

## **Project Management Plan**

**Project ID: CEEEn\_2016CPST\_008**

**by**

**Sic Parvis Magna Engineering  
Shaun Hilton  
Joseph Browning/Data Collection  
Jordan Arrowchis/Data Analysis  
David Michelsen/Design & Drawings**

**A Capstone project submitted to**

**Dan Tracer  
Bluffdale City Engineering**

**Department of Civil and Environmental Engineering  
Brigham Young University**

**January 16, 2017**

## Table of Contents

<b>General Information</b> .....	<b>3</b>
<b>Sponsor and Mentor Information</b> .....	<b>4</b>
<b>Organizational Structure</b> .....	<b>5</b>
<b>Scope of Work Summary</b> .....	<b>6</b>
<b>Schedule</b> .....	<b>7</b>
<b>Budget</b> .....	<b>8</b>
<b>Communication Plan</b> .....	<b>9</b>

## **General Information**

**PROJECT TITLE:** Arterial Collector Design & Feasibility Study  
**PROJECT ID:** CEEEn-2016CPST-008  
**PROJECT SPONSOR:** Bluffdale City Engineering  
**TEAM NAME:** Sic Parvis Magna Engineering

**Vision Statement:** Our vision is an improved transportation infrastructure that will provide safety and convenience for the public.

**Project Overview:** The purpose of this project is to design and determine the feasibility of a roadway that is to be constructed adjacent to The Bluffs apartments in Bluffdale, UT. Currently, an emergency roadway exists that connects the apartments to a nearby parkway but it has been the site of a few accidents. Due to this fact, the road has been closed and a request for a better road has been put forth that will improve access for apartment residents.

This will be done through collecting traffic volume and accident data, analyzing the data, and designing three different alternatives for the requested road. After the data has been collected, studies will be done to determine what sort of traffic control devices are needed to ensure the safety of the public. Once this is done, roadway design will begin and an analysis will be performed to determine the costs of the different alternatives. The objective of this is to provide a safe and convenient arterial collector that will improve upon the existing infrastructure.

## **Sponsor and Mentor Information**

### **Sponsor:**

Dan Tracer

City of Bluffdale

[dtracer@bluffdale.com](mailto:dtracer@bluffdale.com)

- Dan will be contacted regularly via email and will be informed of our progress on the project through status reports.

### **Mentors:**

Shaun Hilton (Graduate Mentor)

[shaunhilton@gmail.com](mailto:shaunhilton@gmail.com)

- Our team will contact Shaun via text messaging to coordinate meeting times and in asking for advisement.

Dr. Richard Balling (Faculty Advisor)

[balling@byu.edu](mailto:balling@byu.edu)

- Dr. Balling will be contacted via email when we need advice on our project plan.

## Organizational Structure

Our team has been organized in such a way as to promote individual strengths in order to provide the best possible finished product. This has been done by assigning each team member an individual role for which they will be responsible and delegate tasks. These roles are listed below:

Joseph Browning is responsible for data collection due to his experience in collecting data for a UDOT-commissioned bicycle study. This phase was vital in the early stages of the project and involved collecting and compiling traffic volume data and survey data. This information is used for determining whether or not traffic signals are warranted and for preliminary roadway design.

Jordan Arrowchis is responsible for data analysis. This role involves looking at the data collected to determine its relevancy and summarizing the findings into a coherent analysis. Software such as HCS 2010 will be used to determine whether or not traffic signals will be required on the new road. This role will also be utilized to determine the cost of building an arterial collector.

David Michelsen is responsible for design and drawings due to his experience in designing roads for Provo City. This role will be used extensively in preliminary roadway design using Civil 3D under given guidelines from the City of Bluffdale. There are three different road design alternatives that will be considered in this project in order to make the appropriate recommendation.

Through this organizational structure, tasks will be appropriately divided to ensure maximum quality and efficiency.

## Scope of Work Summary

Traffic Study – A traffic study will be performed along Loumis Parkway in Bluffdale to determine annual average daily traffic (AADT).

Accident Report Study – Study of accident data in the area of proposed study.

Signal Warrant Study – From the data collected in the traffic study, signal warrant study will be performed for each of the roadway designs to see if a signalized intersection is warranted.

Cost Analysis – Based on 2016 prices, the cost for each roadway design will be estimated using a unit cost.

Construction Feasibility Study – Comparing the feasibility of construction of the proposed designs.

Preliminary Roadway Design – Using the provided LIDAR data, 3 new roadways will be designed for analysis. These designs will include a plan and profile views as part of the preliminary design.

Feasibility Study Report – A compilation of the data collected from the studies performed, and an analysis of feasibility.

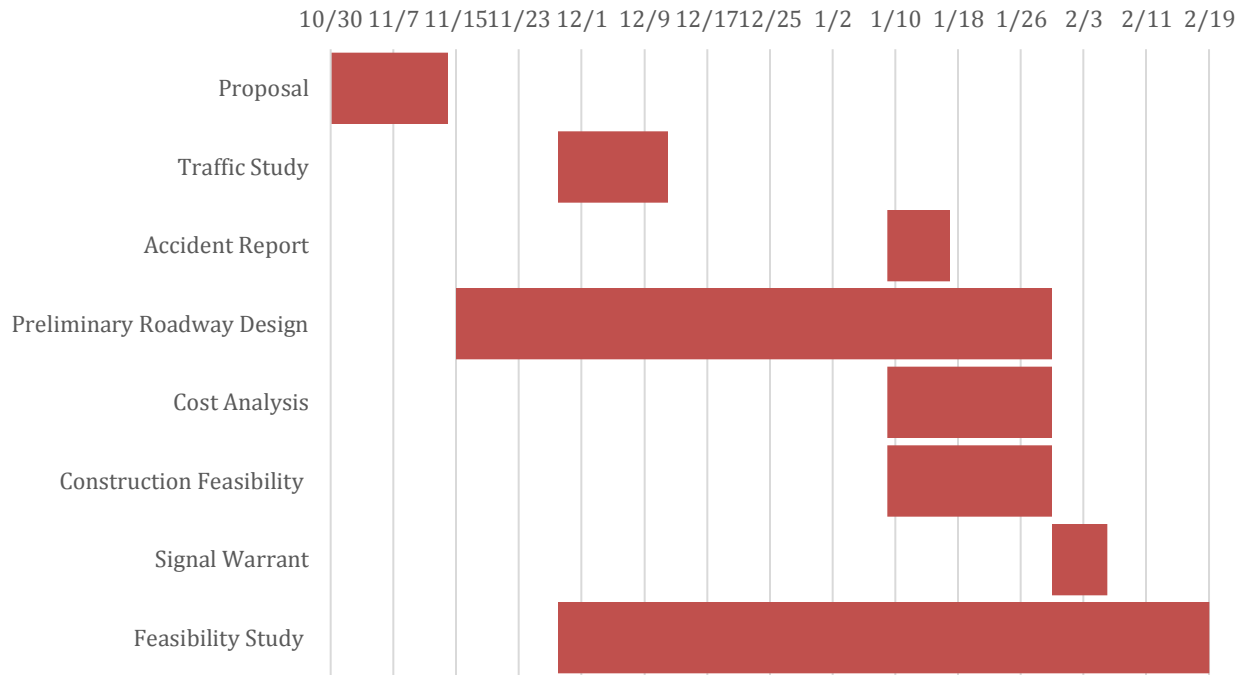
### Deliverables

1. Feasibility Study: A report recommending an alignment alternative based on total project cost, vehicle and pedestrian safety, and construction feasibility.
2. Preliminary Design of Roadway: Drawings showing the design of roadway.
3. Bi-weekly status reports documenting challenges, solutions & progress of the project.
4. Presentation

During the process of completing this project, a few lessons have been learned from the guidance of the mentor and sponsor. The first lesson that has been learned is that obtaining data is not always as simple as clicking a few buttons. Obtaining sufficient and valuable data may take up to a couple of days and sometimes longer. The second lesson that has been learned is that constant communication between every personnel involved in the project is essential to staying on top of deadlines.

## Schedule

**Figure 1: Gantt Chart**



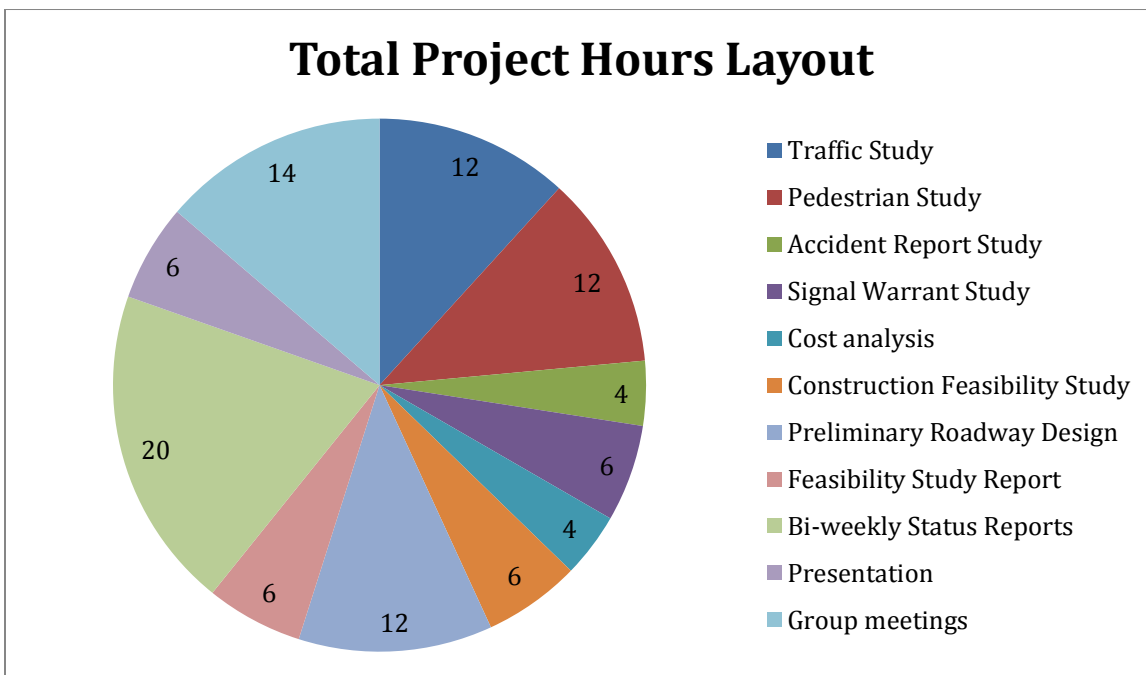
**Figure 2: Responsibility Matrix**

Project Activities	Project Team Members		
	Joseph Browning	David Michelsen	Jordan Arrowchis
Proposal	W, E	W, E	W, E
Traffic Study	C, W, E	W	E
Accident Report	E	C, W, R	E
Preliminary Roadway Design	D	D	D
Cost Analysis	C, W, E	C, W, E	C, W, E
Construction Feasibility	C, W, E	C, W, E	C, W, E
Signal Warrant	R, C	W, E	W, E
Feasibility Study	C, W, E, R	C, W, E, R	C, W, E, R
W - Writing	R- Research	D - Design	
E - Editing	C - Data Collection		



## Budget

- Roughly about 102 hours total for the project
  - About 3 hours/week per group member
  - Traffic Study – 12 hours
  - Pedestrian Study – 12 hours
  - Accident Report Study – 4 hours
  - Signal Warrant Study – 6 hours
  - Cost Analysis – 4 hours
  - Construction Feasibility Study – 6 hours
  - Preliminary Roadway Design – 12 hours
  - Feasibility Study Report – 6 hours
  - Bi-weekly status reports – 2 hours every two weeks. 20 hours total
  - Presentation – 6 hours
  - Group Meeting – 1 hour/week. 14 hours total
- 
- Potential Costs
    - \$50 in travel costs.



## **Communication Plan**

As a team we have designated Joseph as team leader over Data Collection, Jordan over Data Analysis, and David over Design and Drawings. The other members will be actively engaged with the tasks for each of the three designations that are required for the completion of the project. Each week we will hold a team meeting to discuss the progress of the project and to report on the completion of tasks that are assigned to each of us. We will work together to organize the tasks and complete them on time.

We have open communication through a variety of different mediums. We have a group chat for instant communication and notifications. Our group meets weekly to discuss the progress of our project and what we need to do to continue to meet guidelines. We send a weekly email to our sponsor to ensure understanding of the project is on track, and to give updates of our progress.