 25 this customer class, consumption in the 2nd tier would be reduced to 1,543,866 hcf/year  
 26

27 Supporting Calculation, Table A-3C: Estimate Commodity Charge Revenues Based on FY 13/14 Water Consumption and Rates

29 Customer Type and Service Type	28 Consumption per Customer Class, hcf/month											2014 Commodity Charge \$/hcf	2014 Calculated Value FY 13/14 Total \$		
	2013 7	2013 8	2013 9	2013 10	2013 11	2013 12	2014 1	2014 2	2014 3	2014 4	2014 5		2014 6	Reg. Sales	Fire Service
31 ASSESSMENT DIST															
32 LS	35,997	36,132	37,845	33,293	27,728	16,708	19,066	20,361	12,279	15,977	21,257	26,833	\$0.45	\$136,564	
33 CAP REBATE															
34 WA	9,934	9,475	10,009	7,712	6,349	4,663	6,140	5,579	5,260	5,522	7,354	9,238	\$1.15	\$100,320	
35 COLTON-INTERTIE															
36 WA		0	0		0	0	15		0		0	0	\$1.15	\$17	
37 COMMERCIAL/LAND/LT. INDST															
38 LS	187,009	186,515	189,753	160,758	123,341	87,101	95,433	94,885	71,541	92,255	123,080	152,705	\$1.15	\$1,799,032	
39 WA									5				\$1.15	\$6	
40 EDUCATION-PUBLIC															
41 LS	32,666	37,770	30,812	34,348	18,339	10,946	10,122	9,075	7,279	11,962	28,435	38,345	\$1.15	\$310,614	
42 WA	43,594	51,271	54,732	43,522	31,435	20,253	18,023	21,041	18,488	19,703	31,087	39,492	\$1.15	\$451,537	
43 GOLF COURSE															
44 LS	29,952	28,206	23,726	20,456	12,638	5,331	13,524	8,788	9,768	12,012	20,720	25,971	\$0.37	\$78,104	
45 HYDRANT															
46 WA	9,165	8,916	26,958	14,315	6,597	11,059	11,237	7,050	7,067	5,272	7,186	6,011	\$1.15	\$138,958	
47 INTERTIE-NO CONSUMPTION															
48 FS	22	14	67	135	129	118	6	156	136	40	96	80	\$1.15		\$1,149
49 LS	0	0	0	0	0	0	0	0	0	0	0	0	\$1.15	\$0	
50 WA	23,739	23,559	22,551	19,555	13,867	14,075	12,090	14,067	12,934	6,188	1,685	845	\$1.15	\$189,928	
51 INTERTIE-WITH CONSUMPTION															
52 WA	17	5	55	6	14	15	18	17	15	5	12	20	\$1.15	\$229	
53 MULTI-FAMILY															
54 WA	218,200	224,780	224,012	199,810	183,326	152,367	181,101	163,764	154,972	155,317	179,897	207,930	\$1.15	\$2,582,297	
55 MULTI-FAMILY 2 UNIT (WA)															
56 WA	42,262	42,081	45,563	35,545	31,454	25,713	30,144	28,276	26,463	26,467	32,516	39,212	\$1.15	\$466,550	
57 MUNICIPAL															
58 FS	0	3	19	5	4	1	2	2	2	0	2	0	\$1.15		\$46
59 LS	68,631	63,907	65,922	64,376	47,681	31,500	33,757	29,027	23,760	27,830	48,143	57,283	\$1.15	\$646,090	
60 WA	10,524	10,612	11,037	7,745	5,834	3,858	4,969	3,959	4,957	5,274	9,547	9,839	\$1.15	\$101,378	
61 NON RESIDENTIAL															
62 FS	549	907	891	624	704	815	893	753	685	643	523	529	\$1.15		\$9,793
63 LS	3,989	1,405	1,482	1,909	2,231	774	1,343	1,496	1,515	2,207	2,912	5,167	\$1.15	\$30,395	
64 WA	232,056	229,312	247,429	209,194	249,919	213,745	184,926	174,327	167,816	162,156	186,649	207,018	\$1.15	\$2,834,229	
65 RESIDENTIAL-SINGLE FAMILY															
66 FS	48	45	39	66	27	47	21	25	14	30	53	37	\$1.15		\$520
67 LS	4,452	4,831	4,359	3,968	3,201	1,949	3,228	2,394	1,975	2,571	4,054	4,441	\$1.15	\$47,636	
68 WA	1,006,523	973,261	993,049	796,903	656,375	495,506	639,000	558,446	500,841	574,363	753,968	909,615	\$1.15	\$10,186,528	
69 WATER DEPARTMENT RATE															
70 LS	283	295	279	312	273	249	622	342	299	385	398	419	\$0.45	\$1,870	
71 WA	691	955	1,213	1,061	727	784	684	812	826	835	1,001	1,019	\$0.45	\$4,774	
72 WATER-COUNTY HOSPITAL															
73 WA	0	0	0	0	0	0	0	0	0	0	0	0	\$1.15	\$0	
74 WEST VALLEY INTERTIE															
75 WA	0	0	0	0	0	0	0	0	0	0	0	0	\$0.149219	\$0	
76 Total	1,960,303	1,934,257	1,991,802	1,655,618	1,422,193	1,097,577	1,266,364	1,144,642	1,028,897	1,127,014	1,460,575	1,742,049		\$20,107,057	\$11,508

79 Supporting Calculation, Table A-3D: Show 13-Month Total Number of Connections (June 2013 through June 2014)

80 Customer Type and Service Type	00	01	02	03	04	05	06	07	08	09	10	11
81	1/2-inch	5/8-inch	3/4-inch	1-inch	1.5-inch	2-inch	3-inch	4-inch	6-inch	8-inch	10-inch	12-inch
82 ASSESSMENT DIST												
83 LS		52	52	554	454	426	26					

ADDITIONAL TABLES SUPPORTING TABLE A-3  
 City of San Bernardino Municipal Water Department - Water Rate Model  
 Additional Revenue Calculations Supporting Table A-3

84	CAP REBATE																			
85	WA	506	5,005	241	140															
86	COLTON-INTERTIE																			
87	WA																			9
88	COMMERCIAL/LAND/LT. INDST																			
89	LS	89	1,113	478	2,281	2,320	2,507	195	130	26										
90	WA		1																	
91	EDUCATION-PUBLIC																			
92	LS			13			13	58	208	117										
93	WA				52	26	130	294	304	39										13
94	GOLF COURSE																			
95	LS																			26
96	HYDRANT																			
97	WA						655		33											
98	INTERTIE-NO CONSUMPTION																			
99	FS																			13
100	LS																			13
101	WA							26	26	26										13
102	INTERTIE-WITH CONSUMPTION																			13
103	WA						4													26
104	MULTI-FAMILY																			
105	WA	652	6,683	3,135	3,553	2,807	993	442	245	140	156									
106	MULTI-FAMILY 2 UNIT (WA)																			
107	WA	1,581	12,636	3,336	373	26														
108	MUNICIPAL																			
109	FS									52	78									52
110	LS		156	23	294	369	590	195	104	13										13
111	WA	13	63	13	90	173	163	130	26	13										
112	NON RESIDENTIAL																			
113	FS				51	13	91	52	3,245	4,801	3,793	1,223								77
114	LS		22	54	65	97	67													
115	WA	1,331	12,953	3,849	7,809	5,171	4,879	1,236	599	90	26									
116	RESIDENTIAL-SINGLE FAMILY																			
117	FS				7,257	13														
118	LS	78	619	287	207	39														
119	WA	28,278	387,413	20,477	9,412	233														
120	WATER DEPARTMENT RATE																			
121	LS		39	13	38		24													
122	WA	16	74	13	39		39		13		13									
123	WATER-COUNTY HOSPITAL																			
124	WA		13																	
125	WEST VALLEY INTERTIE																			13
126	WA																			13
127	Grand Total	32,544	426,842	31,984	32,215	11,754	10,626	2,804	4,894	5,226	4,140	1,262	116							

129 Supporting Calculation, Table A-3E: Calculate Minimum Monthly Charge Revenues

131	132 Customer Type and Service Type	130 Unit Costs: Minimum Monthly Charge											131 Calculated Value		
		00	01	02	03	04	05	06	07	08	09	10	11	12	13
133		1/2-inch	5/8-inch	3/4-inch	1-inch	1.5-inch	2-inch	3-inch	4-inch	6-inch	8-inch	10-inch	12-inch	Reg. Sales	Fire Service
134	ASSESSMENT DIST				1-inch										
135	LS	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$54,582	
136	CAP REBATE														
137	WA	\$7.90	\$7.90	\$11.15	\$17.60	\$33.80	\$53.20	\$98.50	\$153.20	\$325.00	\$519.15	\$745.65	\$0.00	\$44,943	
138	COLTON-INTERTIE														
139	WA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0	
140	COMMERCIAL/LAND/LT. INDST														
141	LS	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$332,334	
142	WA	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$12	
143	EDUCATION-PUBLIC														
144	LS	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$40,733	
145	WA	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$102,369	
146	GOLF COURSE														
147	LS	\$140.46	\$140.46	\$140.46	\$140.46	\$140.46	\$140.46	\$140.46	\$140.46	\$140.46	\$140.46	\$140.46	\$0.00	\$3,371	
148	HYDRANT														
149	WA	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$40,008	
150	INTERTIE-NO CONSUMPTION														
151	FS				\$2.70	\$10.75	\$10.75	\$16.15	\$21.49	\$32.24	\$42.99	\$53.74	\$64.48		\$516
152	LS	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$6,290	
153	WA	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$29,498	
154	INTERTIE-WITH CONSUMPTION														
155	WA	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$12,794	
156	MULTI-FAMILY														
157	WA	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$558,210	
158	MULTI-FAMILY 2 UNIT (WA)														
159	WA	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$227,736	
160	MUNICIPAL														
161	FS				\$2.70	\$10.75	\$10.75	\$16.15	\$21.49	\$32.24	\$42.99	\$53.74	\$64.48		\$6,061
162	LS	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$91,023	
163	WA	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$38,106	
164	NON RESIDENTIAL														
165	FS				\$2.70	\$10.75	\$10.75	\$16.15	\$21.49	\$32.24	\$42.99	\$53.74	\$64.48		\$424,952
166	LS	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$9,497	
167	WA	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$1,083,246	
168	RESIDENTIAL-SINGLE FAMILY														

ADDITIONAL TABLES SUPPORTING TABLE A-3  
City of San Bernardino Municipal Water Department - Water Rate Model  
Additional Revenue Calculations Supporting Table A-3

168	FS				\$2.70	\$10.75	\$10.75	\$16.15	\$21.49	\$32.24	\$42.99	\$53.74	\$64.48		\$18,216
169	LS	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$18,293	
170	WA	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$5,459,879	
171	WATER DEPARTMENT RATE														
172	LS	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$2,740	
173	WA	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$12,362	
174	WATER-COUNTY HOSPITAL														
175	WA	\$12.90	\$12.90	\$16.15	\$22.60	\$38.80	\$58.20	\$103.50	\$158.20	\$330.00	\$524.15	\$750.65	\$0.00	\$155	
176	WEST VALLEY INTERTIE														
177	WA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0	
178	Total Estimated FY 13/14 Minimum Monthly Charge \$													\$8,168,182	\$449,745

180 Analysis of Year-to-Date FY 15/16 Revenues to Check Previously Made Revenue Projections

182	183	Actual	Actual	Actual	FY 15/16	Dept. FY 15/16	Dept. FY 15/16	FG Estimate	Proj. FY 15/16	Variance from Rate Study		Comments
										Alt 1:	Variance if	
184	Revenues: Feb2016 = Most Recent	Jan-16	Feb-16	FY to date	Budget	Estimate	Estimate =	Estimate =	Actual YTD *	15/16 = YTD	15/16 = YTD +	
185	Operating Revenues											
186	Regular Water Sales Revenues	\$1,669,097	\$1,596,545	\$15,310,768	\$27,006,600	\$15,753,850	Yes	\$22,325,518	\$22,966,153	\$640,635	(\$338,360)	Do not adjust upward. Possibly right on target. Mar-June likely to be more > Feb
187	Fire Service	\$34,988	44,806	\$317,303	\$464,600	\$271,012	Yes	\$464,600	\$475,954	\$11,354	(\$7,347)	No Adjustment Necessary
188	Municipal	\$35,321	32,356	\$404,054	\$855,000	\$498,750	Yes	\$548,000	\$606,081	\$58,081	(\$2,661)	Decrease FY 15/16 and beyond by \$100K
189	Other	\$12,804	10,468	\$75,633	\$600,000	\$350,000	Yes	\$120,000	\$113,450	(\$6,550)	\$6,849	Must adjust downward per comment from Miguel Guerrero. Use \$120,000 per yr
190	Replenishment	\$80,432	72,775	\$816,280	\$1,615,000	\$942,081	Yes	\$1,155,468	\$1,224,421	\$68,953	(\$17,460)	No adjustment necessary
191	Elevation	\$138,406	127,216	\$1,405,146	\$2,660,000	\$1,551,662	Yes	\$2,036,160	\$2,107,719	\$71,559	(\$77,390)	No adjustment necessary
192	Conservation	\$92,117	77,224	\$838,729	\$1,140,000	\$665,000	Yes	\$1,140,000	\$1,258,093	\$118,093	\$67,198	Conservation \$ is much higher than projected. Adjust upward. Suggest using F
193	Service Charges	\$72,544	79,957	\$592,674	\$950,000	\$554,162	Yes	\$890,000	\$889,010	(\$990)	(\$7,152)	Decrease FY 15/16 only by \$60K
194	Broken Lock Charges	\$2,975	4,650	\$29,605	\$75,000	\$43,750	Yes	\$75,000	\$44,408	(\$30,593)	(\$33,495)	Decrease FY 15/16 only by \$30K
195	Returned Check Charges	\$1,066	962	\$7,748	\$15,000	\$8,750	Yes	\$15,000	\$11,622	(\$3,378)	(\$2,988)	No adjustment necessary
196	Fire Hydrant Flow Test Charge	\$680	1,040	\$4,280	\$5,000	\$2,912	Yes	\$5,000	\$6,420	\$1,420	\$2,000	No adjustment necessary
197	Application Charge	\$1,080	720	\$7,510	\$20,000	\$11,662	Yes	\$20,000	\$11,265	(\$8,735)	(\$8,170)	No adjustment necessary
198	Will Serve Letter Charge	\$540	720	\$2,700	\$2,000	\$1,162	Yes	\$2,000	\$4,050	\$2,050	\$2,860	No adjustment necessary

202	203	Actual	Actual	Actual	FY 15/16	Dept. FY 15/16	Dept. FY 15/16	FG Estimate	Proj. FY 15/16	Variance from Rate Study		Comments
										Alt 1:	Variance if	
204	Revenues: Jan2016 = Most Recent	Jan-16	Feb-16	FY to date	Budget	Estimate	Estimate =	Estimate =	Actual YTD *	15/16 = YTD	15/16 = YTD +	
205	Operating Revenues											
206	Income from Services	(\$466)		\$40,701	\$95,000	\$55,412	Yes	\$45,000	\$69,772	\$24,772	(\$6,628)	Decrease FY 15/16 only by \$50K
207	Backflow Admin Fees	\$7,027		\$52,332	\$85,000	\$49,581	Yes	\$85,000	\$89,713	\$4,713	\$2,465	No adjustment necessary
208	Plan Check and Other Fees	\$0		\$1,421	\$250,000	\$145,831	Yes	\$10,000	\$2,436	(\$7,564)	(\$8,579)	Decrease FY 15/16 only by \$240K
209	Hydrogeneration	\$31		\$4,323	\$50,000	\$29,162	Yes	\$10,000	\$7,412	(\$2,588)	(\$5,521)	Decrease FY 15/16 only by \$40K
210	Administrative Services	\$35,812		\$250,430	\$434,950	\$253,715	Yes	\$434,950	\$429,308	(\$5,642)	(\$5,458)	No adjustment necessary
211												
212	Geothermal Heat Sales	\$2,434		\$51,066	\$140,000	\$81,662	Yes	\$90,000	\$87,541	(\$2,459)	(\$26,766)	Decrease FY 15/16 only by \$50K
213												
214	Contributed Capital											
215	Service Installation Fees	\$11,008		\$179,524	\$500,000	\$291,662	Yes	\$300,000	\$307,755	\$7,755	(\$65,436)	Decrease FY 15/16 only by \$200K
216	Water Acquisition Fees	\$0		\$164,370	\$1,200,000	\$700,000	Yes	\$200,000	\$281,777	\$81,777	(\$35,630)	Decrease FY 15/16 only by \$1MK
217	Developer, EPA, and AIG Capital	not included in this comparison - doesn't affect our financial model										
218												
219	Operating Grants											
220	AIG O&M CD Implementation	\$111,026		\$488,294	\$1,500,000	\$875,000	Yes	\$1,500,000	\$837,076	(\$662,924)	(\$456,575)	No adjustment. If revenues are lower then expenses are too. We haven't adjust
221												
222	Other Revenue											
223	Cash Funds	(\$4,648)		\$59,700	\$42,000	\$24,500	Yes	\$0	\$102,343	\$102,343	\$36,460	No adjustment necessary. This helps offset some of the negative variances four
224	Local Agency Invest Fund	\$490		\$916	\$2,000	\$1,162	Yes	\$0	\$1,570	\$1,570	\$3,367	No adjustment necessary
225	Rental Income	\$0		\$42,277	\$150,000	\$87,500	Yes	\$150,000	\$72,475	(\$77,525)	(\$107,723)	Much lower than budgeted; are these expenses uniform throughout the year?
226												
227	Non-Operating Revenue											
228	Refunds Received	\$26,332		\$55,266	\$150,000	\$87,500	Yes	\$150,000	\$94,742	(\$55,258)	\$36,928	No adjustment necessary
229	Discounts Earned	\$386		\$3,343	\$10,000	\$5,831	Yes	\$10,000	\$5,731	(\$4,269)	(\$4,727)	No adjustment necessary
230	Energy Rebates	\$113,132		\$137,635	\$0	\$0	Yes	\$0	\$235,946	\$235,946	\$703,296	Add FY 15/16 one-time revenues of \$140K under Miscellaneous to avoid creatin
231	Cashier Overage/Short	\$0		(\$40)	\$0	\$0	Yes	\$0	(\$69)	(\$69)	(\$40)	No adjustment necessary
232	Miscellaneous	\$206		\$4,769	\$5,000	\$2,912	Yes	\$5,000	\$8,175	\$3,175	\$801	No adjustment necessary
233	Scrap Materials	\$0		\$2,582	\$25,000	\$14,581	Yes	\$25,000	\$4,426	(\$20,574)	(\$22,418)	No adjustment necessary

236 Fixed Cost Calculations for Report Discussion

237												
238	Electricity	\$4,250,000	Table 4									
239	Granular Activated Carbon	\$420,000	Table 4									
240	Supplemental Water Purchases	\$1,100,000	Table 4									
241	Chemicals	\$150,000	Table 4, embedded with Other Accounts in Section 3041									
242	Total	\$5,920,000										
243												
244	Total O&M Expenditures	\$30,684,869										
245	% Variable	19%										

Attachment "B"

Proposed Three-Step Rate Schedule

Average Monthly Bill		Proposed		
Hcf/month	Current	FY 16/17	FY 17/18	FY 18/19
16	\$35.59	\$39.11	\$43.07	\$47.36
Annual % Increase		<b>10%</b>	<b>10%</b>	<b>10%</b>

	Current	Proposed		
		Effective Date		
		8/1/2016	7/1/2017	7/1/2018
<b>Monthly Minimum Charge</b>				
<u>Water Meter Size</u>				
1/2" & 5/8"	\$12.90	\$16.09	\$19.58	\$23.39
3/4"	\$16.15	\$20.15	\$24.51	\$29.28
1"	\$22.60	\$28.19	\$34.30	\$40.98
1 1/2"	\$38.80	\$48.40	\$58.88	\$70.35
2"	\$58.20	\$72.60	\$88.32	\$105.52
3"	\$103.50	\$129.12	\$157.06	\$187.66
4"	\$158.20	\$197.36	\$240.07	\$286.83
6"	\$330.00	\$411.68	\$500.78	\$598.33
8"	\$524.15	\$653.88	\$795.40	\$950.34
10"	\$750.65	\$936.44	\$1,139.12	\$1,361.01
<b>Commodity Charge (\$/hcf)</b>	\$1.15	\$1.15	\$1.15	\$1.15
<b>Replenishment Charge (\$/hcf)</b>	\$0.09	\$0.11	\$0.14	\$0.17
<b>Elevation Charge (\$/hcf)</b>				
Zone 1	\$0.11	\$0.11	\$0.11	\$0.11
Zone 2	\$0.19	\$0.19	\$0.19	\$0.19
Zone 3	\$0.17	\$0.17	\$0.17	\$0.17
Zone 4	\$0.14	\$0.14	\$0.14	\$0.14
Zone 5	\$0.23	\$0.23	\$0.23	\$0.23
Zone 6	\$0.23	\$0.23	\$0.23	\$0.23
<b>Conservation Charge (\$/hcf exceeding cutoff)</b>	\$0.35	\$0.49	\$0.49	\$0.49

**CITY OF SAN BERNARDINO  
MUNICIPAL WATER DEPARTMENT**

**BOARD OF WATER COMMISSIONERS  
STAFF REPORT**

APR 11 2016  
*for SAA*

**TO:** Stacey R. Aldstadt, General Manager

**FROM:** Miguel J. Guerrero, P.E., Director of Water Utility

**SUBJECT:** **INFORMATIONAL ITEM ONLY - MARCH 2016 DROUGHT MONITORING REPORT**

**DATE:** April 8, 2016

**COPIES:** Robin Ohama (w/o attach), Mike Garland (w/o attach), Con Arrieta (w/o attach), Greg Gage (w/o attach), Sally Duran (w/attach)

---

**BACKGROUND:**

Staff continues to monitor and track the effects of the ongoing drought by monitoring groundwater levels in select wells located in the Department's service area. The purpose of this monitoring is to track groundwater level trends as pumping continues during extreme drought conditions. This monthly report to the Board of Water Commissioners (Board) will provide valuable data needed to contemplate important policy decisions related to Water Supply Shortage Stages outlined in Rule and Regulation No. 21 (Rule).

In May 2015, the Board implemented Stage IIA extreme mandatory restrictions as a result of the State Water Resources Control Board (SWRCB) drought emergency regulations. SWRCB's emergency regulations outlined percentage reduction tiers in gross water production for each urban water retailer in the State to achieve 25% reduction in potable water usage across the State. The San Bernardino Municipal Water Department must reduce its gross water production by 24% (previously 28%, adjustment in effect March 1, 2016) or face possible enforcement actions from the State, including monetary fines. Stage IIA requires a 28% reduction in potable water use by all of its customers. Stage IIA also restricts outdoor watering to three days per week, prohibits public medians with turf irrigation to be irrigated, and prohibits outdoor irrigation 48 hours after a significant rainfall event. In light of the recent conservation standard adjustment, the required Stage IIA reduction will be revisited to reflect the Department's revised standard.

In February 2016, SWRCB adopted a revised emergency regulation to ensure that water conservation continues in 2016. The revised regulation extends the conservation mandates through October 2016. The revised regulation also afforded water agencies across the state more flexibility in meeting their conservation requirements through adjustments/credits that allowed a supplier to modify its conservation standard up to eight percentage points. Draft adjusted conservation standards released April 7, 2016 lowered the Department's standard from 28% to 24% (3% climate adjustment, 1% growth adjustment).

Stacey R. Aldstadt, General Manager

Page 2

April 8, 2016

**SUBJECT: INFORMATIONAL ITEM ONLY - MARCH 2016 DROUGHT MONITORING REPORT**

**STAFF ANALYSIS - BASIN CONDITIONS/HYDROGRAPHS:**

In order for staff to effectively monitor the basin conditions, index wells within defined sub-regions were selected and are shown on the attached overall and regional figures, along with each well's hydrograph in **Exhibit A**. A well hydrograph graphically depicts a well's water level over time.

The attached hydrographs indicate a continued gradual decline of water levels across the entire service area. Due to the lack of rainfall and snowmelt and ensuing recharge for the past four years, the rate of decline in the basin has accelerated. However, it should be noted that water demand has drastically decreased as the public has responded to the drought message. Many wells that typically are running this time of year are idle, and those particular wells are experiencing water level increases as a result.

Although not as drastic as previous years, water levels in the northwest portion of the Department's service area west and northwest of California State University San Bernardino (Cal State SB) region (Cajon 3, DC-1, and Mallory) continued to drop for most of 2015. For the past few months water levels stabilized and have recently shown slight changes with Cajon and Mallory trending up and DC-1 slightly decreasing.

Wells located just south of Cal State SB, such as Newmark 3, and EPA Wells 006 and 007, are typically shallow wells and are stabilizing with gradual decreases/increases in water levels over the past few months.

Wells situated near the I-210 corridor, specifically the Waterman, Leroy, 31st Street, and Gilbert Street wells, are now experiencing stabilizing water levels. Some of these wells are seasonably operated (only operated during hot summer months) and are typically not running this time of year, thus the stabilizing water levels. 16th Street and 40th Street wells have shown a gradual decline in levels since the beginning of 2016.

EPA 001, 002, 003, 004, and 005 wells are operational and are showing stable water levels. With the exception of EPA 001, water levels in these wells have slightly decreased in the past few months. Water levels are still 20 to 40 feet higher in these wells than the recent low levels experienced during the 2008 and 2009 timeframe.

EPA wells along the western edge of the Muscoy OU (EPA Wells 109 through 112) are showing slight decreases in water levels, adding to the extreme decline in the shallow and intermediate aquifer levels over the last two years. Water levels in the deep aquifer remain steady.

Stacey R. Aldstadt, General Manager

Page 3

April 8, 2016

**SUBJECT: INFORMATIONAL ITEM ONLY - MARCH 2016 DROUGHT MONITORING REPORT**

Wells in the Cajon Creek and Lytle Creek areas are experiencing the most severe declines in the service area. This is in large part due to the fact that the Department has no means by which to artificially recharge this part of the basin. Staff is looking into long-term solutions to this recharge deficiency and will be briefing the Board in the future on a plan to recharge this part of the basin.

**Exhibit B** contains a report generated from the Department's database for all of the production well water levels. This report contains calculations to determine the depth of water over pump equipment in each well. The depth of water over pumping equipment is critical to ensure adequate positive suction head for each pumping unit. If the water levels in a well decline to the same elevation as the pumping equipment, the pump will begin to pull air into the pump bowls, inducing equipment damage. If water levels in wells decline to these levels, it prompts the need to rehabilitate the well by pulling the old pump equipment and replacing with new pumping equipment and placing the pump deeper in the well. Staff monitors these water level depths closely to ensure no failures occur and to estimate if and when pump equipment needs to be pulled and replaced to effectively "chase" the declining water levels.

**Exhibit C** contains a report of total cumulative rainfall at the five (5) rain gauges operated and maintained by the Department. These five (5) gauges are located at the Water Utility Yards, Mill and D Plant, Newmark Plant, Lytle Creek Plant, and Devil Canyon Plant. The report shows that there was an average one to two inches of rain across the city in March 2016.

**COMPLETED AND PENDING WELL REHABILITATIONS:**

EPA 111 failed (mechanical) in March and is currently being rehabilitated. Other wells slated to be rehabilitated in the near future are EPA 001, EPA 112, and Newmark 1.

**SERVICE AREA WATER DEMAND REDUCTIONS:**

The Department has been reporting monthly production data to the SWRCB as required by the emergency regulations. SWRCB also required all urban water suppliers to track gallons per capita per day (GPCD) beginning in October 2014 for the September 2014 reporting period. The response by the Department's customers to the Board's Stage II and Stage IIA declarations and the mandatory outdoor water use restrictions has been a success, despite some months showing water demand has increased as compared to 2013. GPCD values and percent water reduction as compared to 2013 values are shown below.

Stacey R. Aldstadt, General Manager

Page 4

April 8, 2016

**SUBJECT: INFORMATIONAL ITEM ONLY - MARCH 2016 DROUGHT MONITORING REPORT**

<b>Month/Year</b>	<b>GPCD</b>	<b>% Change in Gross Production vs. 2013</b>
March 2015	84.94	+2.75%
April 2015	97.27	-9.52%
May 2015	86.21	-30.52%
June 2015	101.00	-28.11%
July 2015	121.57	-29.83%
August 2015	125.59	-33.56%
September 2015	115.22	-30.88%
October 2015	100.63	-23.44%
November 2015	92.50	-16.60%
December 2015	82.45	-17.08%
January 2016	75.81	-16.28%
February 2016	81.71	-10.19%
March 2016	85.45	-17.56%
<b>Cumulative Compliance</b>	-	<b>-24.50%</b>

The Department experienced a decrease in gross water production of approximately 17.6% in March 2016 compared to March 2013 production. SWRCB tracks compliance on a cumulative basis beginning with June 2015. Cumulative tracking means that the conservation savings will be added together from one month to the next and compared to the amount of water used during the same months in 2013. With a cumulative reduction through March 2016 of approximately 24.5%, the Department is currently in compliance (compliance requires no less than 1% below 24% target).

The Department's local and regional outreach efforts regarding the drought continue to have an effect on customer water usage. Internally, Water Staff have been directed to make operational changes to minimize water loss from the system, including curtailing certain hydrant flushing programs temporarily. A graph depicting the Department's monthly gross water production versus the same production in 2013 along with the 24% reduction target is attached for reference.

In response to the recent State Water Project allocation increase to 45%, the Department began recharge activity at the Water Basins and the Sweetwater Basins. Recharge activity will continue throughout the year to maximize the use of Department allocated water.

Stacey R. Aldstadt, General Manager

Page 5

April 8, 2016

**SUBJECT: INFORMATIONAL ITEM ONLY - MARCH 2016 DROUGHT  
MONITORING REPORT**

**STAFF'S RECOMMENDATION:**

No action is recommended at this time. Staff will continue to monitor the State's continued response to the drought and monitor water level trends of all production wells and provide monthly updates to the Board.

Respectfully submitted,



Miguel J. Guerrero, P.E.

Director, Water Utility

MJG:swd

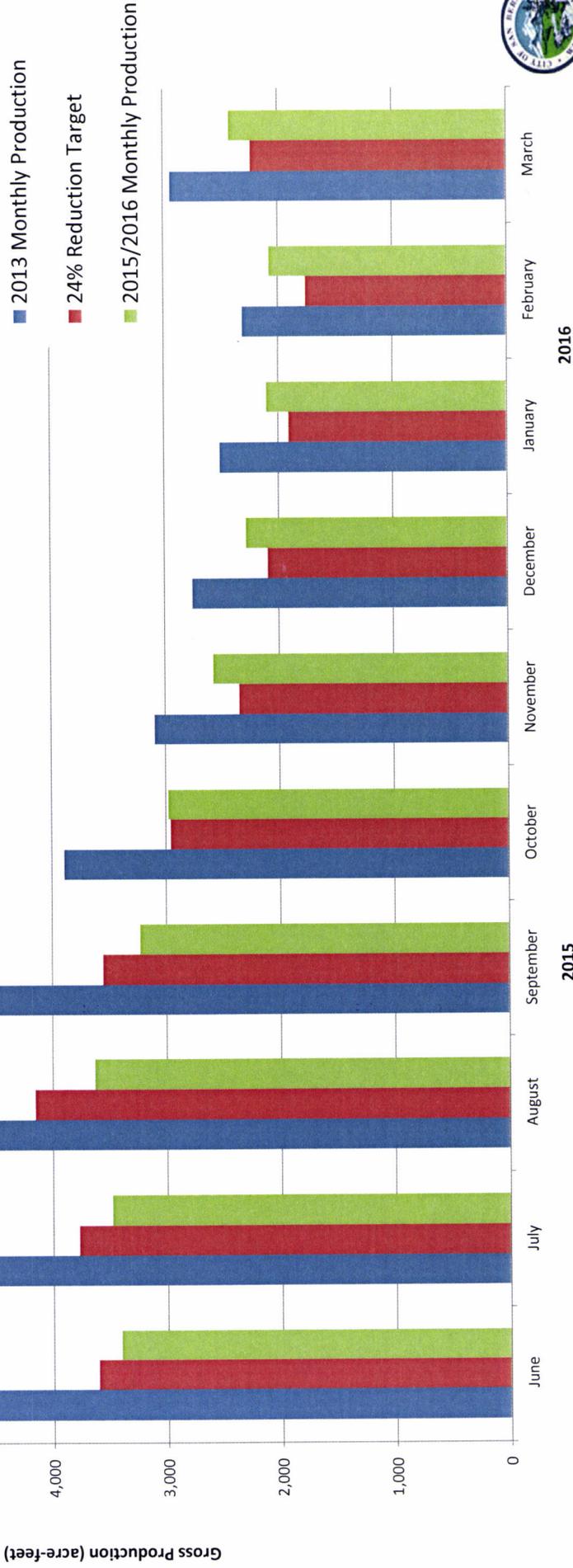
Attach.

**SWRCB Emergency Regulations Compliance Tracking  
San Bernardino Municipal Water Department (24% Target)**

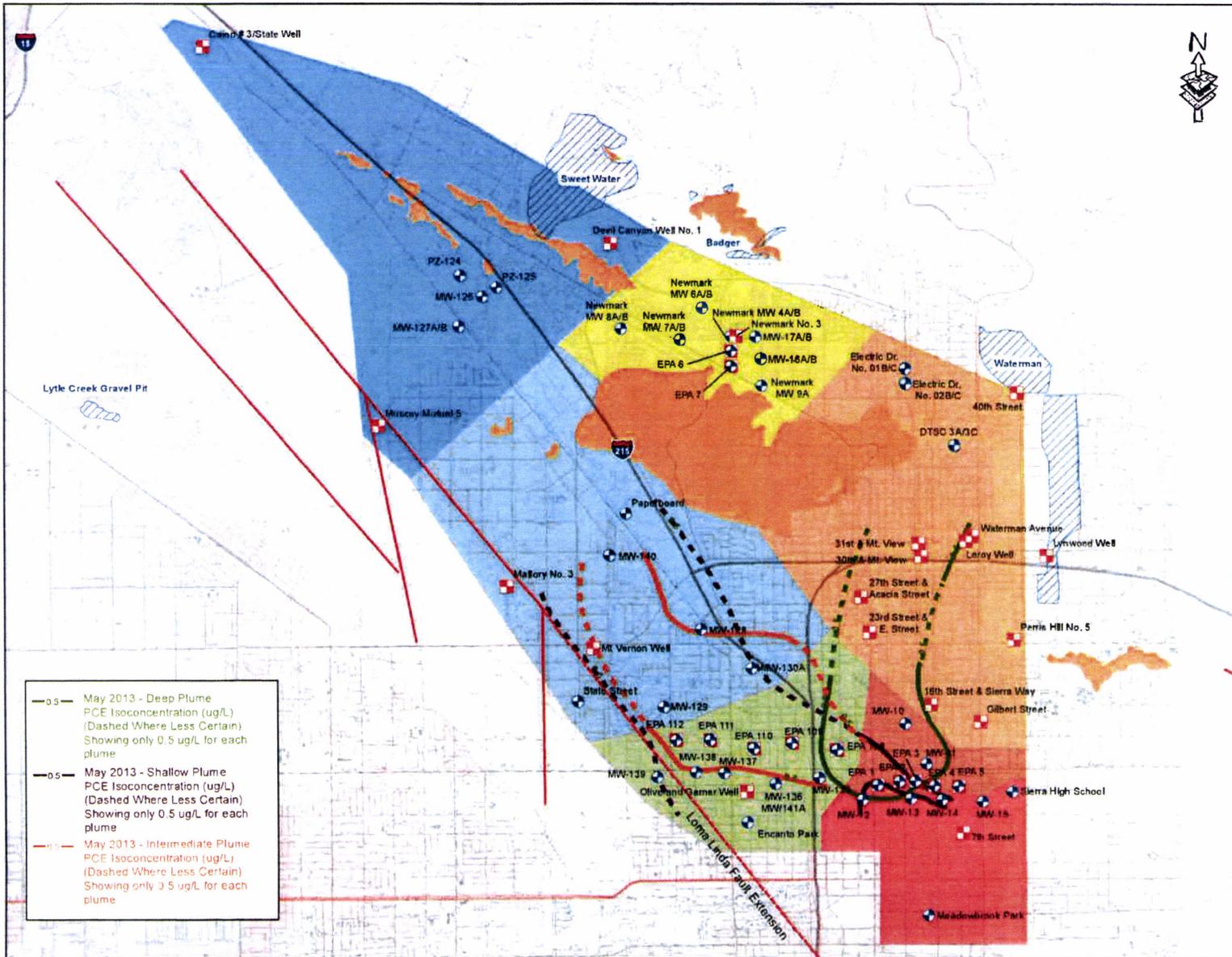
**March 2016**

**Cumulative Compliance = 24.5%**

**2013 Gross Monthly  
Production vs. 2015/2016  
Gross Production**



**EXHIBIT A**



### Legend

**Hydrograph Wells**

- Extraction/Production Well
- Monitoring Well
- Recharge Basins

**Hydrograph Areas**

- Upgradient
- Muscovy Mid-Plume
- Muscovy Plume
- Newmark North
- Newmark Mid-Plume
- Newmark Plume Front
- Newmark Downgradient

Faults/Hydraulic Barriers

0 2 250 4 500 9 000  
Feet

Datum: NAD 1983 State Plane CA V

—0.5— May 2013 - Deep Plume  
PCE Isoconcentration (ug/L)  
(Dashed Where Less Certain)  
Showing only 0.5 ug/L for each  
plume

—0.5— May 2013 - Shallow Plume  
PCE Isoconcentration (ug/L)  
(Dashed Where Less Certain)  
Showing only 0.5 ug/L for each  
plume

—0.5— May 2013 - Intermediate Plume  
PCE Isoconcentration (ug/L)  
(Dashed Where Less Certain)  
Showing only 0.5 ug/L for each  
plume

Job Number: 185802557

PREPARED BY:

Starbuc Consulting Inc.  
290 Canyon Ridge Ave. Suite 200  
Thousand Oaks, Ca 91321  
(805) 235-1286/235-1277 (fax)

For: **City of San Bernardino  
Municipal Water Department**

Approved By: M. Eisen

Date: 3/24/14

Figure: **1-1**

**Hydrographs**

**Region: Cajon Creek**

**Upgradient Production and Monitoring Wells**

**Recharge Source:**

**Cajon Creek (No Artificial Recharge)**

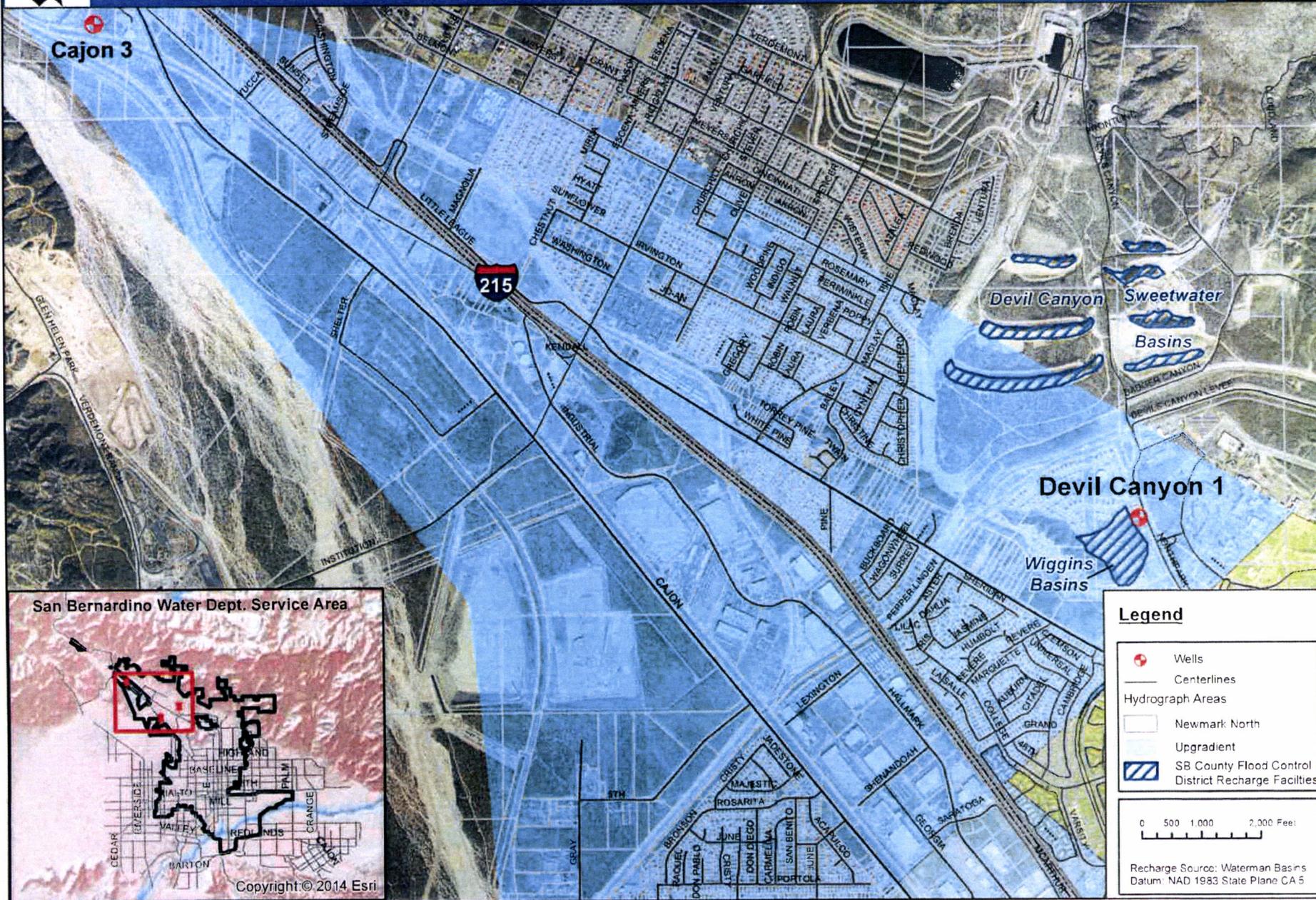


# CAJON CREEK REGION

## Upgradient Production and Monitoring Wells



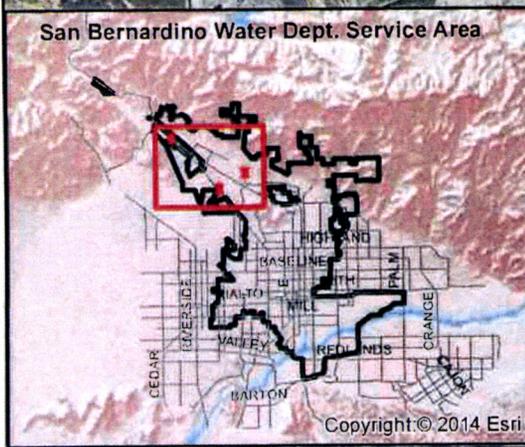
Cajon 3



Devil Canyon  
Sweetwater  
Basins

Devil Canyon 1  
Wiggins  
Basins

San Bernardino Water Dept. Service Area



Copyright © 2014 Esri

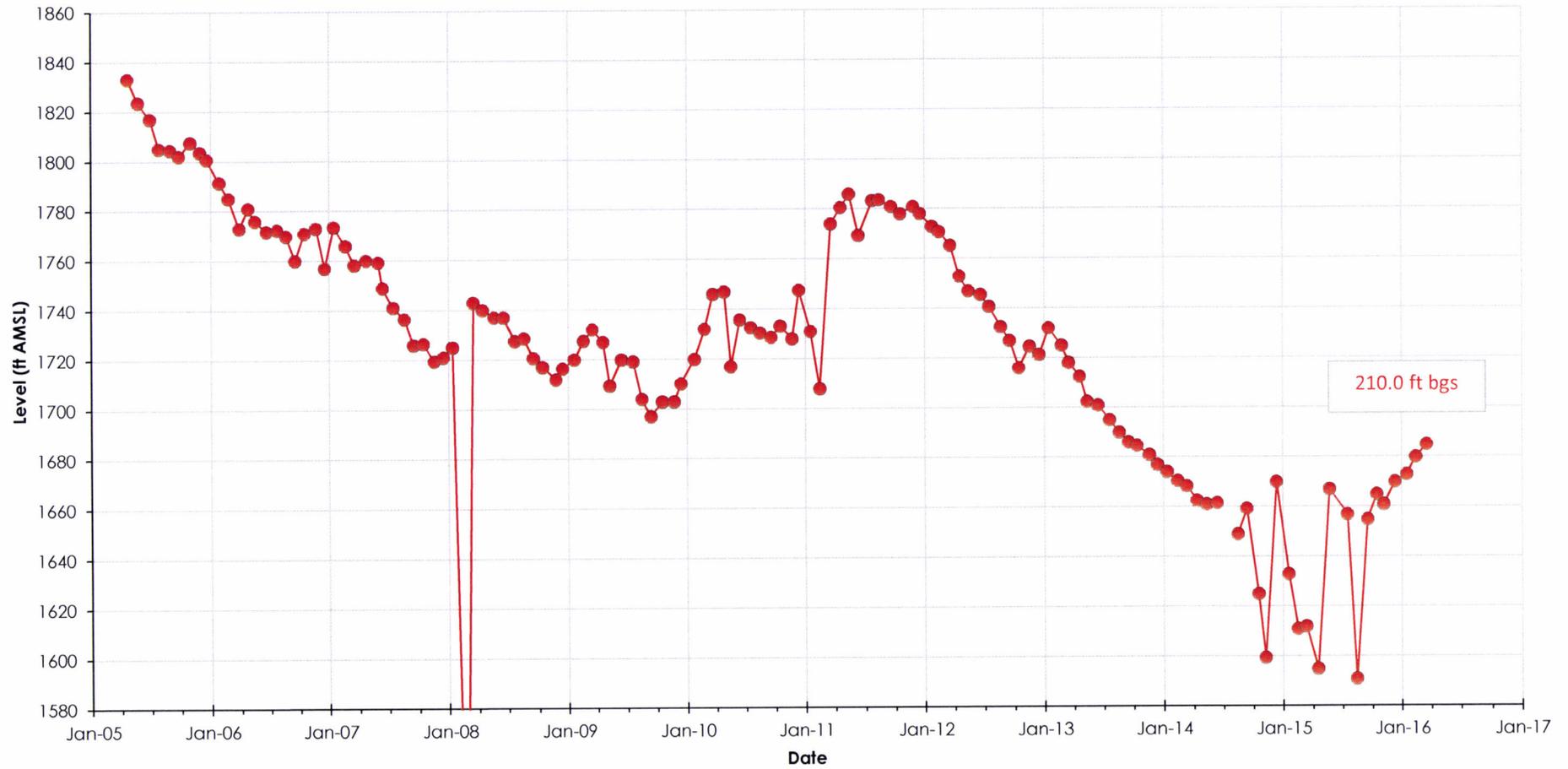
**Legend**

- Wells
- Centerlines
- Hydrograph Areas
  - Newmark North
  - Upgradient
  - SB County Flood Control District Recharge Facilities

0 500 1,000 2,000 Feet

Recharge Source: Waterman Basins  
Datum: NAD 1983 State Plane CA 5

1894.9  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

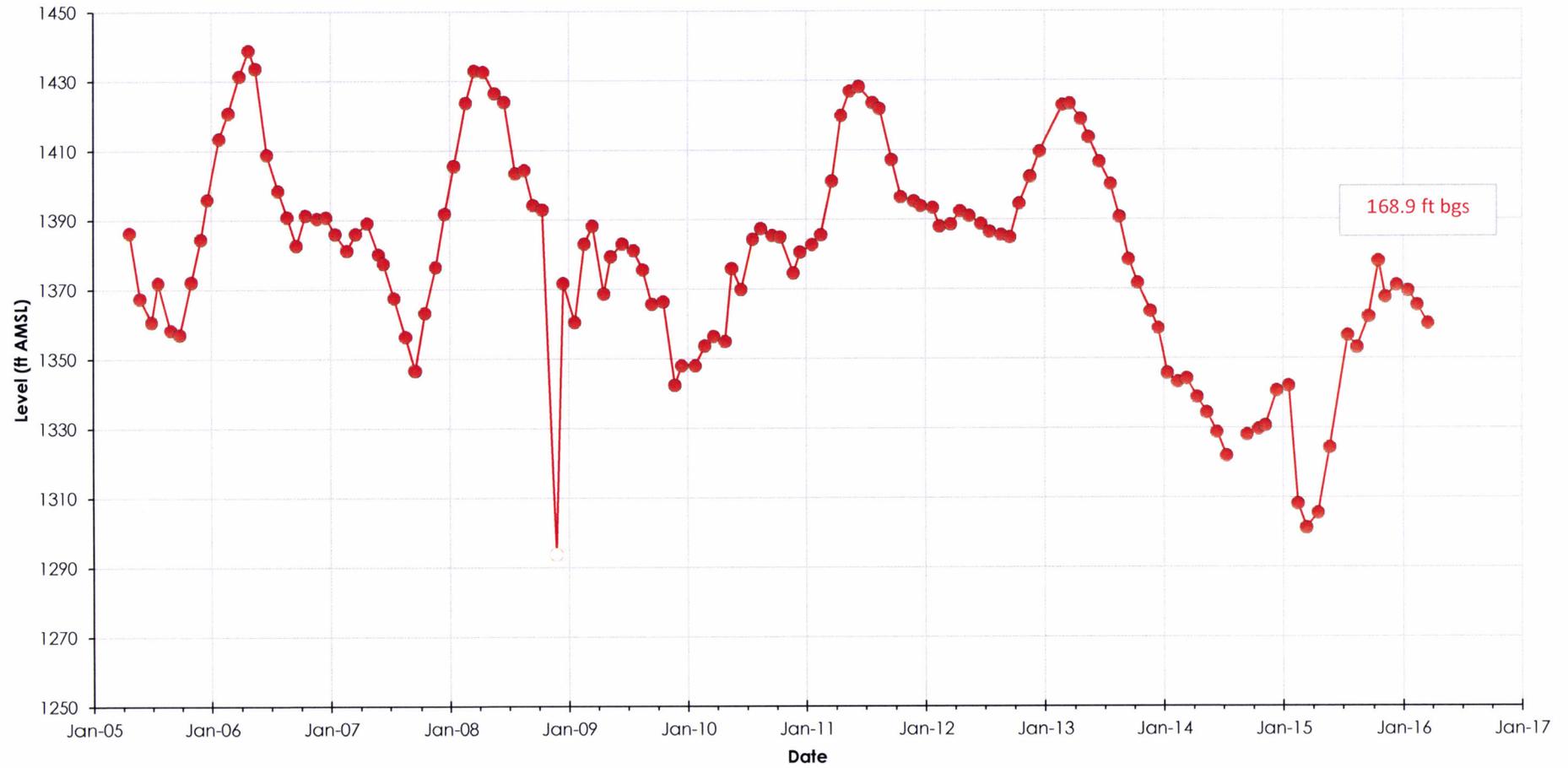
**Cajon 3**

Title

**Water Level Elevations**



1528.9  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

**Devil Canyon 1**

Title

**Water Level Elevations**

**Hydrographs**

**Region: Newmark North**

**Extraction and Monitoring Wells**

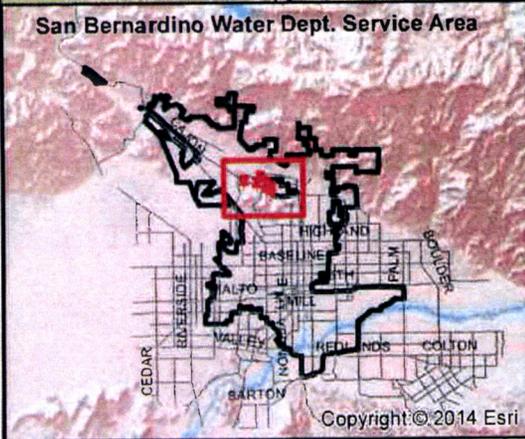
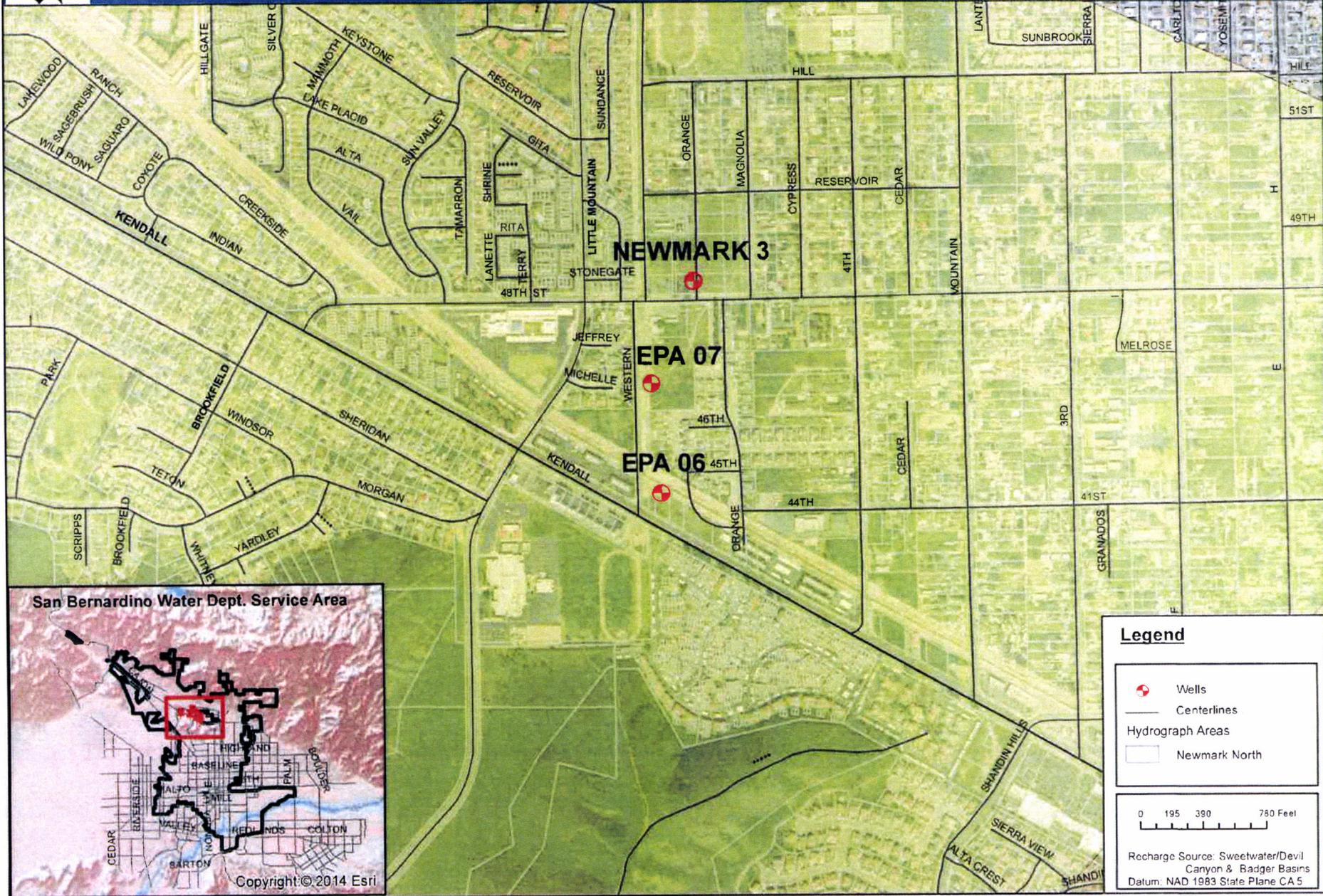
**Recharge Source:**

**Sweetwater/Devil Canyon Basins and Badger Basins**

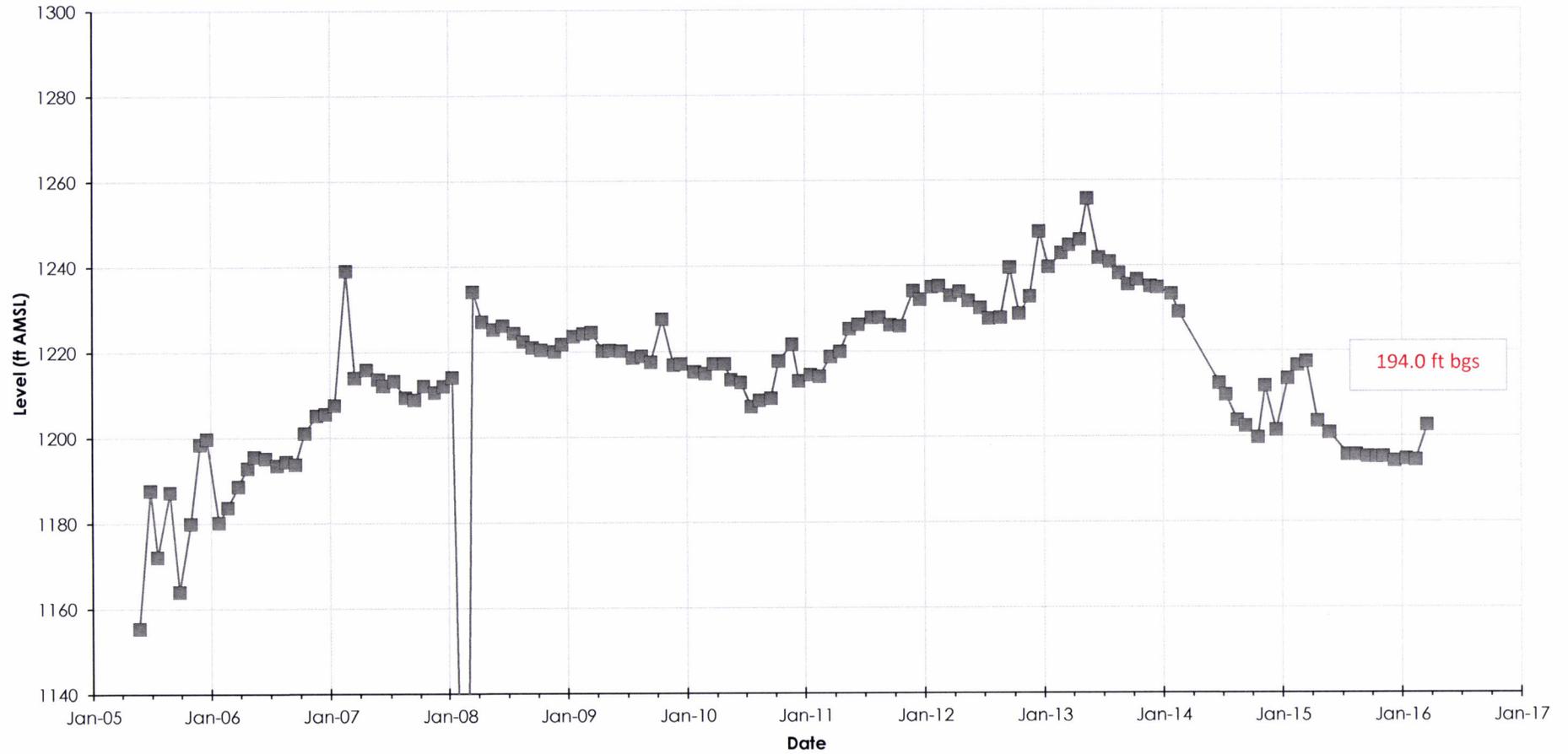


# NEWMARK NORTH REGION

## Extraction and Monitoring Wells



1396.6  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

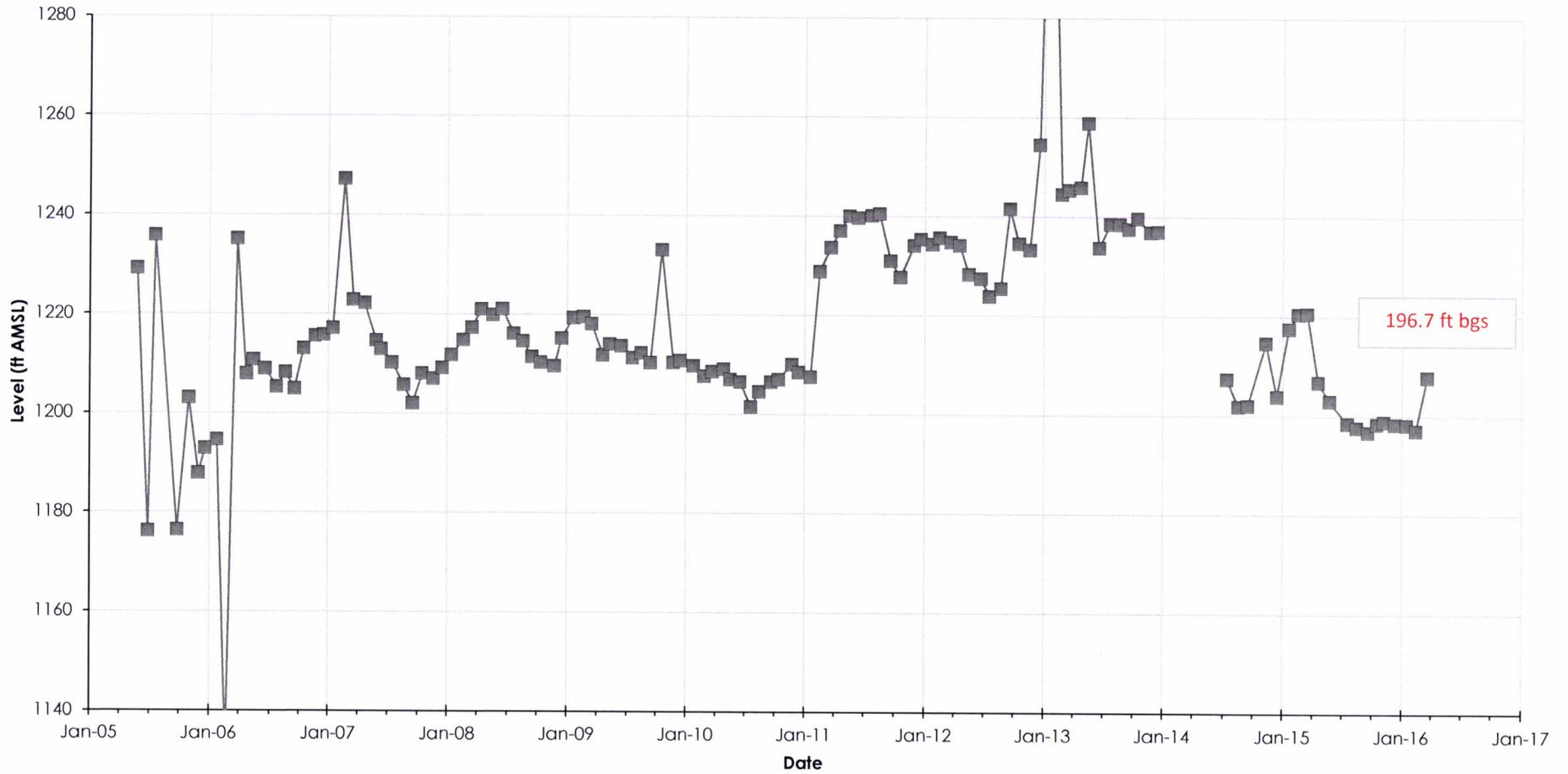
**EPA 006**

Title

**Water Level Elevations**



1404.5  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

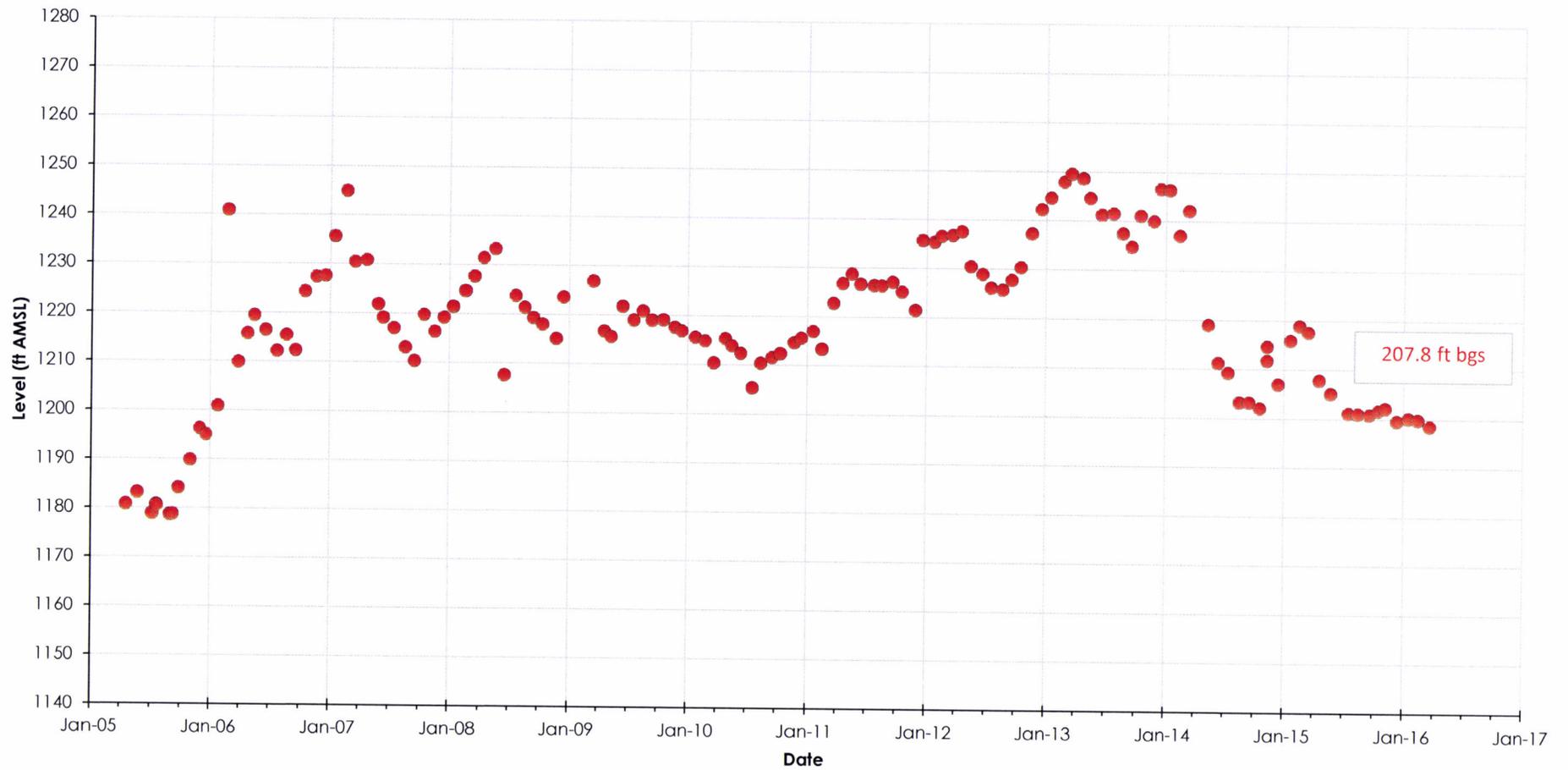
Figure/Well No.

**EPA 007**

Title

**Water Level Elevations**

1407.9  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

**Newmark 3**

Title

**Water Level Elevations**

## **Hydrographs**

**Region: Newmark Mid-Plume**

**Production and Monitoring Wells**

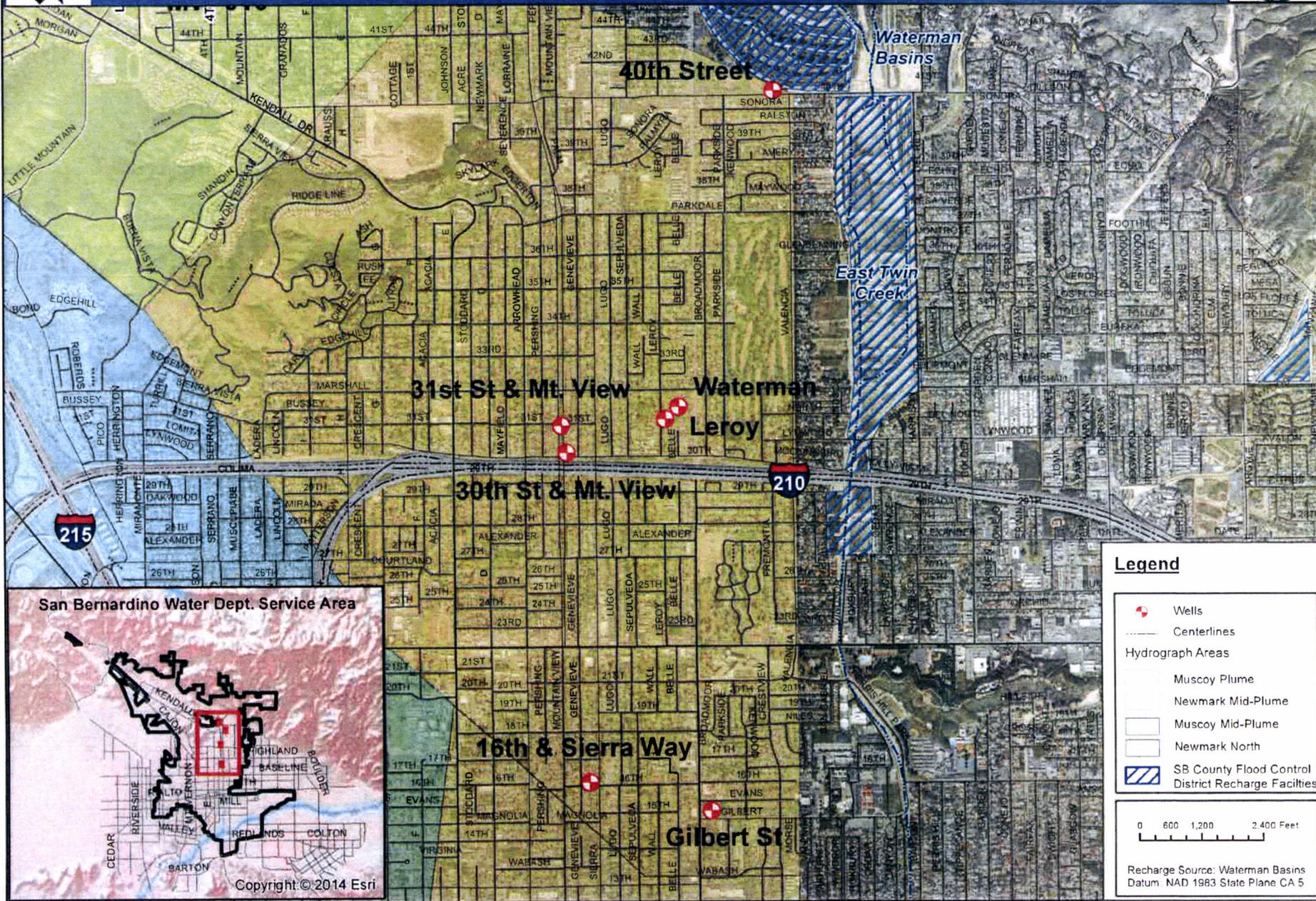
**Recharge Source:**

**Waterman Basins**



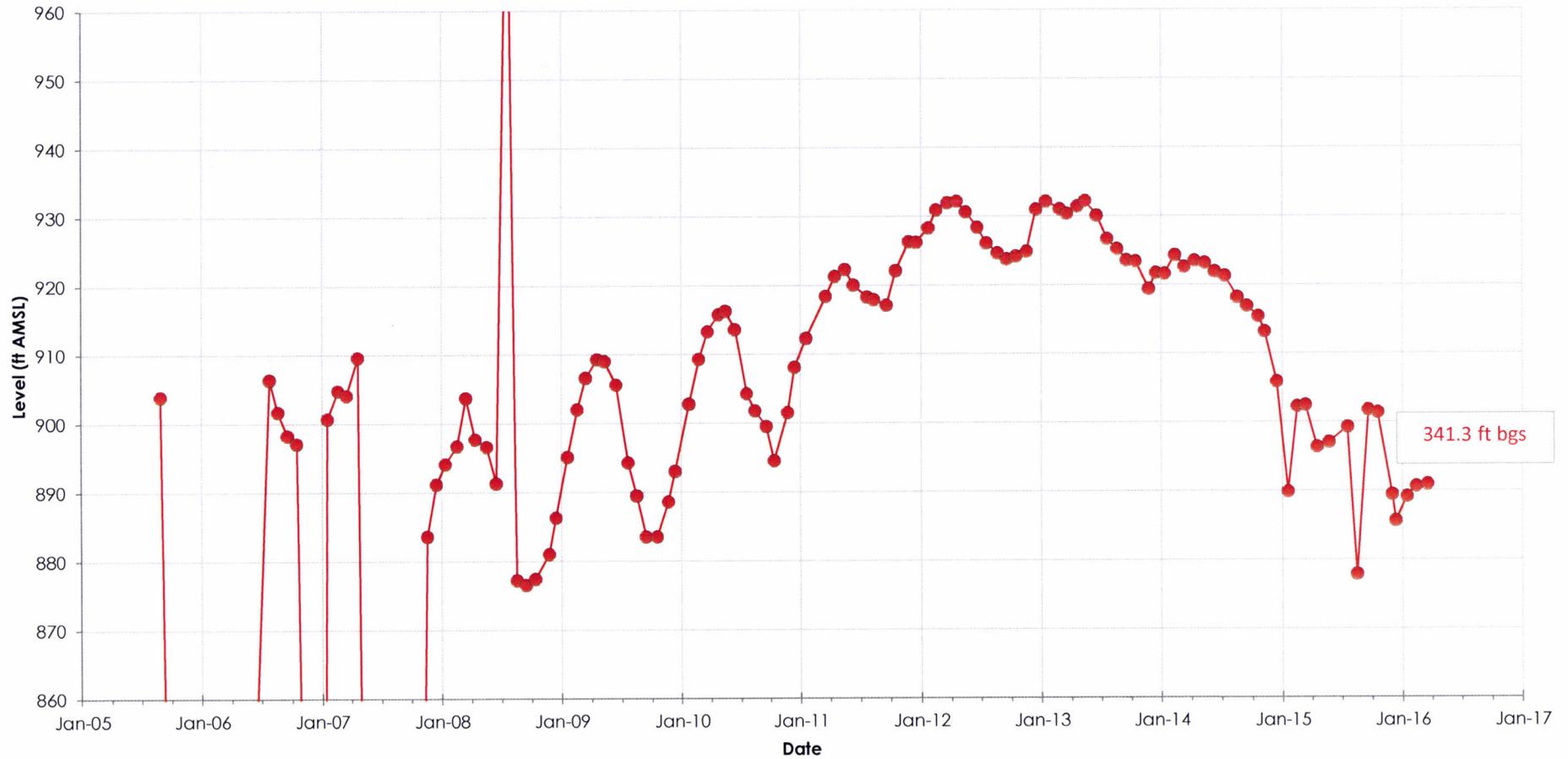
# NEWMARK MID-PLUME REGION

## Production and Monitoring Wells





1232.3  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

**31st & Mt. View**

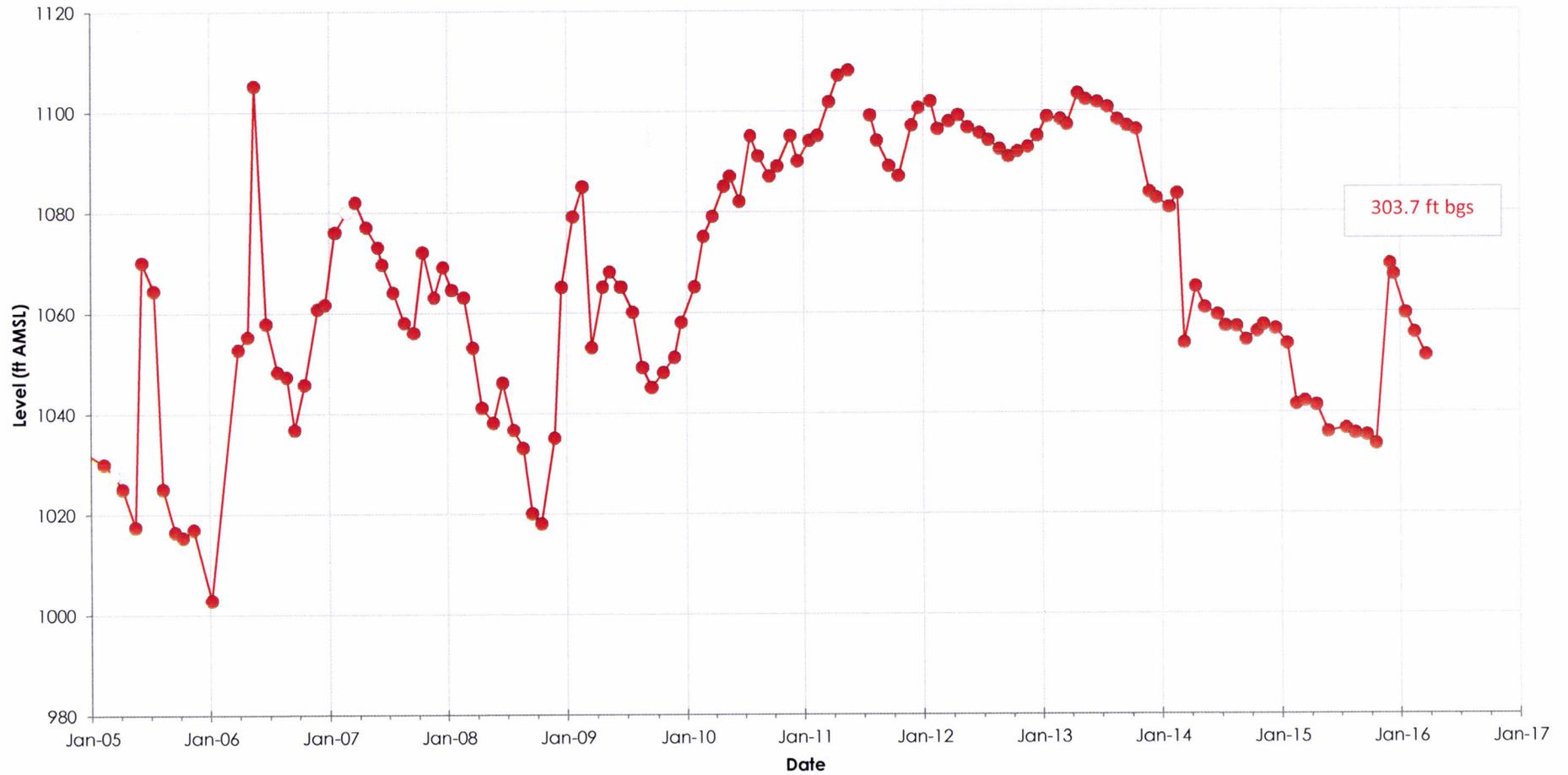
Title

**Water Level Elevations**





1355.0  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

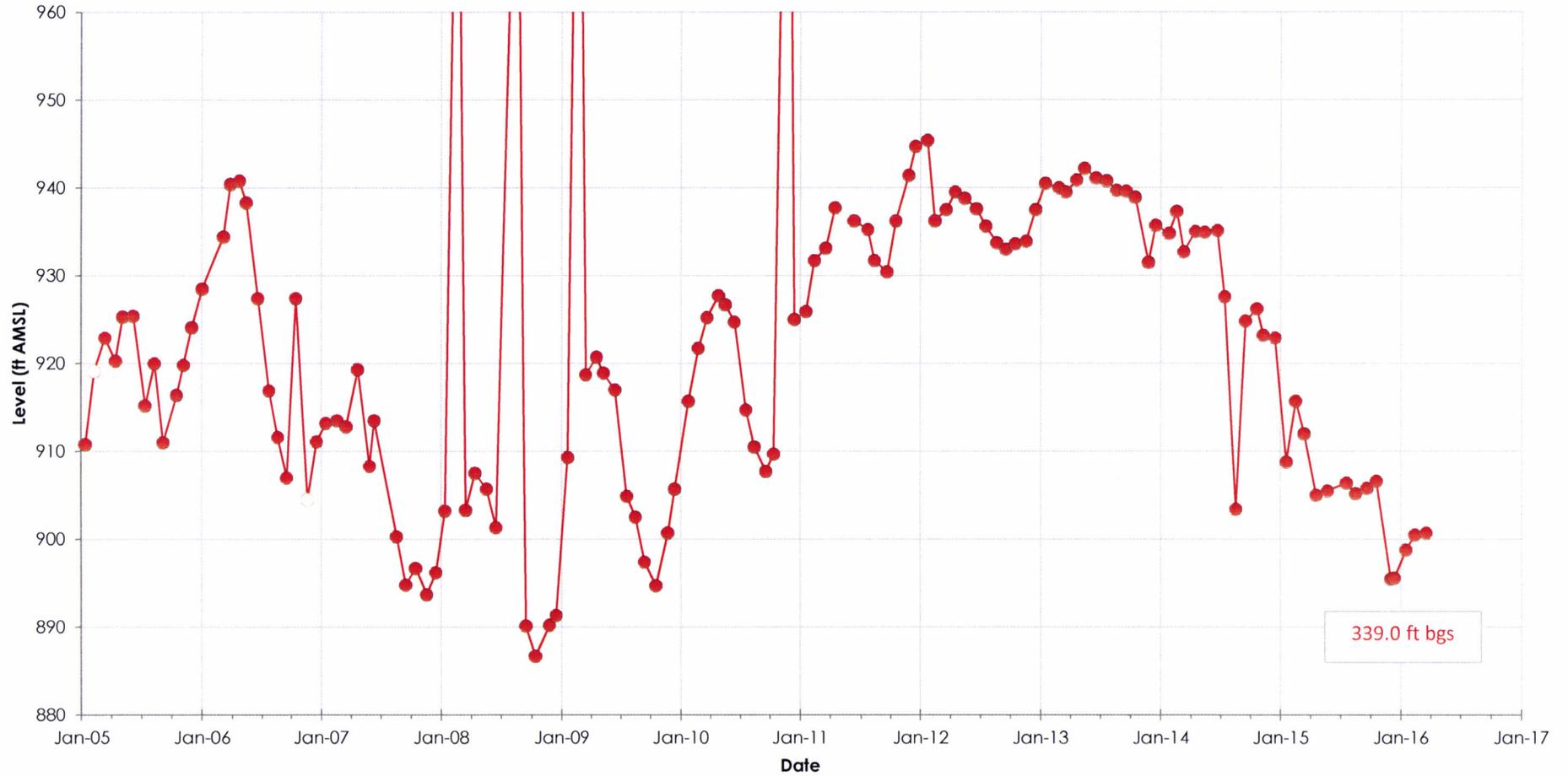
**40th Street Well**

Title

**Water Level Elevations**



1239.7  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

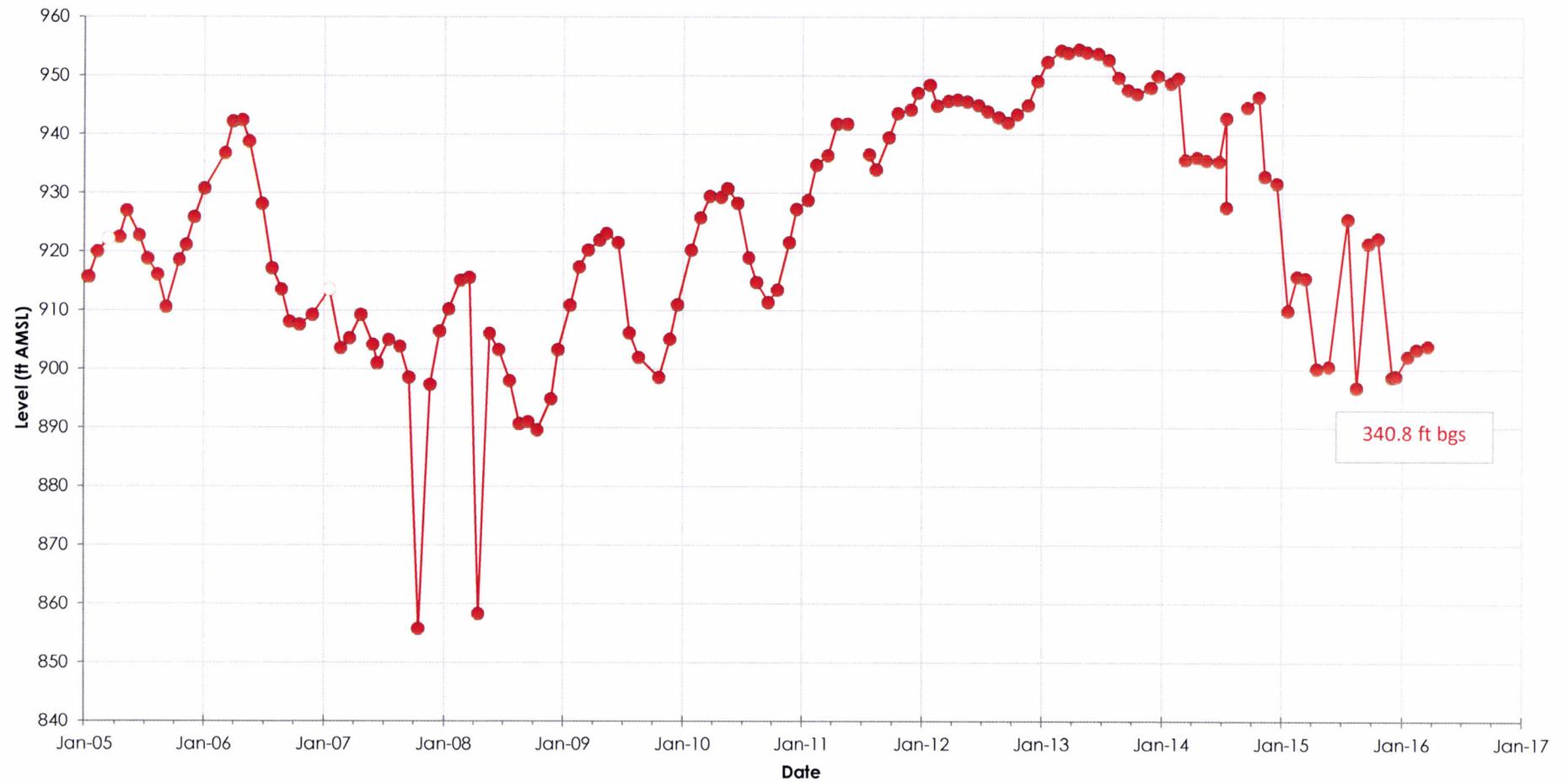
**Leroy Well**

Title

**Water Level Elevations**



1244.8  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

**Waterman Well**

Title

**Water Level Elevations**

## **Hydrographs**

**Region: Newmark Plume Front**

**Extraction and Monitoring Wells**

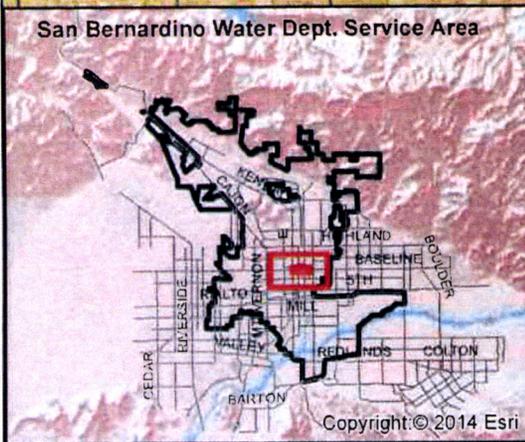
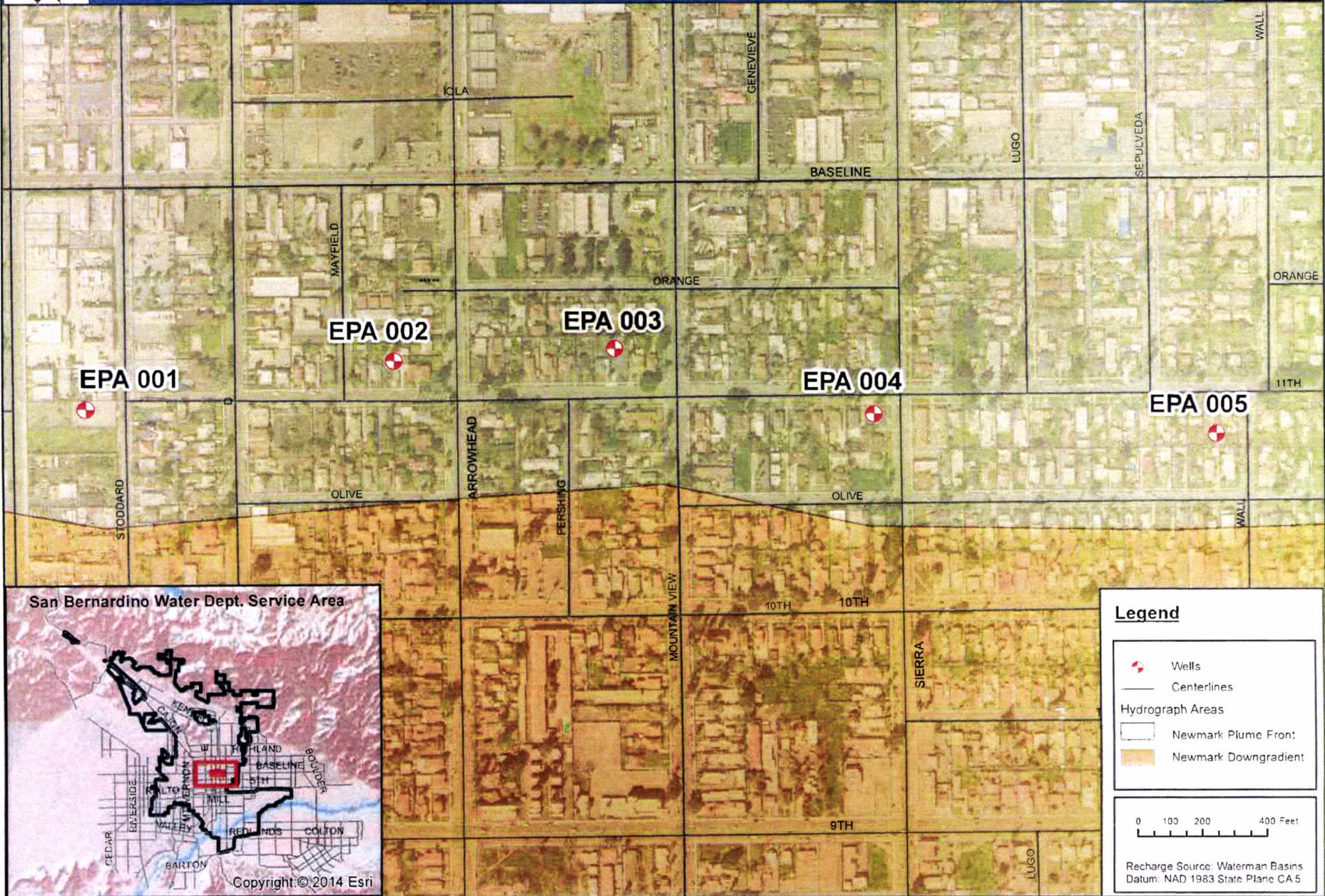
**Recharge Source:**

**Waterman Basins**

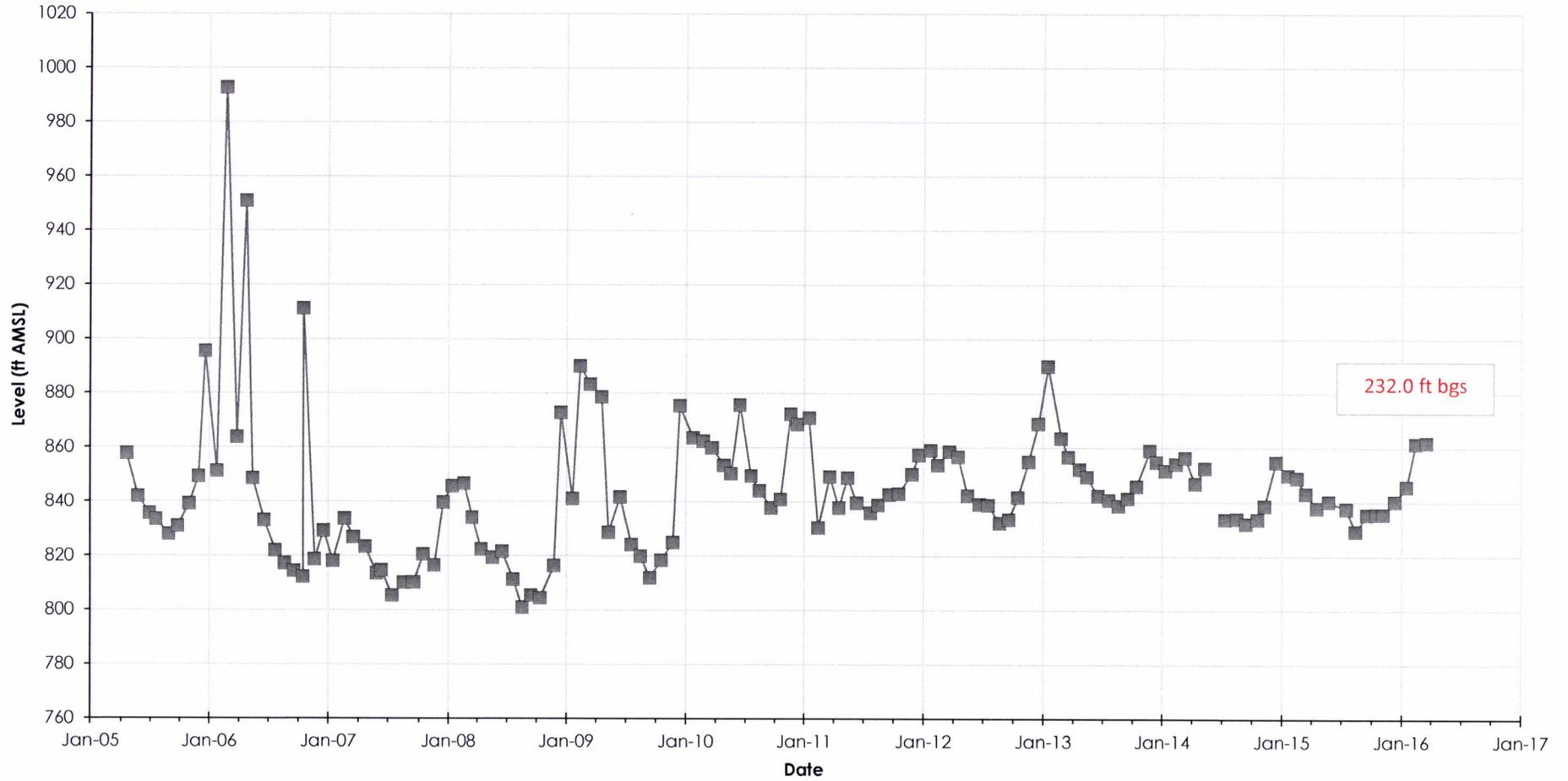


# NEWMARK PLUME FRONT REGION

## Extraction and Monitoring Wells



1093.9  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

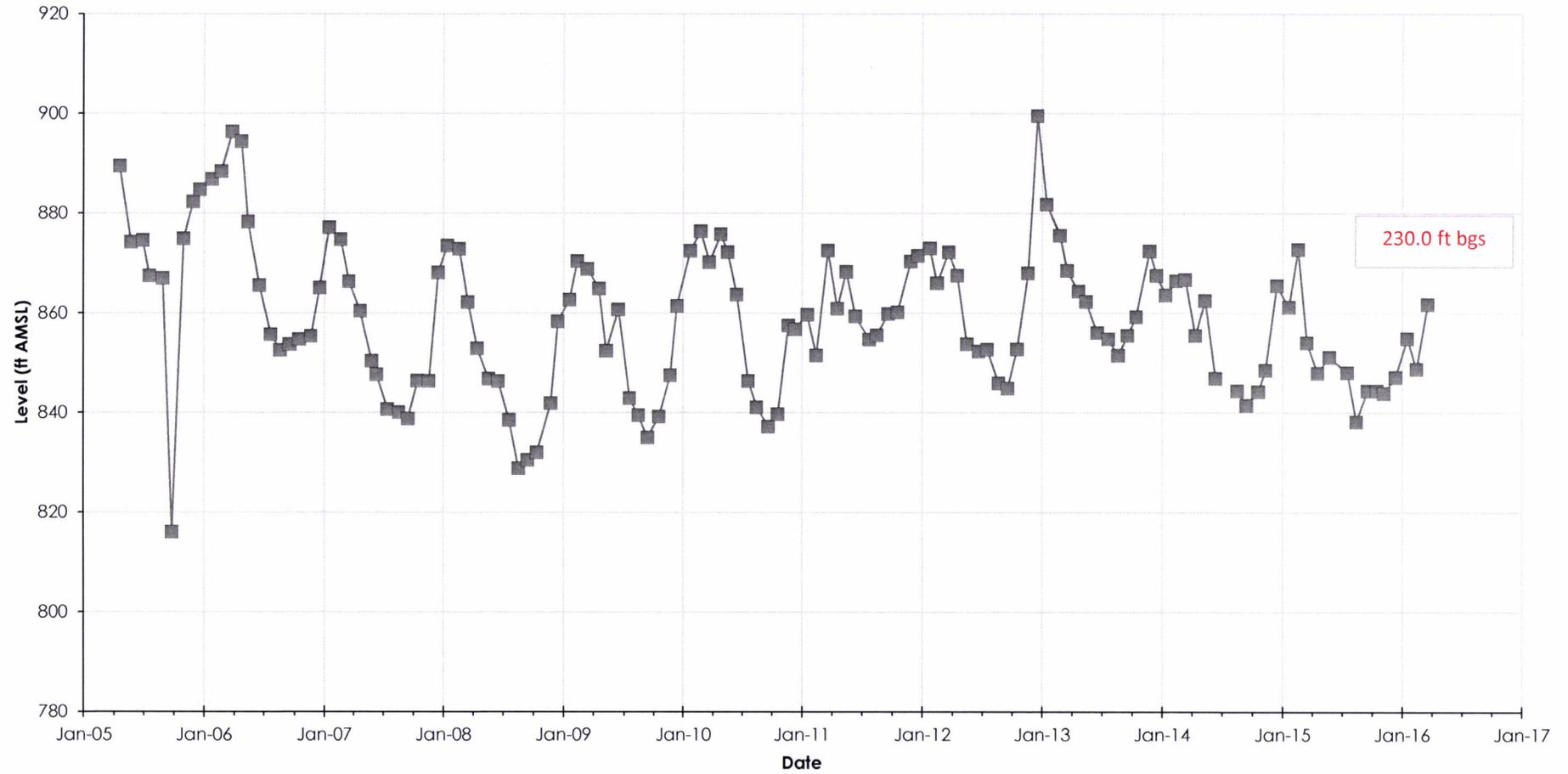
**EPA 001**

Title

**Water Level Elevations**



1091.7  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

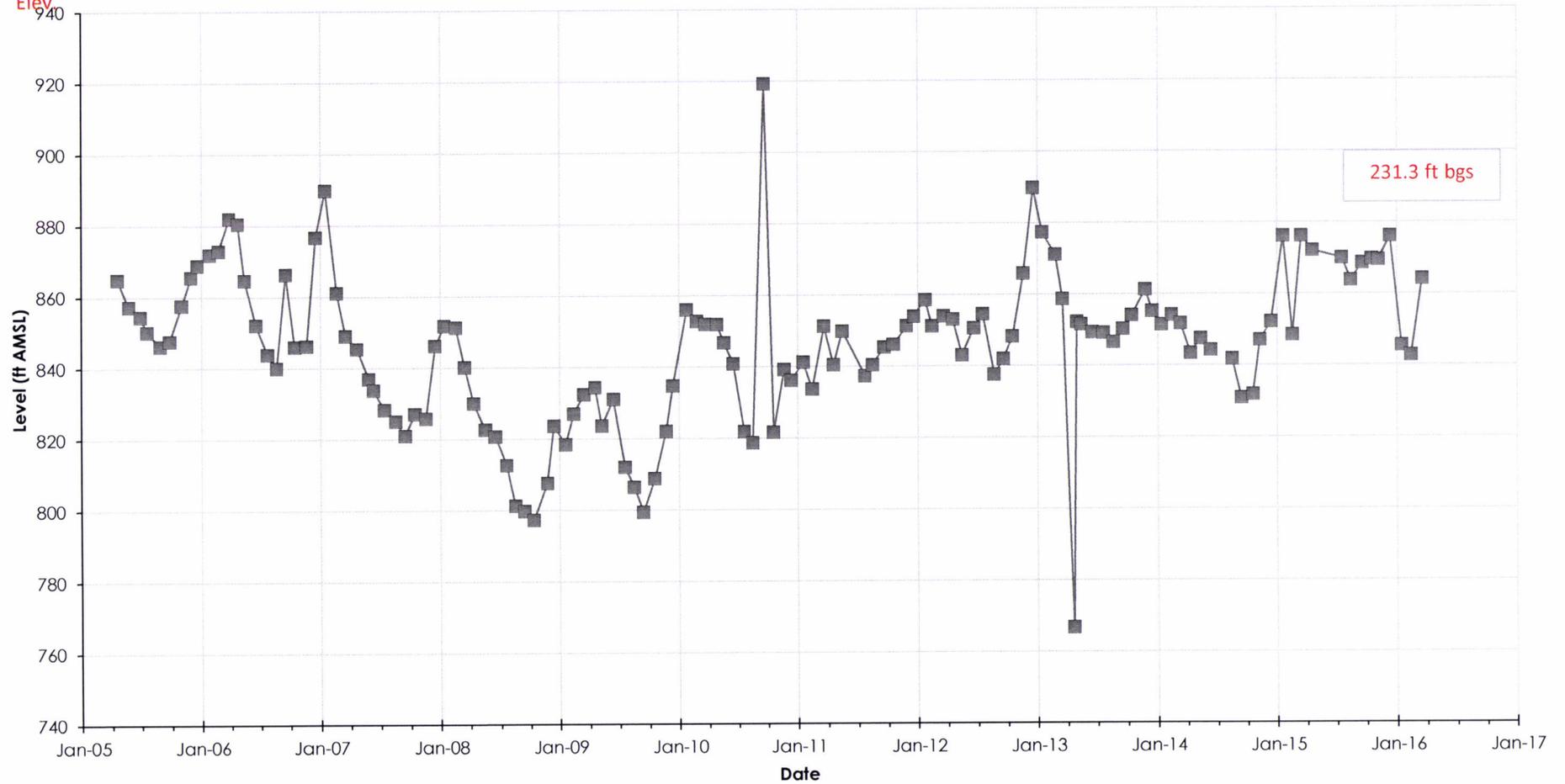
Figure/Well No.

**EPA 002**

Title

**Water Level Elevations**

1095.4  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

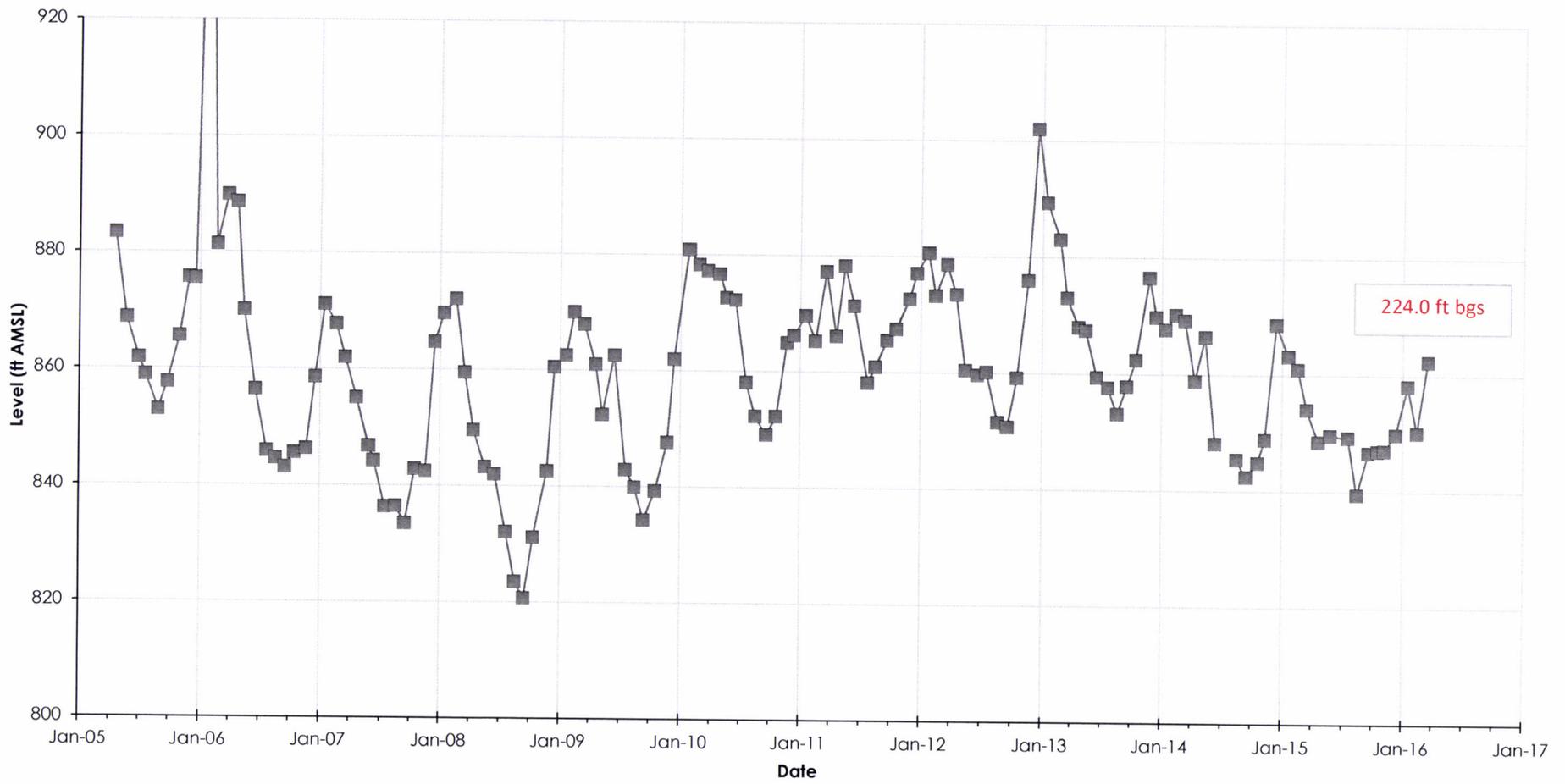
**EPA 003**

Title

**Water Level Elevations**



1086.3  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

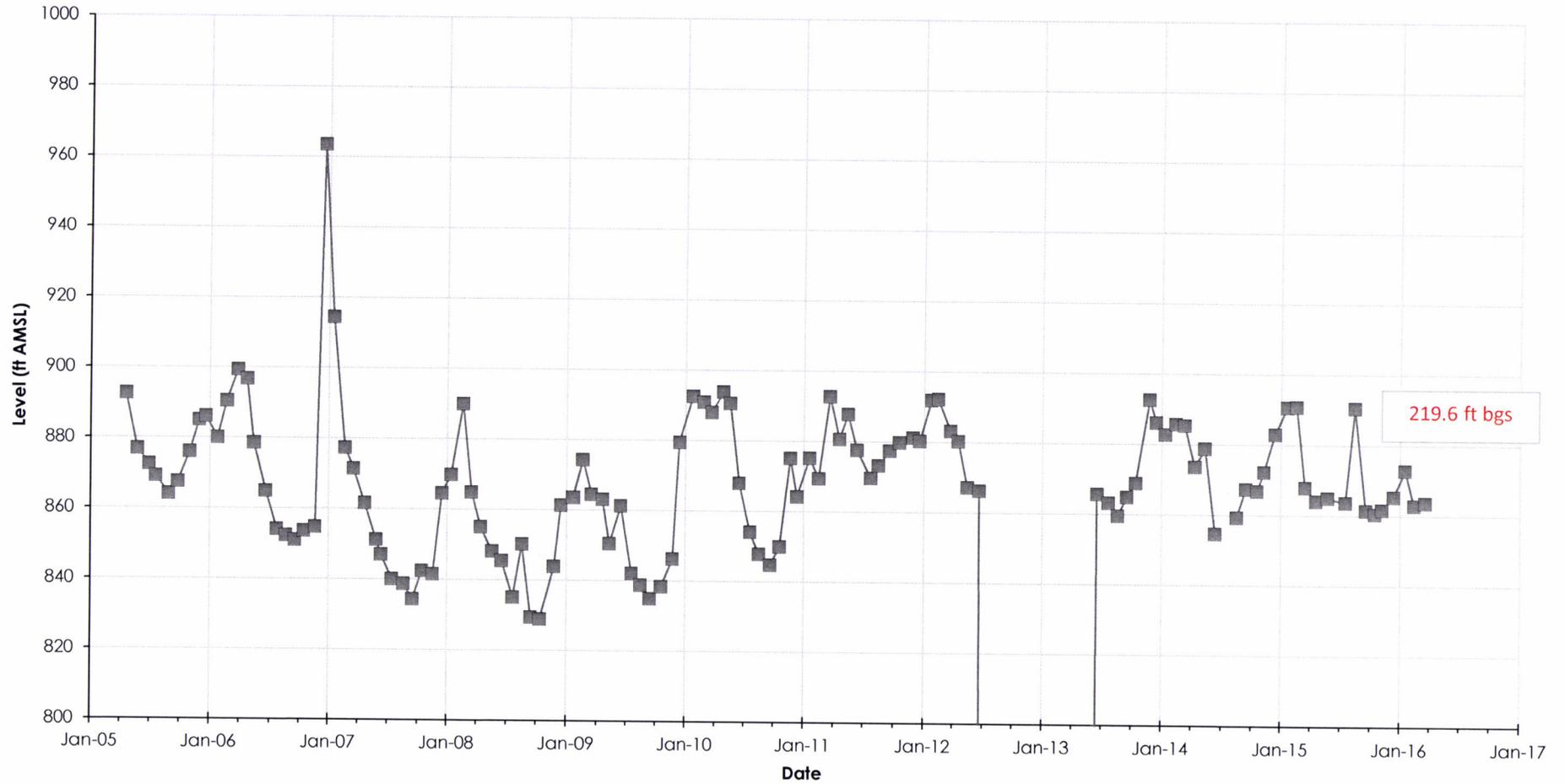
Figure/Well No.

**EPA 004**

Title

**Water Level Elevations**

1083.3  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

EPA 005

Title

Water Level Elevations

**Hydrographs**

**Region: Muscoy Mid-Plume**

**Production and Monitoring Wells**

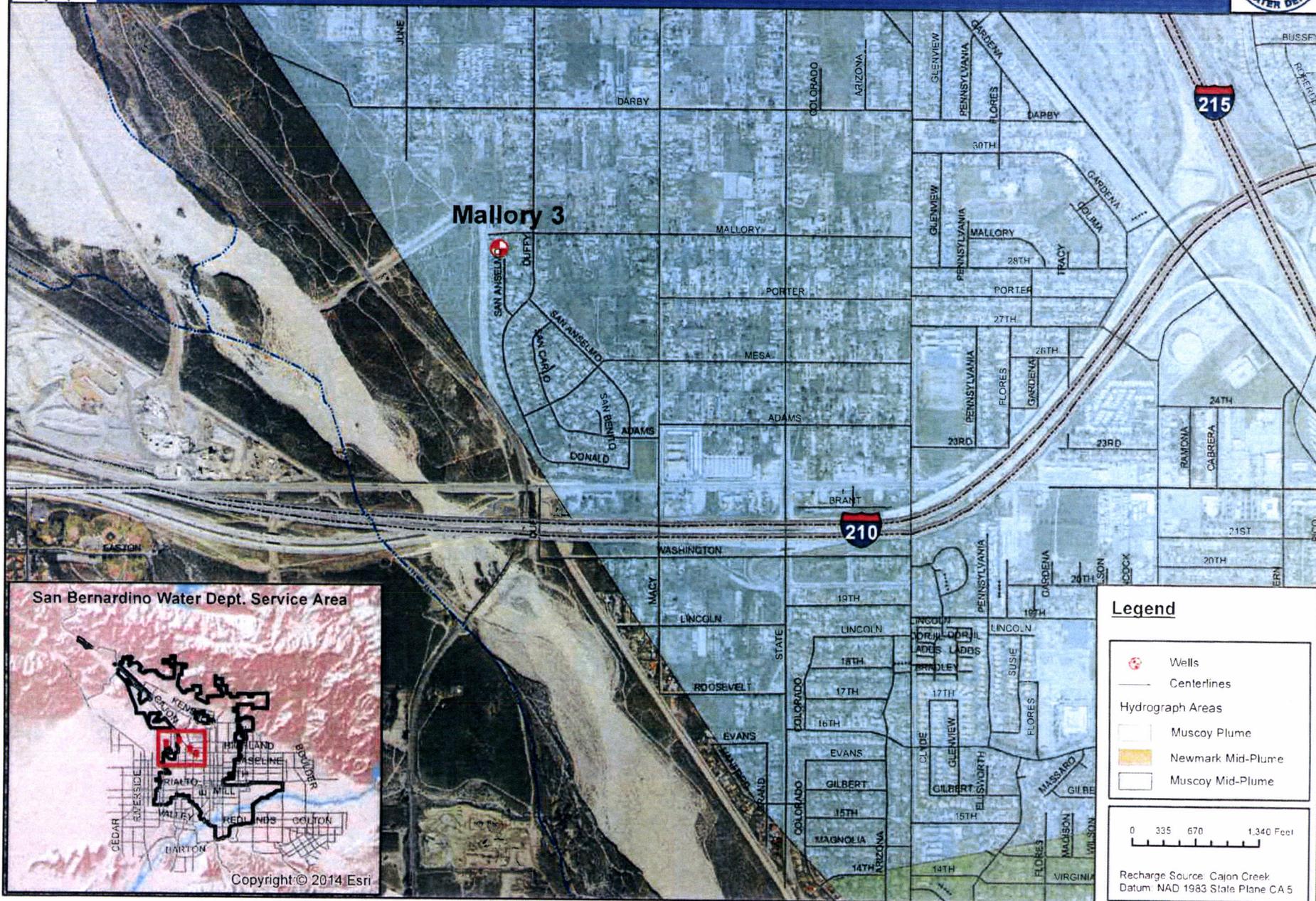
**Recharge Source:**

**Cajon Creek (No Artificial Recharge)**



# Muscoy Mid-Plume Region

## Production and Monitoring Wells



**Legend**

- Wells
- Centerlines

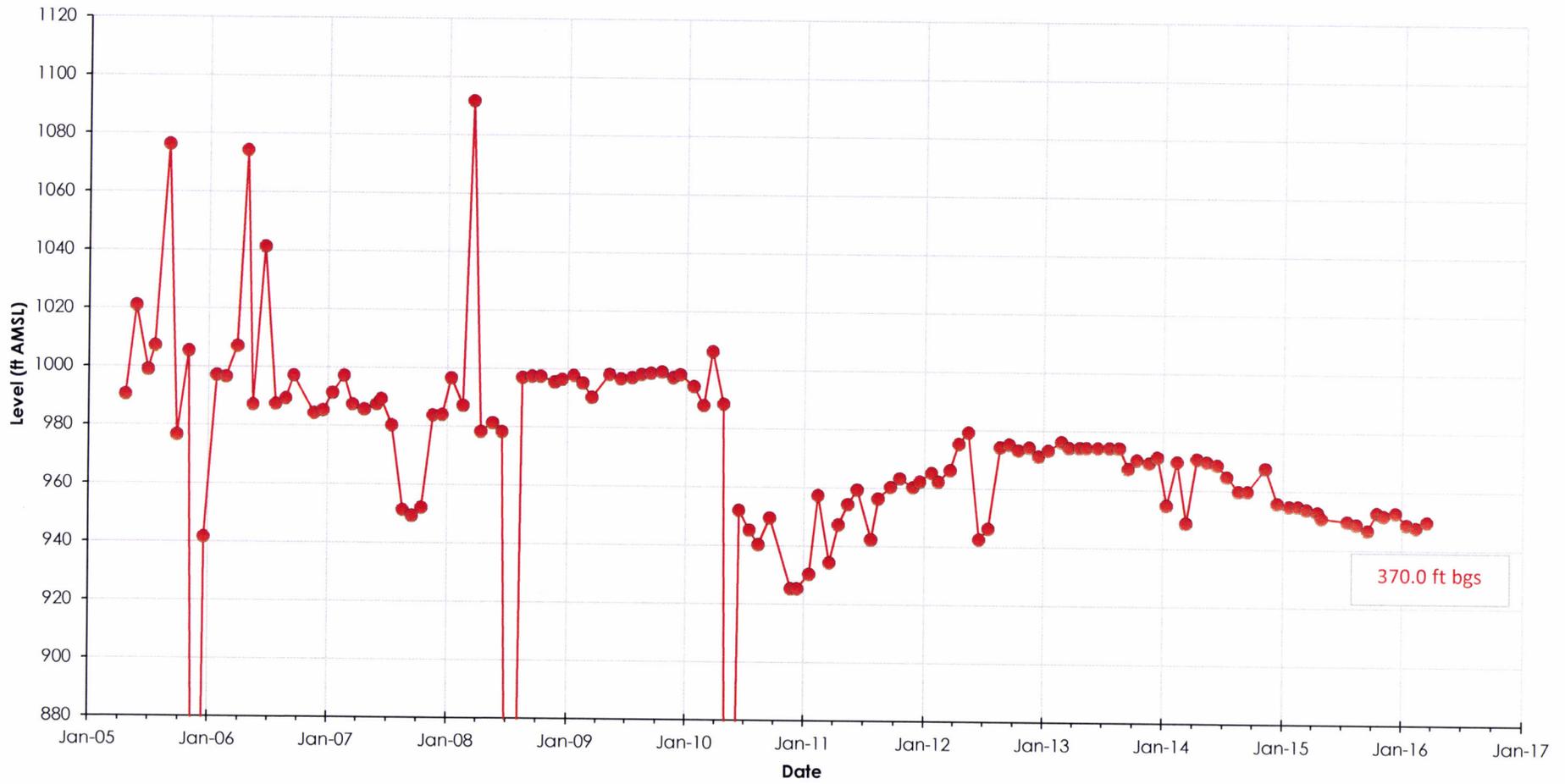
Hydrograph Areas

- Muscoy Plume
- Newmark Mid-Plume
- Muscoy Mid-Plume

0 335 670 1,340 Feet

Recharge Source: Cajon Creek  
Datum: NAD 1983 State Plane CA 5

1319.8  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

**Mallory 3**

Title

**Water Level Elevations**

## **Hydrographs**

**Region: Muscoy Plume**

**Production, Extraction, and Monitoring Wells**

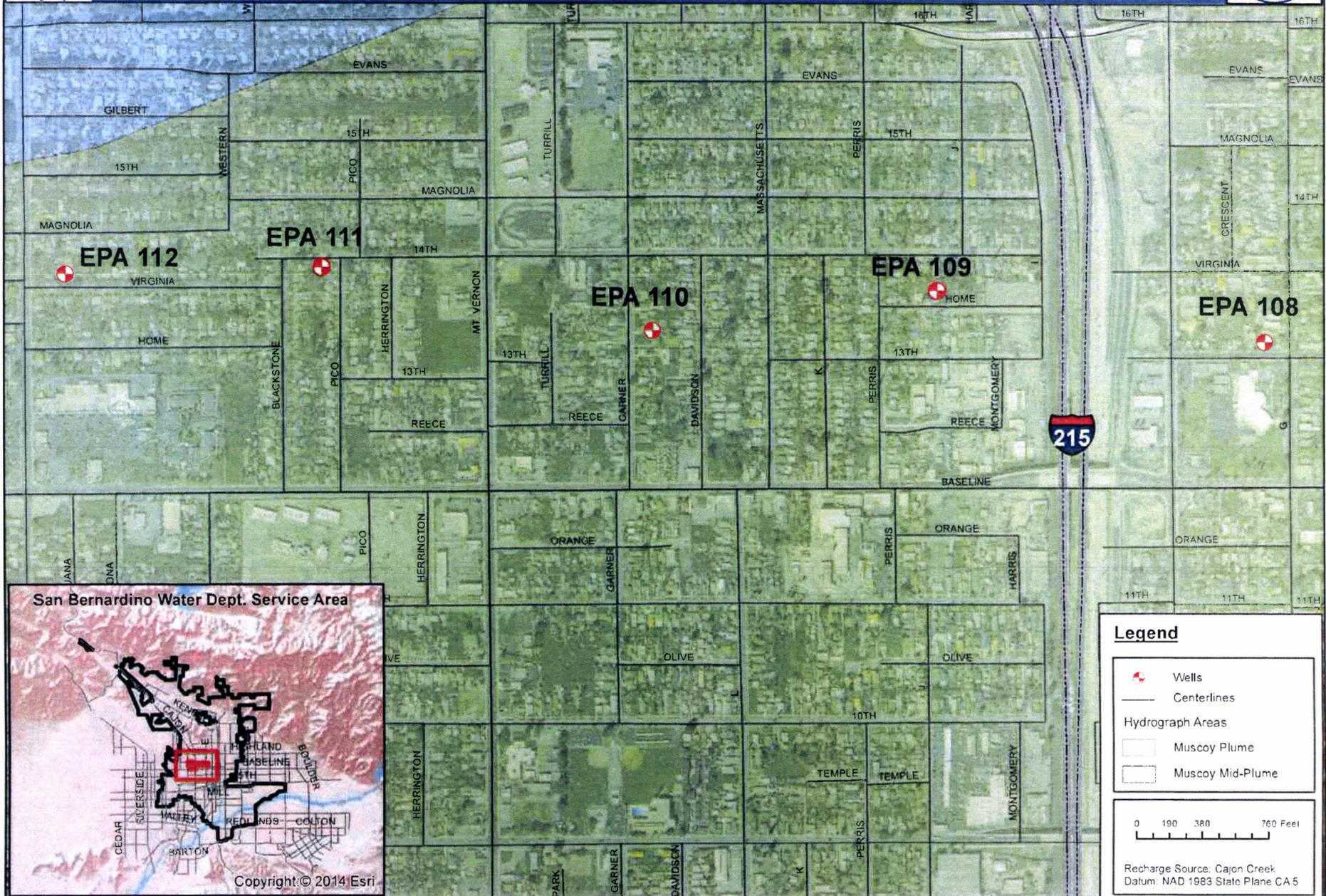
**Recharge Source:**

**Cajon Creek (No Artificial Recharge)**

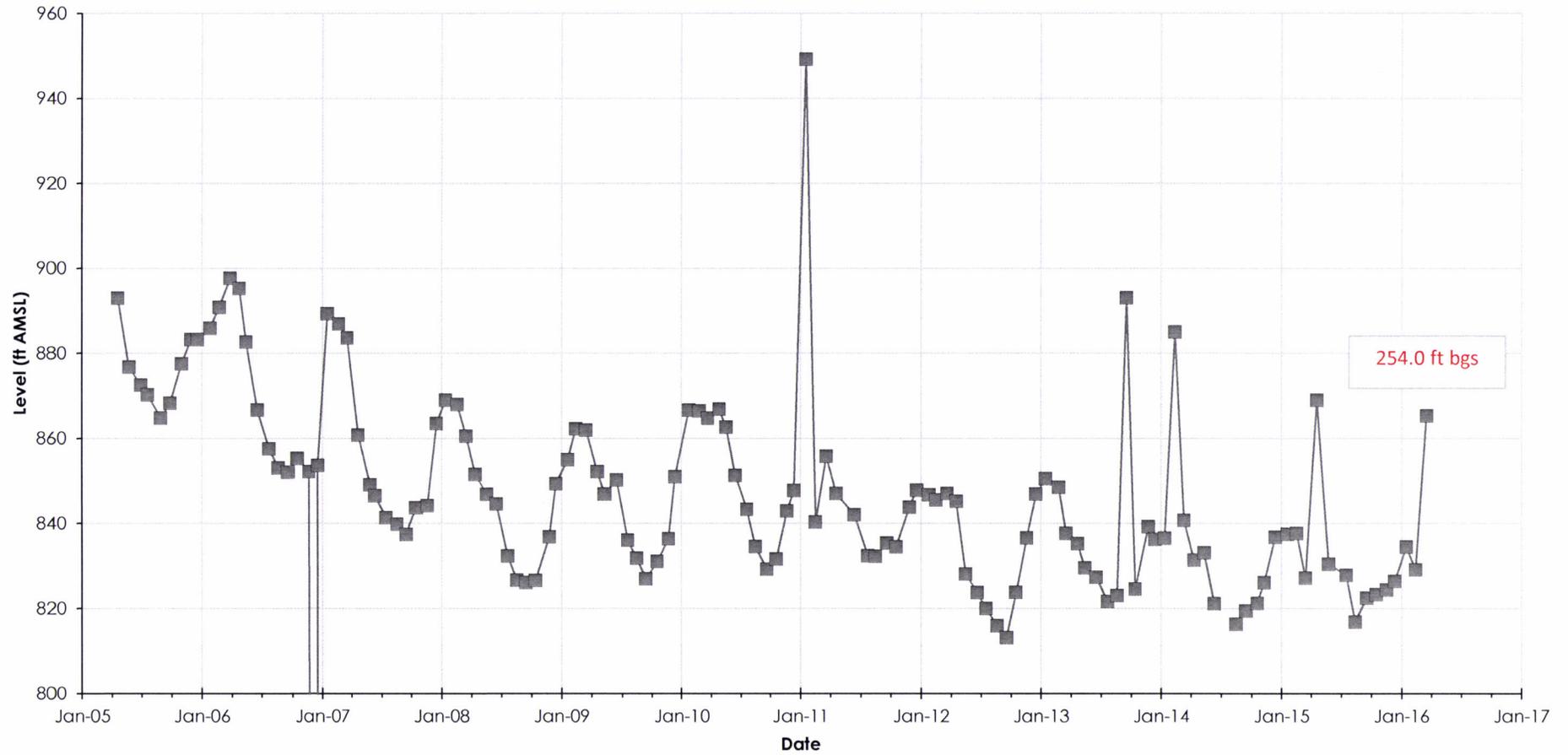


# Muscoy Plume Region

## Production, Extraction, and Monitoring Wells



1119.3  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

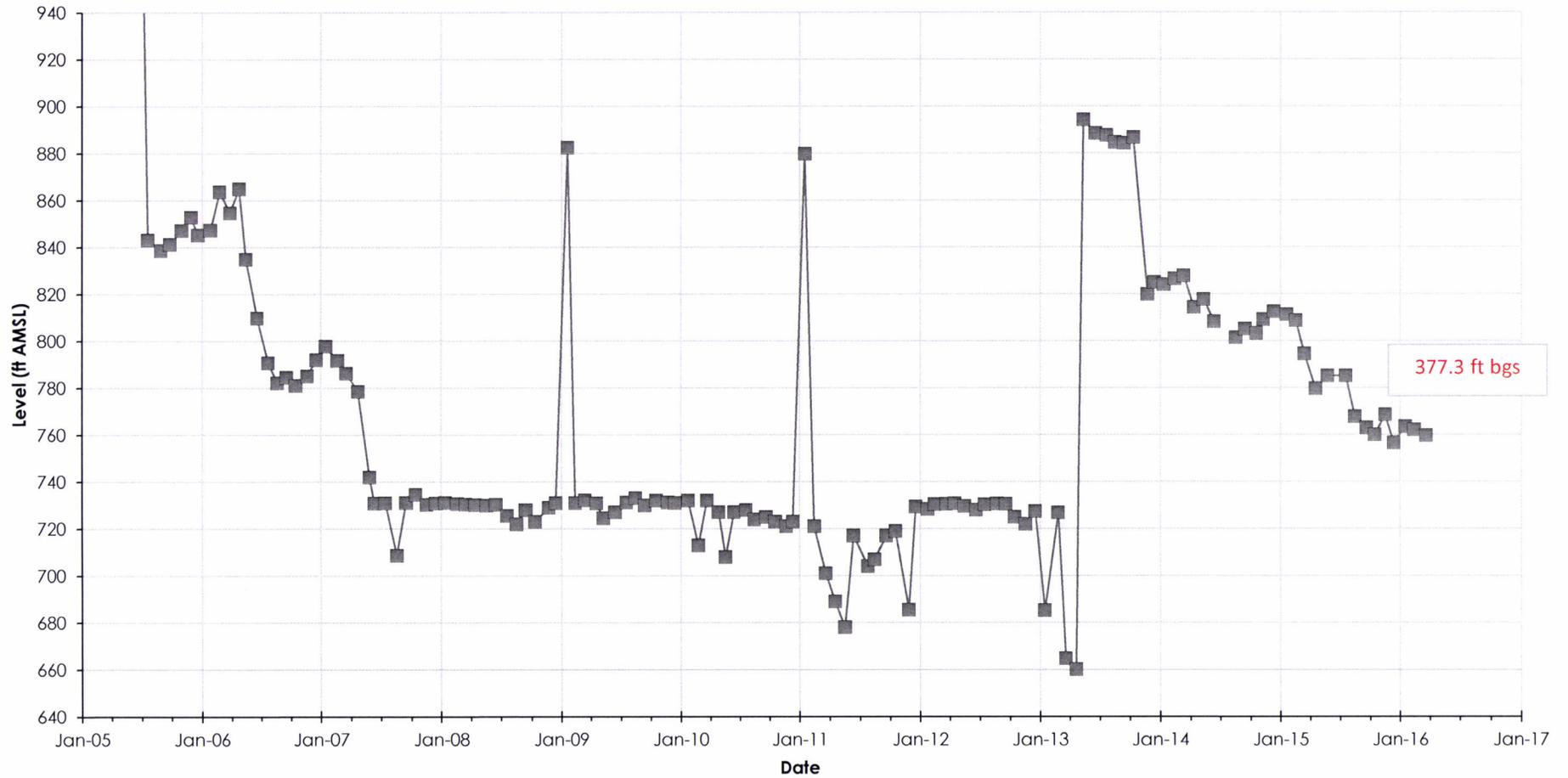
**EPA 108**

Title

**Water Level Elevations**



1137.0  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

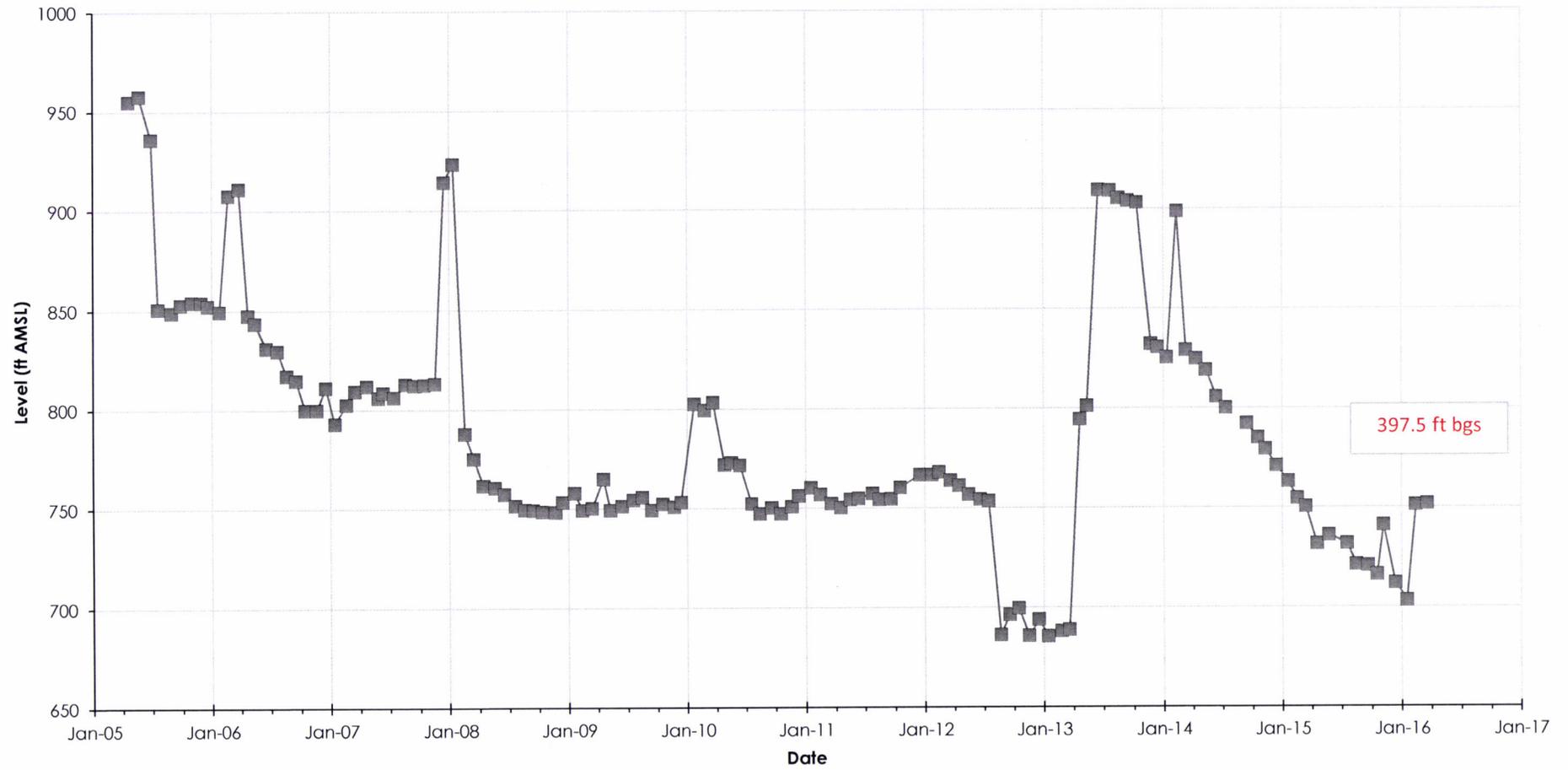
**EPA 109**

Title

**Water Level Elevations**



1149.3  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

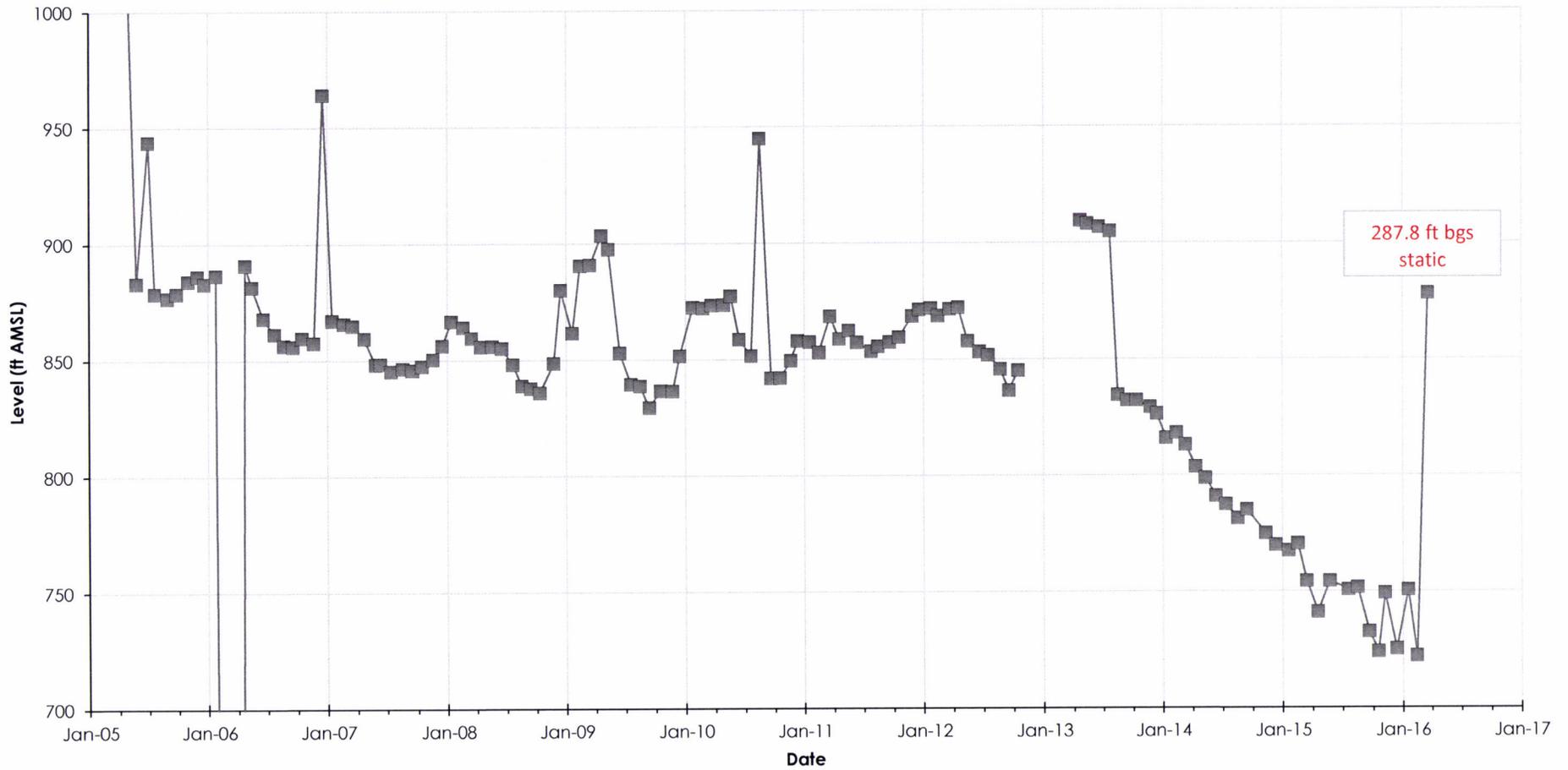
EPA 110

Title

Water Level Elevations



1165.7  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

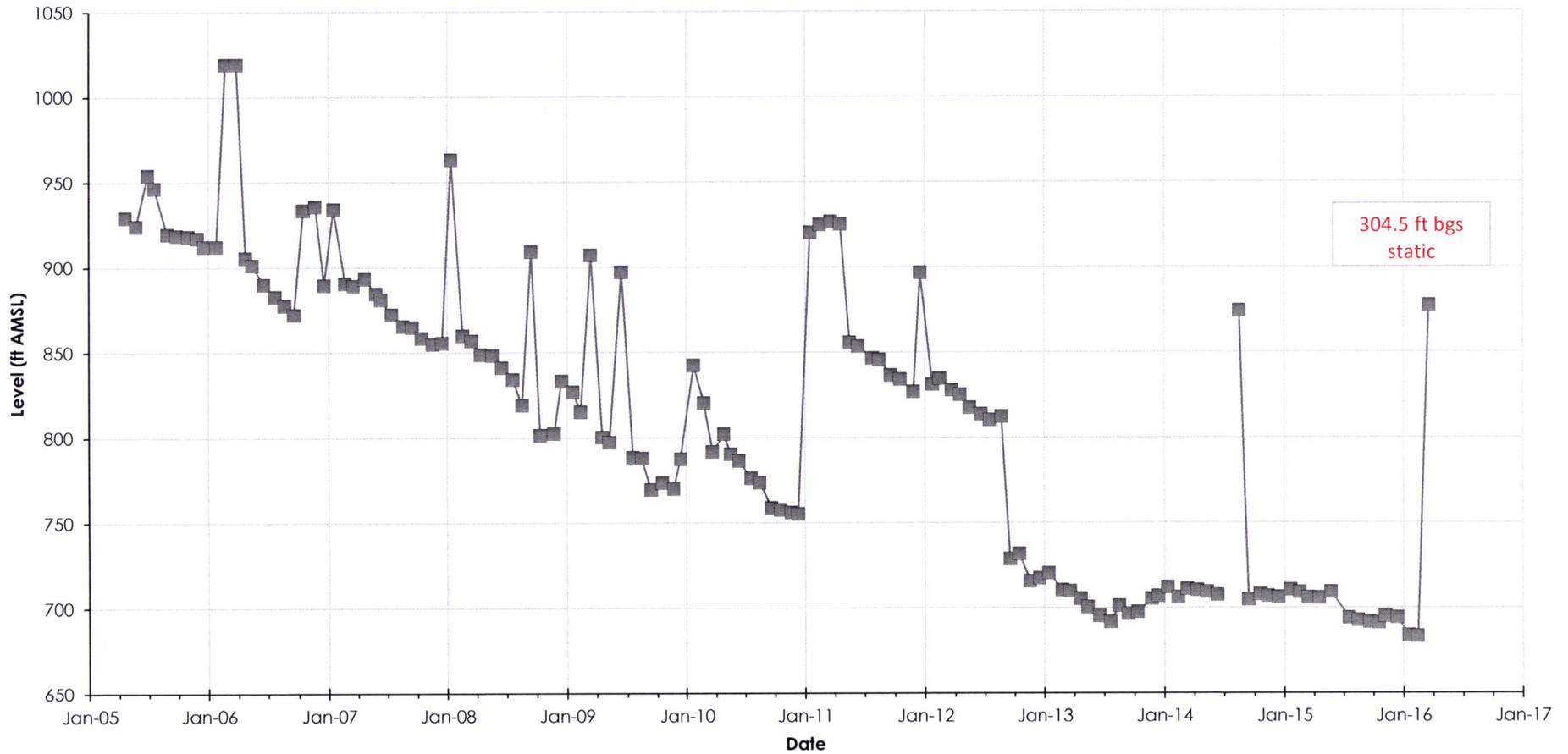
EPA 111

Title

Water Level Elevations



1181.8  
Ground  
Elev.



Client/Project

Water Level Monitoring Program  
City of San Bernardino California

Figure/Well No.

EPA 112

Title

Water Level Elevations



## **EXHIBIT B**

**SAN BERNARDINO MUNICIPAL WATER DEPARTMENT**  
**Monthly Depth To Water For Wells Maintained By Operations**  
**March 2016**

Well Name	State Well Number Rec. Number	Reading Date	Depth to Water	Ref. Point Elev.	WL Elev.	Pump Elev.	WL-Pump Elev.	Tech	Not Measured/Why	Status/ Method
10TH & J ST	01S/04W-B04S 3603207	3/21/2016	255.00	1112.8	857.8	762.8	95.0	TR	[ ]	Static Airline
10TH & J ST	01S/04W-B04S 3603207	3/21/2016	279.00	1112.8	833.8	762.8	71.0	TR	[ ]	Pumping Airline
16TH & SIERRA WAY	01N/04W-34G03 S 3600726	3/21/2016	279.70	1135.3	855.6	757.3	98.3	NH	[ ]	Pumping Electric Wire Sounder
16TH & SIERRA WAY	01N/04W-34G03 S 3600726	3/21/2016	266.20	1135.3	869.1	757.3	111.8	NH	[ ]	Static Electric Wire Sounder
17TH & SIERRA WAY 2	01N/04W-34G01 S 3603208	3/21/2016				766.9	0.0	NH	[X] Well Blocked	Static Electric Wire Sounder
19TH ST 1	01N/04W-32D03 S 3600717	3/22/2016	339.60	1231.2	891.6	881.2	10.4	NH	[ ]	Static Electric Wire Sounder
19TH ST 2	01N/04W-32D04 S 3600718	3/22/2016	346.30	1236.1	889.8	616.1	273.7	NH	[ ]	Static Electric Wire Sounder
19TH ST 2	01N/04W-32D04 S 3600718	3/22/2016	483.00	1236.1	753.1	616.1	137.0	NH	[ ]	Pumping Electric Wire Sounder
25TH & NORTH E ST	01N/04W-27M01 S 3600721	3/21/2016	321.40	1192.1	870.7	912.1	41.4	NH	[ ]	Static Electric Wire Sounder
27TH & ACACIA	01N/04W-27M02 S 3600720	3/21/2016	299.10	1183.4	884.3	843.4	40.9	NH	[ ]	Static Electric Wire Sounder
27TH & ACACIA	01N/04W-27M02 S 3600720	3/21/2016	303.30	1183.4	880.1	843.4	36.7	NH	[ ]	Pumping Electric Wire Sounder
30TH ST	01N/04W-27G01 S 3600719	3/22/2016	334.40	1226.8	892.4	826.8	65.6	NH	[ ]	Static Electric Wire Sounder

**SAN BERNARDINO MUNICIPAL WATER DEPARTMENT**  
**Monthly Depth To Water For Wells Maintained By Operations**  
**March 2016**

Well Name	State Well Number Rec. Number	Reading Date	Depth to Water	Ref. Point Elev.	WL Elev.	Pump Elev.	WL-Pump Elev.	Tech	Not Measured/Why	Status/ Method
30TH ST	01N/04W-27G01 S 3600719	3/22/2016	346.50	1226.8	880.3	826.8	53.5	NH	[ ]	Pumping Electric Wire Sounder
31ST ST & MT. VIEW	01N/04W-27B01 S 3602081	3/22/2016	341.30	1232.3	891.0	792.3	98.7	NH	[ ]	Static Electric Wire Sounder
31ST ST & MT. VIEW	01N/04W-27B01 S 3602081	3/22/2016	346.00	1232.3	886.3	792.3	94.0	NH	[ ]	Pumping Electric Wire Sounder
40TH & VALENCIA	01N/04W-14P01 3603472	3/22/2016	303.70	1355.0	1051.3	905.0	146.3	NH	[ ]	Static Electric Wire Sounder
7TH STREET	01S/04W-03J05 S 3602265	3/21/2016	203.40	1056.5	853.1	726.5	126.6	NH	[ ]	Pumping Electric Wire Sounder
7TH STREET	01S/04W-03J05 S 3602265	3/21/2016	196.10	1056.5	860.4	726.5	133.9	NH	[ ]	Static Electric Wire Sounder
ANTIL 5	01S/04W-02K02 S 3600731	3/21/2016				787.8	0.0	NH	[X] Well Blocked	Static Electric Wire Sounder
ANTIL 6	01S/04W-02K08 S 3602422	3/21/2016	186.90	1052.5	865.6	777.5	88.1	NH	[ ]	Static Electric Wire Sounder
BASELINE & CALIFORNIA	01N/04W-32N01 S 3602400	3/22/2016	340.00	1184.9	844.9	799.9	45.0	AO	[ ]	Pumping Airline
BASELINE & CALIFORNIA	01N/04W-32N01 S 3602400	3/22/2016	329.00	1184.9	855.9	799.9	56.0	AO	[ ]	Static Airline
CAJON 2	01N/05W-03HO2 S 3601844	3/21/2016	236.00	1887.1	1651.1	1537.1	114.0	AO	[ ]	Pumping Airline
CAJON 2	01N/05W-03HO2 S 3601844	3/21/2016	230.00	1887.1	1657.1	1537.1	120.0	AO	[ ]	Static Airline

**SAN BERNARDINO MUNICIPAL WATER DEPARTMENT**  
**Monthly Depth To Water For Wells Maintained By Operations**  
**March 2016**

Well Name	State Well Number Rec. Number	Reading Date	Depth to Water	Ref. Point Elev.	WL Elev.	Pump Elev.	WL-Pump Elev.	Tech	Not Measured/Why	Status/ Method
CAJON 3	01N/05W-03A02 S 3602821	3/21/2016	232.00	1894.9	1662.9	1537.9	125.0	AO	[ ]	Pumping Airline
CAJON 3	01N/05W-03A02 S 3602821	3/21/2016	210.00	1894.9	1684.9	1537.9	147.0	AO	[ ]	Static Airline
CAJON 4	01N/05W-03A-S G363792	3/22/2016	213.90	1923.0	1709.1	1523.0	186.1	AO	[ ]	Static Electric Wire Sounder
CAJON 4	01N/05W-03A-S G363792	3/22/2016	230.20	1923.0	1692.8	1523.0	169.8	AO	[ ]	Pumping Electric Wire Sounder
CAJON CANYON	02N/05W-19K02 S 3600710	3/22/2016	91.33	2328.0	2236.7	2178.0	58.7	AO	[ ]	Pumping Electric Wire Sounder
CAJON CANYON	02N/05W-19K02 S 3600710	3/22/2016	72.52	2328.0	2255.5	2178.0	77.5	AO	[ ]	Static Electric Wire Sounder
DEVIL CANYON 1	01N/04W-08M01 S 3600712	3/21/2016	177.82	1528.9	1351.1	1278.9	72.2	AO	[ ]	Pumping Plopper
DEVIL CANYON 1	01N/04W-08M01 S 3600712	3/21/2016	168.90	1528.9	1360.0	1278.9	81.1	AO	[ ]	Static Electric Wire Sounder
DEVIL CANYON 2	01N/04W-07F01 S 3600711	3/21/2016	168.62	1622.0	1453.4	1370.5	82.9	AO	[ ]	Pumping Electric Wire Sounder
DEVIL CANYON 2	01N/04W-07F01 S 3600711	3/21/2016	155.17	1622.0	1466.8	1370.5	96.3	AO	[ ]	Static Electric Wire Sounder
DEVIL CANYON 3	01N/04W-06H02 S 3602206	3/21/2016	34.30	1888.5	1854.2	1853.5	0.7	AO	[ ]	Pumping Electric Wire Sounder
DEVIL CANYON 3	01N/04W-06H02 S 3602206	3/21/2016	28.70	1888.5	1859.8	1853.5	6.3	AO	[ ]	Static Electric Wire Sounder

**SAN BERNARDINO MUNICIPAL WATER DEPARTMENT**  
**Monthly Depth To Water For Wells Maintained By Operations**  
**March 2016**

Well Name	State Well Number Rec. Number	Reading Date	Depth to Water	Ref. Point Elev.	WL Elev.	Pump Elev.	WL-Pump Elev.	Tech	Not Measured/Why	Status/ Method
DEVIL CANYON 4	01N/04W-06H01 S 3602205	3/21/2016	44.10	1903.4	1859.3	1848.4	10.9	AO	[ ]	Pumping Electric Wire Sounder
DEVIL CANYON 4	01N/04W-06H01 S 3602205	3/21/2016	41.92	1903.4	1861.5	1848.4	13.1	AO	[ ]	Static Electric Wire Sounder
DEVIL CANYON 5	01N/04W-08M02 S 3602844	3/21/2016	196.75	1561.7	1364.9	1261.7	103.3	AO	[ ]	Pumping Electric Wire Sounder
DEVIL CANYON 5	01N/04W-08M02 S 3602844	3/21/2016	167.00	1561.7	1394.7	1261.7	133.0	AO	[ ]	Static Electric Wire Sounder
DEVIL CANYON 6	01N/04W-06A01 S 3603580	3/21/2016	22.20	2039.3	2017.1	1994.3	22.8	AO	[ ]	Static Electric Wire Sounder
DEVIL CANYON 6	01N/04W-06A01 S 3603580	3/21/2016	29.33	2039.3	2010.0	1994.3	15.7	AO	[ ]	Pumping Electric Wire Sounder
DEVIL CANYON 7	01N/04W-06A02 S 3603579	3/21/2016	31.50	2041.9	2010.4	1996.9	13.5	AO	[ ]	Pumping Electric Wire Sounder
DEVIL CANYON 7	01N/04W-06A02 S 3603579	3/21/2016	21.00	2041.9	2020.9	1996.9	24.0	AO	[ ]	Static Electric Wire Sounder
ELLENA BROTHERS	01N/04W-08P01 S 3602712	3/21/2016	188.50	1476.7	1288.2	1175.7	112.5	AO	[ ]	Static Electric Wire Sounder
EPA 001	01S/04W-03D04 S G3603688	3/21/2016	231.95	1093.9	862.0	731.9	130.1	JMA	[ ]	Static Electric Wire Sounder
EPA 002	01S/04W-03C03 S G3603689	3/21/2016	242.90	1091.7	848.8	791.7	57.1	JMA	[ ]	Pumping Electric Wire Sounder
EPA 002	01S/04W-03C03 S G3603689	3/21/2016	230.00	1091.7	861.7	791.7	70.0	JMA	[ ]	Static Electric Wire Sounder

**SAN BERNARDINO MUNICIPAL WATER DEPARTMENT**  
**Monthly Depth To Water For Wells Maintained By Operations**  
**March 2016**

Well Name	State Well Number Rec. Number	Reading Date	Depth to Water	Ref. Point Elev.	WL Elev.	Pump Elev.	WL-Pump Elev.	Tech	Not Measured/Why	Status/ Method
EPA 003	01S/04W-03C04 S G3603690	3/21/2016	256.05	1095.4	839.3	660.4	179.0	JMA	[ ]	Pumping Electric Wire Sounder
EPA 003	01S/04W-03C04 S G3603690	3/21/2016	231.30	1095.4	864.1	660.4	203.7	JMA	[ ]	Static Electric Wire Sounder
EPA 004	01S/04W-03B03 S G3603691	3/21/2016	235.80	1086.3	850.5	786.3	64.2	JMA	[ ]	Pumping Electric Wire Sounder
EPA 004	01S/04W-03B03 S G3603691	3/21/2016	223.95	1086.3	862.4	786.3	76.0	JMA	[ ]	Static Electric Wire Sounder
EPA 005	01S/04W-03A04 S G3603692	3/21/2016	219.60	1083.3	863.7	779.3	84.4	JMA	[ ]	Static Electric Wire Sounder
EPA 005	01S/04W-03A04 S G3603692	3/21/2016	226.50	1083.3	856.8	779.3	77.5	JMA	[ ]	Pumping Electric Wire Sounder
EPA 006	01N/04W-16M03 S G3603693	3/22/2016	203.35	1396.6	1193.2	1096.6	96.6	JMA	[ ]	Pumping Electric Wire Sounder
EPA 006	01N/04W-16M03 S G3603693	3/22/2016	193.95	1396.6	1202.6	1096.6	106.0	JMA	[ ]	Static Electric Wire Sounder
EPA 007	01N/04W-16M04 S G3603694	3/22/2016	208.90	1404.5	1195.6	1144.5	51.1	JMA	[ ]	Pumping Electric Wire Sounder
EPA 007	01N/04W-16M04 S G3603694	3/22/2016	196.70	1404.5	1207.8	1144.5	63.3	JMA	[ ]	Static Electric Wire Sounder
EPA 108	01N/04W-33Q-S G363786	3/21/2016	254.00	1119.3	865.3	654.3	211.0	JMA	[ ]	Static Electric Wire Sounder
EPA 108	01N/04W-33Q-S G363786	3/21/2016	291.10	1119.3	828.2	654.3	173.9	JMA	[ ]	Pumping Electric Wire Sounder

**SAN BERNARDINO MUNICIPAL WATER DEPARTMENT**  
**Monthly Depth To Water For Wells Maintained By Operations**  
**March 2016**

Well Name	State Well Number Rec. Number	Reading Date	Depth to Water	Ref. Point Elev.	WL Elev.	Pump Elev.	WL-Pump Elev.	Tech	Not Measured/Why	Status/ Method
EPA 108S	01N/04W-33R003S G3603917	3/21/2016	269.50	1119.3	849.8	669.3	180.5	JMA	[ ]	Pumping Electric Wire Sounder
EPA 108S	01N/04W-33R003S G3603917	3/21/2016	233.25	1119.3	886.0	669.3	216.8	JMA	[ ]	Static Electric Wire Sounder
EPA 109	01N/04W-33P-S G363787	3/23/2016	377.30	1137.0	759.7	482.0	277.7	TR	[ ]	Pumping Electric Wire Sounder
EPA 110	01N/04W-33N-S G363788	3/22/2016	397.50	1149.3	751.8	589.3	162.5	TR	[ ]	Pumping Electric Wire Sounder
EPA 111	01N/04W-32R-S G363789	3/22/2016	326.48	1165.7	839.2	625.7	213.5	TR	[ ]	Pumping Electric Wire Sounder
EPA 111	01N/04W-32R-S G363789	3/23/2016	287.84	1165.7	877.9	625.7	252.2	TR	[ ]	Static Electric Wire Sounder
EPA 112	01N/04W-32P-S G363790	3/22/2016	304.50	1181.8	877.3	616.8	260.5	TR	[ ]	Static Electric Wire Sounder
EPA 112	01N/04W-32P-S G363790	3/22/2016	499.90	1181.8	681.9	616.8	65.1	TR	[ ]	Pumping Electric Wire Sounder
GILBERT ST .	01N/04W-35M03 S 3600729	3/22/2016	279.00	1123.5	844.5	783.5	61.0	NH	[ ]	Pumping Airline
INTER CITY IRRIGATION		3/22/2016		-999.0		-999.0	0.0	JMA	[X] No Data	
INTER CITY MUTUAL 08	01S/04W-23N 3601316	3/21/2016	147.50	1028.0	880.5	1028.0	0.0	NH	[ ]	Static Electric Wire Sounder
IVDA 11	01S/03W-07A06 S 3603649	3/21/2016	224.60	1140.0	915.4	910.0	5.4	NH	[ ]	Static Electric Wire Sounder

**SAN BERNARDINO MUNICIPAL WATER DEPARTMENT**  
**Monthly Depth To Water For Wells Maintained By Operations**  
**March 2016**

Well Name	State Well Number Rec. Number	Reading Date	Depth to Water	Ref. Point Elev.	WL Elev.	Pump Elev.	WL-Pump Elev.	Tech	Not Measured/Why	Status/ Method
KENWOOD 1	02N/05W-19R01S 3603471	3/22/2016	116.10	2350.8	2234.7	2027.8	206.9	AO	[ ]	Static Electric Wire Sounder
KENWOOD 1	02N/05W-19R01S 3603471	3/22/2016	169.25	2350.8	2181.6	2027.8	153.8	AO	[ ]	Pumping Electric Wire Sounder
KENWOOD 2	02N/05W-19R-S G363791	3/22/2016	116.60	2289.0	2172.4	2089.0	83.4	AO	[ ]	Static Electric Wire Sounder
KENWOOD 2	02N/05W-19R-S G363791	3/22/2016	133.62	2289.0	2155.4	2089.0	66.4	AO	[ ]	Pumping Electric Wire Sounder
LEROY	01N/04W-27A02 S 3602401	3/21/2016	357.50	1239.7	882.2	859.7	22.5	NH	[ ]	Pumping Electric Wire Sounder
LEROY	01N/04W-27A02 S 3602401	3/21/2016	339.00	1239.7	900.7	859.7	41.0	NH	[ ]	Static Electric Wire Sounder
LYNWOOD	01N/04W-26E02 S 3600727	3/22/2016	336.00	1236.2	900.2	791.2	109.0	NH	[ ]	Pumping Electric Wire Sounder
LYNWOOD	01N/04W-26E02 S 3600727	3/22/2016	335.70	1236.2	900.5	791.2	109.3	NH	[ ]	Static Electric Wire Sounder
LYTLE CREEK 2	01N/05W-36J01 3603027	3/21/2016				722.2	0.0	AO	[X] Blocked	Static Electric Wire Sounder
LYTLE CREEK 3-1	01N/05W-36R01 3600713	3/21/2016				1247.8	0.0	AO	[X] Depth of Water Exceeds Tape Length	Static Electric Wire Sounder
MALLORY NO.3	01N/04W-30M01S 3601845	3/21/2016	370.00	1319.8	949.8	829.8	120.0	TR	[ ]	Static Airline
MALLORY NO.3	01N/04W-30M01S 3601845	3/21/2016	377.00	1319.8	942.8	829.8	113.0	TR	[ ]	Pumping Airline

**SAN BERNARDINO MUNICIPAL WATER DEPARTMENT**  
**Monthly Depth To Water For Wells Maintained By Operations**  
**March 2016**

Well Name	State Well Number Rec. Number	Reading Date	Depth to Water	Ref. Point Elev.	WL Elev.	Pump Elev.	WL-Pump Elev.	Tech	Not Measured/Why	Status/ Method
MILL & D	01S/04W-10N06 S 3600737	3/21/2016	163.10	1001.1	838.0	711.1	126.9	NH	[ ]	Pumping Electric Wire Sounder
MILL & D	01S/04W-10N06 S 3600737	3/21/2016	108.30	1001.1	892.8	711.1	181.7	NH	[ ]	Static Electric Wire Sounder
MT VERNON WATER CO	01N/04W-31A01 S 3600319	3/21/2016	366.00	1258.8	892.8	838.8	54.0	AO	[ ]	Static Electric Wire Sounder
NEWMARK 1	01N/04W-16E01 S 3600714	3/21/2016	204.70	1412.7	1208.0	1092.7	115.3	AO	[ ]	Static Electric Wire Sounder
NEWMARK 1	01N/04W-16E01 S 3600714	3/21/2016	206.33	1412.7	1206.4	1092.7	113.7	AO	[ ]	Pumping Electric Wire Sounder
NEWMARK 2	01N/04W-16E02 S 3600715	3/21/2016	208.00	1405.3	1197.3	1065.3	132.0	AO	[ ]	Static Electric Wire Sounder
NEWMARK 2	01N/04W-16E02 S 3600715	3/21/2016	232.00	1405.3	1173.3	1065.3	108.0	AO	[ ]	Pumping Electric Wire Sounder
NEWMARK 3	01N/04W-16E03 S 3600716	3/22/2016	210.10	1406.4	1196.3	1086.4	109.9	JMA	[ ]	Static Electric Wire Sounder
NEWMARK 3	01N/04W-16E03 S 3600716	3/22/2016	207.80	1406.4	1198.6	1086.4	112.2	JMA	[ ]	Pumping Electric Wire Sounder
NEWMARK 4	01N/04W-16E04 S 3602399	3/21/2016	201.50	1413.6	1212.1	1113.6	98.5	AO	[ ]	Static Electric Wire Sounder
NEWMARK 4	01N/04W-16E04 S 3602399	3/21/2016	220.40	1413.6	1193.2	1113.6	79.6	AO	[ ]	Pumping Electric Wire Sounder
OLIVE & GARNER	01S/04W-04D02S 3603206	3/21/2016	318.90	1132.5	813.6	682.5	131.1	TR	[ ]	Pumping Electric Wire Sounder

**SAN BERNARDINO MUNICIPAL WATER DEPARTMENT**  
**Monthly Depth To Water For Wells Maintained By Operations**  
**March 2016**

Well Name	State Well Number Rec. Number	Reading Date	Depth to Water	Ref. Point Elev.	WL Elev.	Pump Elev.	WL-Pump Elev.	Tech	Not Measured/Why	Status/ Method
OLIVE & GARNER	01S/04W-04D02S 3603206	3/21/2016	258.60	1132.5	873.9	682.5	191.4	TR	[ ]	Static Electric Wire Sounder
PERRIS HILL 4	01N/04W-35C03 S 3601117	3/21/2016	282.70	1168.3	885.6	898.3	12.7	NH	[ ]	Static Electric Wire Sounder
PERRIS HILL 5	01N/04W-26P03 S 3601115	3/21/2016	283.50	1173.5	890.0	873.5	16.5	NH	[ ]	Static Electric Wire Sounder
SB COUNTY 1-34A	01S/04W-03Q	3/24/2016				47.0	0.0	NH	[X] No Data	Static Electric Wire Sounder
VINCENT	02N/05W-19Q01 S 3602426	3/22/2016	75.94	2314.3	2238.4	2144.3	94.1	AO	[ ]	Static Electric Wire Sounder
VINCENT	02N/05W-19Q01 S 3602426	3/22/2016	101.20	2314.3	2213.1	2144.3	68.8	AO	[ ]	Pumping Electric Wire Sounder
WATERMAN AVE.	01N/04W-27A01 S 3600728	3/21/2016	340.80	1244.8	904.0	794.8	109.2	NH	[ ]	Static Electric Wire Sounder
WATERMAN AVE.	01N/04W-27A01 S 3600728	3/21/2016	350.00	1244.8	894.8	794.8	100.0	NH	[ ]	Pumping Electric Wire Sounder

**EXHIBIT C**

SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

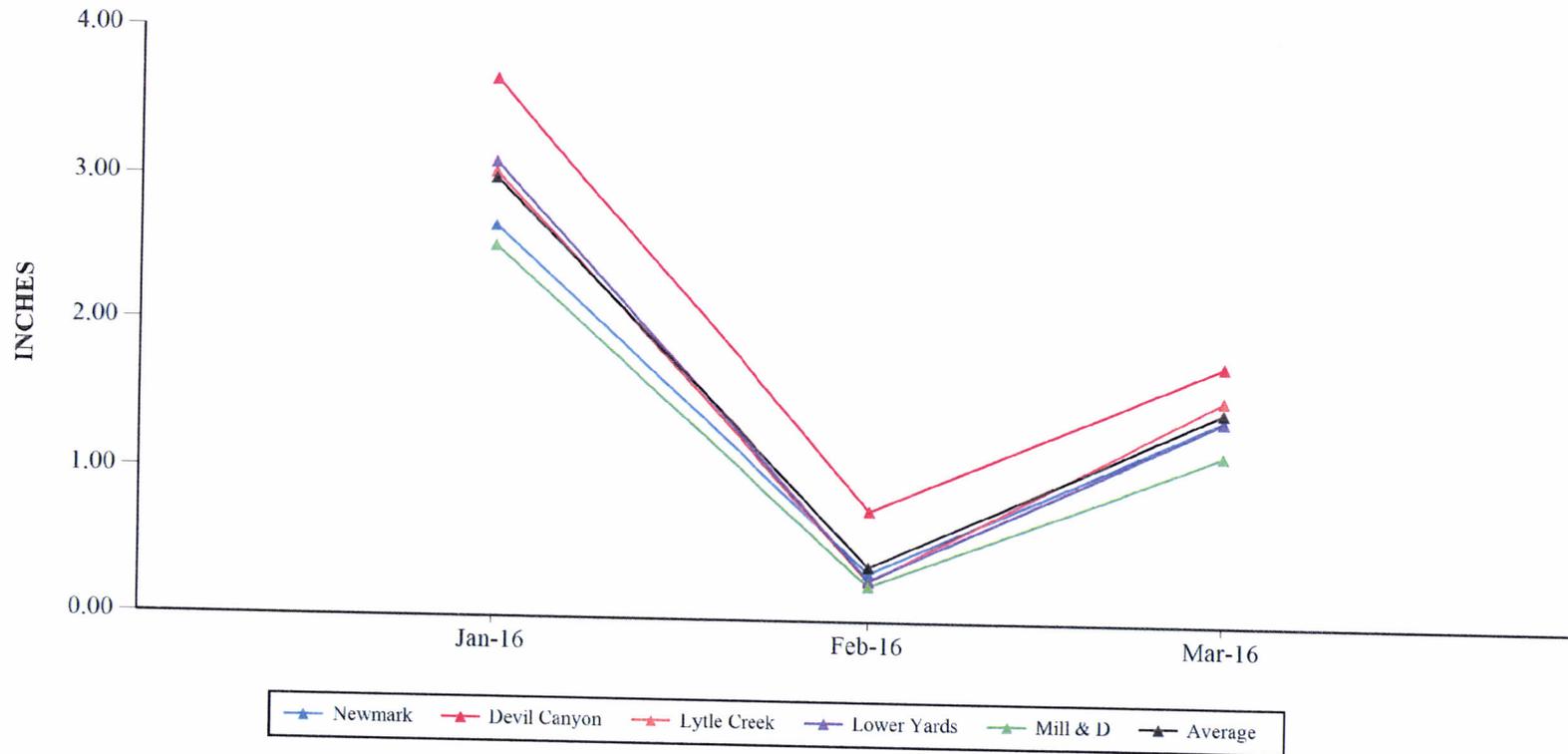
CALENDAR YEAR 2016  
RAIN READS

DATE	MILL & D	LOWER YARDS	D.C.	L.C.	NEWMARK	AVERAGE
<b>Jan-16</b>	2.53	3.11	3.67	3.04	2.67	3.00
<b>Feb-16</b>	0.25	0.29	0.76	0.28	0.34	0.38
<b>Mar-16</b>	1.16	1.39	1.76	1.53	1.40	1.45
<b>TOTAL</b>	3.94	4.79	6.19	4.85	4.41	4.84

All values are in inches

  
MICHAEL GARLAND  
Water Utility  
Operations Superintendent

SAN BERNARDINO MUNICIPAL WATER DEPARTMENT  
RAINFALL  
CALENDAR YEAR 2016



**City of San Bernardino Municipal Water Department  
Monthly Weather Report**

**March 2016**

<b>Location</b>	<b>Yards</b>			<b>Mill &amp; D</b>	<b>Lytle Creek</b>	<b>Newmark</b>	<b>Devil Canyon</b>
<b>Date</b>	Max Temp deg F	Min Temp deg F	1/100 of an inch increments				
1	89.1	57.3	0.00	0.00	0.00	0.00	0.00
2	84.0	55.9	0.00	0.00	0.00	0.00	0.00
3	81.8	57.0	0.00	0.00	0.00	0.00	0.00
4	78.5	52.6	0.00	0.00	0.00	0.00	0.00
5	71.3	58.6	0.00	0.00	0.00	0.00	0.00
6	66.4	54.1	0.22	0.19	0.35	0.33	0.67
7	56.7	45.7	0.74	0.54	0.50	0.41	0.33
8	72.7	47.2	0.00	0.00	0.03	0.00	0.00
9	81.8	48.8	0.00	0.00	0.02	0.00	0.00
10	84.3	54.1	0.00	0.00	0.02	0.00	0.00
11	71.5	51.7	0.15	0.13	0.16	0.15	0.23
12	67.6	48.8	0.00	0.00	0.02	0.00	0.00
13	66.6	52.6	0.00	0.00	0.01	0.00	0.00
14	71.1	54.9	0.03	0.03	0.15	0.21	0.36
15	88.0	52.2	0.00	0.00	0.01	0.00	0.00
16	92.0	55.8	0.00	0.00	0.01	0.00	0.00
17	86.1	58.2	0.00	0.00	0.00	0.00	0.00
18	82.9	55.5	0.00	0.00	0.00	0.00	0.00
19	82.3	55.3	0.00	0.00	0.00	0.00	0.00
20	83.3	55.4	0.00	0.00	0.00	0.00	0.00
21	75.4	54.7	0.00	0.00	0.00	0.00	0.00
22	72.0	57.2	0.00	0.00	0.00	0.00	0.00
23	77.3	52.6	0.00	0.00	0.00	0.00	0.00
24	84.6	53.3	0.00	0.00	0.00	0.00	0.00
25	84.3	54.9	0.00	0.00	0.00	0.00	0.00
26	87.8	54.2	0.00	0.00	0.00	0.00	0.00
27	81.0	55.8	0.00	0.00	0.00	0.00	0.00
28	68.2	51.7	0.02	0.02	0.02	0.02	0.05
29	65.3	48.5	0.23	0.25	0.21	0.28	0.11
30	67.4	49.8	0.00	0.00	0.02	0.00	0.01
31	73.6	47.3	0.00	0.00	0.00	0.00	0.00
	Max	Min					
<b>TOTALS</b>	<b>92.0</b>	<b>45.7</b>	<b>1.39</b>	<b>1.16</b>	<b>1.53</b>	<b>1.40</b>	<b>1.76</b>
<b>YTD</b>			<b>4.83</b>	<b>3.97</b>	<b>3.73</b>	<b>17.36</b>	<b>6.27</b>