Project Staffing and Cost of Engineering Services
Duncan, Arizona Floodplain Analysis- Highway and Levee Alignment Alternatives
CENE 476: Capstone-Prep

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Abdullah Alhusaini
Ashley Charlton
Morty Jim
Leslie Sorenson

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4 PROJECT STAFFING

4.1 List of Staff Positions

Senior Engineer, Sr. Engineer, SE
Professional Engineer, Prof. Engineer, PE
Engineer-in-Training, EIT
Drafter/Technical Design, Drafter/Tech, D/T
Administrator, Admin., Ad
Arizona Department of Transportation Coordinator, ADOT Coordinator, ADOT Coord.

4.2 Qualifications of Senior Personnel

Abdullah Alhusaini- Qualifications include knowledge in ArcMap, AutoCAD, and Civil-3D. Experience with ADOT and AASHTO guidelines. Developing intersections and highway designs.

Ashley Charlton- Qualifications include Highway Capacity Software, AutoCAD, and Civil-3D. Experience with ADOT and AASHTO guidelines. Quality writing and communication skills. Experience in creating intersections and highway designs. Prior experience with highway and street safety.

Morty Jim- Qualifications include knowledge in AutoCAD, Civil-3D, and Highway Capacity Software. Understanding of basic function of AutoCAD and creating blocks for drafting. Able to utilize Civil-3D to develop both horizontal and vertical alignment for highway projects. Prior experience in developing a new highway with a four-lane highway, in compliance with ADOT and AASHTO guidelines.

Leslie Sorenson- Qualifications include knowledge in AutoCAD and Civil-3D. Familiarity with ADOT and AASHTO guidelines. Quality writing and communication skills. Knowledge of intersection design and safety guidelines.

4.3 Matrix

Task Name	Sr. Engineer	Prof. Engineer	EIT (4 Combined)	Drafter /Tech	Administrator	Task Total
1: Field Investigation	4	24	80	0	0	108
2: Traffic Conditions	2	7	48	0	0	57
3: Preliminary Data	3	10	64	13	0	90
4: Alignment Design Alternatives	7	22	144	29	12	214
5: Intersection	2	5	32	7	2	48
6: Cost Assessment	2	5	32	0	8	47
7: Deliverables	7	22	144	0	20	193
8: Meetings	2	5	34	0	7	48
Total Hours	29	100	578	49	49	**805**

4.4 Staff Position Justification

In order to complete this project, the team will need a Senior Engineer, a Professional Engineer, an Engineer-in-Training (EIT), a Drafter, and an Administrator. The duties of the Senior Engineer will include overseeing all tasks to ensure operations are going smoothly. The team will only be required to be present at major site visits and milestone meetings. The Professional Engineer is responsible for developing plans and making sure everything is done correctly and promptly. The Professional Engineer will require more hours than a Senior Engineer due to having the responsibility of creating design plans and overseeing the EITs. The EITs will be performing the majority of legwork for the project. They will be completing analysis under the supervision of the Professional Engineer. Since EITs will be completing the majority of the analysis, they will be required to work more hours on this project. Both the Drafter and Administrator will only be utilized for specific tasks involved with this project.

5 COST OF ENGINEERING SERVICES

5.1 Matrix of Engineering Cost and Total Cost of Services

Rate Table				
Staff	**Multiplier**	**Billing Rate ($/hr.)**	**Hours**	**Cost ($)**
Sr. Engineer	3	180	29	$5,220.00
Prof. Engineer	2.5	100	100	$10,000.00
EIT	2.5	62.5	578	$36,125.00
Drafter/Tech	2	50	49	$2,450.00
Adminastrator	2	40	49	$1,960.00
ADOT Coordinator	2	60	20	$1,200.00
OTHER EXPENSES				
	cost ($/mi.)	**Trips**	**Miles**	
Travel	0.7	2	600	$840.00
	cost ($/night)		**Nights**	
Hotel	150	-	2	$300.00
			Total Cost	$58,095.00

5.2 Discussion of Engineering Cost and Total Cost of Services

To maintain a safe overhead to keep the Engineering company, a Rate Table will be utilized to cover all others who are not completely involved in each individual project. There must be a steady stream of income, even when there are no clients. The Rate Table used above is based on a typical rate of the included staff members and a multiplier for additional overhead. Considering both the Senior Engineer and Professional Engineer will only be involved when approval is needed, their hours worked on the project will be minimal; therefore, they would have a higher rate such as three and two and half multiplier. The same can be applied to the EIT, Drafter, Admin, and ADOT Coordinator. The EITs will be generating the majority of the income, which can cover the overhead (such as Health Insurance, Fees, and other required benefits). In addition to the Rate Table, both Travel and Hotel will need to be included to gather proper information for the completion of the project.

5.3 Total Cost of Services Justification

These costs were determined through the analysis of average rates for each profession. These are then multiplied by the determined variable as discussed in section 5.2. The total Billing Rate is determined from both engineering cost and cost of services, and the number of hours worked are

determined in the Matrix. Also, estimating a total of four nights stay over the course of this project, which will include around 600 miles of travel.

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