

FY24 GIS Mapping Project - El Mirage Utility System
Special Project #42430

42430 GIS Mapping	541-5-7586-418	\$ 67,000.00	42430-GIS Mapping
42430 GIS Mapping	511-5-7115-418	\$ 133,000.00	42430-GIS Mapping
62227 Collections System Replacement	541-5-7585-670	\$ 125,000.00	62227-COLLECTIONS SYSTEM REPLACEMENT

Total Budgeted for Project 42430

\$200,000

\$49,592

Proposed transfer to project from savings in CIP 62227

Entellus Quote for Project 42430

\$249,592

Department Name	ACCOUNT ID	Description	FY23 Budget Sub-lines	FY23 Final Budget	FY24 Final Sub-lines	FY24 Final Budget
Water	511-5-7115-221	PIPES, FITTINGS & REPAIRS		\$50,000		\$50,000
Water	511-5-7115-222	CHEMICALS		\$45,000		\$60,000
Water	511-5-7115-225	ASPHALT/COAL MATERIAL		\$6,000		\$8,000
Water	511-5-7115-226	FIRE HYDRANTS/PARTS		\$30,000		\$30,000
Water	511-5-7115-230	OFFICE SUPPLIES		\$1,500		\$1,500
Water	511-5-7115-232	COMPUTER/PRINTER SUPPLIES		\$500		\$500
Water	511-5-7115-233	UNIFORMS		\$3,500		\$4,500
Water	511-5-7115-237	EQUIPMENT/FURNITURE PURCHASE		\$1,500		\$1,500
Water	511-5-7115-249	OPERATING MATERIAL & SUPPLIES		\$1,000		\$1,000
Water	511-5-7115-250	BUILDING MAINTENANCE/REPAIRS		\$7,500		\$7,500
Water	511-5-7115-251	COMPUTER/PRINTER MAINTENANCE		\$500		\$500
Water	511-5-7115-253	VEHICLE MAINTENANCE/REPAIRS		\$40,000		\$40,000
Water	511-5-7115-255	WELL SITE MAINTENANCE/REPAIRS		\$181,000		\$181,000
Water	511-5-7115-269	OTHER MAINTENANCE/REPAIRS		\$2,500		\$2,500
Water	511-5-7115-311	PROFESSIONAL SERVICES		\$18,500		\$25,000
Water	511-5-7115-313	CONTRACTED SERVICES		\$112,500		\$130,000
Water	511-5-7115-314	LIABILITY INSURANCE		\$253,000		\$278,500
Water	511-5-7115-325	TECH/SOFTWARE SUPPORT		\$32,000		\$37,000
Water	511-5-7115-326	LICENSE AND PERMITS		\$12,000		\$12,000
Water	511-5-7115-328	EQUIPMENT RENT/LEASES		\$7,000		\$7,000
Water	511-5-7115-333	SAMPLING/TESTING		\$35,000		\$40,000
Water	511-5-7115-350	TRAVEL AND PER DIEM		\$1,000		\$1,000
Water	511-5-7115-351	CONFERENCE, SEMINARS & TRAINING		\$10,500		\$15,500
Water	511-5-7115-360	PRINTING COST		\$500		\$500
Water	511-5-7115-362	MAILING COST		\$500		\$500
Water	511-5-7115-370	DUES-MEMBERSHIPS-FEES		\$8,000		\$8,000
Water	511-5-7115-370	AZ 811 Blue Stake	\$1,692		\$1,692	
Water	511-5-7115-370	AZ Water Association	\$65		\$65	
Water	511-5-7115-370	American Water Association	\$242		\$242	
Water	511-5-7115-370	West Valley Water Association	\$3,200		\$3,200	
Water	511-5-7115-370	AZ STORM	\$750		\$750	
Water	511-5-7115-370	Water Use IT Wisely	\$2,000		\$2,000	
Water	511-5-7115-370	Misc. Adjustment	\$51		\$51	
Water	511-5-7115-381	WIRELESS COMMUNICATIONS		\$9,500		\$9,500
Water	511-5-7115-383	TRASH SERVICE		\$500		\$500
Water	511-5-7115-385	BUILDING WATER/SEWER SERVICES		\$3,000		\$3,000
Water	511-5-7115-385	Sewer	\$600		\$600	
Water	511-5-7115-385	Water	\$2,400		\$2,400	
Water	511-5-7115-386	LANDSCAPING/IRRIGATION		\$12,000		\$12,000
Water	511-5-7115-386	At wells	\$12,000		\$12,000	
Water	511-5-7115-387	UTILITY ELECTRICITY		\$409,000		\$934,000
Water	511-5-7115-418	SPECIAL PROJECTS		\$273,500		\$283,000
Water	511-5-7115-418	Consultant for Lead and Copper Pipes	\$0		\$50,000	
Water	511-5-7115-418	Dietz Crane Arsenic Media Replacment	\$0		\$100,000	
Water	511-5-7115-418	GIS Mapping	\$133,000		\$133,000	
Water	511-5-7115-418	Computer and Monitor Refresh	\$5,500		\$0	
Water	511-5-7115-418	ADWR Water Conservation Education	\$135,000		\$0	
Water	511-5-7115-482	ASSURED WATER SUPPLY		\$1,740,000		\$1,763,000
Water	511-5-7115-617	CAPITAL EQUIPMENT PURCHASE		\$40,000		\$0
Water	511-5-7115-617	Vacuum Excavator Trailer	\$0		\$0	
Water	511-5-7115-617	Well Transducer Upgrade	\$0		\$0	
Water	511-5-7115-617	Disinfection System Upgrade	\$0		\$0	
Water	511-5-7115-617	62077 - Well Transducer Upgrade	\$40,000		\$0	
Water	511-5-7115-650	VEHICLES		\$48,500		\$50,000
Water	511-5-7115-650	Vehicle Replacement Program - Water	\$48,500		\$50,000	
Water	511-5-7115-656	BUILDING/DATA INFRAS. IMPROV.		\$1,138,500		\$2,228,500
Water	511-5-7115-656	62343 Public Works Facility Carryforward	\$0		\$55,000	
Water	511-5-7115-656	Water Production Facility Rehabilitation Program	\$300,000		\$140,000	
Water	511-5-7115-656	Well Site AC Unit Replacement	\$0		\$0	
Water	511-5-7115-656	62065 - Water Production Facility Rehabilitation Program	\$0		\$400,000	
Water	511-5-7115-656	Customer Service Facility	\$704,000		\$300,000	
Water	511-5-7115-656	Public Works Facility	\$134,500		\$1,333,500	
Water	511-5-7115-658	LAND IMPROVEMENTS		\$67,000		\$0
Water	511-5-7115-658	62212- Drainage Improv. Dysart & Peoria	\$37,000		\$0	
Water	511-5-7115-658	Drainage Improvements at Dysart Road & Peoria Avenue	\$0		\$0	
Water	511-5-7115-658	Well Site Security Improvement Project	\$30,000		\$0	
Water	511-5-7115-670	SEWER COLLECTION SYSTEM		\$0		\$0
Water	511-5-7115-673	PRE-CONSTRUCTION DESIGN		\$260,000		\$1,675,000
Water	511-5-7115-673	Booster Pump Replacement for 127th Lane Well Site	\$0		\$100,000	
Water	511-5-7115-673	Sunnyvale Well Site Discharge Pipe Replacement and Flow Meter	\$0		\$65,000	
Water	511-5-7115-673	Water Main Replacement	\$0		\$1,250,000	

Department Name	ACCOUNT ID	Description	FY23 Budget Sub-lines	FY23 Final Budget	FY24 Final Sub-lines	FY24 Final Budget
Wastewater	541-5-7581-311	PROFESSIONAL SERVICES		\$35,000		\$35,000
Wastewater	541-5-7581-313	CONTRACTED SERVICES		\$70,000		\$70,000
Wastewater	541-5-7581-325	TECH/SOFTWARE SUPPORT		\$13,000		\$13,000
Wastewater	541-5-7581-328	EQUIPMENT RENT/LEASES		\$2,000		\$2,000
Wastewater	541-5-7581-334	SLUDGE DISPOSAL		\$104,500		\$120,000
Wastewater	541-5-7581-351	CONFERENCE,SEMINARS & TRAINING		\$6,000		\$6,000
Wastewater	541-5-7581-362	MAILING COST		\$500		\$500
Wastewater	541-5-7581-381	WIRELESS COMMUNICATIONS		\$4,500		\$4,500
Wastewater	541-5-7581-385	BUILDING WATER/SEWER SERVICES		\$6,000		\$6,000
Wastewater	541-5-7581-385	five accounts	\$6,000		\$6,000	
Wastewater	541-5-7581-386	LANDSCAPING/IRRIGATION		\$2,000		\$2,000
Wastewater	541-5-7581-387	UTILITY ELECTRICITY		\$280,500		\$640,000
Wastewater	541-5-7581-418	SPECIAL PROJECTS		\$9,000		\$75,000
Wastewater	541-5-7581-418	Wastewater Capacity Study	\$0		\$75,000	
Wastewater	541-5-7581-418	Computer and Monitor Refresh	\$9,000		\$0	
Wastewater	541-5-7581-436	RATE STUDY		\$28,000		\$6,000
Wastewater	541-5-7581-617	CAPITAL EQUIPMENT PURCHASE		\$21,000		\$9,000
Wastewater	541-5-7581-617	62207- SCADA Software Server Replacement	\$21,000		\$0	
Wastewater	541-5-7581-617	Copier for WRF	\$0		\$9,000	
Wastewater	541-5-7581-617	SCADA Software Server Replacement	\$0		\$0	
Wastewater	541-5-7581-650	VEHICLES		\$0		\$50,000
Wastewater	541-5-7581-717	WIFA - PRINCIPAL		\$25,500		\$27,000
Wastewater	541-5-7581-750	WIFA - INTEREST		\$9,000		\$7,500
Wastewater	541-5-7581-773	TRUST/AGENCY FEES		\$0		\$0
Wastewater	541-5-7581-990	LOSS ON RETIRE/SALE OF ASSETS		\$0		\$0
Wastewater	541-5-7582-224	LAB SUPPLIES		\$7,000		\$7,000
Wastewater	541-5-7582-326	LICENSE AND PERMITS		\$20,000		\$20,000
Wastewater	541-5-7582-333	SAMPLING/TESTING		\$25,000		\$25,000
Wastewater	541-5-7582-351	CONFERENCE SEMINAR TRAINING		\$0		\$7,500
Wastewater	541-5-7582-370	DUES-MEMBERSHIPS-FEES		\$2,000		\$2,000
Wastewater	541-5-7582-370	Storm Membership	\$750		\$750	
Wastewater	541-5-7582-370	AZ Water Membership	\$455		\$455	
Wastewater	541-5-7582-370	Misc. Adjustment	\$795		\$795	
Wastewater	541-5-7585-617	CAPITAL EQUIPMENT PURCHASE		\$0		\$0
Wastewater	541-5-7585-655	SEWER PLANT		\$1,228,500		\$200,000
Wastewater	541-5-7585-655	62079- WW Process Equipment Improvements	\$200,000		\$200,000	
Wastewater	541-5-7585-655	Wastewater Process Equipment Improvements	\$0		\$0	
Wastewater	541-5-7585-655	62107- Reclamation Facility Design	\$1,028,500		\$0	
Wastewater	541-5-7585-656	BUILDING/DATA INFRAS. IMPROV.		\$134,500		\$1,453,500
Wastewater	541-5-7585-656	62343 Public Works Facility Carryforward	\$0		\$120,000	
Wastewater	541-5-7585-656	Public Works Facility	\$134,500		\$1,333,500	
Wastewater	541-5-7585-670	PRE-CONSTRUCTION DESIGN		\$575,000		\$145,000
Wastewater	541-5-7585-670	62227- Collections System Replacement	\$125,000		\$125,000	
Wastewater	541-5-7585-670	Backup Pump for Brisas Lift Station	\$0		\$20,000	
Wastewater	541-5-7585-670	Collections System Replacement Program	\$0		\$0	
Wastewater	541-5-7585-670	Influent Line Replacement at WRF	\$450,000		\$0	
Wastewater	541-5-7585-950	TRANSFER OUT		\$2,100,000		\$2,100,000
Wastewater	541-5-7585-960	DEPRECIATION		\$1,250,000		\$1,300,000
Wastewater	541-5-7586-210	SMALL TOOLS/EQUIP/PARTS		\$1,000		\$1,000
Wastewater	541-5-7586-211	FUEL AND LUBRICANTS		\$6,000		\$6,000
Wastewater	541-5-7586-213	SAFETY EQUIPMENT/SUPPLIES		\$3,000		\$3,000
Wastewater	541-5-7586-221	PIPES, FITTINGS & REPAIRS		\$1,000		\$1,000
Wastewater	541-5-7586-222	CHEMICALS		\$4,000		\$5,000
Wastewater	541-5-7586-253	VEHICLE MAINTENANCE/REPAIRS		\$10,000		\$10,000
Wastewater	541-5-7586-256	WWTP MAINTENANCE/REPAIRS		\$41,000		\$41,000
Wastewater	541-5-7586-311	PROFESSIONAL SERVICES		\$2,000		\$2,000
Wastewater	541-5-7586-313	CONTRACTED SERVICES		\$18,000		\$18,000
Wastewater	541-5-7586-334	SLUDGE DISPOSAL		\$2,000		\$2,000
Wastewater	541-5-7586-418	SPECIAL PROJECTS		\$67,000		\$67,000
Wastewater	541-5-7586-418	GIS Mapping	\$67,000		\$67,000	
Sanitation	591-4-1141-811	TRASH SERVICE CHARGES		\$2,000,000		\$2,585,000
Sanitation	591-5-7881-199	LABOR DISTRIBUTION		\$30,000		\$31,500
Sanitation	591-5-7881-223	GARBAGE CONTAINER/PARTS		\$70,000		\$72,000
Sanitation	591-5-7881-242	HHW EXPENSES		\$20,000		\$20,500
Sanitation	591-5-7881-247	RECYCLING SUPPLIES		\$1,000		\$1,000
Sanitation	591-5-7881-336	TRASH SERVICE CHARGES		\$1,559,500		\$1,779,000
Sanitation	591-5-7881-337	LANDFILL FEES		\$15,000		\$15,500
Sanitation	591-5-7881-360	PRINTING COST		\$3,000		\$3,000
Sanitation	591-5-7881-383	TRASH SERVICE		\$16,000		\$16,500
Sanitation	591-5-7881-390	RECYCLING BIN TRASH PICKUP		\$2,000		\$2,000
Sanitation	591-5-7881-394	BULK TRASH		\$80,000		\$82,000
Sanitation	591-5-7881-950	TRANSFER OUT		\$357,000		\$357,000

CONTRACT INFORMATION

Status	✓ Active
Start Date	Jul 3, 2023
Duration	Limited Term. Initial Term: 3 years
Summary	None
Renewal Options	<input type="button" value="✓ Activate"/> Option 1: 2 years
End Date	Jul 2, 2026
Contract ID	PW23-RFP-GIS01
Requisition ID	None
Contract Amount	
Vendor	Entellus, Inc. <input type="button" value="No Reviews"/> rsauer@entellus.com
Project Contact	Scott Ketchmark Utilities Superintendent Email: sketchmark@elmirageaz.gov Phone: (623) 876-4261
Procurement Contact	Valerie Ojeda Procurement Administrator Email: vojeda@elmirageaz.gov Phone: (623) 876-2953
Department	Public Works

GIS Improvement Project Quotes

SAM Geospatial Services Murray, Utah	Sanitary Sewer Network Water Utility Network	\$ 372,200.00
Entellus Phoenix, AZ	Sanitary Sewer Network Water Utility Network	\$ 249,592.00
Burgess & Niple Tempe, AZ	Sanitary Sewer Network Water Utility Network	\$ 371,134.00
Sunrise Engineering Mesa, AZ	No Response	

February 22, 2024

El Mirage – 2022/2023 GIS Data Improvement Project
Entellus Project No. 522.013A

INTRODUCTION AND PROJECT OVERVIEW:

The City of El Mirage owns and operates water systems infrastructure throughout the city including a small area in the old town of Surprise (OTS). These system assets consist of above and below ground locations that need to be easily located during emergencies such as watermain breaks, sewer backups and firefighting events. Outdated technologies and historical records were used previously to document these assets. Overtime employees have retired along with city growth the El Mirage records need to be updated with accurate GIS locations.

The result of the project will be a complete and accurate dataset of above and below ground utility information. The final deliverables will include easy to use web applications for field workers, spatially accurate information, and updated line work to show the location of underground utilities.

Task 1. Meetings and Coordination:

Entellus will attend and participate in all project meetings. Entellus will prepare and distribute attendance sheets, meeting agenda, and meeting minutes. Meeting minutes will be prepared by Entellus within three business days after the meeting and sent to the City’s Engineering project manager for review. After approval Entellus will distribute the meeting minutes to all meeting participants. The City’s Engineering PM will work with the Entellus PM and will schedule all formal meetings that include the City staff/stakeholders.

1.1. Project Kick-off Meeting

It is anticipated that there will be one (1) project kick-off meeting.

1.2. Coordination Meetings

It is anticipated that there will be twelve (12) coordination meetings throughout the duration of the project. It is assumed these meetings will be held virtually through Microsoft Teams.

Meeting Type	Number of Meetings
Project Kick-off	1
Coordination Meetings	12
Total	13

Task 2. Data Collection and Office Operations

Entellus will gather various existing GIS utility data from the City of El Mirage to establish a baseline of information to begin developing an all-inclusive dataset. Entellus will work with City personnel to compile and review the City’s standard GIS format such as a File Geodatabase, that includes appropriate metadata schema, so any resulting data will be delivered in a way that City GIS users will be able to incorporate the data easily back into the City’s system. Entellus and the City’s GIS department will coordinate with an initial meeting to set up these schema and data delivery format.

Entellus will perform any data maintenance on data captured as part of **Task 3 Field Data Acquisition**. It is anticipated that GIS personnel will bring in data collected in the field to be processed and loaded into the GIS database and determine if accuracy requirements were met as well as the appropriate fields.

2.1. GIS Database Setup

Entellus will setup the initial GIS database and field GPS equipment to record feature location and attributes. Entellus will coordinate with City Staff to establish the acceptable format of GIS deliverables.

2.2. Data Processing

This task will include the transfer and post process GPS observations from field data collectors to the GIS database, verify the positional accuracy, and format the data to meet the City's specified requirements. Entellus will establish a unique feature identification numbering system to join the field-verified features to the City's existing feature attribute data. This process provides a method to verify that all features have been accounted for, and to retain the connectivity to the City's existing GIS database. It is anticipated that this data processing will be performed on a monthly basis.

2.3. Data Review (QA/QC)

Entellus will meet internally and create standards for data collected in the field with the GPS units. These standards are composed of drop-down lists for fields that will be easily populated and set values to ensure data consistency, as well as including accurate information for field workers for future maintenance and inspections.

Entellus will review the field-verified features and compare the location to the existing feature's data, ensuring that information collected in the field is correct and consistent with the type of utility found. This step is imperative as many features and utilities may be in close proximity to one another, and capturing this is necessary for a successful project. Entellus will set up tools for checking data quality against previously supplied information, to highlight areas with potential issues if discrepancies are found between the original GIS data and the field verified data. Quality control may also be done through automatic checks using built-in Geoprocessing Tools, plugins, or python scripts. Manual quality control follows checklists created to ascertain data completeness.

2.4. Identification, Coordination, and Resolution of Discrepancies

Entellus will coordinate with the City to determine if there are areas that need further investigation, such as acquiring as-built information, review with City workers for flow directions, and any other instances of data collection where a City employee may have the institutional knowledge of the area that can be translated into the GIS system. This coordination will mostly be through email but may occur through phone calls, Microsoft Teams meetings or in-person visits.

Task 3. Field Data Acquisition

Entellus will establish a desktop data collection process using ESRI's ArcGIS Desktop Suite, including ArcGIS Pro 3.2 (or newer) and ArcMap 10.8.2. The data collection will be completed in phases or in natural delimiters in the City, such as quarter sections or topographic features like major roadways. Entellus will load existing known facility utility features into a survey collector and collect sub-foot locations of the features in question. This data will then be reviewed and compiled as described under **Task 2: Data Collection and Office Operations**.

This GIS data improvement project will contract professional services to perform a field utility asset inventory of approximately 21,000 features. The following sections list the prioritized asset types to be collected at sub-foot accuracy.

This list may not be all inclusive of items related to this scope. Entellus and the City's Project Manager will discuss if any further items needed will fit into this current scope.

It is anticipated that the acquisition of some waste water and water well site facility data will require the accompanying of a City employee to obtain. To that end, it is assumed that Entellus field workers will meet with a City employee once a month in the field to gain access to these secured waste water or water well site locations to obtain the necessary GPS data.

- 3.1. Water Valves: El Mirage (Est. 5,000)
- 3.2. Water Valves: old town Surprise (Est. 1,000)
- 3.3. Water Main Valves: including 9 well site valves. (Est. 36) [ID SNYVWLV #]
- 3.4. Water Blow Off Valves: El Mirage and old town Surprise (Est. 10) [ID: OTSBOV #]
- 3.5. Fire Hydrants: El Mirage (Est. 1,050) [ID numbers to be reused when possible]
- 3.6. Fire Hydrants: old town Surprise (350) [ID numbers to be reused when possible]
- 3.7. Fire Service Valves: El Mirage (Est. 400)
- 3.8. Fire Service Valves: old town Surprise (Est. 150)
- 3.9. Meters (Residential & Commercial): El Mirage and old town Surprise (Est. 11,163)
- 3.10. Sample Station Locations: El Mirage and old town Surprise (50 stations)
- 3.11. Sewer Manholes: El Mirage (Est. 1,500) [ID MH#]
- 3.12. Sewer Cleanouts: El Mirage (Est. 265) [ID SCO#]
- 3.13. Vehicles & Equipment

The cost for vehicles and equipment will be charged on a daily basis for field activities.

Task 4. Traffic Control

- 4.1. Traffic Control Schedule and Coordination

Entellus will coordinate their traffic control needs with the City. It is anticipated that this will be necessary at four (4) major intersections.

- 4.2. Provide Traffic Control

When traffic control is necessary, Entellus will have a vehicle on site with a directional beacon to direct traffic away from work activities. It is assumed that a traffic control plan and permit are not necessary as part of this project.

Task 5. Develop Feature Line Dataset

Entellus will review any existing GIS data and determine its applicability to the project. The data collected in **Task 3 Field Data Acquisition** will help develop the items listed in the following sections. It is estimated there are six (6) project as-built plans (water/wastewater assets) that need to be added to new and existing map layers.

- 5.1. Water distribution mains
This will include main size and material type (ex: 6", 8", 12", 16", PVC, DI, AC).
- 5.2. Water distribution main line valves
This will include valve numbers (ex: EMV#, SV#)
- 5.3. Fire hydrants and hydrant valves

- This will include valve and fire hydrant numbers (ex: EMH #, EMHV #)
- 5.4. Fire service lines
This will include fire service line valve to buildings
 - 5.5. Sewer collection mains
This will include main size and material and flow direction arrows (ex: 6"8", 12"16, PVC, DI, Clay). The flow directions will be coordinated with City employees under **Task 2.4**, if necessary.
 - 5.6. Sewer Lines
This will include manhole to manhole line segments and cleanout to manhole line segments.
 - 5.7. Lift station discharge lines
This will include valves to the receiving manholes for 2 lift stations.

Task 6. Deliverables

- 6.1. GIS Data Submittal.
Entellus will prepare and deliver a file geodatabase with metadata and schema that matches the City's current GIS data specifications. This geodatabase will include the deliverables for the Data Collection and Office Operations, Field Data Acquisition, and the Develop Feature Lines Dataset tasks.
As part of this project's delivery Entellus will set up and deliver a standardized Geodatabase in accordance with the City's Geospatial metadata and follow QA/QC standards (ISO 19115) or the City of El Mirage's preferred metadata standard.
- 6.2. Progress Reports.
Entellus will prepare monthly progress reports to deliver to the City, outlining any issues that may have been found and need to be addressed. These reports will also include screenshots of the progression of the collection in the City on a high-level map.
- 6.3. Application Development
As part of this task, Entellus will update the existing City of El Mirage ArcGIS online portal web maps to reflect the updated data performed by this project. This will include updating any maps like the Water Assets or Wastewater Assets maps. This will help provide City employees with the most up to date information that can be useful in day-to-day and emergency operations. The maintenance of these applications is limited to the duration of this project.

Entellus

El Mirage Prj. No.
 Entellus Prj #522.013A
 February 22, 2024

2022/23 GIS Data Improvement Project

PROJECT HOURS AND FEES

TASK	WORK ITEM DESCRIPTION	Project Principal	GIS Manager	GIS Analyst	GIS Tech	Survey Manager	Survey RLS	Survey Crew Chief	1-Man Crew Survey	Admin	GIS Technical Advisor	Total Hours	Total Amount	Direct Expenses
		\$ 231.00	\$ 117.00	\$ 100.00	\$ 74.00	\$ 208.00	\$ 188.00	\$ 104.00	\$ 84.00	\$ 93.00	\$ 188.00			
1	Project Management and Meetings	12	76	28	0	6	0	0	0	12	6	140	\$ 17,956.00	\$ -
	1.1 Project Coordination and Administration	6	48							12		66	\$ 8,118.00	
	1.2 Kick-off Meeting	2	4	4				2			2	14	\$ 2,122.00	
	1.3 Coordination Meetings (12)	4	24	24				4			4	60	\$ 7,716.00	
												0	\$ -	
2	Data Collection & Office Operations	2	54	172	218	4	16	0	0	0	4	470	\$ 44,704.00	\$ -
	2.1 GIS Database Setup		8	16				4			4	32	\$ 4,120.00	
	2.2 Data Processing		12	48			16					76	\$ 9,212.00	
	2.3 Data Review (QA/QC)	2	24	80	160							266	\$ 23,110.00	
	2.4 ID, Coordination, and Resolution of Discrepancies		8	16	10							34	\$ 3,276.00	
	2.5 Project as-built Plans (6)		2	12	48							62	\$ 4,986.00	
												0	\$ -	
3	Field Data Acquisition	0	0	0	0	0	0	0	1059	0	0	1059	\$ 88,956.00	\$ 12,502.00
	3.1 Water Valves, El Mirage (5,000)								250			250	\$ 21,000.00	
	3.2 Water Valves, Old Town Surprise (1,000)								50			50	\$ 4,200.00	
	3.3 Water Main Valves / Well Site Valves (36)								16			16	\$ 1,344.00	
	3.4 Water Blow Off Valves (10)								4			4	\$ 336.00	
	3.5 Fire Hydrants, El Mirage (1,050)								50			50	\$ 4,200.00	
	3.6 Fire Hydrants, Old Town Surprise (350)								16			16	\$ 1,344.00	
	3.7 Fire Service Valves, El Mirage (400)								20			20	\$ 1,680.00	
	3.8 Fire Service Valves, Old Town Surprise (150)								8			8	\$ 672.00	
	3.9 Meters, ALL - Residential & Commercial (11,163)								400			400	\$ 33,600.00	
	3.10 Sample Station Locations, ALL (50)								25			25	\$ 2,100.00	
	3.11 Sewer Manholes, El Mirage (1,500)								190			190	\$ 15,960.00	
	3.12 Sewer Cleanouts, El Mirage (265)								30			30	\$ 2,520.00	
	3.13 Vehicles & Equipment												\$ -	\$12,502.00
												0	\$ -	
4	Traffic Control	2	4	0	0	2	8	16	0	0	0	32	\$ 4,514.00	\$ 188.00
	4.1 Traffic Control Schedule and Coordination	2	4									10	\$ 1,682.00	
	4.2 Provide Traffic Control					2	4	16				22	\$ 2,832.00	\$188.00
												0	\$ -	
5	Develop Feature Line Dataset	0	10	82	440	0	0	0	0	0	0	532	\$ 41,930.00	\$ -
	5.1 Water Distr. Lines (4200 WM, 9000 SL, 5500 meters, 2500 fittings, 2800 valves)		4	32	200							236	\$ 18,468.00	
	5.2 Fire Service Lines		2	20	80							102	\$ 8,154.00	
	5.3 Sewer Collection Mains(2700 line, 2100 point features, 346 surprise)		2	24	120							146	\$ 11,514.00	
	5.4 Lift Station Discharge Lines		2	6	40							48	\$ 3,794.00	
												0	\$ -	
6	Deliverables	6	32	74	76	0	0	0	0	0	2	190	\$ 18,530.00	\$ -
	6.1 GIS Data Submittal	2	4	16	12						2	36	\$ 3,794.00	
	6.2 Progress Reports	2	12	18	4							36	\$ 3,962.00	
	6.3 Application Development	2	16	40	60							118	\$ 10,774.00	
												0	\$ -	
TOTAL STAFF HOURS BASIC DESIGN SERVICES		22	176	356	734	12	24	16	1059	12	12	2423		\$ 12,690.00
DIRECT LABOR COST		\$ 5,082.00	\$ 20,592.00	\$ 35,600.00	\$ 54,316.00	\$ 2,496.00	\$ 4,512.00	\$ 1,664.00	\$ 88,956.00	\$ 1,116.00	\$ 2,256.00		\$216,590.00	
TOTAL DIRECT EXPENSES														\$ 12,690.00
TOTAL BASE PROJECT COST													\$229,280.00	\$ 12,690.00

Entellus

El Mirage Prj. No.
 Entellus Prj #522.013A
 February 22, 2024

2022/23 GIS Data Improvement Project

PROJECT HOURS AND FEES

TASK	WORK ITEM DESCRIPTION	Project Principal	GIS Manager	GIS Analyst	GIS Tech	Survey Manager	Survey RLS	Survey Crew Chief	1-Man Crew Survey	Admin	GIS Technical Advisor	Total Hours	Total Amount	Direct Expenses
		\$ 231.00	\$ 117.00	\$ 100.00	\$ 74.00	\$ 208.00	\$ 188.00	\$ 104.00	\$ 84.00	\$ 93.00	\$ 188.00			
10	Allowances	0	24	32	60	0	8	0	90	0	0	214	\$ 19,512.00	\$ 800.00
10.1	Additional Services		24	32	60		8		90			214	\$ 19,512.00	\$800.00
												0	\$ -	
TOTAL STAFF HOURS OPTIONAL DESIGN SERVICES		0	24	32	60	0	8	0	90	0	0	214		\$ 800.00
DIRECT LABOR COST		\$ -	\$ 2,808.00	\$ 3,200.00	\$ 4,440.00	\$ -	\$ 1,504.00	\$ -	\$ 7,560.00	\$ -	\$ -		\$19,512.00	
TOTAL DIRECT EXPENSES														
TOTAL ALLOWANCE PROJECT COST		\$ -	\$ 2,808.00	\$ 3,200.00	\$ 4,440.00	\$ -	\$ 1,504.00	\$ -	\$ 7,560.00	\$ -	\$ -		\$ 19,512.00	
TOTAL PROJECT COST		\$ 5,082.00	\$ 23,400.00	\$ 38,800.00	\$ 58,756.00	\$ 2,496.00	\$ 6,016.00	\$ 1,664.00	\$ 96,516.00	\$ 1,116.00	\$ 2,256.00		\$ 249,592.00	\$ 13,490.00