

**Meeting Date:** 11/24/2015

**Report Type:** Consent

**Report ID:** 2015-01007

**Title: Supplemental Agreement: 200-Year Floodplain and Evacuation Mapping**

**Location:** Districts 1, 2, 3, 6, 7 and 8

**Recommendation:** Pass a Motion authorizing the City Manager, or the City Manager's designee, to execute a Supplemental Agreement to City Agreement No. 2014-1147 with GEI Consultants to continue mapping efforts relating to evacuation and 200-year floodplain mapping, in an amount not-to-exceed \$213,266, bringing the agreement's total not-to-exceed amount to \$386,394.

**Contact:** Dan Sherry, Engineering & Water Resources Manager, (916) 808-1419; Tony Bertrand, Supervising Engineer, (916) 808-1461, Department of Utilities

**Presenter:** None

**Department:** Department Of Utilities

**Division:** Cip Engineering

**Dept ID:** 14001321

**Attachments:**

- 1-Description/Analysis
- 2-Background
- 3-Agreement

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### **City Attorney Review**

Approved as to Form  
Joe Robinson  
11/17/2015 2:29:06 PM

### **Approvals/Acknowledgements**

Department Director or Designee: Bill Busath - 11/12/2015 9:22:13 AM

## Description/Analysis

**Issue Detail:** The Department of Utilities (DOU) is responsible for maintaining and updating the City of Sacramento Rescue and Evacuation (R&E) maps, which can be utilized in emergency situations. These maps need to be updated to reflect the most current and accurate data available to protect the public to the maximum extent possible in a 200-year flood event. In addition, California Senate Bill 5 (Machado), Chapter 364 requires the City to demonstrate 200-year flood protection for all urban areas. As DOU was working on the R&E maps, DOU determined that additional 200-year flood event mapping efforts were necessary because of the critical deadlines set forth by the California Department of Water Resources. GEI Consultants have the foundation of data necessary to build the in-depth mapping needed to ensure the City of Sacramento is in full compliance with the 200-year level of urban protection. Staff requests City Council approval to execute Supplemental Agreement No. 1 to City Agreement No. 2014-1147 with GEI Consultants to continue these mapping efforts.

**Policy Considerations:** Accurate and complete R&E maps and knowledge of the flood protection levels from our waterways in the City allow for effective emergency response and responsible development in floodplains. As related to the 200-year flood protection levels, the City of Sacramento's 2035 General Plan has been amended to be consistent with the policies outlined within the Central Valley Flood Protection Plan (CVFPP). The corresponding Zoning Ordinance amendment is scheduled for City Council approval by March 2016. The deadlines on 200-year floodplain mapping projects are critical. Completion of the 200-year floodplain modeling and mapping will align the City with the CVFPP and 200-year flood protection standards.

**Economic Impacts:** None.

**Environmental Considerations:** The Community Development Department, Environmental Planning Services Division, has reviewed the proposed supplemental agreement and has determined that the activity is not a "project" pursuant to California Environmental Quality Act (CEQA) Guidelines Section 15378(b). The agreement is an administrative and fiscal activity that will not result in a significant effect on the environment, and is therefore, not subject to CEQA.

**Sustainability:** Conducting the hydraulic modeling and mapping for R&E maps and 200-year flood protection activities are consistent with the City's Sustainability Master Plan.

**Commission/Committee Action:** Not applicable.

**Rationale for Recommendation:** Approval of the proposed supplemental agreement will allow DOU to increase the funding for R&E and 200-year floodplain mapping which is needed to meet the 200-year flood protection mandates. Through an RFP process conducted in February 2014, GEI Consultants was selected to provide these services by a selection committee. The selection committee consisting of three staff from City of Sacramento, Sacramento County, and Sutter County. The committee rated five proposal based on expertise, experience, qualifications, and Local Business Enterprise. Due to the critical deadlines imposed by regulations mandating 200-year flood protection for urban areas and to make continuous effort to maintain flood protection systems, staff has identified the need to continue using GEI Consultants' services and increase the contract's not-to-exceed amount to \$ \$386,394.

**Financial Considerations:** The proposed supplemental agreement provides mapping and modeling services for R&E and 200-year floodplain mapping. The supplemental agreement will increase the current agreement amount by \$213,266, for a new total not-to-exceed amount of \$ \$386,394.

Sufficient funds are available in the Flood Control Planning Project (I14010100) to support the proposed adjustment.

**Local Business Enterprise (LBE):** The LBE preference was applied during the RFP selection process. The minimum LBE participation requirement for this project was waived to ensure a competitive solicitation in the best interest of the City.

## Background

The Department of Utilities (DOU) is responsible for maintaining and updating the City of Sacramento Rescue and Evacuation (R&E) maps, which can be utilized in emergency situations. DOU has joined a multi-agency collaboration to receive grant funding from the California Department of Water Resources (CA DWR) for Statewide Flood Emergency Response Projects. The alliance includes the City of Sacramento DOU, Sacramento County Department of Water Resources, Sacramento County Office of Emergency Services, California State University Sacramento, American River Flood Control District, Reclamation District 1000, and Sacramento Metropolitan Fire. The grant work will have a direct and significant positive impact on the region's ability to respond effectively and efficiently during an emergency.

The total CA DWR grant consists of nine tasks. Task 4 is for updating the R&E maps. An RFP for the R&E maps was advertised in April 2015, and GEI Consultants' proposal was selected. Now, Task 4 is reaching completion. Draft R&E maps have been developed and are in the final stages of review.

However, it has recently been determined that seven streams within the City's jurisdiction require 200-year floodplain mapping to increase the level of protection within the City's urban areas. The seven streams were identified through the 200-year standard flood protection levels set forth by California Senate Bill 5 (Machado), Chapter 364 and CA DWR's *Urban Level of Flood Protection Guidelines*. The streams include Arcade Creek, Dry Creek/Robla Creek, Magpie Creek, Morrison Creek, Elder Creek, Unionhouse Creek and Laguna Creek. Based on this determination, additional mapping services are now necessary to ensure 200-year flood protection levels are met.

Also, potential changes to the North B Street Levee (Levee) require further review of the level of protection provided by this levee. GEI will provide the city with documentation to evaluate if the earthen embankment along North B Street provides adequate protection and time to evacuate if the American River south levee were to fail between Interstate 5 and Highway 160. The earthen embankment is located just south of North B Street extending from the city's water treatment plant to the 12th street underpass.

Four modeling scenarios will be developed using the breach hydraulic models evaluation from the City's rescue of evacuation project.

- Scenario 1: Levee remains in place.
- Scenario 2: Levee remains in place but 12th Street gate is open.
- Scenario 3: Levee remains in place and all gates are closed, but the embankment fails when water level reaches approximately 1/2 of maximum.
- Scenario 4: Assume North B Street is removed.

Lastly, the rescue area maps that will be used for development purposes must be finalized. Proposed development in areas of the City designated as "rescue areas" (1 foot of water in 2 hours from a levee break) will be required to have an evacuation/refuge location above flood levels.

The funding for the 200-year mapping, North B Street Levee evaluation, and rescue area maps will be paid for through the Flood Control MYOP I14010100.

Staff is recommending approval of the supplemental agreement because: (1) the flood protection evaluations and rescue area maps will provide valuable information to guide the safe development of the City's floodplain; and (2) GEI Consultants have the foundation of data necessary to build the in-depth mapping needed to ensure the City of Sacramento is in full compliance with the 200-year level of urban protection. The work performed to date by GEI Consultants provides the firm with a unique foundation of data and working knowledge necessary to develop the mapping needed within the critical deadlines provided.

# SUPPLEMENTAL AGREEMENT

**Project Title and Job Number:** Rescue and Evacuation Mapping  
**Purchase Order #:** 0000027287

**Date:** 11/13/15

**Supplemental Agreement No.:** 1

The City of Sacramento ("City") and GEI Consultants ("Contractor"), as parties to that certain Professional Services Agreement designated as Agreement Number 2014-1147, including any and all prior supplemental agreements modifying the agreement (the agreement and supplemental agreements are hereafter collectively referred to as the "Agreement"), hereby supplement and modify the Agreement as follows:

1. The scope of Services specified in Exhibit A of the Agreement is amended as follows:

Contractor shall perform additional modeling and mapping services to complete inundation and 200-year mapping for the City of Sacramento. Contractor shall perform the additional services described in Attachment 2 to Exhibit A, attached and incorporated by this reference. The cost estimate for these services is set forth in Attachment 2 to Exhibit B, attached and incorporated by this reference.

2. In consideration of the additional and/or revised services described in section 1, above, the maximum not-to-exceed amount that is specified in Exhibit B of the Agreement for payment of Contractor's fees and expenses, is Increased by \$213,266, and the Agreement's maximum not-to-exceed amount is amended as follows:

Agreement's original not-to-exceed amount:	<u>\$173,128.00</u>
Net change by previous supplemental agreements:	<u>0</u>
Not-to-exceed amount prior to this supplemental agreement:	<u>\$173,128.00</u>
Increase by this supplemental agreement:	<u>\$213,266.00</u>
New not-to exceed amount including all supplemental agreements:	<u>\$386,394.00</u>

3. Contractor agrees that the amount of increase or decrease in the not-to-exceed amount specified in section 2, above, shall constitute full compensation for the additional and/or revised services specified in section 1, above, and shall fully compensate Contractor for any and all direct and indirect costs that may be incurred by Contractor in connection with such additional and/or revised services, including costs associated with any changes and/or delays in work schedules or in the performance of other services or work by Contractor.
4. Contractor warrants and represents that the person or persons executing this supplemental agreement on behalf of Contractor has or have been duly authorized by Contractor to sign this supplemental agreement and bind Contractor to the terms hereof.
5. Except as specifically revised herein, all terms and conditions of the Agreement shall remain in full force and effect, and Contractor shall perform all of the services, duties, obligations, and conditions required under the Agreement, as supplemented and modified by this supplemental agreement.

**Approval Recommended By:**

**Approved As To Form By:**

\_\_\_\_\_  
Project Manager

\_\_\_\_\_  
City Attorney

**Approved By:**

*Jason J. Bateu senior V.P.*

\_\_\_\_\_  
Contractor

**Attested To By:**

**Approved By:**

\_\_\_\_\_  
City of Sacramento

\_\_\_\_\_  
City Clerk

## **ATTACHMENT 2**

### **EXHIBIT A**

Additional services are needed to complete the 200-year floodplain mapping and inundation times for the City's waterways. The second phase of the 200-year mapping includes the modeling and mapping of Arcade Creek, Dry Creek/Robla Creek, Magpie Creek, Morrison Creek, Elder Creek, Unionhouse Creek and Laguna Creek and finishing the creation of rescue area maps for development purposes.

Also, the completion of the four inundation scenarios related to the level of protection provided by the North B Street Levee Embankment is critical.

#### **TASK 1: PROJECT MANAGEMENT**

GEI will provide project management and coordination with the City to present the results.

#### **TASK 2: DATA COLLECTION AND FIELD REVIEW**

Field review is necessary to evaluate the watersheds and the North B Street Levee Embankment.

#### **TASK 3: RUN AND EVALUATE MODELS**

To complete the 200-year mapping, GEI's team will: (1) setup, run and evaluate the seven watershed model scenarios on Arcade Creek, Dry Creek/Robla Creek, Magpie Creek, Morrison Creek, Elder Creek, Unionhouse Creek, and Laguna Creek; and (2) finish creating rescue area maps that will be used for development purposes. Proposed development in these rescue areas (1 foot of water in 2 hours from a levee break) will be required to have an evacuation location above flood levels.

The third item will finalize the North B Street Levee Embankment analysis. The GEI team will complete four model scenarios using the Hydrologic Engineering Centers River Analysis System program (HEC-RAS 5.0) GEI intends to breach the levee when the stages in the American River reaches freeboard. The model configuration of the River District overbank will evaluate the time of inundation and utilize the DWR LiDAR dated 2008. The overbank will include the necessary critical facilities (roads, bridges, structures) for each model scenario.

#### **TASK 4: DEVELOP MAPS**

Modeling results from the expanded scope of Task 3 must be mapped to show 200-year delineation and flood inundation times. The flood depth maps will include a colorized legend in coordination to depth of flow. The rescue area maps will show the estimated time of flood inundation after 2 hours. The North B St Levee Embankment evaluation will show the time of inundation on a map from the four modeling scenarios.

**TASK 5: QUALITY ASSURANCE/QUALITY CONTROL**

A qualified engineer will review each step to verify that the evaluations are defensible and meets quality assurance and quality control standards.

**TASK 6: DOCUMENTATION**

GEI will provide technical memorandums that document the purpose, methodology, process, assumptions, results, and all mapping efforts.

**SCHEDULE**

The estimated time to complete the scope from notice to proceed is presented below:

<b>TASK</b>	<b>NTP – DAY 15</b>	<b>DAY 16 – DAY 30</b>	<b>DAY 31 – DAY 45</b>	<b>DAY 46 – DAY 60</b>
<b>Compile and Refine Hydraulic Models</b>				
<b>Prepare Boundary Conditions</b>				
<b>Perform Preliminary Hydraulic Model Simulations</b>				
<b>Prepare Draft Maps for Review</b>				
<b>Finalize Maps based on Comments</b>				
<b>Prepare Documentation</b>				
<b>North B Street Levee Modeling and Mapping</b>				

ATTACHMENT 2  
EXHIBIT B

Cost Estimate

Proposed Labor Hours	Advisor (Reinhardt-MBK) \$	Modeling (Reinhardt-MBK) \$	QC \$	PM/Hydraulics \$	Hydraulics \$	GIS Mapping \$	Admin./Coordination \$	Task Totals Hours	Task Cost \$
Task 1 Project Management	0.00	0.00	10.00	25.00	0.00	0.00	15.00	50.00	\$ 8,410.00
Task 2 Field Review	0.00	8.00	0.00	12.00	12.00	0.00	1.00	33.00	\$ 6,122.00
<i>Run/Review/Evaluate</i>									
Task 3 Arcade	0.00	40.00	0.00	8.00	2.00	8.00	0.00	58.00	\$ 11,582.00
Task 3 Magpie	0.00	40.00	0.00	8.00	2.00	8.00	0.00	58.00	\$ 11,582.00
Task 3 Dry Creek/Robla	0.00	40.00	0.00	8.00	2.00	8.00	0.00	58.00	\$ 11,582.00
Task 3 Morrison	0.00	4.00	0.00	8.00	80.00	16.00	0.00	108.00	\$ 17,768.00
Task 3 Unionhouse	0.00	4.00	0.00	8.00	24.00	8.00	0.00	44.00	\$ 7,408.00
Task 3 Elder	0.00	4.00	0.00	8.00	24.00	8.00	0.00	44.00	\$ 7,408.00
Task 3 Laguna	0.00	60.00	0.00	8.00	80.00	8.00	0.00	156.00	\$ 28,968.00
Task 3 North B Street Levee	23.00	0.00	0.00	18.00	40.00	0.00	0.00	58.00	\$ 15,114.00
Task 3 Rescue Area Maps	0.00	0.00	10.00	24.00	25.00	40.00	0.00	99.00	\$ 16,025.00
<i>Develop Maps</i>									
Task 4 200-Year Creek Mapping	0.00	20.00	0.00	8.00	24.00	60.00	8.00	120.00	\$ 18,200.00
Task 4 North B Street Levee Mapping	0.00	0.00	0.00	6.00	30.00	8.00	9.00	53.00	\$ 8,004.00
Task 5 Quality Control	0.00	4.00	29.00	0.00	0.00	0.00	2.00	35.00	\$ 7,585.00
Task 6 TM Documentation	0.00	40.00	0.00	80.00	48.00	26.00	24.00	218.00	\$ 37,468.00
Subtotal Direct Labor Hours	23.00	264.00	49.00	229.00	393.00	198.00	59.00	1192.00	\$
Subtotal Direct Labor Costs	\$ 5,014.00	\$ 57,552.00	\$ 11,025.00	\$ 43,510.00	\$ 65,631.00	\$ 24,948.00	\$ 5,546.00	\$ 208,212.00	\$ 213,226.00