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CITY OF SANTA BARBARA

COUNCIL AGENDA REPORT

AGENDA DATE: October 31, 2107

TO: Mayor and Councilmembers

FROM: Water Resources Division, Public Works Department

SUBJECT: Agreement With The United States Geological Survey For Surface Water And Groundwater Monitoring

RECOMMENDATION: That Council:

- A. Authorize the Public Works Director to execute a joint funding agreement with the United States Geological Survey for water resources investigations related to surface water and groundwater measurements for the period of November 1, 2017, through October 31, 2018, with a City cost share not to exceed \$196,499; and
- B. Authorize the Public Works Director to approve expenditures not-to-exceed \$20,000 for extra monitoring services.

DISCUSSION:

The City of Santa Barbara and the United States Geological Survey (USGS) have worked cooperatively on water resources monitoring and investigations for over 25 years. This includes an annual program of measuring surface water flows and monitoring groundwater levels and water quality. As in the past, the proposed Fiscal Year 2018 program has two elements (per the attached letter from USGS, dated October 10, 2017):

- Surface Water Gauging Stations: USGS will continue to operate, maintain, and publish stream flow records for four gauging and data collection stations on the Santa Ynez River, and one on Mission Creek. These stations provide real-time data and daily averages. The information is used to implement the Upper Santa Ynez River Operations Agreement, document and monitor operations at Gibraltar Reservoir, and track recharge releases into Mission Creek.
- Groundwater Monitoring: USGS personnel will take monthly water level measurements from 66 monitoring well locations, per Table 1 of the attached letter from USGS. The well locations can be found on the USGS website: <http://maps.waterdata.usgs.gov/mapper/index.html>. USGS will maintain the database of water level data and continue a program of collecting and maintaining data on groundwater quality. The water level and water quality information is used for computer-modeling availability of the City's groundwater supplies and the

potential impact from seawater intrusion into the downtown groundwater basin. In recent years, in response to the drought, the City increased groundwater pumping, which increased the need for more frequent monitoring of potential seawater intrusion within the City's groundwater basins. This need continues even as the City is currently resting its groundwater basins. Thus, additional water quality sampling was conducted at the end of Fiscal Year 2016, during Fiscal Year 2017, and will be continued in Fiscal Year 2018.

The data that is collected and maintained is an important part of managing the City's water supply. Water Commission reviewed this item at their regular meeting on October 19, 2017 and voted **X-X-X** in support of the agreement.

BUDGET/FINANCIAL INFORMATION:

The overall program cost is \$250,799, to be shared by the City (\$196,499) and USGS (\$54,300). Of the City's total cost, \$23,419 covers additional sampling required to monitor potential seawater intrusion during the drought, and \$173,080 are associated with the regular monitoring program. Authorization for extra services not-to-exceed \$20,000 is requested for potential additional scope from USGS, such as expanded monitoring of seawater intrusion, if necessary. Funds for this program are appropriated in the Fiscal Year 2018 Water Fund.

SUSTAINABILITY IMPACT:

Monitoring of groundwater levels and quality is essential for management of the City's groundwater basins as a long-term sustainable water resource.

A copy of the contract/agreement is available for public review in the City Clerk's Office.

ATTACHMENT: Letter from U.S. Geological Survey, dated 10/10/2017

PREPARED BY: Joshua Haggmark, Water Resources Manager/DC/cmw

SUBMITTED BY: Rebecca J. Bjork, Public Works Director

APPROVED BY: City Administrator's Office



United States Department of the Interior

U.S. GEOLOGICAL SURVEY

California Water Science Center
6000 J Street, Placer Hall
California State University
Sacramento, California 95819-6129
Phone: (916) 278-3000 Fax: (916) 278-3070
<https://ca.water.usgs.gov>

October 10, 2017

Ms. Rebecca Bjork, Public Works Director
Public Works Department
City of Santa Barbara
630 Garden Street
Santa Barbara, California 93102

Attention: Kelley Dyer, Water Supply Manager

Dear Ms. Bjork:

This letter replaces our letter dated October 4, 2017 and confirms discussions between our respective staffs, concerning the continuation of the cooperative water resources program between the Public Works Department City of Santa Barbara (City) and the U.S. Geological Survey (USGS) for the period November 1, 2017 to October 31, 2018.

The proposed program and associated costs are as follows:

1. Surface Water Gaging Stations

The U.S. Geological Survey (USGS) will continue to operate, maintain, and publish streamflow records for the following stations:

<u>Station number and name</u>	<u>City Funds</u>	<u>USGS Funds</u>	<u>Total Funds</u>
11119745 Mission Creek near Rocky Nook Park	\$15,300	\$ 7,700	\$23,000
11122000 Santa Ynez above Gibraltar Dam	15,300	7,700	23,000
11123000 Santa Ynez below Gibraltar Dam	15,300	7,700	23,000
11121900 Gibraltar Dam Diversion Weir at Gibraltar	8,950	-0-	8,950
11122010 Gibraltar Release Dam Weir at Gibraltar Dam	8,950	-0-	8,950
Subtotal	\$63,800	\$23,100	\$86,900

2. Groundwater Monitoring

Water-level monitoring:

USGS personnel will make monthly water-level measurements at 66 wells as listed in Table 1. USGS personnel will also make monthly water-level measurements at 4N/27W-8M6 and continue to operate the continuous recorder at 4N/27W-8M5 (San Remo). Results of the measurements will be stored in NWIS.

Water-quality monitoring:

The USGS will continue to operate a groundwater quality monitoring network per the plan started in 1989. Annual sampling for major dissolved ions, trace metal, stable isotopes, nutrients, and dissolved solids (List A) will occur in June at 18 wells as listed in Table 1, with 4 of these also sampled quarterly for specific electrical conductance, pH, dissolved solids, and dissolved chloride concentration (List B). Triennial sampling in June for major dissolved ions, trace metal, stable isotopes, nutrients, and dissolved solids will continue at 20 additional triennial wells (List T), with 7 scheduled for 2018. A total of 25 wells will be sampled in June.

If USGS water quality samples for 4N/27W-23E5 result in a 25% increase in chloride concentrations compared to baseline concentrations observed at the beginning of the contract year (November1), City project coordinator will be notified immediately via email and City will consider entering into an agreement amendment with USGS to increase chloride sampling to monthly intervals. If water supply conditions result in increasing pumping of more than 750 AF over a 12 month period from Storage Unit 1, City project coordinator will contact the USGS project coordinator immediately via email.¹

In recent drought years, the City has increased its pumping in Storage Unit 1, and a 25% increase in chloride concentration has become evident at 4N/27W-23E5. Therefore, sampling for List B, which includes specific electrical conductance (Lab code 69), pH (Lab Code 68), and dissolved solids (Lab code 27), and dissolved chloride concentration (Lab Code 1571), will be increased based on the following schedule. Additional List B sampling requested within FY 2018 are shown below.

2018 Cost per additional List B sample:			\$2,129	
	Regular List A Water Quality Sampling	Regular List B Sampling for Seawater Encroachment	Additional List B Sampling for Seawater Encroachment	Total
4N/27W-23E5:	1	3		4
4N/27W-23F2:	1	3		4
4N/27W-23F3:	1	3		4
4N/27W-23F4:	1	3		4
4N/27W-22A2:	1		1	2
4N/27W-22A4:	1		3	4
4N/27W-22G2:	1			1
4N/27W-22G3 (see note):	1		3	4
4N/27W-22G4:			4	4
TOTAL SAMPLES:	8	12	11	31
Cost for additional List B samples			\$23,419	

Notes:
 Note that regular List A sampling includes List B constituents.
 Only wells that are sampled for seawater intrusion are included in the table above. Refer to Table 1 for a comprehensive list of wells sampled for List A.
 4N/27W-22G3 is sampled for List A constituents on a triennial basis, with the next sample occurring in FY2020.

¹ City Project Coordinators: Dakota Corey, Water Supply Analyst, dcorey@santabarbaraca.gov; Kelley Dyer, Water Supply Manager kdyer@santabarbaraca.gov
 USGS Project Coordinators: Stephanie Hamilton, Hydrologic Technician, sahamilton@usgs.gov; Stuart Hill, Field Office Chief, sahill@usgs.gov.

For the FY 2018 program, the planned additional sampling for seawater encroachment reflects four additional wells: 4N/27W-22A2 (every 6 months), 4N/27W-22A4 (quarterly), 4N/27W-22G3 (quarterly), and 4N/27W-22G4 (quarterly). Additional funding has been added to cover 11 additional sampling events in FY 2018 for List B constituents². Should additional sampling be requested during FY 2018 from November 1, 2017 – October 31, 2018, it will require an amendment to the FY 2018 monitoring agreement.

Alternate wells will be sampled in the event it is impossible to sample the primary wells. Alternate wells should be located within the same vicinity of the primary well and within the same storage unit.

See Table 1 for a comprehensive list of regular water level and water quality monitoring schedules. Since Table 1 is intended to reflect the regular monitoring schedule, it does not include the additional List B samples for seawater encroachment monitoring shown in the table above.

The summary of the proposed program for this period and associated costs is as follows:

<u>Program components</u>	<u>City Funds</u>	<u>USGS Funds</u>	<u>Total Funds</u>
1. Surface-Water Gaging Stations	\$ 63,800	\$23,100	\$ 86,900
2. Groundwater Monitoring Water-levels	56,080	3,350	59,430
Continuous Recorder (4N/27W-8M5)	5,350	2,750	8,100
Water Quality (Seawater Encroachment Monitoring)	18,050	9,650	27,700
Additional Sampling in FY2018	23,419	-0-	23,419
Water Quality (June Samples Table 1)	30,500	15,450	45,950
TOTAL	\$197,199	\$54,300	\$251,499

Total cost of the proposed program is \$251,499. Cost to the City will be \$197,199, and subject to the availability of Federal matching funds, the USGS will provide \$54,300.

Enclosed are three updated originals of Joint Funding Agreement (JFA) 18WSCA03700, signed by our agency, for your approval. These updated originals correct the calculation error to the total cost contained in the October 4 letter and associated JFA originals. Please discard both pages of the JFA originals enclosed with the October 4 letter as they are now considered null and void by the USGS. Use only the originals enclosed with this letter. If you are in agreement with this proposed program, please return one fully executed JFA to our office. Work performed with funds from this agreement will be conducted on a fixed-price basis. Billing for this agreement will be rendered quarterly.

The USGS is required to have an agreement in place prior to any work being performed on a project. We request that a fully executed JFA be returned November 30, 2017. If it is not received by November 30, we will be required to suspend operations until an agreement is received.

² If additional sampling is needed, an additional cost of \$2,129 per well for each measurement of List B constituents, will be charged through an amendment to the WY2018 agreement. Additional Federal Matching Funds (FMF) are not be available for this work.

Ms. Rebecca Bjork, Public Works Director- City of Santa Barbara

If you have questions regarding this program, please contact Stuart Hill, in our Santa Maria Field Office, at (805) 928-9539. If you have any administrative questions, please contact Tammy Seubert, in our Sacramento Office, at (916) 278-3040.

Sincerely,

A handwritten signature in blue ink, appearing to read "Eric G. Reichard" with a stylized flourish at the end.

Eric G. Reichard
Director, USGS California Water Science Center

Enclosures

cc: Stuart Hill, USGS CAWSC

Table 1 - Water Level and Water Quality monitoring schedule

(M, monthly; A, annual; R, recording; Q, quarterly (March, June, Sept. Dec.)
 (XX), sample year; T, triennial); *, alternate
 updated per S. Hill & T. Seubert, 8-16-2017

	WATER LEVEL	WATER QUALITY		WATER LEVEL	WATER QUALITY
STORAGE UNIT I			4N/27W-19A1	M	-
4N/27W-8R2	M	(19)T	4N/27W-19A2	M	-
4N/27W-9M1	M	-	4N/27W-19A3	M	A
4N/27W-9Q1	M	(18)T	4N/27W-21E1	M	(19)T
4N/27W-13R1	M	-	4N/27W-21E2	M	(18)T
4N/27W-14K2	M	(20)T	4N/27W-21E3	M	(18)T
4N/27W-14P1	M	-	4N/27W-21F1	M	-
4N/27W-15E1	M	-	4N/27W-21F2	M	-
4N/27W-15E2	M	-	4N/27W-21G1	M	-*
4N/27W-15G1	M	-	4N/27W-21G2	M	-*
4N/27W-15J2	M	-	4N/27W-22M1	M	-*
4N/27W-15K1	M	(19)T	4N/27W-22M2	M	-*
4N/27W-16C1	M	(20)T	4N/27W-22Q1	M	-
4N/27W-16C2	M	(19)T			
4N/27W-16R1	M	-	FOOTHILL		
4N/27W-17J1	M	(19)T	4N/27W-5P1	M	-
4N/27W-21B1	M	(18)T	4N/27W-7D1	M	(19)T
4N/27W-22A2	M	A	4N/27W-7R3	M	-
4N/27W-22A3	M	(20)T	4N/27W-8E1	M	-
4N/27W-22A4	M	A	San Roque Park #1		
4N/27W-22B6	M	-	4N/27W-8E4	M	-
4N/27W-22B8	M	A	4N/27W-8M5	R	A
4N/27W-22B9	M	A	4N/27W-8M6	M	A
4N/27W-22B10	M	A	4N/27W-18B5	M	(20)T
4N/27W-22B11	M	A	4N/28W-12C2	M	-
4N/27W-22C1	M	-	4N/28W-12H4	M	-
4N/27W-22E1	M	A	4N/28W-12R3	M	-
4N/27W-22E2	M	A			
4N/27W-22G2	M	A	HOPE RANCH		
4N/27W-22G3	M	(20)T	4N/27W-18C2	M	(18)T
4N/27W-22G4	M	-	4N/27W-18C3	M	(18)T
4N-27W-23E5	M	A,Q			
4N/27W-23F2	M	A,Q			
4N/27W-23F3	M	A,Q			
4N/27W-23F4	M	A,Q			
4N/27W-23F8	M	A			
4N/27W-23F9	M	A			
STORAGE UNIT III					
4N/27W-17L2	M	(20)T			
4N/27W-17L3	M	(18)T			
4N/27W-17L4	M	(19)T			
4N/27W-17L5	M	-			
4N/27W-18Q1	M	-			
4N/27W-18Q4	M	-			

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List A

Chemical Constituents
(mg/L or as indicated)

Dissolved aluminum ($\mu\text{g/L}$)	Dissolved sodium
Dissolved arsenic ($\mu\text{g/L}$)	Dissolved strontium ($\mu\text{g/L}$)
Dissolved barium ($\mu\text{g/L}$)	Dissolved sulfate
Dissolved boron ($\mu\text{g/L}$)	Dissolved solids (sum)
Dissolved bromide	Sodium adsorption ratio
Dissolved calcium	Percent sodium
Dissolved chloride	Total alkalinity (CaCO_3)
Dissolved fluoride	Total hardness (CaCO_3)
Dissolved iodide	Temperature $^{\circ}\text{C}$
Dissolved iron ($\mu\text{g/L}$)	pH
Dissolved lithium ($\mu\text{g/L}$)	Specific Conductance ($\mu\text{S/cm}$)
Dissolved manganese ($\mu\text{g/L}$)	Stable isotopes
Dissolved magnesium	
Dissolved nitrogen (nitrate + nitrite)	
Dissolved orthophosphate (PO_4)	
Dissolved orthophosphorus (P)	
Dissolved potassium	
Dissolved silica	

Schedules used: 101 (nutrients), 1261 (major ions and trace), 1142 (stable isotopes)

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List B

Chemical Constituents
(mg/L or as indicated)

pH

Specific Conductance (microsiemens)

Dissolved Chloride

Dissolved solids (sum)

Lab Codes used: 68, 69, 1571, 27

Ms. Rebecca Bjork, Public Works Director- City of Santa Barbara

List T

Triennial Sampling Wells

(updated list 8/16/2017 by S. Hill & T. Seubert USGS)

Site Name	Site Identification Number	2017	2018	2019
STORAGE UNIT I				
4N/27W-8R2	342618119432501			
4N/27W-9Q1	342618119423701			
4N/27W-14K2	342534119404301			
4N/27W-15K1	342538119413401			
4N/27W-16C1	342603119430401			
4N/27W-16C2	342603119430402			
4N/27W-17J1	342541119433501			
4N/27W-21B1	342506119423801			
4N/27W-22A3	342506119412202			
4N/27W-22G3	342455119412402			
STORAGE UNIT III				
4N/27W-17L2	342533119435501			
4N/27W-17L3	342533119435502			
4N/27W-17L4	342533119435503			
4N/27W-21E1	342502119431401			
4N/27W-21E2	342502119431402			
4N/27W-21E3	342502119431403			
FOOTHILL				
4N/27W-7D1	342647119451701			
4N/27W-18B5	342606119445201			
HOPE RANCH				
4N/27W-18C2	342600119445201			
4N/27W-18C3	342600119445202			

Form 9-1366
(April 2015)

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U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Agreement#: 18WSCA03700
Customer#: 6000000815
Project #: ZG009J5
TIN #: 95-6000787
USGS DUNS #: 1761-38857

Fixed Cost Agreement YES[X] NO[]

THIS AGREEMENT is entered into as of the 1st day of November, 2017, by the U.S. GEOLOGICAL SURVEY, California Water Science Center, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the CITY OF SANTA BARBARA, PUBLIC WORKS DEPARTMENT, party of the second part.

1. The parties hereto agree that subject to the availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation for cooperative water resources investigations in the City of Santa Barbara area, per USGS letter dated October 10, 2017, herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50, and 43 USC 50b.

2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) include In-Kind-Services in the amount of \$0.00.

- (a) \$54,300.00 by the party of the first part during the period November 1, 2017 to October 31, 2018
- (b) \$197,199.00 by the party of the second part during the period November 1, 2017 to October 31, 2018
- (c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of : \$0.00

Description of the USGS regional/national program:

Not Applicable

- (d) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.
- (e) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.

4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.

5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.

6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.

7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

8. The maps, records or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request; be furnished by the party of the first part; at cost, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records or reports published by either party shall contain a statement of the cooperative relations between the parties.

9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered **quarterly**. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983.).

Form 9-1366
(April 2015)

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**U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations**

**Agreement#: 18WSCA03700
Customer#: 6000000815
Project #: ZG009J5
TIN #: 95-6000787
USGS DUNS #: 1761-38857**

USGS Technical Point of Contact

Name: Stuart Hill
Supervisory Hydrologic Technician
Address: 3130 Skyway Drive, Suite 602
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Customer Technical Point of Contact

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Telephone: (805) 897-1914
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Email: RBjork@SantaBarbaraCA.gov

USGS Billing Point of Contact

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Budget Analyst
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Customer Billing Point of Contact

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Telephone:
Fax:
Email:

**U.S. Geological Survey
United States
Department of Interior**

**CITY OF SANTA BARBARA,
PUBLIC WORKS DEPARTMENT**

Signature

By *Eric G. Reichard* Date: 10/10/2017
Name: Eric G. Reichard
Title: Director, USGS California Water Science
Center

Signatures

By _____ Date: _____
Name:
Title:

By _____ Date: _____
Name:
Title:

By _____ Date: _____

