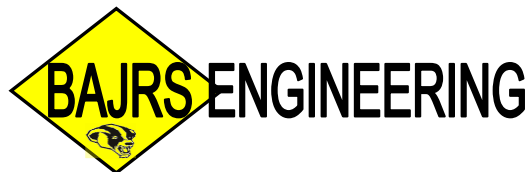


# Copper Creek Project

## Project Management Plan



**Brent McCrea**

**Jared Erickson**

**Amy Holt**

**Robert Ryszka**

**Scott Christensen**

**January 20, 2012**

## General Project information

### Vision Statement:

Provide a high quality design while maintaining efficient design, communication, professionalism, and cost effective strategies.

### Purpose:

Develop a master plan that will include:

1. Hydrologic analysis to calculate 100-year flows
2. Proposed alternatives to convey the design flows to 6000 West, taking right-of-way requirements in account.
3. Cost analysis and recommendations of alternatives.

### Objective:

To provide the following:

- A final design and alternatives for the project including economic and environmental consideration
- A poster reflecting a summary of project
- A presentation summarizing project

### Scope:

Copper Creek is a small creek near 600 West in Salt Lake that is the single creek used for runoff from the canyon. It is braided, not visible in some places during the dry months of the year. Flooding has not been a concern to Salt Lake County because the creek runs through fields and non residential areas before it reaches Salt Lake. However, much of this area will be turned into residential areas. A flood analysis needs to be performed before the projects can begin.

There will be four phases to this project, that will also be key milestones. These phases are time sensitive and therefore must be performed in order. Some of the phases will be much more time intensive and difficult which will need to be taken into account.

- **Phase 1** - Adequately define creek.
- **Phase 2** - Define the watershed that empties to the creek using HEC-HMS. This is essential in order to calculate an accurate 100 year return period.
- **Phase 3** - Design a typical cross-section that will be adequate for the 100-yr flood calculated in phase 2. A pipeline should also be designed with adequate capacity. Detention basins must also be considered as well as environmental impacts, economics and the future impact and flood potential of the future residential areas. Making no changes and leaving the creek as is should also be a considered alternative. Compare all alternatives.
- **Phase 4** - Submit a final report to Salt Lake County that will include both models, well indexed so they can be used if needed. A recommendation based on the criteria in phase 3 also needs to be included in the report.

## Major client, stakeholder, and general information

### Project Sponsor - Salt Lake County

Scott Baird, Division Director  
SBaird@slco.org  
801-468-2711

KadeMoncur, Project Manager, Salt Lake County Flood Control  
KMoncur@slco.org

### Project Manager

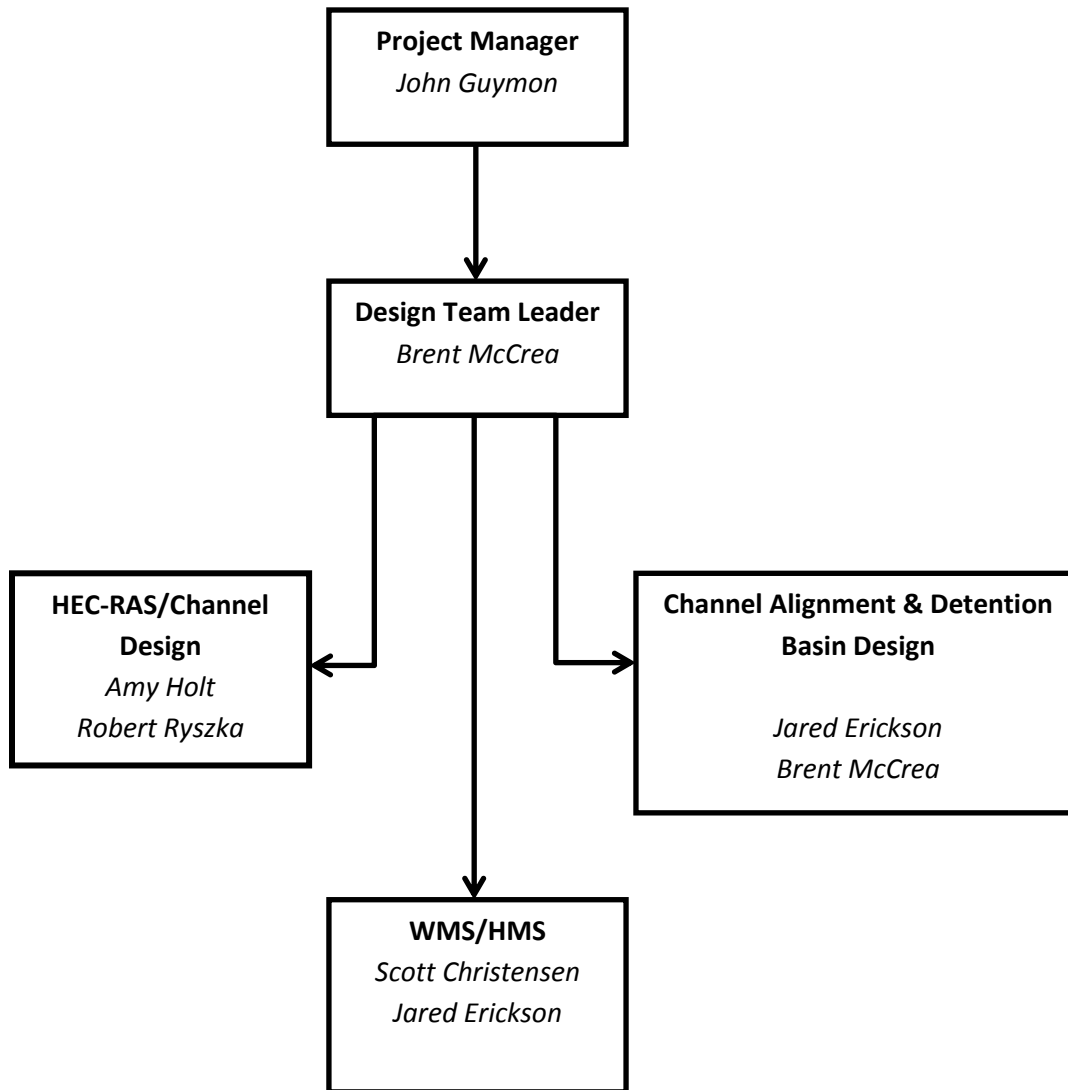
John Guymon, Masters Student Brigham Young University  
jguymonchy@gmail.com  
801-691-6979

### Professor

Jim Nelson  
jimn@byu.edu  
801-422-7632

## Organizational structure

The project manager for the Copper Creek Project will be John Guymon. John will be the main contact between the client and the team leader. The design team leader for the project will be Brent McCrea. Brent will be the contact between the project manager and the rest of the team. The following figure shows the organization of the BAJRS Engineering for the Copper Creek Project.



**Figure 1. Organizational chart between BAJRS employees and the project manager**

The completion of the Copper Creek Project includes the knowledge of advanced water modeling software technologies. The HEC-RAS software will be used, as well as WMS/HMS software. Amy Holt will be the leader of all HEC-RAS projects and the channel design, accompanied by Robert Ryszka. Scott Christensen will lead the WMs/HMS projects, accompanied by Jared Erickson. During the project the channel alignment will be considered and detention basins will be added as deemed necessary by BAJRS engineering. Jared Erickson will be the leader of these components, and he will be accompanied by Brent McCrea.

## Scope of Work

### Key Tasks and Subtasks:

- Data Collection
  - Get Required Maps
    - Land Use, Soil Type, Topography (XMS Geo-spatial data)
    - Property Lines (Salt Lake County Office)
  - Contact and visit with Kade (site visit)
    - Look for possible problem areas/ areas without defined stream
    - Mark GPS locations
    - Visual inspection of soil/land use
  - Climate Data
    - Precipitation Data (HydoDesktop)
    - IDF Curves
    - Stream flow records/ high water marks for calibration of model
- Create watershed model
  - HEC-HMS
    - Create WMS model
    - Import WMS model into HMS
    - Compare w/ existing model
- Design channel cross-section and retention basins
  - HEC-RAS
    - Design open channel alternative
  - Design pipe alternative
  - Analyze no action alternative
  - Design detention basins if necessary
- Produce reports for submittal
  - Report for Salt Lake County
  - Poster and report for capstone class presentations

### Tasks and Key Disciplines:

Water modeling is an important part of the completion of the Copper Creek Project. Hydrology is the main discipline that water-modeling falls into. Watershed analysis, runoff, detention basin design, and other hydrologic principles will be used throughout the project. Fluid mechanics is another discipline that will be used during the project. When the channel and pipeline designs are considered there will be many fluid mechanics challenges to overcome.

**Technical Advice Sources:**

It is anticipated that technical advice will need to be sought out from various professors. The hydrologic issues that need attention will be brought to Dr. Nelson or Dr. Miller of Brigham Young University. Kade Moncur from Salt Lake County will be consulted when the position of the creek is being determined. We will need his advice for the initial site visit and also when determining where the final creek should be placed while considering current property lines.

**Project schedule**

On the following page is a flow chart of our activity schedule, in gantt chart form. It outlines all the activities that we plan on completing with a schedule of when we plan on doing them.

The following chart is a responsibility matrix outlining who will be responsible for the various aspects of the project.

	Channel Design	HEC-RAS	WMS/HMS	Detention Basin	Channel Alignment	Scheduling/Communication
<b>P = Primary Responsibility S = Secondary Responsibility</b>						
<b>Amy</b>	P	P				
<b>Robert</b>	S			P		
<b>Scott</b>		S	P			
<b>Jared</b>			S		P	
<b>Brent</b>				S		P

**Figure 2. Responsibility Matrix**

## Project budget

The anticipated duration to complete the Copper Creek Proposal is twelve weeks beginning January 9<sup>th</sup>, with an estimated completion date of March 31st. BAJRS Engineering will be working as a team on this proposal for three hours per week, and each individual member of BAJRS Engineering will work on the proposal three hours per week. During the group meetings we will collaborate data and be working towards completing the overall project. Individually, members will be completing various tasks involved in the design process for the Copper Creek project. The estimated total number of billable hours that BAJRS Engineering will work on the proposal is 360 hours. BAJRS Engineering charges \$500 per hour (\$100 per engineer) for engineering services based on current national entry-level engineering rates. The estimated cost for the analysis and completion of writing the proposal for Copper Creek is \$36,000. Figure 1 details the time that BAJRS Engineering will work on the project each week until the completion of the project. Additional costs include one site visit to be completed by all member of BAJRS Engineering. Also, copies of any engineering plans will charged to the client.

## Communication plan

### Regular Work Schedule:

Each member of the team has a scheduled time and place for their work to be done. The following figure displays the amount of time each BAJRS employee will be working on the Copper Creek Project. Team meetings including all member will be held on Mondays from 4:00 – 7:00 pm.

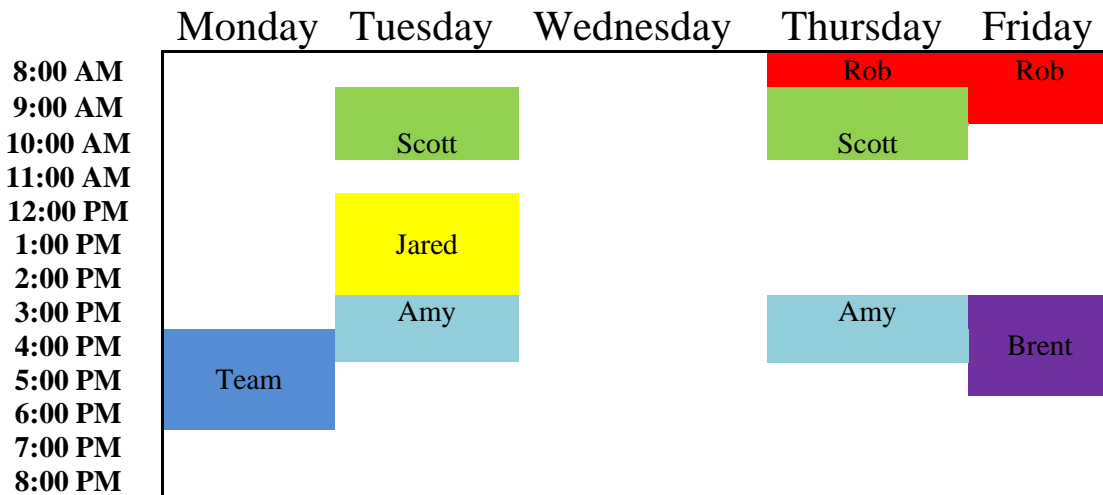


Figure 3. Weekly chart showing when employees will work on Copper Creek Project

**Weekly Reporting:**

The following chart is to be filled out weekly and reported to the team leader and project manager at the end of each week to ensure all employees are working as they are scheduled. This report will allow proper billing and also enable systematic reports as to the continuing progress of the project.

**Table 1. Copy of weekly report to be filled out by each employee**

<b>Employee:</b>	<b>{INSERT NAME}</b>					<b>Report Date (Sat):</b>	<b>{INSERT DATE}</b>
<b>Date:</b>	M- <b>{XX/XX/12}</b>	T- <b>{XX/XX/12}</b>	W- <b>{XX/XX/12}</b>	Th- <b>{XX/XX/12}</b>	F- <b>{XX/XX/12}</b>		
<b>Time:</b>	<b>{X} hrs</b>	<b>{X} hrs</b>	<b>{X} hrs</b>	<b>{X} hrs</b>	<b>{X} hrs</b>	<b>{X} hrs</b>	
<b>Description of Work Performed:</b>	<b>{XXX}</b>	<b>{XXX}</b>	<b>{XXX}</b>	<b>{XXX}</b>	<b>{XXX}</b>	<b>{XXX}</b>	

**Regular Meeting Location:**

The team will meet in room 270 of the Fletcher Building on Brigham Young University campus for the weekly meetings on Monday at 4pm. When class is held the weekly meeting will begin in room 381 of the W. W. Clyde and then proceed to room 270 of the Fletcher Building. Various other locations will be utilized as well. We will also be using various computer labs in the Clyde Buildings, depending on the software needed to work on our projects. These places include room 234 and 423 of the W. W. Clyde Building as well as other desired labs. All other meetings will be scheduled by the team leader and proper notification will be distributed to all employees.



## Team Member Information

**Name: John Guymon**

Phone Number: 801-691-6979

Email: Jguymonchy@gmail.com

Hours: Monday 4:00-5:00

**Name: Brent McCrea**

Phone Number:

Email: bmmccrea@hotmail.com

Hours: Friday: 3:00-6:00 AM

**Name: Robert Ryszka**

Phone Number: 801-885-3184

Email: ryszka1@gmail.com

Hours: Thursday: 8:00-9:30 Fridays: 8:00-9:30

**Name: Amy Holt**

Phone Number: 719-691-1007

Email: bush\_kid@hotmail.com

Hours: Tuesday: 3:00-4:30 Thursday: 3:00-4:30

**Name: Scott Christensen**

Phone Number: 801-210-0732

Email: scottychristensen@gmail.com

Hours: Tuesday: 9:30-11:00 Thursday: 9:30-11:00

**Name: Jared Erickson**

Phone Number: 208-351-5143

Email: eri07003@byui.edu

Hours: Tuesday: 12:00-3:00