City of Emeryville
CALIFORNIA

PROFESSIONAL SERVICES CONTRACT

SECOND AMENDMENT

THIS SECOND AMENDMENT TO THE PROFESSIONAL SERVICES CONTRACT ("Amendment") is effective as of 09/11/2022 (the "Effective Date"),, by and between **THE CITY OF EMERYVILLE**, a municipal corporation, ("City") and **WOOD RODGERS, INC.** ("Contractor"), individually referred to as a "Party" and collectively as the "Parties".

WITNESSETH THAT

WHEREAS, the City and Contractor entered into a Professional Services Contract dated August 20, 2021 ("Contract") for the purpose of retaining the services of Contractor to provide system-wide clean and CCTV program services, project management meetings and coordination, and sewer hotspot repairs; and

WHEREAS, The City and Contractor entered into a first amendment of the Contract on November 21, 2021 for the purpose of reallocating scope for additional CCTV work; and

WHEREAS, The City and Contractor entered into a second amendment of the Contract on June 20, 2022 for the purpose of replenishing the funds reallocated to the additional CCTV work in the first amendment; and

WHEREAS The City and Contractor entered into a second amendment to expand the scope of the original contract to include the analysis of two additional Storm Drain trouble spots; and

WHEREAS, the City and Contractor desire to amend the Contract; and

WHEREAS, the public interest will be served by this Amendment.

NOW, THEREFORE, the Parties hereto do mutually agree as follows:

1. AMENDMENT

The Parties agree to amend the Contract as checked below:

1.1 Exhibit A

☐ Exhibit A of the Contract is hereby amended in its entirety and replaced with **Exhibit A-***Revision Number*;

FOR CITY USE ONLY			
Contract No.	22038E-0221-PW01	CIP No.	SS-01; ST-05
Resolution No.	22-89	Project No.	15511005; 15475013

OR

☑ Exhibit A of the Contract is hereby amended to include the provisions of **Exhibit A-1**, attached hereto and incorporated herein by this reference.

1.2 Termination Date

☑ The Parties desire to extend the termination date. Section 1.3 of the Contract is hereby amended to extend the termination date to **JUNE 30, 2025**.

1.3 Total Compensation Amount

☑ The Parties desire to increase the Total Compensation Amount as set forth in Section 3.2 of the Contract by **FOUR HUNDRED SEVENTEEN THOUSAND EIGHT HUNDRED THIRTY SIX DOLLARS AND NO CENTS ($417,836)**. The total amount paid under the Contract as compensation for Services performed and reimbursement for costs incurred shall not, in any case, exceed **ONE MILLION SEVENTY FIVE THOUSAND SEVEN HUNDRED NINETY FOUR DOLLARS AND NO CENTS ($1,075,794)**.

2. CONTINUING EFFECT OF CONTRACT

Except as amended by this Amendment, all other provisions of the Contract remain in full force and effect and shall govern the actions of the Parties under this Amendment. From and after the date of this Amendment, whenever the term “Contract” appears in the Contract, it shall mean the Contract as amended by this Amendment.

3. ADEQUATE CONSIDERATION

The Parties hereto irrevocably stipulate and agree that they have each received adequate and independent consideration for the performance of the obligations they have undertaken pursuant to this Amendment.

4. SEVERABILITY

If any portion of this Amendment is declared invalid, illegal, or otherwise unenforceable by a court of competent jurisdiction, the remaining provisions shall continue in full force and effect.

5. WAIVER

The City’s failure to enforce any provision of this Amendment or the waiver in a particular instance shall not be construed as a general waiver of any future breach or default.

SIGNATURES ON FOLLOWING PAGE

6. SIGNATURE PAGE TO PROFESSESIONAL SERVICES CONTRACT SECOND AMENDMENT

IN WITNESS WHEREOF the City and the Contractor have executed this Contract, which shall become effective as of the date first written above.

Approved As To Form:
DocuSigned by:
John Kennedy
2C934D02DB55467...
City Attorney

Dated:
09/11/2022

CITY OF EMERYVILLE
DocuSigned by:
Pedro Jimenez, Acting City Manager
52E50B02CB32478...
Christine S. Daniel, City Manager

Dated:
06/21/2022

WOOD RODGERS, INC.
(Signature)
Dan Matthies, Vice President, Wood Rodgers, Inc.

Attach: *W-9 Form*	*Attach:* *Business License Certificate*	*Attach:* *Insurance Certificate and Endorsements*

Exhibit A-1

Wood Rodgers Inc., Sanitary and Storm Drainage On-Call – Amendment No.2

WOOD RODGERS

June 9, 2022 9016001

Nikolas Ignacio, PE
Associate Civil Engineer
Public Works Department
City of Emeryville
1333 Park Avenue
Emeryville, CA 94608
nikolas.ignacio@emeryville.org

Re: City of Emeryville, Sanitary Sewer and Storm Drainage On Call - Amendment No. 2

Dear Mr. Ignacio,

Wood Rodgers, Inc. (Wood Rodgers) is providing engineering services for the Sanitary Sewer and Storm Drainage On-Call Project for the City of Emeryville. The original contract included three (3) major tasks each for the sewer and storm drain systems, as follows:

Sanitary Sewer

Task 1 – System-wide Cleaning and CCTV Program

Task 2 – Powell Street Sewer Improvements

Task 3 – Hot Spot Repairs

Storm Drain

Task 1 – Verify Missing Links / GIS Update

Task 2 – Condition Assessment Plan

Task 3 – Trouble Spot Recommendations

In order to ensure that the system-wide cleaning and CCTV inspection of the sewer collection system could be completed within the schedule requirements of the Consent Decree, the City requested that we include the CCTV Contractor (Presidio) under our contract. To do so, we re-allocated budget from the original contract tasks and created two new sewer tasks. The budget re-allocation was accomplished as Amendment No. 1, and summarized as follows:

BUDGET SUMMARY FOR AMENDMENT No. 1	
TO	**AMOUNT**
Task 4.1 Sub, CCTV and Cleaning T&M*	$280,491
Task 4.2 Sub, CCTV and Cleaning 30% Contingency*	$120,210
TOTAL REALLOCATED AMOUNT:	**$400,701**

**includes WR 10% markup*

With Amendment No. 1, the total contract value did not change, we just re-allocated budgets from the original contract tasks to the new CCTV tasks. The City successfully completed the CCTV work within the schedule requirements of the Consent Decree. The CCTV Contractor's (Presidio) original contract include costs to dispose of the debris in local landfills, however material testing found elevated levels of heavy metals (lead) in the debris, which required the debris to be hauled to special Class 1 hazardous material landfill approximately 200 miles away (Kettleman City, CA). With the added costs for the hazardous material debris disposal (Change Order No. 1), the final budget breakdown for the CCTV task is as follows:

Total Budget Reallocated (Amd. No. 1)	$400,701.00
Presidio (Original Contract)	$349,913.25
Wood Rodger's Fees (10%)	$ 34,991.33
Budget Remain	$ 15,796.42
Change Order No. 1	
Presidio Disposal Cost	$ 10,000.00
V&A Labor Cost	$ 2,876.00
Wood Rodger's Fees and Labor Costs	$ 2,920.14
Change Order No. 1 Subtotal	$ 15,796.14
Net Requested for Amendment No. 2	***$ 0***

With the inclusion of Change Order No. 1 for the hazardous material disposal, the original re-allocated budget of $400,701 does not need to be amended.

Per the request of the City, we are submitting this Amendment No. 2 to replenish the budgets of the original contract tasks, as well as to add new tasks to the contract. A summary of the scope items included in Amendment No. 2 are included herein:

- Item No. 1 – Replenish the budgets re-allocated from Amendment No. 1, which includes: Item No.1 Authorized

Tasks: 2.5 – 2.12 SS	=	$195,360
Tasks: 3.0 – 3.7 SS	=	$104,107
Subtotal Sewer	=	*$299,467*
Tasks: 1.1 – 1.4 SD	=	$ 50,668
Tasks: 2.1 – 2.3 SD	=	$ 34,076
Tasks: 3.1 – 3.4 SD	=	$ 16,490
Subtotal Storm Drain	=	*$101,234*
Total Replenish	**=**	**$400,701**

  See attached **Exhibit A** for the executed Amendment No. 1**.**

- Item No. 2 – Add a new task "Task 5.0 SS – Resident Engineer (RE) Services" for Wood Rodgers to provide on-site inspection during construction of the Powell Street Sewer Improvements and the Hot Spot Repairs. This task will include the following subtasks:

Item No.2 Not Authorized

Item No.2 Not Authorized

Task 5.1 – RE Services for Powell Street Sewer Improvements: Wood Rodgers staff will provide on-site observation of the construction phase activities for the Powell Street Sewer Improvements project, assumed to be approximately 7,000 LF of gravity sewer pipe repair and/or replacement. This task assumes 16 weeks of construction activity at full-time observation.

Task 5.2 – RE Services for Sewer Hot Spots: Wood Rodgers staff will provide on-site observation of the construction phase activities for the estimated 27 sewer hot spot repair locations. This task assumes 15 weeks of construction activity at full-time observation.

Task 5.1	=	$174,680
Task 5.2	=	$159,000
Subtotal Task 5 =		**$333,680**

Please note, these budgets are estimates. They may need to be adjusted once the bid documents are prepared and contractors are selected. See attached **Exhibit B** for the costs of Amendment No. 2.

Item No. 3 Authorized

- Item No. 3 – Increase the budget for the existing "Task 3 SD – Storm Drainage Trouble Spots" from three sites to five sites based on the flooding incidents experienced in the recent storms (October 2021). The estimated cost per site was also increased to perform additional site and utility inspections. See attached **Exhibit C** for the detailed scope of work.

Add **$17,135** to Task 3 and increase the budget from $16,490 to $33,625. See attached **Exhibit B**.

Item No.4 Not Authorized

- Item No. 4 – Authorize the optional task budget for "Task 4 SD – Storm Drain Master Plan Update" to determine existing drainage capacity deficiencies, integrate improvement projects with those of Alameda County, and develop technical information for grant applications. See attached **Exhibit C** for the detailed scope of work.

Authorize **$168,596** for Task 4. See attached **Exhibit B**.

Item No.5 Not Authorized

- Item No. 5 – Authorize the optional task budget for "Task 5 SD – Storm Drainage Assist with Grant Funding" to prepare an application for FEMA grants. See attached **Exhibit C** for the detailed scope of work.

Authorize **$39,780** for Task 5. See attached **Exhibit B**.

Amendment No. 2 will increase the overall contract value by $417,836 ~~**$959,892**~~ to a total $1,075,794 ~~**$1,617,850.**~~ The proposed budget adjustments and new task budgets to complete this revised scope of work are depicted in **Exhibit B**.

The estimated fees are based on negotiated rates to be utilized for the scope of work and budgets identified above. The estimate fees and rates are confidential, and client will not disclose.

Sincerely,

Dan Matthies
Vice President, Wood Rodgers, Inc.

IN AGREEMENT WITH THE ABOVE TERMS:

By:_____
Print Name:

EXHIBIT A

WOOD RODGERS

November 11, 2021

Keely Nelson
City of Emeryville
1333 Park Avenue
Emeryville, CA 94608
510-596-4337
knelson@emeryville.org

Re: City of Emeryville, Sanitary Sewer and Storm Drainage On Call, Amendment 1 (9016001)

Dear Ms. Nelson,

Wood Rodgers, Inc. (Wood Rodgers) is providing engineering services for the Sanitary Sewer and Storm Drainage On-Call Project for the City of Emeryville. The original contract was intended to oversee CCTV activities; design improvements for the Powell Street sewer line; and implement repairs of the sewer hot spot locations. The City has since requested that we move budget to CCTV and cleaning activities. We are requesting budget reallocation as stated in this Amendment 1 for the following reasons:

1. Create a new CCTV and Cleaning Task with a 30% contingency and reallocate $400,701 from the existing tasks to the new tasks.
2. Hire and manage a City selected contractor for the CCTV and Cleaning Task to perform CCTV inspection and hydro cleaning for 15.4 miles of sanitary sewer pipes.

The proposed new task budgets to complete this revised scope of work are summarized as follows. Please reference **Exhibit A** for further detail of the proposed budget moves.

BUDGET SUMMARY FOR AMENDMENT 1	
TO	**AMOUNT**
Task 4.1 Sub, CCTV and Cleaning T&M*	$280,491
Task 4.2 Sub, CCTV and Cleaning 30% Contingency*	$120,210
TOTAL REALLOCATED AMOUNT:	**$400,701**

**includes WR 10% markup*

The estimated fees are based on negotiated rates to be utilized for the scope of work and budgets identified above. The estimate fees and rates are confidential and client will not disclose.

Sincerely,

DocuSigned by:
Dan Matthies
29690CFEADD543A...

Dan Matthies
Vice President, Wood Rodgers, Inc.

IN AGREEMENT WITH THE ABOVE TERMS:

By: DocuSigned by: Keely Nelson D08B393AF83D47F...

Print Name Keely Nelson

EXHIBIT A

EXHIBIT A: City of Emeryville, Sanitary Sewer and Storm Drainage On Call (9016001) Amendment 1, Proposed Budget Moves						
Move from Task		Task Backlog	Amount to Move	Budget Remaining	Move to Task	New Task Budget
2.5 SS	SS Alternatives Powell T&M	$ 18,240	$ (18,240)	$ -	4.1 Sub, CCTV and Cleaning T&M*	$ 280,491
2.6 SS	SS Prelim Design Memo Powell T&M	$ 28,600	$ (28,600)	$ -		
2.7 SS	SS Permitting Powell T&M	$ 3,280	$ (3,280)	$ -		
2.8 SS	SS Construction Documents Powell T&M	$ 61,760	$ (61,760)	$ -		
2.9 SS	SS Bid Support Powell T&M	$ 2,640	$ (2,640)	$ -		
2.10 SS	SS Eng During Constructions Powell T&M	$ 15,680	$ (15,680)	$ -		
2.11 SS	SS Record Drawings Powell T&M	$ 4,800	$ (4,800)	$ -		
2.12 SS	SS Field Work (Opt) Powell T&M	$ 5,360	$ (5,360)	$ -		
2.12 SS Sub 1	SS Field Contractor (Opt) Powell T&M	$ 55,000	$ (55,000)	$ -		
3.1 SS	SS Review Data (CCTV,others) Repairs T&M	$ 4,000	$ (4,000)	$ -		
3.2 SS	SS Site Inspection Repairs T&M	$ 3,600	$ (3,600)	$ -		
3.3 SS	SS Alternatives Repairs T&M	$ 16,580	$ (16,580)	$ -		
3.4 SS	SS Construction Documents Repairs T&M	$ 53,960	$ (53,960)	$ -		
3.5 SS	SS Bid Support Repairs T&M	$ 1,120	$ (1,120)	$ -		
3.6 SS	SS Eng During Construction Repairs T&M	$ 14,440	$ (5,871)	$ -		
			$ (8,569)	$ -	4.2 Sub, CCTV and Cleaning 30% Contingency*	$ 120,210
3.7 SS	SS Record Drawings Repairs T&M	$ 2,640	$ (2,640)	$ -		
3.0 SS Sub 1	SS Task 3 V&A Consultants T&M	$ 7,767	$ (7,767)	$ -		
1.1 SD	SD Database & Collector App T&M	$ 12,180	$ (12,180)	$ -		
1.2 SD	SD Reconcile Data w/ Agencies T&M	$ 6,460	$ (6,460)	$ -		
1.3 SD	SD Georeference As Builts (Opt) T&M	$ 12,000	$ (12,000)	$ -		
1.4 SD	SD Field Survey T&M	$ 20,028	$ (20,028)	$ -		
2.1 SD	SD Inspect/Assess Conditions T&M	$ 11,296	$ (11,296)	$ -		
2.2 SD	SD CCTV & Inventory T&M	$ 3,190	$ (3,190)	$ -		
2.2 SD Sub 1	SD CCTV Contractor T&M	$ 7,920	$ (7,920)	$ -		
2.3 SD	SD Maintenance & Rehab T&M	$ 11,670	$ (11,670)	$ -		
3.1 SD	SD As-Built, Data, 2000 MP T&M	$ 2,330	$ (2,330)	$ -		
3.2 SD	SD High-Level Hydraulic Anyls T&M	$ 4,120	$ (4,120)	$ -		
3.3 SD	SD High-Level Concept Design T&M	$ 6,230	$ (6,230)	$ -		
3.4 SD	SD High-Level Improve Costs T&M	$ 3,810	$ (3,810)	$ -		
	Total	**$ 400,701**	**$ (400,701)**	**$ -**		**$ 400,701**

*includes WR 10% markup

EXHIBIT B

EXHIBIT B
CLIENT: City of Emeryville
PROJECT: Sanitary Sewer and Storm Drainage On Call

				Wood Rodgers, Inc.															Contractor/ Sub	V&A											
		No.	Unit	Principal Eng II	Principal Eng/GIS I	Associate Engr/GIS III	Associate Surv. III	Associate Engr/GIS II	Associate Engr/GIS I	GIS Tech III	Engineer II	Engineer I	CAD Tech III	Project Coord.	Admin. Assist.	1 Person Survey Crew	2 Person Survey Crew	Subtotal	Subtotal	Principal-in-Charge (PIC)	Senior Project Manager	Project Manager	Project Engineer	Engineering Assistant	Senior Technician	Technician	Project Admin/Clerical	Subtotal	WR Mark Up	Reimbursables	Subtotals
				$ 280	$ 245	$ 235	$ 235	$ 225	$ 215	$200	$ 190	$ 180	$ 170	$150	$130	$ 215	$ 315			$297	$259	$239	$199	$134	$128	$111	$89		10%		
SANITARY SEWER																															
Task 1	System-wide Cleaning and CCTV Program (5-year)																														
1.1	Develop RFP	55,670	LF	12														$ 3,360		2	12	4	4				6	$ 5,988	$ 599		$ 9,947
1.2	Contractor Oversight	360	MH	20														$ 5,600			2	2	16	16	16	16	6	$ 10,682	$ 1,068	$ 782	$ 18,132
1.3	Review / Interpret CCTV Results			20							160							$ 36,000		2	4	4	48	80				$ 22,858	$ 2,286		$ 61,144
1.4	Incorporate CCTV Data into GIS			8	16					120								$ 30,160					16	8				$ 4,256	$ 426		$ 34,842
1.5	Develop Project List			20		40					160							$ 45,400			8	8	8					$ 5,576	$ 558		$ 51,534
	Subtotal:			80	16	40	-	-	-	120	320	-	-	-	-	-	-	$ 120,520		4	26	18	92	104	16	16	12	$ 49,360	$ 4,936	$ 782	$ 175,598
Task 2	Powell Street Sewer Improvements																														
2.0	Meetings and Coordination	8	mtgs	32				50						40				$ 26,210					8					$ 1,592	$ 159	$ 250	$ 28,211
2.01	Review Data (CCTV, others)	7000	LF	4								16						$ 4,000					2	8				$ 1,470	$ 147		$ 5,617
2.02	Utility Research			2								24						$ 4,880										-	$ -	$ 250	$ 5,130
2.03	Site Inspection	1	day					8										$ 1,800										-	$ -	$ 250	$ 2,050
2.04	Topographic Survey						16						16				40	$ 19,080										-	$ -		$ 19,080
2.05	Develop & Evaluate Alternatives	3	alts	12		8		24			40							$ 18,240		2	4	4	4					$ 3,382	$ 338		$ 21,960
2.06	Prepare Preliminary Design Memorandum			16		4		12			80		24	8				$ 28,600		1			6					$ 1,491	$ 149	$ 200	$ 30,440
2.07	Permitting			4								12						$ 3,280		1		8	16	20				$ 8,073	$ 807	$ 300	$ 12,460
2.08	Construction Documents - PS&E (30/60/100/Final)			16		8		16			120		160	12				$ 61,760		1	4	2	2					$ 2,209	$ 221	$ 1,500	$ 65,690
2.09	Bid Support			4							8							$ 2,640										-	$ -		$ 2,640
2.10	Engineering Support During Construction			16				16			40							$ 15,680										-	$ -	$ 500	$ 16,180
2.11	Record Drawings			2							8		16					$ 4,800										-	$ -	$ 250	$ 5,050
2.12	Field Work Allowance (Optional)			4							8		16					$ 5,360	$ 50,000									-	$ 5,000	$ 250	$ 60,610
	Subtotal:			112	-	20	16	126	-	-	304	52	232	60	-	-	40	$ 196,330	$ 50,000	5	8	14	38	28	-	-	-	$ 18,217	$ 6,822	$ 3,750	$ 275,119
Task 3	Hot-Spot Repairs																														
3.1	Collect Review Data (CCTV, others)			4								16						$ 4,000					2	8				$ 1,470	$ 147		$ 5,617
3.2	Site Inspection	27	sites					16										$ 3,600										-	$ -	$ 250	$ 3,850
3.3	Develop Evaluate Alternatives			12		4		8			40	16						$ 16,580		2	4	4	4					$ 3,382	$ 338		$ 20,300
3.4	Construction Documents - PS&E (30/60/100/Final)			16		8		16			80	40	120	8				$ 53,960		1	4	2	2					$ 2,209	$ 221	$ 500	$ 56,890
3.5	Bid Support			4														$ 1,120										-	$ -		$ 1,120
3.6	Engineering Support During Construction			8				8			32	24						$ 14,440										-	$ -	$ 200	$ 14,640
3.7	Record Drawings			4							8							$ 2,640										-	$ -	$ 150	$ 2,790
	Subtotal:			48	-	12	-	48	-	-	160	96	120	8	-	-	-	$ 96,340	-	3	8	6	8	8	-	-	-	$ 7,061	$ 706	$ 1,100	$ 105,207
Task 4	CCTV and Cleaning																														
4.1	Sub, CCTV and Cleaning - Original Contract																	-	$ 349,913									-	$ 34,991		$ 384,905
4.2	Sub, CCTV and Cleaning - CO No. 1			5		1												$ 1,635	$ 10,000				14				1	$ 2,875	$ 1,287		$ 15,797
	Subtotal:			5	-	1	-	-	-	-	-	-	-	-	-	-	-	$ 1,635	$ 359,913	-	-	-	14	-	-	-	1	$ 2,875	$ 36,278	-	$ 400,701
Task 5	Resident Engineer (RE) Services																														
5.1	RE Services for Powell Street Sewer Improvements			24	128						640							$ 159,680										-	$ -	$ 15,000	$ 174,680
5.2	RE Services for Sewer Hot Spots			20	120						600							$ 149,000										-	$ -	$ 10,000	$ 159,000
	Subtotal:			44	248	-	-	-	-	-	1,240	-	-	-	-	-	-	308,680	-	-	-	-	-	-	-	-	-	-	$ -	$ 25,000	$ 333,680
	Sanitary Sewer Total (Amendment 2)			**166**	**248**	**32**	**-**	**116**	**-**	**-**	**1,704**	**108**	**336**	**28**	**-**	**-**	**-**	**$ 545,380**	**$ 50,000**	**3**	**8**	**6**	**8**	**8**	**-**	**-**	**-**	**$ 7,061**	**$ 5,706**	**$ 25,000**	**$ 633,147**
	Sanitary Sewer Total (Amendment 1+2)			289	264	73	16	174	-	120	2,024	148	352	68	-	-	40	$ 723,505	$ 409,913	12	42	38	152	140	16	16	13	$ 77,513	$ 48,742	$ 30,632	$ 1,290,305
STORM DRAINAGE																															
Task 1	Storm Drainage Verify Missing Links / GIS Update																														
1.1	Refine database and Collector Application				4				8	36	12							$ 12,180										-	$ -		$ 12,180
1.2	Reconcile GIS Database with other Agencies				2				6	12	12							$ 6,460										-	$ -		$ 6,460
1.3	Georeference As-built and Convert Data	6	miles						24		36							$ 12,000										-	$ -		$ 12,000
1.4	Perform Field Survey	35	sites		2				17.5	8	35					35		$ 20,028										-	$ -		$ 20,028
	Subtotal:			-	8	-	-	-	56	56	95	-	-	-	-	35	-	50,668	-	-	-	-	-	-	-	-	-	-	$ -	-	$ 50,668
Task 2	Storm Drainage Condition Assessment Plan																														
2.1	Inspect and Assess Condition	35	sites		2				17.5	17.5	8.8					8.8		$ 11,296										-	$ -	$ 800	$ 12,096
2.2	Perform CCTV and Inventory	1,200	feet		2			4		9								$ 3,190	$ 7,200									-	$ 720		$ 11,110
2.3	Develop Maintenance and Rehabilitation Program				6				32		12				8			$ 11,670										-	$ -		$ 11,670
	Subtotal:			-	10	-	-	4	50	27	21	-	-	-	8	9	-	26,156	$ 7,200	-	-	-	-	-	-	-	-	-	$ 720	$ 800	$ 34,876
Task 3	Storm Drainage Trouble Spot Recommendations																														
3.1	Collect and Review As-builts, Database and 2000 Master Plan	5	sites		10			10										$ 4,700										-	$ -		$ 4,700
3.2	Develop High-Level Hydraulic Analysis	5	sites		5			40			20							$ 14,025										-	$ -		$ 14,025
3.3	Develop High-Level Conceptual Design	5	sites		5			20			20							$ 9,525										-	$ -		$ 9,525
3.4	Develop High-Level Improvement Costs	5	sites		5			10			10							$ 5,375										-	$ -		$ 5,375
	Subtotal:			-	25	-	-	80	-	-	50	-	-	-	-	-	-	$ 33,625		-	-	-	-	-	-	-	-	-	$ -	-	$ 33,625
Task 4	Storm Drain Master Plan Update																														
4.0	Overall PM, Meetings & Coordination			32	60			50						40	24			$ 44,030										-	$ -		$ 44,030
4.1	Collect and Review Data/ Studies				8			8			16							$ 6,800										-	$ -		$ 6,800
4.2	Install and Monitor Flow Gage	1	gage		4													$ 980		1	2	4	8	4	10	10	1	$ 6,378	$ 638	$ 10,000	$ 17,996
4.3	Update Design Criteria			8	8			16										$ 7,800										-	$ -		$ 7,800
4.4	Develop Watersheds	9	miles					9			18							$ 5,445										-	$ -		$ 5,445
4.5	Develop 1D & 2D Hydrologic and Hydraulic Models	9	miles		9			36		18	60							$ 25,305										-	$ -		$ 25,305
4.6	Calibrate Models (include one ACPWA gage)	2	gages		8			16			12							$ 7,840										-	$ -		$ 7,840
4.7	Flood Risk Assessment				8			16			24							$ 10,120										-	$ -		$ 10,120
4.8	Climate Change and Sea Level Rise Assessment				4			8			8							$ 4,300										-	$ -		$ 4,300
4.90	CIP Development	3	projects		6				30		36							$ 14,760										-	$ -		$ 14,760
4.10	Master Plan Report			16	24			32			24				16			$ 24,200										-	$ -		$ 24,200
	Subtotal:			56	139	-	-	191	30	18	198	-	-	40	40	-	-	151,580	-	1	2	4	8	4	10	10	1	$ 6,378	$ 638	$ 10,000	$ 168,596
Task 5	Storm Drainage Assist with Grant Funding																														
5.1	Determine Application Competitiveness			2	4			8										$ 3,340										-	$ -		$ 3,340
5.2	Develop 10% Improvement plans	1	project		2			16			36							$ 10,930										-	$ -		$ 10,930
5.3	Develop Detailed FEMA Hazus Analysis	1	project		2			16			16							$ 7,130										-	$ -		$ 7,130
5.4	Benefit to Cost Analysis	1	project	2				16			16							$ 7,200										-	$ -		$ 7,200
5.5	Application Development	1	project	8	4			24			8				8			$ 11,180										-	$ -		$ 11,180
	Subtotal:			12	12	-	-	80	-	-	76	-	-	-	8	-	-	39,780		-	-	-				-	-	-	$ -	-	$ 39,780
	Storm Drainage Total (Amendment 2)			**68**	**194**	**-**	**-**	**355**	**135**	**101**	**440**	**-**	**-**	**40**	**56**	**44**	**-**	**$ 301,809**	**$ 7,200**	**1**	**2**	**4**	**8**	**4**	**10**	**10**	**1**	**$ 6,378**	**$ 1,358**	**$ 10,000**	**$ 326,745**
	Storm Drainage Total (Amendments 1+2)			68	194	-	-	355	135	101	440	-	-	40	56	44	-	$ 301,809	$ 7,200	1	2	4	8	4	10	10	1	$ 6,378	$ 1,358	$ 10,800	$ 327,545
	Grand Total (Amendment 2)			**234**	**442**	**32**	**0**	**471**	**135**	**101**	**2144**	**108**	**336**	**68**	**56**	**44**	**0**	**$ 847,189**	**$ 57,200**	**4**	**10**	**10**	**16**	**12**	**10**	**10**	**1**	**$ 13,439**	**$ 7,064**	**$ 35,000**	**$ 959,892**
	Grand Total (Amendments 1+2)			357	458	73	16	529	135	221	2464	148	352	108	56	44	40	$ 1,025,314	$ 417,113	13	44	42	160	144	26	26	14	$ 83,891	$ 50,099	$ 41,432	$ 1,617,850

Scope of Work

Task 1 | Storm Drainage Verify Missing Links/GIS Update

Task 1.1 Refine Database and Collector Application

Wood Rodgers will review the City's existing geodatabase and provide a refinement that will enhance the City's ability to store and access stormwater facility data. The refinements will be based on a comprehensive geodatabase with attributes, related tables, and domain values that have already been designed and is being used for drainage systems in Valley Water, Alameda County, Marin County, the City of Oakland, The City of Novato, and the City of San Jose. The ESRI file geodatabase was modified by Wood Rodgers using the ESRI Local Government Information System Model as the basis, and then supplemented with drainage feature datasets such as field surveys, topography, drainage facility (including storm drains, manholes, catch basins, pumps, open channels, culverts, structures, etc.), georeferenced as-built drawings, parcel maps, streets, municipal boundaries, pictures from field visits with locations, watersheds, land use data, soil data, and hydrologic parameter data.

The modification to the City's existing GIS geodatabase will enhance the ability to store and manage stormwater facility information; to prioritize data collection and inventory; to facilitate condition assessment; and to facilitate hydrologic and hydraulic model development.

Wood Rodgers will coordinate with the City GIS department and provide assistance to set up ESRI Collector or Survey123 application to aid inspection and survey activities, and to integrate the collected data into a geodatabase. Our experience with these applications will lead to successful deployment of data collection.

Deliverables:

- Refined geodatabase | Collector app

Task 1.2 Reconcile GIS geodatabase with Other Agencies

Wood Rodgers will review and reconcile the City's existing GIS geodatabase data with the GIS geodatabase data developed by the Alameda County Flood Control & Water Conservation District (District) for Zone 12. It is assumed that the District geodatabase will provide the backbone of the City's system since the District facilities within the City have already been refined in detail in the recent District *Zone 12 Drainage Master Plan* project, and the City geodatabase will serve to supplement the backbone with more detail on the City facilities. Wood Rodgers will review the geodatabase and identify missing data that requires collection from as-builts and/or surveys.

Deliverables:

- Reconciled/Refined geodatabase data | Data-gap Map

Task 1.3 Georeference As-Builts and Convert Data

To supplement the reconciled geodatabase, Wood Rodgers will georeference record drawings and as-builts for 6 miles (approximately 24 sheets of plans) of storm drain pipes and use existing survey data to complete the geodatabase inventory of the City's systems. We will use NearMap or any ortho imagery with 3 inch or better resolution and Google Street View to locate facilities and to create or refine existing spatial locations. This approach provides horizontal accuracy between 1 to 3 feet, which is sufficient to determine manhole, catch basin and outfall structure locations and to estimate the connecting storm drain lengths. The 2019 LiDAR data will be used to determine the facility rim or ground elevations when survey data is not available. Newer LiDAR data typically has

sufficient point resolution and vertical accuracy (typically less than 3 inches) to determine elevations. The LiDAR derived facility rim or ground elevations will be used in conjunction with inspection data to verify the as-built data.

The spatially rectified facilities will be used in conjunction with the georeferenced as-builts to realign storm drain alignments, and to identify other paved-over facilities, such as junction boxes and transition structures. The georeferenced as-builts will also be used to record or confirm storm drain materials, diameter/dimensions, lengths, and upstream and downstream inverts.

Deliverables:

- Supplemented/Reconciled/Refined geodatabase

Task 1.4 Perform Field Survey

Wood Rodgers will perform the site visit and survey tasks to supplement the data gaps identified in the Reconcile GIS Geodatabase task and to collect sufficient storm drain information for facility inventory and modeling. Wood Rodgers will survey up to 35 sites, if necessary, and convert the survey information to the City's refined GIS geodatabase.

Wood Rodgers will perform this task concurrently with the Inspect and Assess Condition task for efficiency, see Task 2.1.

Deliverables:

- Completed geodatabase w/ Field survey

Task 2 | Storm Drainage Condition Assessment Plan

Task 2.1 Inspect and Assess Condition

Wood Rodgers proposes a unique inspection and survey approach developed through our experience with storm drain inspection throughout the Bay Area to optimize the inspection effort and to reduce future CCTV requirements. Wood Rodgers will use this inspection approach to prioritize, survey, and inspect storm drain facilities at crucial locations along the system: at the upstream and downstream ends, at major junctions or bends, at metal pipes beyond service life, and at systems subject to high backwater sediment. We have found that this approach is sufficient to collect the overall storm drain system geometry, materials, and conditions when used in conjunction with the refined geodatabase developed in Task 1.

Inspection at key locations can:

1. Verify as-built data along a system
2. Reduce inspection locations with the verified as-built data
3. Reduce the need for CCTV inspection

Approximately 35 manholes, junction boxes, transition structures, or storm drains' horizontal GPS coordinates (X,Y) will be surveyed by Wood Rodgers; storm drains' diameters and inverts will be measured; storm drains' materials and flow directions will be recorded; sediment and debris depths will be estimated and documented with pictures and field notes; and any structural deficiencies such as corroded metal pipes and cracked walls will be documented with field notes and pictures. Wood Rodgers will also visit major storm drain outfall structures, and inspect for any structural integrity, sediment, and erosion problems. Outfall structure flap gate and cathodic protection system conditions will also be assessed and documented. The collected data, pictures, and notes will be stored in the refined geodatabase. Wood Rodgers assumes that the City will provide traffic control services if necessary. No confined space entry service will be provided or required.

Deliverables:

- Inspection Memorandum and updated geodatabase

Task 2.2 Perform CCTV and Inventory

The findings of the inspection stored in the geodatabase will be used to further narrow down the facilities that require CCTV inspection. The locations selected for CCTV are most likely along long or curved pipe systems where survey and inspection efforts in Task 2.1 will not yield sufficient information. The locations can be further narrowed down based on the conditions below.

1. Corrugated metal pipes at the end of useful life
2. Systems with sanitary sewer odor
3. Systems with excessive low flow in dry weather
4. Systems with root intrusion, trash, and sediment

Wood Rodgers will perform CCTV inspection for approximately 1,200 feet of pipe systems with the assumption and protocols above. We assume no sediment removal prior to CCTV. Wood Rodgers will visit the identified locations and inspect with a "snake" camera to assess and document any deficiencies above. Pictures will be taken with the CCTV camera only at deficient locations to easily identify deficient pipe segments without reviewing CCTV videos. The coordinates of the pictures can be developed with an above ground locator and the distance indicator from the camera.

Wood Rodgers will upload the pictures, videos, and notes from the CCTV to the geodatabase. The information will also be used for condition assessment as described in the following section. We assume the City will assist with traffic control when required.

Deliverables:

- CCTV Inspection reports | Supplemented geodatabase

Task 2.3 Develop Maintenance and Rehabilitation Program

The Wood Rodgers team will meet with City staff to document and review existing maintenance operations conducted within the City's service area. The team will download the existing maintenance logs from the City to analyze maintenance hotspots, types, frequencies, and resources. After reviewing existing practices and data, the team will prepare Operations and Maintenance Guidelines (O&M Guidelines) describing best practices for operations, maintenance, repairs, replacement, project performance and surveillance, inspection and reports needed to maintain the City's storm drainage facilities. The O&M Guidelines will provide consistent, and sound protocols to inventory, maintain, rehabilitate, and improve drainage facilities.

Deliverables:

- Draft O&M Guidelines; Revised O&M Guidelines

Task 3 | Storm Drainage Trouble Spot Recommendations

Wood Rodgers will provide conceptual analyses, designs, and costs for improvements at the three storm drainage trouble spots identified by the City at Powell & Vallejo, Hollis & Park, and on 65th St. There are additional two trouble spots that the City requested to be included in this task after the flooding in the October 2021 storm. The findings of this task can be used to determine the necessity of a detailed analysis and to base the funding for improvements.

Task 3.1 Collect and Review As-builts, Database, and 2000 Master Plan

Wood Rodgers will discuss the five trouble spots with the City, will collect additional as-builts as necessary, will review the 2000 Master Plan, and will review the District *Zone 12 Drainage Master Plan* to confirm the system and to gain more information on the problems in the immediate area of the trouble spots. Wood Rodgers will also use the findings of Tasks 1.4 and 2.1 to aid these analyses below.

Deliverables:

- Partial Technical Memorandum, Potentially Refined geodatabase (as necessary)

Task 3.2 Develop High-Level Hydraulic Analysis

Wood Rodgers will first determine if the existing geodatabase/hydraulic model needs to be and can be easily refined to assess the existing problems, or if other simple means (hand calculations, simpler models, etc.) will meet the needs for this evaluation. Wood Rodgers will perform the necessary high-level simple hydraulic calculations to better identify the deficiencies and to use for the conceptual design of improvements.

Deliverables:

- Partial Technical Memorandum with Hydraulic Assessment of the Existing System and of Proposed Improvements (5 sites).

Task 3.3 Develop High-Level Conceptual Design

Wood Rodgers will develop conceptual designs of proposed improvements to mitigate the deficiencies. The conceptual design will include a plan view drawing of each site showing existing storm drainage infrastructure and proposed improvements.

Deliverables:

- Conceptual Design Plan View Drawings (5 sites)

Task 3.4 Develop High Level Improvement Cost

Wood Rodgers will develop Class 4 estimates for each site. Class 4 Estimates are generally prepared based on limited information and subsequently have fairly wide accuracy ranges. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Typically, the design used for Class 4 estimates is from 1% to 15% complete.

Deliverables:

- Conceptual Cost Estimates (5 sites), Trouble Spot Technical Memorandum

Task 4 | Storm Drain Master Plan Update

Task 4.0 PM, Meetings, & Coordination

Prior to commencing any work, the Wood Rodgers' Team will meet with the City. The purpose of this meeting is to clearly define the goals of the project, to establish an understanding of the City's needs, to determine the standards and policies that apply to the project. The meeting will also include an initial effort to collect data and to comprehend the City's understanding of the sewer system.

Wood Rodgers' Team will also coordinate and host meetings and/or presentations with the City's GIS/IT, operations and maintenance, capital, and other teams to define criteria and approaches prior to executing any tasks and to review results and recommendations at major milestones of each task.

Wood Rodgers' Project Manager will perform project management activities throughout the entire duration of the project. These project management activities include:

Meetings and Presentations| Wood Rodgers will maintain a constant and clear channel of communication by hosting bimonthly status meetings. We will attend public, City Council and other meetings as requested and will prepare presentation materials.

Risk Management | Risk management is perhaps the most integral part of the Wood Rodgers' project management approach. The premise behind risk management is to identify scope, schedule, and cost related risks early, to identify means and methods to manage specific risks and lastly to identify the entity or person who will most likely be responsible for implementing any risk mitigation strategy. This will be accomplished through the development of a Risk Management Matrix.

Schedule Management | The Wood Rodgers' Project Manager will prepare and maintain a critical path method (CPM) schedule, presented in a Gantt chart format, using Microsoft Project software. Each task and project milestone in the Scope of Work will be included in the schedule, so that the progress of each task milestone can be monitored.

Cost Management | All charges to the project will be monitored and controlled to assure that costs are kept within budget limitations. Wood Rodgers' computerized BST10 enterprise system will be utilized to monitor and control budgets on a task-by-task and consultant/subconsultant basis. Monthly invoices will be prepared and submitted to the City.

Quality Assurance/Quality Control | Wood Rodgers will perform Quality Assurance/Quality Control (QA/QC) on the project. A project-specific QA/QC Plan will be prepared that will be administered by the quality manager. The quality manager will provide independent review and approve all deliverables before they are submitted to the City.

Deliverables:

- Project Management | Meeting minutes | Project schedule| Invoices

Task 4.1 Collect and Review Data/Studies

Wood Rodgers will perform the data collection and review tasks to develop the basis for inventory, condition assessment, operations and maintenance optimization, improvement prioritization, and the Storm Drain Master Plan update for the City. Data collection shall include all storm drain facilities including small pump stations and force mains.

Wood Rodgers will collect and review the City's existing GIS geodatabase, parcel data, easements, historical flooding information, record drawings, maintenance documents, latest hydrologic data, land use, general plan, relevant reports including the 2000 Master Plan, studies, plans, and supporting data to sufficiently update the City's drainage

facility. Wood Rodgers will also collect as-builts, survey, models and latest the City of Berkeley, Alameda County, Caltrans, and other agencies to provide missing data or supplement existing data.

Deliverables:

- Supplemented geodatabase | Collected documents

Task 4.2 Install and Monitor Flow Gage

Wood Rodgers proposes to purchase and install one flow gage to collect time series storm flow and stage data that will be used in the calibration as described in the following task. The location of the gage will be determined based on a review of the existing system and existing District gages in the City.

Deliverables:

- One installed flow gage

Task 4.3 Update Design Criteria

Wood Rodgers will review any available City storm drainage design standards, and incorporate relevant District, Caltrans, FEMA, and Regional Board standards into a revised standard. Wood Rodgers will use user-friendly schematics, flow charts, tables, and other visual graphics to present complex ideas.

The District has recently updated the *Alameda County Hydrology and Hydraulics Manual* in 2018 with long-term rain and flow gage data. Wood Rodgers worked with the District to provide the calibration of models and alternatives analysis over the past 10 years to aid the District in selecting hydrologic procedures for the Manual. Wood Rodgers also provided review and input on the hydraulic methodologies, peer-reviewed the Manual, and then researched and developed the references for the Manual. The District is also in the process of updating tidal boundary design standards through a coastal modeling project. Wood Rodgers is also working with the District to implement those standards in Zone 12 (Oakland). With ongoing design standard update by the District, it is wise to use the District's standards as a foundation to avoid redundancy and confusion.

Of course, the District manual cannot be used wholly for the City, as the City has needs that are not included in the District's manual. These needs are a result of the fact that the City systems are smaller than the District's systems, and therefore need modified approaches. Wood Rodgers will update the City design standards to provide guidance on infill development, new development, sea level rise, and water quality pertinent to flood control drainage facilities. The design standards will reference the appropriate MS4 permit documents but will not specifically address permit requirements.

Deliverables:

- Refined Storm Drainage Design Standards

Task 4.4 Develop Watersheds

Wood Rodgers has developed a watershed delineation tool that is being used by other flood control agencies like the District and Valley Water. They are using this tool because of its accuracy and ease of use. We propose to use this same tool for the City. We will use our customized, improved watershed delineation tool (based on Esri's ArcHydro tool) to automate watershed delineation. The tool will include topographic resolutions, range from steep valleys and incised channels to detailed curb, gutter, and street crown geometries, and the connectivity of storm drains and channels. The tool will be used to embed storm drain and channel networks in a newly created LiDAR Digital Elevation Model (DEM), and then create sub watersheds at the confluences of lateral storm drains and trunks, major trunk confluences, and upstream ends of storm drain systems. We will refine all watershed and sub watershed delineations, as determined to be appropriate. The tool will use the latest land use and soil maps in conjunction with the sub watershed delineations to develop hydrologic parameters. We propose to use land

use types and the corresponding District's calibrated imperviousness to develop hydrologic parameters because the imperviousness is a physically based parameter that can be measured.

The tool ensures consistency, accuracy, efficiency, and reliability. It reduces engineers' efforts by 70 to 80% and makes watershed delineation reproducible. The tools will not replace an engineers' judgment but will provide a more accurate basis.

Watersheds will be developed and analyzed for existing and future general plan land use.

Deliverables:

- Refined watersheds in geodatabase

Task 4.5 Develop 1D & 2D Models

Wood Rodgers proposes to use the existing *Zone 12 Drainage Master Plan* Innovyze ICM model as a base to develop a detailed and fully integrated one-dimensional (1D) storm drainpipe, open channel, detention basin/lake, and two-dimensional (2D) floodplain model. The model will reflect the hydraulic interactions between storm drains and open channels, storm drains and 2D floodplain, open channels and 2D floodplain, and storm drains/open channels with Oakland Estuary. The model will have enough resolution to reflect all flood water performance within the drainage facilities in the City and understand or pinpoint the true capacity deficiency without model simplification.

Wood Rodgers will develop 2D meshes to model floodplains up to a 100-year storm. A detailed flexible mesh will be developed and adjusted to capture the terrain resolution for street areas where conveyance and storage is important. The City's drainage facilities include both storm drains and street networks. The interaction between the two systems should be hydrodynamically modeled to properly assess the true combined drainage capacity.

This complex calibrated (accurate), and flexible model will serve as a basis for the City for years to come.

Deliverables:

- Detailed Integrated ICM Hydrologic Hydraulic Model

Task 4.6 Calibrate Models

Wood Rodgers proposes to calibrate the integrated hydrologic and hydraulic models using the rain and flow gage data from the District and the new gage installed in Task 4.2. Model calibration is the process of adjusting hydrologic and hydraulic parameters of a model to match the historical data and to produce reasonably accurate performance.

A model cannot be used confidently, and proposed improvements can be grossly oversized without proper calibration. A properly calibrated hydrologic and hydraulic model will be consistent with and will match historical data such as flow gage data, maintenance records, and anecdotal observations. Calibration has often been confused with hydraulic feature simplification where storage, routing, and flow attenuation have been combined with hydrologic and hydraulic parameters calibration. The simplified and calibrated parameters are not to be used interchangeably with models with different levels of resolution. The detailed models Wood Rodgers proposed in the tasks above will provide a platform to develop independent and soundly calibrated hydrologic and hydraulic parameters.

Wood Rodgers will use the calibration knowledge and information we have developed for over 100 stream/ pipe gages in the Bay Area for this project.

Deliverables:

- Calibrated Integrated ICM Hydrologic Hydraulic Model.

Task 4.7 Flood Risk Assessment

The City's drainage facility performance will be evaluated using the design standards developed in Task 4.3. The deficiency criteria will address:

- Capacity or Level of Service. This level of service will be defined by the maximum hydraulic grade line (HGL) allowed for specific intervals.
- Structural Condition
- Sedimentation
- Other deficiencies

The drainage system will then be evaluated with the appropriate design storm based on clear, consistent, and rigorous criteria. Once the criteria are set, the models can be used to identify deficiencies in the storm drain systems, pump stations, and other facilities for the existing condition. The facilities that do not meet the City's required level-of-service will be identified as being deficient.

Deliverables:

- Floodplain Map| Deficiency Map

Task 4.8 Climate Change & Sea Level Rise

Wood Rodgers will use the Climate Change and Sea Level Rise assessment from the Zone 12 Drainage Master Plan to identify the future impacts to the City's system. These impacts will be considered in the CIP development task below.

Deliverables:

- Floodplain Map with Future SLR | Description of Future Impacts

Task 4.9 CIP Development

The deficiencies developed in Task 4.7 will be prioritized by a qualitative assessment of risk. Once the deficiencies are prioritized, the team will develop up to two conceptual alternatives for each major system of deficiencies (as appropriate). Alternatives will depend upon the circumstances, but could include new or upsized storm drainage pipes, diversions, detention. If the deficiencies are significant, floodwalls, pump station improvements, and any combinations of the facilities may be considered.

Potential relative sea-level rise must be considered in the design of the storm drainage system as far inland as the extent of estimated tidal influence. This will also be used to assess the existing flood control system.

Conceptual designs will be developed for each selected alternative of each major system to better quantify the capital cost and to serve as the basis for future grant applications. Each alternative will be presented as a preliminary plan view drawing with preliminary designs, permitting, capital, administration, and management costs. Potential projects will be presented for discussion in a workshop setting with City Staff and Operators. This will allow for key-staff input and allow the creation of in-depth justification.

Improvement alternatives will then be selected based on the potential benefit weighed against preliminary costs, and from input from the City. Anticipated environmental impacts of the alternatives will be identified at a cursory level with the understanding that more detailed CEQA analysis may be needed, depending on the scope and potential impacts of proposed projects.

The District is going through the last phase of *Zone-12 Drainage Master Plan* and has identified its system deficiencies throughout the Zone. Because some of the drainage systems within the City overlap with the District's

facilities, it will be very timely to coordinate with the District to integrate the City's and District's capital improvement projects to save costs and implementation efforts.

Deliverables:

- Three Capital Improvement Projects | Selection Documentation

Task 4.10 Master Plan Report

Documentation provided to the City will include a summary report and appendices documenting the storm drain inventory and condition assessment, design standards, hydrologic and hydraulic model development, capital maintenance and improvement plan, and grant funding. The appendices will include all the previously developed Technical Memorandums, documenting criteria, data sources, regulatory requirements, verification, database, condition assessment, hydrologic analysis, hydraulic analysis, calibration, reconciliation, and all necessary maps. Wood Rodgers will use a user-friendly and graphical presentation approach to convey complex information throughout the documents.

Wood Rodgers will document the capital improvements program developed in Task 4.9 to include at least the implementation schedules, life cycle costs (capital and operations and maintenance costs), improvement maps and summary sheets.

Wood Rodgers develops Master Plan Reports concurrently with the development of the study and provides draft copies throughout, to provide the client with the ability to provide input as it is developed.

Deliverables:

- Draft Master Plan Report | Final Master Plan Report

Task 5 | Storm Drainage Assist with Grant Funding

Task 5.1 Determine Application Competitiveness

Wood Rodgers proposes this task to determine grant funding application competitiveness based on the detailed flood risk assessment (as proposed in Task 4.7) which the 2000 Drainage Study lacks and the capital costs (as proposed in Task 4.9).

Wood Rodgers proposes to identify one improvement project that is competitive in grant applications and to develop sufficient technical data to support future grant applications.

The storm drainage floodplain developed in Task 4.7, the capital costs developed in Task 4.9, and the FEMA Hazus Flood Damages analysis in Task 5.3 will provide the technical data to support the grant application. With the information, Wood Rodgers will identify and recommend one competitive improvement project for grant application. We will develop a benefit cost ratio analysis for the project to determine the cost effectiveness and grant application competitiveness.

Wood Rodgers will identify the available flood mitigation grants, application schedules, funding amounts, city cost shares, and requirements.

Deliverables:

- Recommendation on Project Competitiveness

Task 5.2 Develop 10% Improvement Plans

10% design drawings of the proposed project will be developed by Wood Rodgers to develop reasonably accurate capital costs and to support the grant application. The drawing will be based on available topographic and utility data and will include a plan view and/or profile view as appropriate.

Deliverables:

- 10% profile drawings (1 project)

Task 5.3 Develop FEMA Hazus Analysis

Wood Rodgers will estimate the consequences of failure with the two-dimensional hydraulic model results and property damages from the census data using the FEMA Hazus program. Hazus is a nationally applicable standardized methodology that contains models for estimating potential losses from earthquakes, floods, and hurricanes. The Hazus program will be used to develop flood damages for each major deficient system. The report and analysis can also be used to support grant applications.

Deliverables:

- FEMA Hazus Analysis (1 project)

Task 5.4 Develop BCA

Wood Rodgers will develop a benefit cost analysis (BCA) consistent with the grant funding requirements for the application using a FEMA Hazus Software Level 1 Analysis. This is the default level analysis in Hazus that uses Census Block data per the 2010 Census to define building replacement values, content values, etc.

Deliverables:

- BCA Analysis and Documentation (1 project)

Task 5.5 Application

Wood Rodgers will assist the City with the grant application by providing the necessary engineering, technical data, and documentation as required.

Deliverables:

- Application Assistance (1 project)