



November 9, 2018
P33598.002

Jessie Li, P.E.
City Engineer
City of Sugar Land
2700 Town Center Blvd. N
Sugar Land, TX 77479

RE: Proposal for Integrated Storm Water Management Model (ISWMM) Updates - PH2

Dear Mrs. Li,

We are pleased to present this proposal for updating the City of Sugar Land's ISWMM. The scope of services is outlined in Exhibit "A". The proposed fees for our scope of services are detailed in the attached Exhibit "B". This contract shall be considered a lump sum contract to be billed monthly by a percentage of work completed.

We estimate that the analysis for this initial phase will take approximately ten (10) months to complete. We appreciate the opportunity to continue to be of service to you and the City of Sugar Land. Please feel free to contact me or Erin Atkinson if you have any questions or comments concerning this proposal.

Sincerely,

HALFF ASSOCIATES, INC.

A handwritten signature in blue ink, appearing to read "SH", with a stylized flourish extending to the right.

Sam Hinojosa, PE, CFM
Director of Water Resources, Conroe

Attachments

C: Jorge Alba, Ph.D., PE, CFM – City of Sugar Land
Erin Atkinson, PE, CFM – Halff Associates

Exhibit A
Scope of Services
ISWMM Updates
Sugar Land, Texas

The following scope of services proposed by Halff Associates, Inc. (Halff) consists of providing updates to the Integrated Storm Water Management Model (ISWMM) database. ISWMM is a comprehensive database of drainage infrastructure developed in ArcGIS for the City of Sugar Land (City). The updated ISWMM database will provide information for the Office of Emergency Management, Public Works, and Engineering. The information can be used in flood response planning as well as CIP planning. The scope includes effort to update the ISWMM geodatabase and schema, develop a maintenance workflow, develop an ISWMM web map, and provide deployment and training. The scope is proposed in multiple phases. Phase 1 was authorized in April 2018 and is schedule to be completed in October 2018. The scope of services for Phase 2 includes the following:

Phase 2

Task 1 – Project Coordination

1. Halff will attend up to two (2) project status meetings with the City
2. QAQC the geodatabase, schema, and mapping

Estimated Fee for Task 1 - \$7,300

Task 2 – Update ISWMM Geodatabase

1. Develop a letter report summarizing the efforts and tasks
2. Incorporate available ponding maps from LID reports to cover annexation areas of New Territory and Greatwood.
3. Generate ponding maps for the 2-, 5-, 10-, 25-, 50-, 100-, and 500-year Atlas 14 Rainfall based on 2014 LiDAR surface for the areas of Sugar Land that have not been studied by others. This will be accomplished by using rainfall-on-2D surface analysis. No storm drain modeling is expected but will be accounted for by subtracting a more frequent storm.
4. Simulate the hydraulic models received (up to 10) for the 2-, 5-, 10-, 25-, 50-, 100-, and 500-year Atlas 14 rainfall. Develop ponding maps based on model output. It is assumed that models are in good working order and that the geometries will not need to be updated. The existing conditions modeling will be used for the this analysis. Areas that have been improved since the latest existing conditions was simulated will be merged in with the existing mapping where appropriate. No updates will be made to the modeling.
5. Develop levee freeboard for LIDs based on event maximum water surface elevations in the Brazos River at Richmond, Texas (USGS Gage 08114000) and 2014 LiDAR data.
6. Ponding maps will be divided into zones (up to 30) based on future and existing rain gauge locations. The ponding maps will be related to rainfall depth ranges (up to 7) over 24-hour periods. These ponding maps will be used by the City for flood warning during storm events.

Estimated Fee for Task 2 - \$66,100

Task 3 – Maintenance Workflow

1. Develop maintenance workflow for incorporating future data
 - a. Host the geodatabase for the update process and then transfer to the City
 - b. Track metadata by source
 - c. Develop data delivery standards

Estimated Fee for Task 3 - \$7,360

Task 4 – Delivery

1. Deliver final updated geodatabase to the City

Estimated Fee for Task 4 - \$1,020

Estimated Phase 2 Total Fee - \$81,780

Additional Services

The following are services that can be provided at the request of the City for additional fee. Services will not be provided unless directed by City staff.

1. City Webmap Assistance – Assist the City with adding the resultant GIS information to the City webmap. Assistance will include phone calls and meetings as necessary.

Estimated Fee for Additional Services - \$10,000

EXHIBIT B
Halff Associates, Inc. Fee Proposal for Professional Services
Update ISWMM

11/9/2018

Task	Principal Engineer	Project Manager	PE	EIT	SR GIS	GIS	Admin	Total Hours	Labor Total	Non-Labor Cost	TOTAL
Task 1: Project Coordination											
1. Coordination Meetings	2	6			6		4	18	\$2,980	\$0	\$2,980
2. QA/QC		8			16			24	\$4,320	\$0	\$4,320
Task 1 Total	2	14	0	0	22	0	4	42	\$7,300	\$0	\$7,300
Task 2: Update ISWMM Geodatabase											
1. Report		4	16	16	4	8	4	52	\$7,340	\$0	\$7,340
2. Incorporate NT and GW		1	4	8		8		21	\$2,800	\$0	\$2,800
3. 2D Analysis		2	24	60	4	24		114	\$15,240	\$0	\$15,240
4. Atlas 14		8	40	120		40		208	\$27,600	\$0	\$27,600
5. Levee Freeboard		2	4	8	4	16		34	\$4,640	\$0	\$4,640
6. Ponding Maps Zones per Gauge Location		2	8	16		40		66	\$8,480	\$0	\$8,480
Task 3 Total	0	19	96	228	12	136	4	495	\$66,100	\$0	\$66,100
Task 3: Maintenance Workflow											
1. Develop maintenace workflow		2			24	24		50	\$7,360	\$0	\$7,360
Task 4 Total	0	2	0	0	24	24	0	50	\$7,360	\$0	\$7,360
Task 4: Deployment and Training											
1. Deliver Final Database		1			2	4		7	\$1,020	\$0	\$1,020
Task 6 Total	0	1	0	0	2	4	0	7	\$1,020	\$0	\$1,020
TOTAL	2	36	96	228	60	164	8	594	\$81,780	\$0	\$81,780