

ADOT ROAD SAFETY ASSESSMENT (RSA)

SERJ: CIVIL SOLUTIONS

TEAM MEMBERS:

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CENE 476

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CLIENT AND PROJECT PURPOSE

- **BRENT ALLMAN, P.E., M.S.E., ADOT SENIOR TRAFFIC ENGINEER**
- **EVALUATE AND SUGGEST IMPROVEMENTS FOR ROADWAY SAFETY AND OPERATIONS AT "HOTSPOT" INTERSECTIONS IDENTIFIED THROUGH ADOT NETWORK SCREENING**
 - **FIND LOW-COST SAFETY COUNTERMEASURES TO REDUCE PEDESTRIAN AND BICYCLE CRASHES**
 - **ASSESS EXISTING INFRASTRUCTURE AND RECOMMEND DESIGN SOLUTIONS BASED ON DATA OBTAINED**



Figure 1: Project Client

PROJECT LOCATION AND BACKGROUND

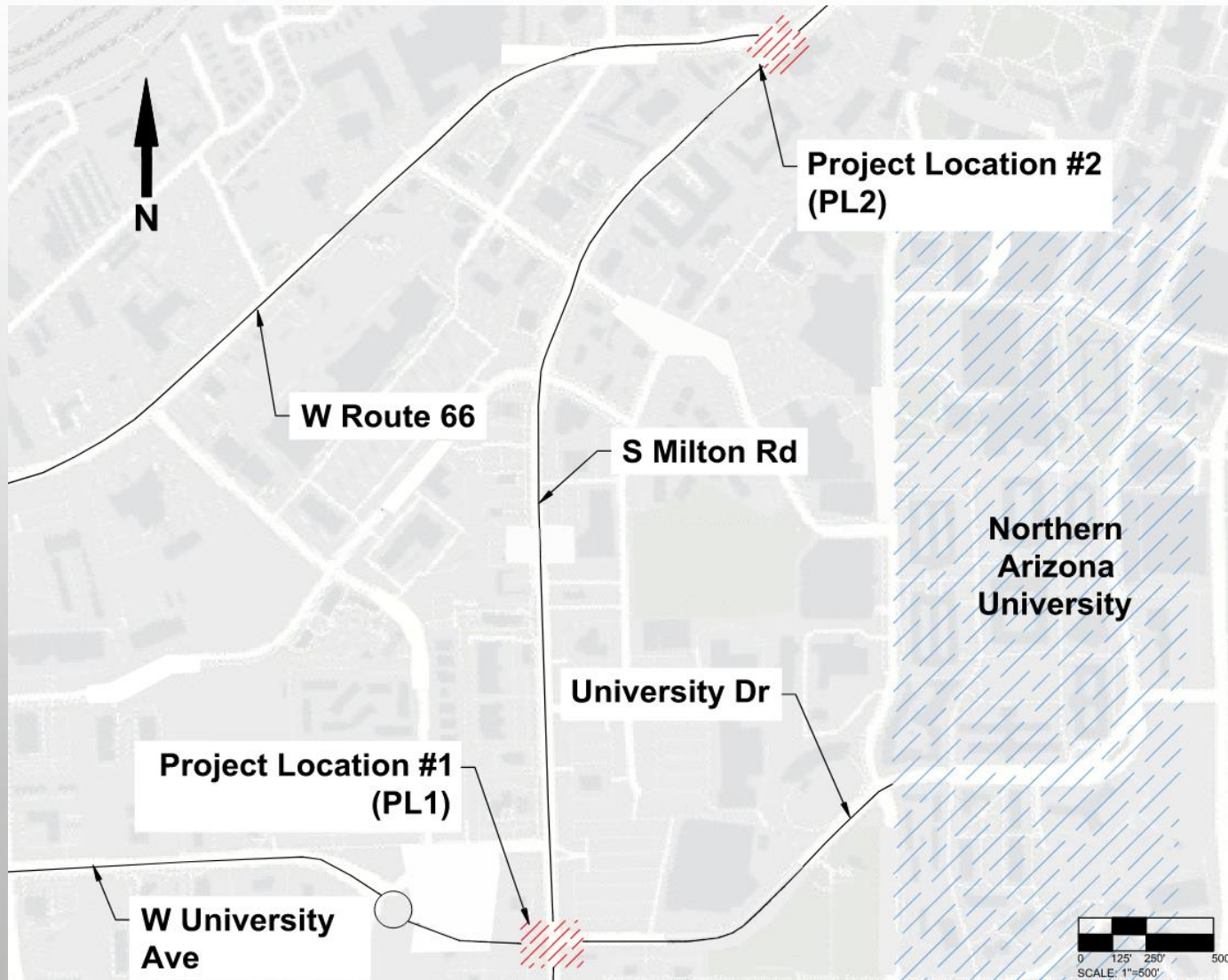


Figure 2: Project Vicinity Map

PROJECT INTERSECTIONS:

- **S MILTON RD AND W UNIVERSITY AVE**
- **S MILTON RD AND ROUTE 66**

LOCATION DETERMINATION:

- **STATEWIDE NETWORK SCREENING**

TASK 1: BACKGROUND RESEARCH

- **TASK 1.1: REVIEW PREVIOUS ROAD SAFETY ASSESSMENTS (RSAs)**
- **TASK 1.2: OBTAIN RECENT CRASH DATA FROM ADOT**



Figure 3: COF Logo



Figure 4: ADOT Logo

TASK 2: SITE VISIT

- **TASK 2.1: DRONE SURVEY**
- **TASK 2.2: EXISTING GEOMETRY**
- **TASK 2.3: PEDESTRIAN AND BIKE FACILITIES**
- **TASK 2.4: OVERALL SAFETY ANALYSIS**
- **TASK 2.5: SIGNAL TIMING ANALYSIS**

TASK 3: TRAFFIC STUDIES

- **TASK 3.1 & 3.4: TRAFFIC STUDY
(FALL/WINTER)**
- **TASK 3.2 & 3.5: PEDESTRIAN COUNT
STUDY (FALL/WINTER)**
- **TASK 3.3 & 3.6: BICYCLE AND
MULTIMODAL USE STUDY
(FALL/WINTER)**
- **TASK 3.7: CRASH DATA ANALYSIS**

TASK 4: GENERATE ALTERNATIVES

- **TASK 4.1: ANALYZE TRAFFIC STUDY
RESULTS**
- **TASK 4.2: BRAINSTORM POTENTIAL
ALTERNATIVES**
- **TASK 4.3: CRASH MODIFICATION
FACTORS**
- **TASK 4.4: DECISION MATRIX**
- **TASK 4.5: SHORT/MEDIUM/LONG
TERM RECOMMENDATIONS**

TASK 5: RSA REPORT

- **TASK 5.1: FINALIZE RECOMMENDATIONS**
- **TASK 5.2: COMPILE ALL STUDIES, DATA, AND ALTERNATIVES**



Figure 5: Example Intersection

TASK 6: PROJECT IMPACTS

- **TASK 6.1: SOCIAL**
- **TASK 6.2: ENVIRONMENTAL**
- **TASK 6.3: ECONOMIC**

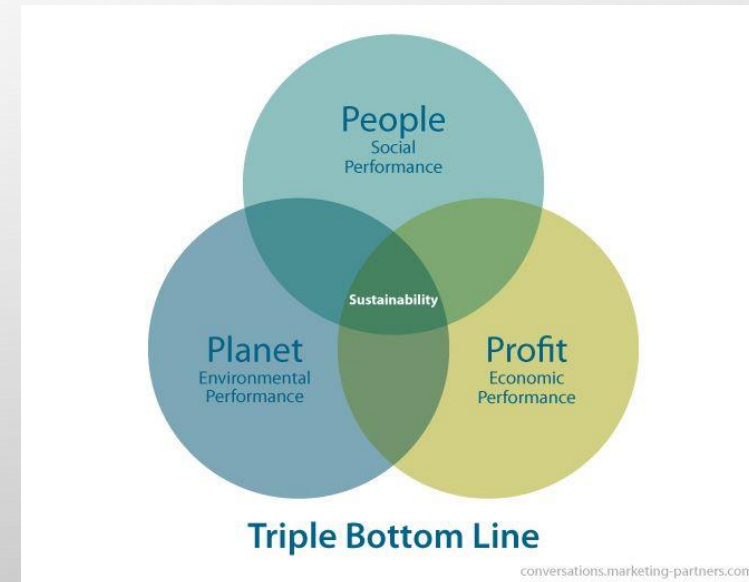


Figure 6: TBL Diagram

TASK 7: PROJECT DELIVERABLES

- **TASK 7.1: 30% REPORT: TASK 1 & TASK 2**
- **TASK 7.2: 60% REPORT: TASK 3 & TASK 4**
- **TASK 7.3: 90% REPORT: TASK 5 & TASK 6**
- **TASK 7.4: FINAL REPORT: ALL TASKS**
- **TASK 7.5: PROJECT WEBSITE**

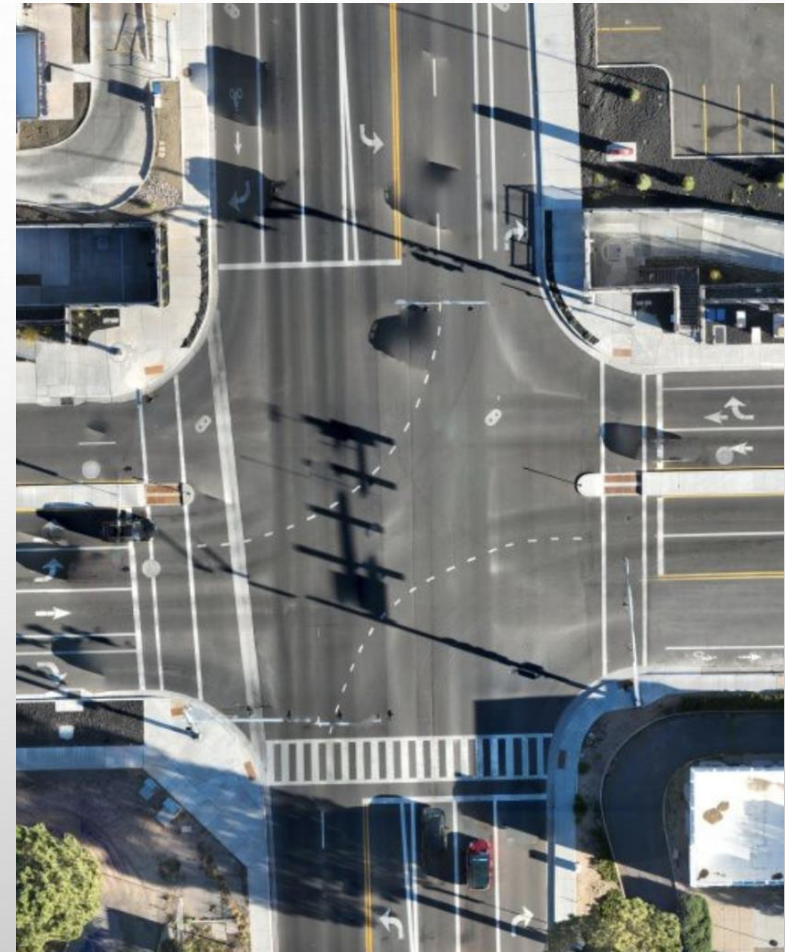


Figure 7: Milton & University Drone Image

TASK 8: PROJECT MANAGEMENT

- **TASK 8.1: RESOURCE MANAGEMENT**
- **TASK 8.2: TEAM MEETINGS**
- **TASK 8.3: CLIENT/TA MEETINGS**
- **TASK 8.4: GI MEETINGS**
- **TASK 8.5: SCHEDULE MANAGEMENT**

PROJECT EXCLUSIONS

- **PLAN SETS**
- **HYDROLOGIC ANALYSIS**

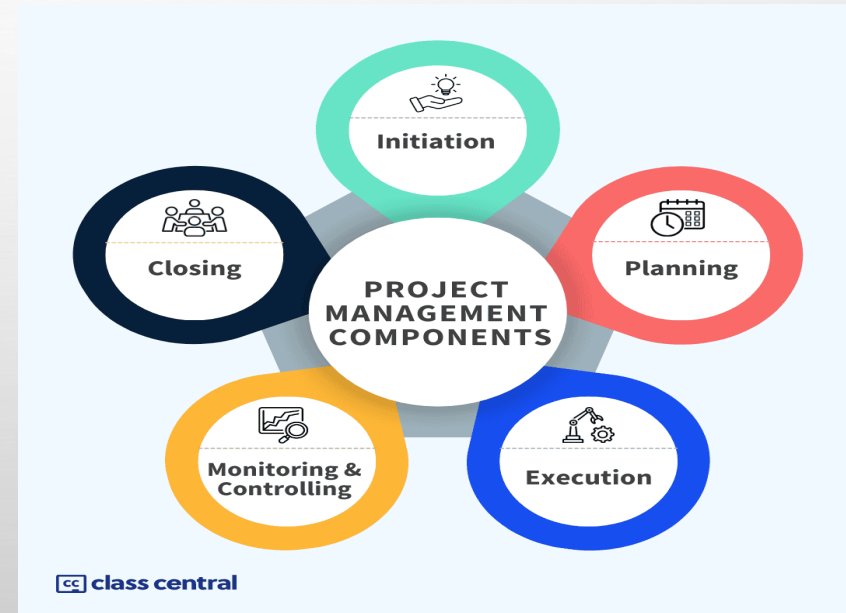
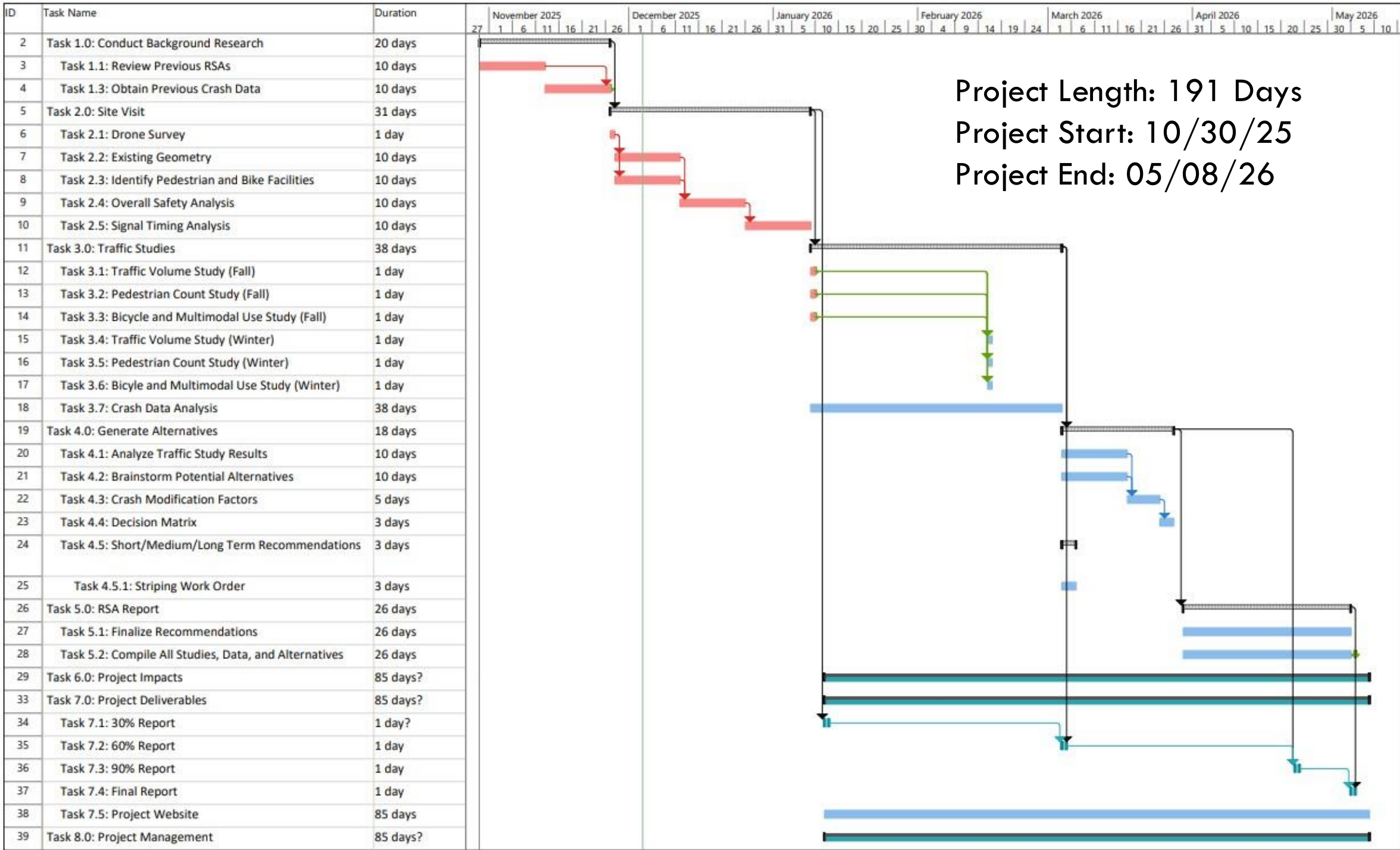


Figure 8: Project Management Stages



STAFFING PLAN

Table 1: RSA Staffing Plan

Position	Abbreviation	Qualifications	Billing Rate (\$/HR)
Senior Engineer	SE	PE, 10-15 years exp.	250
Project Manager	PM	PE/PMP, 10+ years exp.	200
Traffic Engineer	TE	PE, 7-12 years exp.	150
Roadway Engineer	RE	PE, 5-10 years exp.	135
Engineer In Training	EIT	FE Pass, 1-4 years exp.	75

All PE/EIT Certifications are under the subset of Civil Engineering

STAFFING MATRIX

Task	SE	PM	TE	RE	EIT	Total
Task 1.0: Conduct Background Research	3	2	5	5	7	22
Task 1.1: Review Previous RSAs	2	0	3	3	4	12
Task 1.2: Obtain Previous Crash Data	1	2	2	2	3	10
Task 2.0: Site Visit	10	6	14	14	16	60
Task 2.1: Drone Survey	2	2	2	3	3	12
Task 2.2: Existing Geometry	2	2	2	3	3	12
Task 2.3: Identify Pedestrian and Bike Facilities	2	2	3	2	3	12
Task 2.4: Overall Safety Analysis	2	0	3	3	3	11
Task 2.5: Signal Timing Analysis	2	0	4	3	4	13
Task 3.0: Traffic Studies	2	18	23	20	20	83
Task 3.1: Traffic Volume Study (Fall)	0	3	3	3	3	12
Task 3.2: Pedestrian Count Study (Fall)	0	3	3	3	3	12
Task 3.3: Bicycle and Multimodal Use Study (Fall)	0	3	3	3	3	12
Task 3.4: Traffic Volume Study (Winter)	0	3	3	3	3	12
Task 3.5: Pedestrian Count Study (Winter)	0	3	3	3	3	12
Task 3.6: Bicycle and Multimodal Use Study (Winter)	0	3	3	3	3	12
Task 3.7: Crash Data Analysis	2	0	5	2	2	11
Task 4.0: Generate Alternatives	13	10	16	13	9	61
Task 4.1: Analyze Traffic Study Results	3	2	5	2	2	14
Task 4.2: Brainstorm Potential Alternatives	3	2	3	3	2	13
Task 4.3: Crash Modification Factors	1	2	2	2	3	10
Task 4.4: Decision Matrix	3	2	3	3	1	12
Task 4.5: Short/Medium/Long Term Recommendations	3	2	3	3	1	12

Table 2: Project Staffing

Task 5.0: RSA Report	8	7	5	5	7	32
Task 5.1: Finalize Recommendations	5	4	3	3	1	16
Task 5.2: Compile all Studies, Data, and Alternatives	3	3	2	2	6	16
Task 6.0: Project Impacts	9	3	12	12	6	42
Task 6.1: Environmental	3	1	4	4	2	14
Task 6.2: Economic	3	1	4	4	2	14
Task 6.3: Social	3	1	4	4	2	14
Task 7.0: Project Deliverables	14	14	39	39	42	148
Task 7.1: 30% Report	2	2	10	10	10	34
Task 7.2: 60% Report	2	2	10	10	10	34
Task 7.3: 90% Report	2	2	10	10	10	34
Task 7.4: Final Report	5	5	4	4	5	23
Task 7.5: Project Website	3	3	5	5	7	23
Task 8.0: Project Management	34	44	28	28	24	158
Task 8.1: Resource Management	5	10	2	2	0	19
Task 8.2: Team Meetings	8	8	8	8	8	40
Task 8.3: Client and TA Meetings	8	8	8	8	8	40
Task 8.4: GI Meetings	8	8	8	8	8	40
Task 8.5: Schedule Management	5	10	2	2	0	19
Total of All Tasks	93	104	142	136	131	606

COST OF ENGINEERING SERVICES

Table 3: Project Cost of Services

1.0 Personnel	Classification	Hours	Rate per Hour	Cost
	Senior Engineer (SE)	93	\$ 250	\$ 23,250
	Project Manager (PM)	104	\$ 200	\$ 20,800
	Traffic Engineer (TE)	142	\$ 150	\$ 21,300
	Roadway Engineer (RE)	136	\$ 135	\$ 18,360
	Engineering In Training (EIT)	131	\$ 75	\$ 9,825
	Total Personnel			\$ 93,535
2.0 Supplies	Classification	Days	Rate per Day	Cost
	JAMAR Boards	2	\$ 280	\$ 560
	Drone	1	\$ 1,000	\$ 1,000
	Traffic Lab Access	6	\$ 100	\$ 600
	SYNCHRO Software	Lump Sum		\$ 1,000
	Total Supplies			\$ 3,160
3.0 Total Cost of Engineering Services				\$ 96,695

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QUESTIONS?

