



## PROJECT DELIVERY PLAN ENDORSEMENT

**Project Name & Number: UT PFH 46-1(2) La Sal Mountain Loop Road**

### Project Cross-Functional Team Endorsement

I certify that I have been actively engaged during the development of the Delivery Plan; including the Scoping Report, Statement of Work, Budget Worksheet, Primavera Schedule, Project Agreement, Risk & Opportunity Management Plan, and Preliminary Construction Estimate. As the discipline's representative I have contributed to the evaluation of risk to be assumed in the delivery of the project (e.g., scope, schedule, and budget). By signing this endorsement I signify my acceptance of the delivery plan.

<u>Name</u>	<u>Signature</u>
Project Manager: Chris Longley	
Bridge: Karl Eikermann	
Construction: N/A	N/A
Design: Jeff Belen	/S/ by e-mail 1/9/11
Environment: Cindy Callahan	/S/ by e-mail 1/4/11
Geotech: Braden Peters	/S/ by e-mail 1/4/11
Hydraulics: Scott Hogan	
Materials: Mike Peabody	
Pavements: Steve Deppmeier	
ROW & Utilities: Rick Vanderbeek	
Safety: Ed Demming	
Survey & Mapping: Bob Bell	

Following CFT endorsement electronically distribute location (link) for delivery plan files to Management Board; include a note identifying key focus areas.

### Management Board Endorsement

The Project Delivery Plan is hereby endorsed and development activities may begin.

<u>Project Manager Branch Chief</u>	<u>Signature</u>	<u>Date</u>
Edward Hammontree	/S/ by e-mail	1/10/11



## PROJECT DELIVERY PLAN ENDORSEMENT

<b>Project Name &amp; Number:</b>	<b>UT PFH 46-1(2) La Sal Mountain Loop Road</b>
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### Delivery Plan Document Checklist

Indicate all documents generated for inclusion in the delivery plan by checking (double clicking) the checkboxes.

INTERNALLY DELIVERED PROJECT	A/E DELIVERED PROJECT
Primary Documents (required) <input checked="" type="checkbox"/> Scoping Report <input checked="" type="checkbox"/> Project Agreement <input checked="" type="checkbox"/> Risk & Opportunity Management Plan <input checked="" type="checkbox"/> Preliminary Construction Estimate <input checked="" type="checkbox"/> Internal Statement of Work <input checked="" type="checkbox"/> Internal Budget Worksheet <input checked="" type="checkbox"/> Primavera Schedule (Baseline)	Primary Documents (required) <input type="checkbox"/> Scoping Report <input type="checkbox"/> Project Agreement <input type="checkbox"/> Risk & Opportunity Management Plan <input type="checkbox"/> Preliminary Construction Estimate <input type="checkbox"/> Internal Statement of Work (Oversight Plan)* <input type="checkbox"/> Internal Budget Worksheet <input type="checkbox"/> Primavera Schedule (Baseline)
Supplementary Documents (optional) <input type="checkbox"/> Communication Plan <input type="checkbox"/> Project Specific Quality Control Plan <input type="checkbox"/> Project Specific Change Control Plan <input type="checkbox"/> Procurement Plan <input type="checkbox"/> Lessons Learned & Closeout Plan	Supplementary Documents (optional) <input type="checkbox"/> Communication Plan <input type="checkbox"/> Project Specific Quality Control Plan <input type="checkbox"/> Project Specific Change Control Plan <input type="checkbox"/> Procurement Plan <input type="checkbox"/> Lessons Learned & Closeout Plan

\* Oversight of A/E as described in the Internal Statement of Work and Internal Budget Worksheet is consistent with the A/E Oversight Guidelines unless specifically noted below:

# CENTRAL FEDERAL LANDS HIGHWAY DIVISION

## PRE-SCOPING REPORT

<b>Project Name:</b>	UT PFH 46-1(2), LaSal Mountain Loop Road	<b>Project Manager:</b>	Chris Longley
<b>Interagency Team:</b>	<ul style="list-style-type: none"> <li>• USFS – Manti LaSal</li> <li>• Counties – Grand &amp; San Juan</li> </ul>	<b>Program Fiscal Year</b>	2016 – (2012 backup)
<b>Construction Estimate</b>	\$█ million (Program Amount)		
<b>Scope of Project</b>			
<p>This project will be developed as a back-up project for the UT FH program. Currently there are two large 4R projects in the program – Sevenmile Gooseberry (█) and Beaver to Junction (\$█M). If either of these projects are not awarded or there is additional funding available at the end of the next highway bill this project will be used to utilize UT FH funding. Of the 36.4 miles on this route, 70% of the pavement is listed as “failed” in the 2007 RIP data with another 6% listed as “poor”. The route will be scoped in early October 2010 to determine what section of road is in most need of improvement. Due to the variability of funding, the goal will be to select a portion of roadway that will only require a standard 3R improvement with only limited other improvements (safety, drainage, geotechnical) so that the cost per mile is reasonable.</p>			
<b>Cross-functional Team if In-house Delivery Method</b>			
<i>(list anticipated disciplines)</i>			
<ul style="list-style-type: none"> <li>• Bridge (None)</li> <li>• Design (Low – 3R ONLY)</li> <li>• Environment (Low – Anticipate CE)</li> <li>• Geotech (Low – Pavement section Only)</li> <li>• ROW/Utilities (Low)</li> </ul>		<ul style="list-style-type: none"> <li>• Hydraulic (Low)</li> <li>• Pavements (Low – Standard 3R)</li> <li>• Materials (Low)</li> <li>• Safety (Low)</li> <li>• Survey &amp; Mapping (Low – 3R suvey Only)</li> </ul>	
<b>Cross-functional Team if A/E Delivery Method</b>			
<i>(list anticipated disciplines and estimated resource needs for each (low/med/high)</i>			
<ul style="list-style-type: none"> <li>• <b>Project will be INTERNAL</b></li> <li>• <del>Bridge (Low)</del></li> <li>• <del>Design (Low)</del></li> <li>• <del>Environment (Low)</del></li> <li>• <del>Geotech (Low)</del></li> </ul>		<ul style="list-style-type: none"> <li>• <del>Hydraulic (Low)</del></li> <li>• <del>Pavements (Low)</del></li> <li>• <del>Materials (Low)</del></li> <li>• <del>Survey &amp; Mapping (Low)</del></li> </ul> <p>Disciplines used for review of submittals only</p>	
<b>Key Assumptions</b>			
<i>(in the absence of specific facts state what you can dig up)</i>			
<ul style="list-style-type: none"> <li>• Route is 36.4 miles. Anticipate 4-8 miles of 3R with schedule/options</li> <li>• Minimal safety, drainage, geotechnical improvements</li> <li>• PS&amp;E preparation from 0 to 100%. 30% Design Study Report, 70%/95%/Final PS&amp;E</li> <li>• A CE is the anticipated NEPA document.</li> <li>• Pavement investigations to determine rehabilitation method</li> <li>• Pavement structural section design</li> <li>• Route goes into and out of the Manti-LaSal National Forest. Not sure if there is an existing HED for route.</li> <li>• 3R Survey Only (template survey every 50’-100’) to verify widths and distances</li> </ul>			
<b>Major Project Milestones</b>			
<i>(your best guess)</i>			
<ul style="list-style-type: none"> <li>• Project Initiation .....10/10</li> <li>• NEPA Complete/Design Study Report.....03/11</li> <li>• PIH PS&amp;E.....08/11</li> <li>• Final PS&amp;E.....-..01/12</li> </ul>			
<b>Documents available that Illustrate Scope</b>			
<ul style="list-style-type: none"> <li>• Recon and Scoping Report done in 2002 for entire route</li> <li>• Map showing location</li> <li>• Photos</li> </ul>			

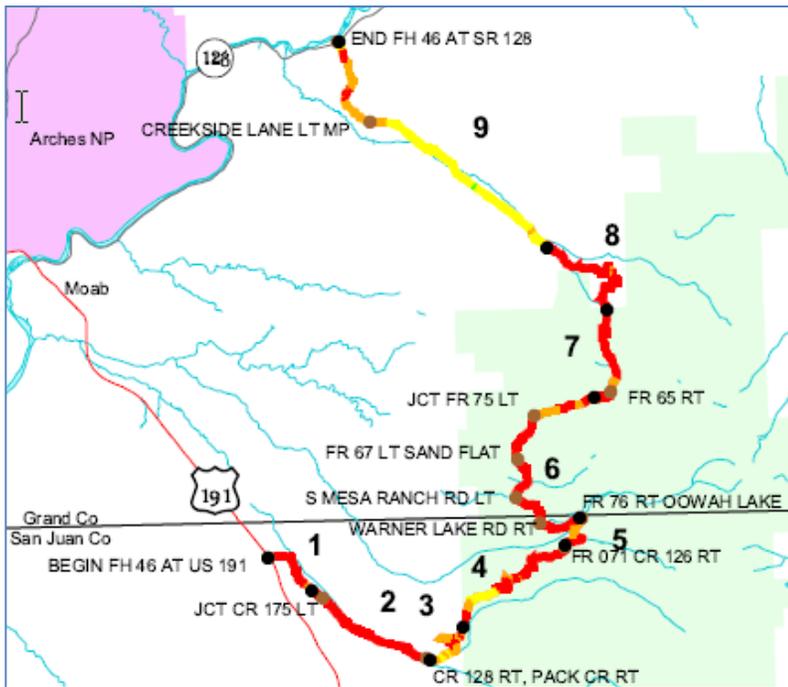


Figure 1 - Area Map with Pavement Condition

Figure 2 – Typical Existing Conditions



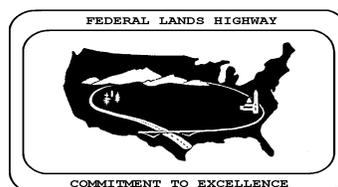
**Federal Highway Administration  
Central Federal Lands Highway Division  
Forest Highway Scoping Report**

**Manti-La Sal National Forrest  
San Juan and Grand Counties  
Utah**



**UT 46-1(2)  
La Sal Mountain Loop Road**

**Prepared By:  
Federal Highway Administration  
Central Federal Lands Highway Division  
Lakewood, Colorado  
November, 2010**



## I. ROUTE DESCRIPTION

**State:** Utah

**County:** San Juan County and Grand County

**Forest Name:** Manti-La Sal National Forest

**Route Number and Name:** Forest Highway (FH) 46 La Sal Mountain Road and County Route 1704. The route is also designed as the La Sal Scenic Backway.

**Route Location** (Figure 1): Utah Forest Highway (FH) 46, La Sal Mountain Loop Road, begins at the junction with US-191, approximately 6 miles south of Moab, UT, and proceeds east and north 36.4 miles to the junction with SR-128 in Castle Valley, UT. The route is primarily on federal land within the Manti-LaSal National Forest in Grand and San Juan Counties.

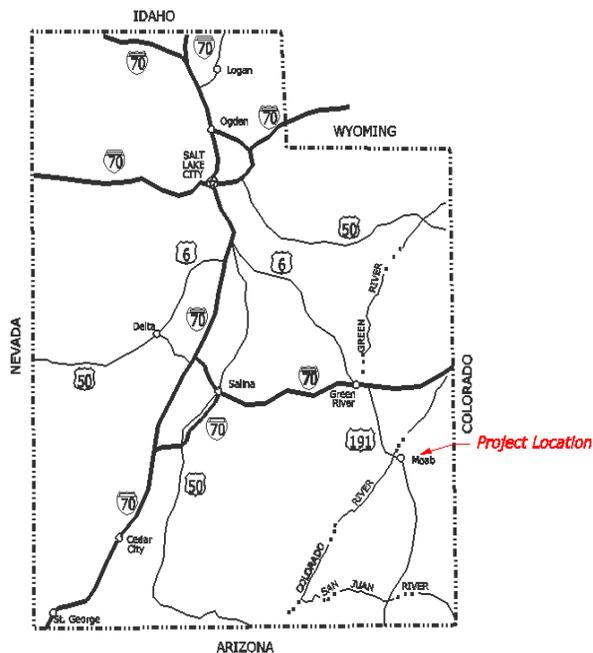


Figure 1 – General Location Map

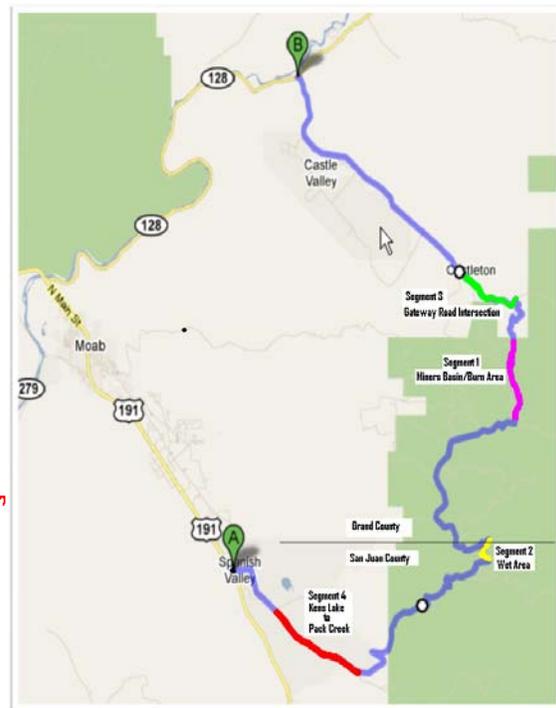


Figure 2 – Project Route Map

**Route Length:** 36.4

**Maintaining Agency:** San Juan County and Grand County are the maintaining agencies. Under agreement Grand County is responsible for all snow removal for the roads in San Juan County.

**Route Segments:** Four segments were identified for inclusion in the project.

**Segment 1: Miners Basin (MP 21.1 to MP 23.1) (Grand County)**

Functional Classification	Terrain	Type	Posted Speed	ADT	Vehicle Classification	Surface Type	Paved/Bench Width	Structures on Segment
Local Road	Mountain	3R/ 4R	25	Current: 145 Projected: 150	% Trucks: % Buses: % RV's: Unknown for all	Asphalt	18-20 ft	N/A



*Miners Basin*

**Segment 2: Wet Area (MP 12.6 to MP 13.3) (San Juan County)**

Functional Classification	Terrain	Type	Posted Speed	ADT	Vehicle Classification	Surface Type	Paved/Bench Width	Structures on Segment
Local Road	Mountain	3R/ 4R	25	Current: 145 Projected: 150	%Trucks: %Buses: %RV's: Unknown for all	Asphalt	18-22 ft	N/A



*Wet Area*

**Segment 3: Gateway Road intersection/Castle Valley (MP 25.8 to MP 27.8) (Grand County)**

Functional Classification	Terrain	Type	Posted Speed	ADT	Vehicle Classification	Surface Type	Paved/Bench Width	Structures on Segment
Local Road	Mountain	3R/ 4R	25	Current: 430 Projected: 440	%Trucks: %Buses: %RV's: Unknown for all	Asphalt	17-18 ft	N/A



*Castle Valley*

**Segment 4: Kens Lake to Pack Creek (MP 2.0 to MP 5.3) (San Juan County)**

<b>Functional Classification</b>	<b>Terrain</b>	<b>Type</b>	<b>Posted Speed</b>	<b>ADT</b>	<b>Vehicle Classification</b>	<b>Surface Type</b>	<b>Paved/Bench Width</b>	<b>Structures on Segment</b>
Local Road	Mountain	3R/ 4R	40	Current: 1,700* Projected: 1,735	% Trucks: % Buses: % RV's: Unknown for all	Asphalt	22 ft	N/A

\*Number may be skewed due to a damaged traffic counter in this location



*Kens Lake to Pack Creek*

**Project Funding:**

**Fiscal Year:** 2011

**Funding Type:** Forest Highway Program

**Construction Cost:** Estimated \$2 million - \$8 million

**Seasonal Restrictions:** Winter Closure

Construction Season: May-October

Field Work Season: May-October

**Other Restrictions** *(are there events like stock drives, carnivals or other festivals that would interfere with project development activities or construction)*

- None

**II. CONTACTS**

The following people have been designated as primary contacts for Project Development activities that may occur subsequent to the scoping effort:

**National Forest:**

Name: Don Wilcox  
 Title: Civil Engineer-Manti-LaSal NF  
 Address: 599 W. Price River Dr.  
           Price, UT 84501  
 Phone: (435)-636-3546  
 Fax:  
 Email: djwilcox@fs.fed.us  
 Responsible For:

**San Juan County:**

Name: Lynn Laws  
 Title: Superintendent, San Juan County  
 Address: 835 East Highway 666  
           P.O. Box 188  
           Monticello, UT 84535  
 Phone: (435)-587-3230  
 Fax:  
 Email: lynnlaws@sanjuancounty.org  
 Responsible For:

**FHWA-CFLHD:**

Name: Chris Longley  
 Title: Project Manager  
 Address: 12300 Dakota Ave.  
           Lakewood, CO 80228  
 Phone: (720)-963-3733  
 Fax:  
 Email: Christopher.longley@dot.gov  
 Responsible For:

**Grand County:**

Name: Bill Jackson  
 Title: Supervisor, Grand County  
 Address: 125 E Center St  
           Moab, UT 84532  
 Phone: (435)-259-5308  
 Fax:  
 Email: jacksonb@grand.state.ut.us  
 Responsible For:

**III. AVAILABLE DATA**

<input type="checkbox"/>	Pre-Programming Scoping Report	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input type="checkbox"/>	General Management Plan	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input checked="" type="checkbox"/>	Road Inventory Program (RIP) Data	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From: FHWA
<input type="checkbox"/>	As Built / As Constructed	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input type="checkbox"/>	Previous Project Plans	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input type="checkbox"/>	Construction Records	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input checked="" type="checkbox"/>	Survey Data	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input checked="" type="checkbox"/>	Digital Ortho Quarter Quads	<input type="checkbox"/>	On File	<input checked="" type="checkbox"/>	Available From: FHWA
<input type="checkbox"/>	Digital Raster Graphics	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input checked="" type="checkbox"/>	Quad Maps	<input type="checkbox"/>	On File	<input checked="" type="checkbox"/>	Available From: FHWA
<input type="checkbox"/>	GPS Trace / Data	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:

<input type="checkbox"/>	Tax Maps	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input type="checkbox"/>	Utility Agreements	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input type="checkbox"/>	BLM Master Title Plats	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input type="checkbox"/>	Geographic Information Systems Data	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input type="checkbox"/>	Right-of-Way Information	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input type="checkbox"/>	Bridge Inspection Report	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input checked="" type="checkbox"/>	Engineering Studies / Reports	<input type="checkbox"/>	On File	<input checked="" type="checkbox"/>	Available From: FHWA
<input checked="" type="checkbox"/>	x Geotechnical Reports	<input type="checkbox"/>	On File	<input checked="" type="checkbox"/>	Available From: FHWA
<input type="checkbox"/>	Pavements/Materials Reports	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input type="checkbox"/>	Hydraulics Report	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input type="checkbox"/>	Bridge Scour Evaluation Report	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input checked="" type="checkbox"/>	Transportation/Traffic Reports	<input type="checkbox"/>	On File	<input checked="" type="checkbox"/>	Available From: County
<input checked="" type="checkbox"/>	Accident Reports / Data	<input type="checkbox"/>	On File	<input checked="" type="checkbox"/>	Available From: County
<input type="checkbox"/>	Environmental Reports	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:
<input checked="" type="checkbox"/>	National Forest Map	<input type="checkbox"/>	On File	<input checked="" type="checkbox"/>	Available From: FHWA
<input type="checkbox"/>	Forest Service Roads Analysis	<input type="checkbox"/>	On File	<input type="checkbox"/>	Available From:

**IV. REGULATORY FOREST HIGHWAY SELECTION CRITERIA** *(Send this to the Forest Service prior to Scoping to have them answer the questions in this Section.)*

1. Describe the primary highway related needs for improvement of this route (safety, operational, capacity, structural deficiency, travel corridor demand, system continuity, etc.):
  - The existing route is in need of roadway, operational, and roadside improvements. The needed roadway improvements consist of the geometric features of the route including lane and shoulder widths, horizontal and vertical alignments and pavement cross slopes. The needed operational improvements generally consist of pavement markings, and improved delineation of substandard or unexpected roadway features. Roadside improvements necessary for the route will include reducing the potential severity of accidents along the route by flattening slopes, extending culverts and potentially removing trees or other obstructions as appropriate.
  - Utah FH 46 is a primary service route to Manti-La Sal National Forest, providing access for recreational activities such as camping, hiking, biking, hunting, fishing, cross country skiing, snow shoeing and snowmobiling. It is the main access to privately owned lands within the National Forest. It is classified as a scenic backway and provides scenic views for recreational drives. The following segments, listed in order of priority, were agreed upon by the group.
    - MP 21.1 (Miners Basin Road/Burn Area) to MP 23.1: This area was part of the 2008 Porcupine Ranch Fire that caused severe damage to the pavement. Due to the fire, erosion is also an issue. This area contains multiple cold patch pavement sections that the county has applied to hold the pavement together. These consist of placing asphalt millings and then compacted in place. A drainage channel has severely eroded and caused a mud/rock slide to cross the roadway with a

significant amount of debris. Another area of concern is a section that has sloughed off of a cut slope, probably due to the loss of vegetation from the fire.

- MP 12.6 to 13.3 (Wet Area): This section of roadway is set along a steep side slope and consists of a narrow bench and a very wet uphill slope. The water in the slopes has deteriorated the pavement and base/sub-grade. A potential solution to this area would be to extend the H pile timber lagging wall that is located at approximately milepost 13.3 to widen the bench. Then pave the inside ditch as well as place underdrain. This would reduce the amount of water getting into base and sub-grade. There are some potential issues with this section that could make it very costly and potentially not a good fit for this project including environmental concerns (wetlands in the inside ditch and wildlife restrictions) as well as cost concerns (retaining walls, limited bench width.) In addition to the roadway reconstruction, there is a proposed parking area south of the Wet Area at MP 12.2. There is currently a dirt pullout area with a restroom being used as parking for recreation. Improvements may include grading and surface improvements to encourage parking in this area.
- MP 25.8 (Gateway Road intersection) to MP 27.8 (New cattle guard): This section of roadway is narrow with deteriorated pavement. Since this section receives traffic both continuing along the Loop Road as well as those using the Gateway Road. The ADT is higher than other sections of the Loop Road. Minor widening may be warranted in this section. Right of Way acquisition if required would be a potential issue for this segment.
- MP 2.0 (Ken's Lake Road) to MP 5.3 (Pack Creek Road): The pavement in this area is in need of rehabilitation and potentially some minor widening and drainage improvements. This appears to be on federal (BLM) or State land so ROW may not be an issue.
- Spot improvement to roadway drainage may be included in other area were the existing drainage is substandard and could have detrimental effects to the roadway.

2. Describe the secondary needs for improvement of this route (improve water quality, etc.):

- Secondary needs for improvement of this route are to address safety and improved access. Improvements in these areas would reduce maintenance costs and provide for safer, more efficient usage of the Manti-La Sal National Forest.

3. How would improvement of this route aid in the development, use, protection and administration of the National Forest System (NFS) and its renewable resources?
  - This route is an indispensable part of the road system serving the Manti-La Sal National Forest and San Juan and Grand counties. It serves a variety of functions for the FS, local residents, and business department on the forest. Improving the route would aid access to the National Forest for recreational uses such as camping, hiking, biking, hunting, fishing and other outdoor activities.
  - Any proposed route improvements would be developed to aid in the development, use, and administration of the NFS by enhancing overall safety along the route segments, including upgrading roadway widths and geometrics to current standards, addressing hazards within the established clear zone, creating shoulder turnouts, providing advisory signing, and other roadway enhancements. The protection of the Manti-La Sal National forest can be enhanced by providing improvements that assist the FS in controlling access to the areas adjacent to the road, resulting in less damage to resources within the forest. The improved roadway would aid in the removal of renewable and non-renewable resources from the National Forest by providing a rural collector system, which would enhance the travel for commercial users of the forest.
  - Improvements to the route would sustain and augment current and planned efforts of use, protection, and administration of the National Forest and the surrounding area. An improved FH 46 (CR-1704) would also benefit the community by providing enhancements to emergency response for fire suppression, law enforcement, and medical service activities, better protecting local residents and visitors to the National Forest.
  
4. How would improvement of this route aid in the enhancement of economic development at the local, regional and national level?
  - Improvement of this route would facilitate a safer route for bicycles, passenger car, travel trailer, motor home, and other recreational appeal. The communities surrounding this area depend on the recreational appeal of the National Forest and National Park to sustain their economies. The improved route would allow for more economical commercial hauling of forest products and other resources provided by Manti-La Sal National Forest.
  
5. How would improvement of this route aid in the continuity of the transportation network serving the NFS and its dependent communities?
  - An improved route may strengthen the existing system and possibly provide a better, safer, and more enjoyable access to recreational facilities and to larger portions of the National Forest. This route is the primary access to the Moab Ranger District of the Manti-La Sal National Forest. Improvement of the route would enhance this access and make the forest more accessible to the community.

6. How would improvement of this route aid in the mobility of the transportation network and the goods and services provided?
  - Improvement to the route segments would significantly increase the mobility of highway users. It would enhance emergency response, the delivery of goods and services, and NFS management activities. The improvements would benefit public traffic to and from the public and private properties within Manti-La Sal National Forest.
  
7. How would improvement of this route aid in the improvement of the transportation network for economy of operation, maintenance and safety of its users?
  - Improvement of the route would enhance roadway safety and the comfort of the driving experience for forest visitors, local residents, bicycle riders, commercial haulers, land-use administrators, and other road users. The improved safety features along the route should include upgrades to roadway widths, horizontal and vertical geometry, signing, increased sight distance, improved traction, and other features. Access for recreation users with trailers, motor homes, and other recreational vehicles would be enhanced by the improvements. The improved route segments could reduce user costs by improving fuel efficiency and decreasing vehicle repairs.
  - Improvements to FH 46 would result in lower long-term roadway maintenance costs for the counties by addressing present drainage issues, roadside problems such as rock falls and ditch erosion, and providing a new, wider, paved roadway service.
  
8. How would improvement of this route aid in the protection and enhancement of the rural environment associated with the NFS and its renewable and nonrenewable resources?
  - The improvements would upgrade the condition of their forest highway without changing the rural character of the area. The improvements would enhance the overall safety of the roadway while attempting to maintain a recreational and driving setting compatible with the desired of local residents, the Forest Service, and San Juan and Grand Counties. Easier access to the area's recreational opportunities and an increase in visitors coming into the area anticipated as a result of improving the route. Structural and drainage improvements would prevent degradation of the environment through the corridor by controlling erosion of the surrounding terrain.
  
9. Have there been public requests for improvement of the route?
  - To date, there have been no public requests for the project

10. Have there been political requests for the improvement of the route?

- San Juan County described the Wet area as their biggest concern due to the safety hazards that are present with the unstable slope and the icy roadway in the winter. They have also mentioned some minor concerns in other areas of lower priority including Kens Lake to Pack Creek. Grand County described Miners Basin/Burn Area as their biggest priority due to the extensive roadway and pavement damage as a result of the fire. Grand County has also discussed some concerns in Castle Valley, which is in need roadway widening and rehabilitation.

11. Will there be potential public and private development as a result of the improvement of the route?

- The project will benefit the Spanish Valley Area at the beginning of the route. There may also be future development in the Castle Valley area towards the end of the route, which the improvements would benefit. However, there is no significant public or private development anticipated as a result of this project. Improvements would sustain, but not substantially change, the present potential for development.

## **V. FUNCTIONAL DISCIPLINE CONSIDERATIONS**

### **A. SAFETY**

1. Provide accident history if available (Sources: USFS, County, State or Local Police may have data). If not available, obtain anecdotal accident information or look for evidence of crashes.
  - i. Date requested: October 2010
  - ii. Source: David Vaughn of the Grand County road Dept.
  - iii. Describe number and types of crashes, severity and areas of concentration. Attach accident reports if necessary to help describe crash history:
    - There have been 2 fatalities on the road the last 5 years. Both involved bicyclists. One at the old cattle guard in Castleton and the other between the Castle Valley overlook and the county line. Three other accidents have occurred that involved people driving off the road. No accidents have occurred on the projected segments.
2. Describe any potential problems with sight distance, clear zone, roadside hazards (including headwalls, culverts, trees, utilities, etc.), pedestrian or animal crossings or unusual traffic conditions:

- Roadside hazards within the clear zone that could pose as a potential problem include drainage structures, no roadside shoulder, utilities, limited sight distance, trees, and rocks as a result of rock and mud slides. The other hazard present is the steep side slopes and narrow bench width through the burn area. The Wet Area also experiences potential hazards due to parking along the roadside, limiting the roadway travel width. No Parking signs will be added in this area.
3. If the scope of the project is 3R and the profile of the roadway is raised, will the roadway and fore slopes still fit on the existing bench? Will the fore slopes still be an acceptable slope? Will the new pavement edge drop-offs be less than 2 inches in height?
    - Bench width is a potential problem in Miners Basin, the Wet Area and Castleton Valley. Miners Basin and the Wet area have a bench width of 22 ft or less in some spots, with minimal room to expand. Castle Valley has a narrow bench width, but has room to widen the bench to the standard size throughout the segment.
  4. If the scope of the project is 3R and the profile of the roadway is raised, will roadside and median barriers be the correct height?
    - There are no current roadside or median barriers along the project.
  5. Does the existing guardrail meet current standards? Terminal sections? Bridge rail? Transitions? Other roadside or median barriers?
    - There are no current roadside or median barriers along the project.
  6. Any areas where guardrail should be added or removed?
    - No guardrails will be added or removed.
  7. Are sign supports crashworthy if located within the clear zone?
    - Sign supports are crashworthy in the clear zone.

8. Are permanent sign panels in good condition for both day and night, clearly understood and in compliance with the MUTCD? Are passing zones and other pavement markings appropriate?
  - Signs are all new and in great condition.
  - Pavement markings are appropriate when in place.
  - There are no pavement markings in a large majority of the Loop road, there are center lines and fog lines at the beginning 10 miles of the route and the final 10 miles of the route.
  
9. Describe any special permanent traffic control management. Any special signs, markings, supports, rumble strips or traffic signals required? Any new traffic patterns to be established?
  - No special permanent traffic control will be needed on the Loop Road.
  
10. Describe temporary traffic control management. Include any restrictions for widths, seasons, structures, etc. Any time of year when the road can be closed? Will the road be open to all vehicles or will use be restricted (shuttles only, school bus and mail vehicles only, etc.)?
  - The road will remain open to traffic to allow residents to reach their homes and for local businesses to use the road. A probable scenario will most likely result in traffic being reduced to one lane through the construction zone which will alternate every 30 minutes.
  - Due to the high mountain elevation of the road, the winter months will see snowfall and cause the road to be closed at times.
  
11. Any temporary diversions to be constructed or detours that needs to be planned? Consider existing bridge/structure locations and possible construction phasing requirements:
  - No diversions or detours will be constructed.
  - The route can be accessed from two different locations, a south entrance and a north entrance. All destinations can be accessed from either entrance since the road is a continuous loop.
  
12. Any traffic restrictions for rush hours, weekends and holidays?
  - Rush hour is not a concern. (Kens Lake to Pack Creek traffic counts are skewed due to a damaged traffic counter which shows a high volume of traffic, but after observation no rush hour is predicted.)

- Weekends and holidays do see higher volumes of traffic and construction will be avoided at these times if possible.

## **B. UTILITIES**

1. Are there any known utilities that may need to be relocated or avoided? Describe the location and type of the utilities. Identify the agency(s) responsible for utility issue coordination, relocation and for any costs associated with utility issues. Develop and include a contact list:
  - Known utilities in the area consist of overhead electric (PacifiCorp), buried and overhead telephone (Contel, Independent and Continental), underground gas (Utah Gas Service), and underground sewer. In the Kens Lake to Pack Creek Segment (MP 2.0 to MP 5.3), overhead electric, gas and sewer, and telephone are all present. In the Castle Valley segment (MP 25.8 to MP 27.8), electric, gas and sewer and telephone are all present. These utilities are not present in the remaining two segments.
2. List any special considerations regarding utilities (hazardous or environmentally sensitive situations, time restrictions on interruption of service, security sensitive utilities, the effect of changing grade above or below a utility, the time or process needed to redesign and relocate utilities (if known), etc.):
  - There is a risk of interrupting telephone service and power. However it is anticipated that there will be no impacts.
3. Are there any existing utility agreements or easements between the roadway owner and the utility owner? What are the terms of the agreements and/or easements?
  - Unknown at this time, research in progress
4. Any irrigation ditches within the project corridor? Are there time constraints or mandatory operation periods? List owner/contact person if available:
  - An Irrigation canal is adjacent to the roadway at MP 5.0, in the Kens Lake to Pack Creek Section.

**C. PERMITS**

PERMIT	REQUIRED?	TO BE OBTAINED BY:
<p><b><u>Corps of Engineers Section 404 Permit:</u></b></p> <p>Will the project require discharging fill into wetland(s)?</p> <p>Will the project require discharging fill into a perennial stream? Or Discharging fill into an intermittent or ephemeral stream? Or Discharging fill in a pond or lake?</p> <p>Will any fill be placed below the ordinary high water mark?</p> <p>Will there be any channelization or channel changes required?</p> <p>Is a Nationwide or Individual Permit Required?</p> <p>Take photos of any potential impact areas of wetlands and streams. Identify photo locations on a site map. *Photos are extremely helpful in assessing permit needs, in completing applications and providing the Corps useful information for their decision document. Photos are required as part of the documentation in some Corps Districts.</p>	<p>Yes, likely on MP 12.6 segment. (Wet Area)</p> <p>No</p> <p>Yes, likely in burn segment and for some culvert repl. No</p> <p>Yes, likely.</p> <p>Yes, potentially at burn area.</p> <p>Yes</p> <p>Nationwide <input checked="" type="checkbox"/></p> <p>Individual <input type="checkbox"/></p>	<p>FHWA</p>
<p><b><u>NPDES Permit:</u></b></p> <p>Will 1 to 5 or 5 or more acres of land be disturbed?</p> <p>Is the project on Tribal lands?</p> <p>Is the project subject to any County or Local sediment/erosion management plan?</p> <p>Is the project subject to a State or Basin sediment/erosion management plan?</p>	<p>1 to 5 (Likely) <input checked="" type="checkbox"/> 5 or more <input type="checkbox"/></p> <p>No</p> <p>Unknown.</p> <p>Unknown.</p>	<p>FHWA and Contractor</p>

<p>Is the Cooperator willing to assume responsibility for the NPDES Permit upon completion of construction?</p>		
<p><b><u>Other Permits/Authorizations:</u></b></p> <p>Are any of the following permits required or potentially required?</p> <ul style="list-style-type: none"> <li>Forest Service Special Use Permit <ul style="list-style-type: none"> <li>Staging Area?</li> <li>Disposal/Waste Area?</li> <li>Material Source?</li> <li>Asphalt or Concrete batch plant?</li> <li>Utility line or buried pipe?</li> <li>Other?</li> </ul> </li> <li>State Dewatering permit?</li> <li>Local, County or State Air Quality Permit?</li> <li>County Road Access or Encroachment permits?</li> <li>State Highway Access or Encroachment permit?</li> <li>Stream alteration permit?</li> </ul> <p>Are you aware of any other permits that may be required?</p>	<p>Likely for All</p> <p>No</p> <p>Likely.</p> <p>No</p> <p>No</p>	<p>FHWA</p>

**B. ENVIRONMENT**

TASK	REQUIRED?	TO BE COMPLETED BY:
<p><b><u>NEPA Document:</u></b></p> <p>What is the anticipated type of document (Cat.? Ex., EA or EIS)?</p> <p>Who made the determination?</p> <p>If CFLHD is doing the NEPA document, who will be doing the resource surveys (T&amp;E species, rare plants, cultural resources, etc.)?</p>	<p>Cat Ex.</p>   <p>Consultants for wetlands, potentially Forest Service for cultural, T&amp;E TBD.</p>	<p>FHWA</p>
<p><b><u>FWS – Section 7 Concurrence:</u></b></p> <p>Is a Biological Assessment/Evaluation required?</p> <p>Are there any State listed species?</p> <p>Is the project located within 100 miles of the coast (National Oceanic and Atmospheric Administration (NOAA), Fisheries jurisdiction)?</p>	<p>Yes</p> <p>Yes</p> <p>No</p>	<p>FHWA</p>
<p><b><u>SHPO – Section 106 Concurrence:</u></b></p> <p>Are any items within the project area on or eligible for listing on the National Historic Register?</p> <p>Is a Cultural Resource Survey required?</p>	<p>None known</p> <p>Yes, likely.</p>	<p>FHWA</p>
<p><b><u>Tribal/TCP Issues:</u></b></p> <p>Are there any tribes who will have an interest in the project?</p> <p>Are there any Traditional Cultural Properties (TCP's) near the road?</p>	<p>Yes.</p> <p>None known.</p>	
<p><b><u>Section 4(f):</u></b></p> <p>Do Section 4(f) DOT requirements apply?</p>	<p>Yes – no properties known.</p>	

<p><b><u>Wetlands:</u></b></p> <p>Is a wetland delineation survey required?</p>	<p>Yes, likely.</p>	
<p><b><u>Other Concerns:</u></b></p> <p>Is there any known or possible hazardous waste on the project (lead paint, asbestos, underground storage tanks, unidentified 55 gallon drums, abandoned buildings, etc.)?</p> <p>Is the road a designated Scenic Byway or Back way?</p> <p>Are there any rivers in the project area that are designated a State or National Wild and Scenic River?</p> <p>Are there any Water Quality issues that may require a monitoring plan?</p> <p>Are any Storm Water Management devices required? If so, what are the design criteria?</p> <p>Will there be a lot of controversy about the project? Are there active environmental groups in the area?</p> <p>Are there any wildlife or aquatic organism crossing/passage issues?</p>	<p>None known.</p> <p>Yes, Scenic Backway.</p> <p>No</p> <p>None likely to require monitoring.</p> <p>Not expected based on scope. Yes</p> <p>No</p>	

**D. SURVEY**

1. Is any existing survey, mapping or GIS information available?
  - Limited at this time
2. What type of survey is recommended for the project?
  - i. Describe the terrain: Rolling to Mountainous
  - ii. Take pictures
  - iii. Is it open to the sky for aerial topography (if sunlight can penetrate the tree canopy, LiDAR may be effective)? Yes
  - iv. Will there be any possible realignment? Yes
  - v. How wide a corridor will need to be mapped? Roadway Prism required
  - vi. Are recommendations consistent with the 3R Survey Matrix? Y

3. Are there special features that require precise location (walls, fences, complicated utilities, arch. Sites, wetlands, bridges, other structures, etc.)?
  - In the wet area, there are wetlands, H-pile walls, and a historical fence.
4. Are there any existing control monumentation records?
  - There are no existing monumentation records
5. Get GPS positions at the beginning, end and any significant locations throughout the project.
  - Project will be surveyed

#### **E. RIGHT OF WAY (ROW)**

1. List the agency(s) and contact(s) who will coordinate and pay for any ROW. Inform them about the basics of Federal Acquisition requirements:
  - **Grand County:**  
Name: Bill Jackson  
Title: Supervisor, Grand County  
Phone: (435)-259-530  
Email: jacksonb@grand.state.ut.us
  - **San Juan County:**  
Name: Lynn Laws  
Title: Superintendent, San Juan County  
Phone: (435)-587-3230  
Email: lynnlaws@sanjuancounty.org
2. Is there an existing ROW corridor along the route? If so, provide any available documents or plans.
  - Research is ongoing. ROW corridor/private property exist in segment 3 in Castle Valley
3. If ROW plans need to be prepared for acquisition, determine the agency responsible for preparing documents, list which format they should follow, or special document requirements, identify Local and State recordation requirements for the documents and whether the ROW grantee needs to acquire a fee or easement interest:
  - Unknown at this time, research in progress

4. Approximate number of private parcels along the route:
  - Research in progress, by observation there are approximately 20-30 driveways along this route
5. How many of these private parcels will be affected by the improvements made to the route?
  - The possibility of ROW exists in Castle Valley, and is currently being looked into by FHWA.
6. For Federal land, are there existing Special Use Permits or easements for the road? Will the agency require conversion of existing permits and easements, or develop a new ROW with a DOT Highway Easement Deed (except in rare cases, the DOT ROW authority will be used for establishing ROW on Federal land)?
  - If no HED exists on Forest Lands it is anticipated that FHWA will prepare HED for the counties
7. Are there any special ROW fencing requirements?
  - It is anticipated that there will be no impacts to existing fencing, and no new fencing will be installed.

## **F. GEOTECHNICAL**

1. Describe the soils in the project vicinity:
  - Most of this route is located in mountain terrain. The soils in the area are fine grained silts and clays which will have poor pavement support characteristics.
2. Any evidence of swelling/shrinking soils or areas of distress? Take pictures of distressed areas:
  - There is some evidence of clay and shale in the area which is a concern when moisture is present.



*Pavement distress throughout the segment*

3. Are there any other obvious geological features on the project (sinkholes, slides, bogs, standing water, slope stability problems, etc.)?
- The wet areas cut slope is not very stable due to the excessive amounts of moisture from the natural spring causing slope stability problems.
  - In the wet area there is evidence of standing water on the cut slope side of the road as a result of the poor drainage in the area.
  - The burn area has slope stability problems on the cut slope due to a lack of vegetation which was lost in the fire.
  - A large rock/mud slide occurred during August 2010, in the burn area that traveled across the road and continued down the hill.



*Slope in Burn Area*



*Standing Water in the Wet Area*



*Slide in The Burn Area*

4. Any rock fall issues or considerations?

- In the burn area, a large number of rocks and soil have sloughed off of the cut slope due to the lack of vegetation in these areas and the rocks and soil are now being plowed to the side of the road.
- The wet area is also a place of concern where rocks and soil continually detach from the hill side due to the natural spring and poor drainage in the area causing a pile of rocks on the side of the road.



*Burn Area rock fall*



*Wet Area rock Fall*

5. Give locations of borrow pits, stone quarries or any material sources. Describe access and any restrictions:

- In the Miners Basin area at mile post 20.9 is an access road that leads to an old gravel pit 100 yards from the Loop Road. The pit is in consideration for an aggregate source for the project and a decision will be made after further testing.
- At the Gateway Road segment in Castle Valley at mile post 26.2 there is a county pit area. This pit is shared with a private owner and is a potential source of aggregate.



Miners Basin Pit



Gateway Road Pit

6. Any permits, easements or agreements necessary for drilling?

- There are no permits needed for drilling

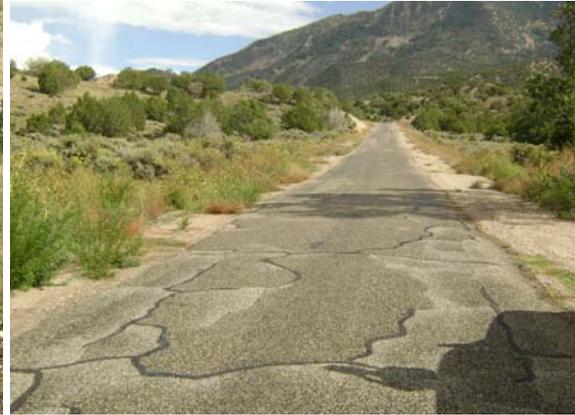
## G. PAVEMENTS

1. Describe any areas of pavement distress (take pictures):

- Some areas of pavement are composed of a double chip seal directly placed on the sub-grade.
- Numerous areas of crack seal were observed.
- The Burn area pavement has lost most of its oil due to the fire and has reduced the quality of the asphalt to only aggregate, which is getting washed away due to the poor drainage in the area.



*Burn Area Pavement*



*Castle Valley Pavement*

2. Does the distress appear to be related to subgrade failures, oxidation, poor drainage or other problems? Are there areas that have required frequent maintenance?
  - The distress appears to be caused by oxidation along with drainage in many areas.
  - Distress is also apparent in the burn area due to the high heat of the fire.
3. Any areas of special concern for pavement design (bus parking, bus stops, heavy pedestrian traffic, horse crossings, etc.)?
  - There are no areas of special concern at this time.
4. For 3R projects, what is the anticipated structural section (i.e. – pulverized pavement, new asphalt, foamed asphalt base course, etc.)?
  - Option one for the anticipated structural section is to pulverize then place a double chip seal on top.
  - Option two for the anticipated structural section is to pulverize, then place a 4 inch aggregate base followed by a 3 inch asphalt base.
5. Is there any information on existing asphalt and base depths?
  - Some areas are composed of a double chip seal directly on top of the sub-grade.

## H. HYDROLOGY / HYDRAULICS

### 1. Photograph and describe location and type of known drainage problems.

Known drainage problems identified during the project scoping visit include:

- Subsurface drainage problems (southside of Mill Creek in the Wet Area)
- Inadequate outlet scour protection (scattered throughout)
- Culvert outlets within clear zone, with sharp drops
- Post fire debris runoff (Miner's Basin)
- Road side ditch erosion (intermittent throughout)
- Inadequate roadside ditch capacity (throughout)
- Sediment filled culverts (Castle Valley)



*South of Mill Creek*



*Kens Lake Road to Pack Creek*



*Castle Valley*



*South of Burn Area*



*Miners Basin*

*Castle Valley*

2. Describe location, size, shape, material, and condition of all drainage structures to be retained. Describe evidence of scour/erosion at inlets/outlets, deposition of sediment or debris at inlets/outlets, abrasion or corrosion of pipe, presence of riprap aprons at inlets/outlets, any associated roadway embankment stability concerns. Photograph inlets, outlets, and other cited problems.

- The adequacy of drainage structures within the project sections will be evaluated and assessed based on CFL standards and criteria.
- The Miner’s Basin low water crossing / culvert, (See below), will require significant improvements to accommodate anticipated post-fire flood peaks and the debris that has accumulated along the upstream side of the road.
- Riprap aprons and stilling basins will be added where necessary.



*Miners Basin*

3. Photograph and describe any channel migration concerns or anticipated stabilization work (photograph channel looking up and downstream).

- There are no channel stabilization needs anticipated with this project.

4. Does the project potentially impact a floodplain regulated by FEMA? Is there potential for the floodplain to be encroached upon by roadway fill? If yes, get the name of the local floodplain administrator.
  - There are no FEMA regulated floodplains within the project limits.
5. Is there potential for embankment and/or retaining walls being located along streams/channels or floodplains? If yes, describe.
  - There is no potential for embankment or retaining walls along channels/floodplains.
6. Any overriding (superceding CFL Design Manual) local or state requirements for roadway overtopping, backwater, freeboard, design floods, or hydrologic methods at bridged waterways?
  - No, all drainage features to be replaced or improved will be designed per the CFL Design Manual.
7. Is there a minimum design flood (in years) or other criteria proposed for culvert and/or roadway drainage design?
  - The minimum design flood for new drainage features on this project will be as follows:
    - Culverts – 25yr
    - Roadside ditches – 10yr
    - Low water crossing – 10yr capacity through culvert, 25yr overtopping stability
    - Pavement drainage – 10yr, 50yr at sumps
8. Any fish passage issues? If so, describe issues and locations.
  - There are no fish passage issues anticipated.
9. Is the project located within 100 miles of the West coast (National Oceanic and Atmospheric Administration (NOAA) fisheries jurisdiction)?
  - No.
10. Are any stream and/or floodplain restoration efforts anticipated? If so, describe.
  - No.

11. Are any low-water crossings anticipated? If so, describe.

- Yes, there is one low water crossing anticipated at Miners basin Draw. The existing culvert has been plugged with post fire debris runoff and appears to be significantly undersized. The proposed culvert size will be redesigned for adequate hydraulic and debris capacity, considering future maintenance needs.

12. For existing bridges over waterways, has the bridge been evaluated for scour susceptibility? If yes, obtain Bridge Scour Evaluation Report.

- No bridge improvements are considered with this project.

## I. HIGHWAY DESIGN

1. Describe any horizontal and vertical alignment problems:

- All Segments of this route have areas of substandard horizontal and vertical geometry. These problems include sharp horizontal curves, substandard crest vertical curves, and inadequate superelevation transition length between curves.

2. Intersection problems:

- There are no current intersection problems.

3. List the Public Access approach roads within the project limits (*it is not necessary to list all driveways, just public access roads*):

<b>Milepost</b>	<b>Direction</b>	<b>Paved/Bench Width</b>	<b>Description</b>
2.0	Both		Kens Lake Rd
5.3	Right		Pack Creek Rd
12.1	Right		Geyser Pass Rd
13.4	Right		Oowah Lake Rd
14.8	Right		Warner Lake Rd
17.2	Left		Sand Flats Rd
27.4	Right		Castleton Rd
32.2	Left		E Shafer Ln
33.7	Left		Creskide Ln

4. Are there any private driveways within the project limits? List the approximate number of driveways. Is there a County or Forest Standard for treatment of driveways (i.e. – standard widths, radii, paved length, etc.)?

- There are approximately 25-30 private driveways along this route

5. Maintenance Problems:

- The road in the Wet Area becomes icy often due to the excessive amount of water, poor drainage and the lack of sun in the area.
- The burn area has many locations where sediment has flowed across the road and often the road needs to be cleared of the sediment.
- Some of the culverts are undersized and have been clogged with sediment causing excessive maintenance on the culverts and the surrounding road.

LaSal Loop Road Maintenance Cost History

	2005	2006	2007	2008	2009	2010
Labor	\$1,234.02	\$43,822.43	\$9,139.83	\$9,033.60	\$12,866.03	\$9,762.22
Equipment	\$798.05	\$0	\$34,771.76	\$13,725.26	\$12,144.10	\$14,805.60
Material	\$981.12	\$0	\$46,664.68	\$19,331.65	\$8,965.50	\$20,082.77
<b>Totals</b>	<b>\$3,013.19</b>	<b>\$43,822.43</b>	<b>\$90,576.27</b>	<b>\$42,090.51</b>	<b>\$33,975.63</b>	<b>\$44,650.59</b>

6. Describe any parking areas and pullouts included in the project. Will the parking areas and pullouts be reconstructed? If so, who will provide the layouts?

- There are no parking areas at this time to consider for reconstruction.

7. Are projected bicycle and pedestrian uses accommodated?

- Widening the road will help accommodate the bicycle and pedestrian traffic on the route.

8. Are any retaining walls needed along the project? What types of retaining walls will be considered?

- Extending the H-Pile wall along the cut slope in the wet area is being considered, with a paved ditch and an under drain.

9. Describe other roadway features to be rehabilitated or rebuilt (i.e. – picnic areas, entrance gates, concession areas, rest areas, bus shelters, etc.). Who will provide design plans?

- There are no additional roadway features to rehabilitate at this time

10. Any vistas or vegetation to preserve (take pictures):

- The project route is considered a Scenic Backway and the project design will not compromise scenic vistas. Degraded riparian habitat is a limiting factor for both Mill Creek and Castle Creek in the segments outside of USFS land. Removal of riparian vegetation should be minimized during drainage improvements in these areas.

11. Is there a specific seeding season for revegetation efforts? Obtain the seed mix from the Forest for incorporation into the Special Contract Requirements:

- Reseeding efforts should occur in the Fall before project completion.

12. Any special architectural or decorative aspects to be incorporated into design (stone masonry guard wall, stone curb, rock facing, etc.)?

- There are no plans for special decorative aspects to the project at this time.

13. Are there any realignment options that should be considered? Describe the alternatives and reasons for evaluation:

- No realignment is being considered.
- A grade raise is being considered in Miners Basin where the slide has occurred. This idea would also include improved drainage by adding a culvert, and making them bigger to accommodate the runoff in the area.

14. Is this project part of a series of projects? Is it completion of a defaulted contract? Describe any projects, under design or construction by any agency that may affect this project:

- There are no current projects underway at this location at the current time.
- This project has the possibility of consisting of a series of separate projects located at different locations throughout the Loop road.

15. Have there been any construction problems on previous projects? Contact the Construction office for further details:

- There are no known previous construction problems at this project location.

16. Discuss any restrictions for construction equipment (limited working space, no driving on newly paved areas, etc.):
- A possible concern will be the limited working space within the areas where the roadway is narrow and equipment will be exposed to a large drop off.
17. Are there load or hauling restrictions on the project or on roads leading to the project?
- There is one bridge on the north side and one bridge on the south side of the route. There are no indications of load restrictions.
18. List potential staging areas and any restriction or access problems:
- The old gravel pit in the burn area at mile post 20.9 is in consideration for a staging area.
  - The pit at the Gateway Road Intersection at mile post 26.2 is also in consideration for a staging area.
19. Any potential water sources within or near the project?
- Grand County has rights to 10 acre/feet of water per year from the Colorado River, which is can be accessed from the Warner Turnoff ditch.
20. Are there plans or proposals for other developments along the route that could interfere or be coordinated with the road project?
- No additional construction plans are coordinated with the road project at this time.
21. Is there any way to get a report or listing from maintenance personnel about problem sites, accident history or other areas of concern?
- Grand County and San Juan County have provided accident history and a vehicle count for the route.
22. Any special fencing (wildlife, landscaping, bison containment) along the project? Will it need to be replaced in kind or with another type? Take pictures of special fencing to be replaced in kind:
- There is no special wildlife fencing along this project.

- There are two partially buried wood fences at MP13.0. The fences appear to be over 50 years old and should be treated as a historical feature and remain untouched.
23. Identify any design concerns not previously covered. These may include political and legal concerns, expected materials shortages, impacted property owners, any compensatory work regarding impacted property, any public opposition to the project, any potentially dangerous situations to CFLHD employees:
- There are no additional design concerns that have not been covered.

## **K. BRIDGE**

1. Provide available structure site data. Document typical roadway section, approach rail, potential environmental issues, and apparent ROW limits. When available, obtain roadway plan and profile sheets, mapping, and ROW limits.
  - The Mill Creek Bridge ties into the end of the Wet Area segment, and was built in 2004. The measured bridge width is 24 ft, and the length is estimated to be 75ft.



*Mill Creek Bridge*

2. Describe existing structures (bridges, retaining walls, tunnels). Include type, span lengths, dimensions, apparent condition, railing, and existing utilities. Describe bridge opening (waterway) characteristics. Document any visible scour, deposition of sediment, or apparent instabilities around the structure. When available, obtain as-built plans, inspection reports, structure ratings, and foundation and hydraulic information. Provide photos of all structures, any apparent deficiencies, and upstream and downstream stream channels.

- There is a new bridge over Mill Creek at MP 13.3 which was built in 2004, no work is required on the bridge at this time.
- There is an H-pile wall at MP 13.2 that is approximately 500 ft long on the cut slope side of the road. The wall is 5 ft tall x 9 ft wide between H-piles.



*H-Pile Wall in the Wet Area*

3. Discuss preliminary options for structure type, layout, and alignment. Identify proposed structure requirements, including number of lanes, sidewalk, utility, overload vehicle, and aesthetic requirements.

- There are no preliminary options for bridge reconstruction at this time.

**VI. PROPOSED IMPROVEMENTS** *(Provide a narrative or brief description of the proposed improvements for each functional area)*

**A. SAFETY**

Constructing a consistent 22 foot wide section where possible throughout the project will help enhance roadway safety for pedestrians, bicyclist, and all vehicles. Additional culverts will help debris issues that occur throughout the route.

**B. UTILITIES**

No utilities will be relocated

**C. PERMITS**

401,404, NEPDES

**D. ENVIRONMENT**

CE

**E. SURVEY**

None

**F. RIGHT OF WAY (ROW)**

None

**G. GEOTECHNICAL**

H-pile wall in the Wet Area

**H. PAVEMENTS**

Pavement rehabilitation will take place in the selected areas of the project. Roadway widths will be improved in applicable areas as well stand144ard improvements to the area.

**I. HYDROLOGY / HYDRAULICS**

Culverts improvements will include the addition of culverts in needed areas as well as an increase in culvert size to accommodate the amount of runoff in the area.

**J. HIGHWAY DESIGN**

Constructing a consistent 22 foot wide section throughout the project will help solve public access issues, enhance roadway safety, and reduce maintenance costs.

**K. BRIDGE**

None

**HIGHWAY DESIGN STANDARDS**

Design Standards     AASHTO         STATE         OTHER

Design Vehicle: \_\_\_\_\_ RV \_\_\_\_\_

Design Speed: 25 (mph)      Posted Speed Limit: 25 (mph)

DESIGN CRITERIA	EXISTING CONDITIONS	STANDARD	PROPOSED	REMARKS / POSSIBLE VARIANCES
Travel Way Width (m or ft)	17-22 ft	18 ft	20 ft	
Shoulder Width (m or ft)	0-1 ft	2 ft	1 ft	
Horizontal Curvature (min. radius, m or ft)		144 ft		
Superelevation (%)		6 %		
Superelevation Runoff (m or ft)		103 ft		
Vertical Curvature (K value = L/A)		K sag = 26 K crest = 12	K sag = K crest =	Design will vary only slightly from existing. Improvements will be made where possible
Crown (%)		2 %		

<b>DESIGN CRITERIA</b>	<b>EXISTING CONDITIONS</b>	<b>STANDARD</b>	<b>PROPOSED</b>	<b>REMARKS / POSSIBLE VARIANCES</b>
<b>Gradient (max. %)</b>		0.70 %		
<b>Stopping Sight Distance (m or ft)</b>		155 ft		
<b>Horizontal Clearance to Structures (m or ft) (tunnels and bridge underpasses)</b>		2 ft		
<b>Vertical Clearance to Structures (m or ft)</b>		14 ft		
<b>Bridge Width (m or ft)</b>		N/A		
<b>Bridge Loading (MS or HS)</b>		N/A		
<b>Bridge Railing (AASHTO Criteria or Crash Tested)</b>		N/A		

**Roadside Design:** *(Discuss recommended clear zone, proposed clear zone and any reasons for variations)*

The design guidelines for roadside width on very low-volume roads are as follows:

1. At locations where a clear recovery area of 6 ft or more in width can be provided with minimum social/environmental impacts, provision of such a clear recovery area will be considered.
2. Where constraints of terrain, right of way, or potential social/environmental impacts make the provision of a 6 ft clear recovery area impractical, clear recovery areas of less than 6 ft in width may be used, including designs with 0 ft clear recovery areas.
3. The designer will provide a clear zone as wide as practical within constraints of terrain, right of way, or potential social/environmental impacts. Where provision of a clear zone is not practical, none is required. Site-specific conditions and the engineering judgment of the designer should be the two primary determinants of the appropriate clear zone width for very low-volume local roads.

**Approved for Distribution:**

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**Project Manager**

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**Date**

## **DISTRIBUTION**

### **National Forest**

Local Forest  
District Office  
Regional Office

### **Federal Highway Administration, Central Federal Lands Highway Division (CFLHD)**

Project Manager  
Highway Design Manager  
Lead Designer  
Survey Manager  
ROW/Utilities Engineer  
Environmental Planning Engineer (if they are preparing the document)  
Permits (if NPDES and/or other permits are required)  
Pavement Engineer  
Geotechnical Engineer  
Materials Engineer  
Hydraulics Engineer  
Safety Engineer  
Bridge Engineer  
Planning and Programs Engineer

### **County**

Central files –  
Author Name : Date : File Information/Location

**UTAH FOREST HIGHWAY 46  
LA SAL MOUNTAIN LOOP ROAD  
PROJECT AGREEMENT**

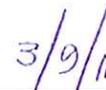
UT PFH 46-1(2)

Date: February 4, 2011

This project agreement describes specific requirements to be fulfilled and duties to be performed by principal partners in order to produce the services and products described herein and agreed to below by their signatory representatives. The purpose of this project agreement is to identify and assign responsibilities for the environmental analysis, design, and construction required to deliver the final project using funds made available under the Forest Highway Program, and to ensure maintenance of the roadway for public use once improvements are made, in conformance with Title 23 CFR 660.105(d)(1) and 660.111(c)(1)&(4).



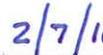
\_\_\_\_\_  
Pamela Brown, Forest Supervisor  
Manti-La Sal National Forest (MLSNF)



\_\_\_\_\_  
Date



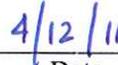
\_\_\_\_\_  
San Juan County Chairperson  
Bruce Adams



\_\_\_\_\_  
Date



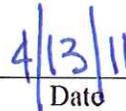
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Grand County Council Chair  
Grand County



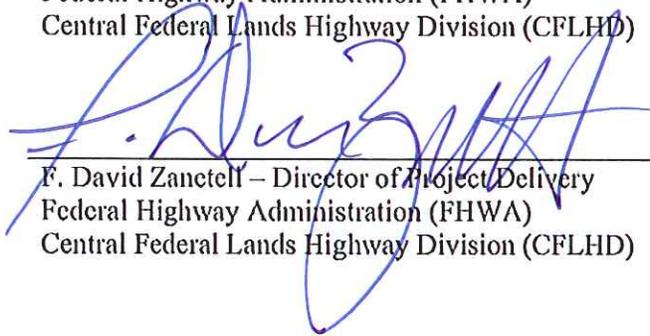
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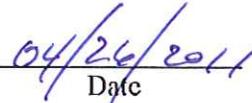


\_\_\_\_\_  
Christopher Longley – Project Manager  
Federal Highway Administration (FHWA)  
Central Federal Lands Highway Division (CFLHD)



\_\_\_\_\_  
Date

  
\_\_\_\_\_  
F. David Zanetti – Director of Project Delivery  
Federal Highway Administration (FHWA)  
Central Federal Lands Highway Division (CFLHD)



\_\_\_\_\_  
Date

**UTAH FOREST HIGHWAY 46  
LA SAL MOUNTAIN LOOP ROAD  
PROJECT AGREEMENT**

UT PFH 46-1(2)  
Date: February 4, 2011

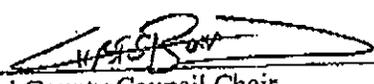
This project agreement describes specific requirements to be fulfilled and duties to be performed by principal partners in order to produce the services and products described herein and agreed to below by their signatory representatives. The purpose of this project agreement is to identify and assign responsibilities for the environmental analysis, design, and construction required to deliver the final project using funds made available under the Forest Highway Program, and to ensure maintenance of the roadway for public use once improvements are made, in conformance with Title 23 CFR 660.105(d)(1) and 660.111(c)(1)&(4).

\_\_\_\_\_  
Pamela Brown, Forest Supervisor  
Manti-La Sal National Forest (MLSNF)

\_\_\_\_\_  
Date

\_\_\_\_\_  
San Juan County Chairperson  
Bruce Adams

\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Grand County Council Chair  
Grand County

4-12-11

\_\_\_\_\_  
Date

\_\_\_\_\_  
Christopher Longley – Project Manager  
Federal Highway Administration (FHWA)  
Central Federal Lands Highway Division (CFLHD)

\_\_\_\_\_  
Date

\_\_\_\_\_  
F. David Zanetell – Director of Project Delivery  
Federal Highway Administration (FHWA)  
Central Federal Lands Highway Division (CFLHD)

\_\_\_\_\_  
Date

**UTAH FOREST HIGHWAY 46  
LA SAL MOUNTAIN LOOP ROAD  
PROJECT AGREEMENT**

UT PFH 46-1(2)

Date: February 4, 2011

This project agreement describes specific requirements to be fulfilled and duties to be performed by principal partners in order to produce the services and products described herein and agreed to below by their signatory representatives. The purpose of this project agreement is to identify and assign responsibilities for the environmental analysis, design, and construction required to deliver the final project using funds made available under the Forest Highway Program, and to ensure maintenance of the roadway for public use once improvements are made, in conformance with Title 23 CFR 660.105(d)(1) and 660.111(c)(1)&(4).

\_\_\_\_\_  
Pamela Brown, Forest Supervisor  
Manti-La Sal National Forest (MLSNF)

\_\_\_\_\_  
Date



\_\_\_\_\_  
San Juan County Chairperson  
Bruce Adams

*2-7-11*

\_\_\_\_\_  
Date

\_\_\_\_\_  
Grand County Council Chair  
Grand County

\_\_\_\_\_  
Date

\_\_\_\_\_  
Christopher Longley -- Project Manager  
Federal Highway Administration (FHWA)  
Central Federal Lands Highway Division (CFLHD)

\_\_\_\_\_  
Date

\_\_\_\_\_  
F. David Zanetell -- Director of Project Delivery  
Federal Highway Administration (FHWA)  
Central Federal Lands Highway Division (CFLHD)

\_\_\_\_\_  
Date

**PROJECT LOCATION:**

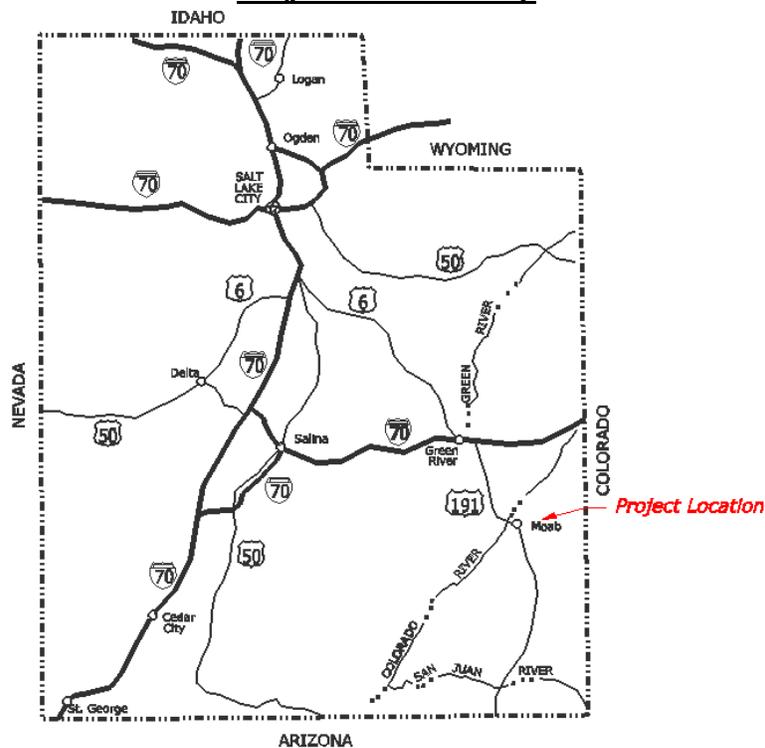
**PROJECT LOCATION:**

The Central Federal Lands Highway Division (CFLHD) of the Federal Highway Administration (FHWA), in cooperation with the Manti-La Sal National Forest (MLSNF), San Juan County, and Grand County are proposing improvements to Utah Forest Highway 46 (UT FH 46) near Moab, UT as shown in the project location map below. UT FH 46 is located in San Juan and Grand Counties. The route is also designated as County Route 1704 (CR-1704) and is also known as the La Sal Mountain Loop Road. The route begins at the junction with US-191, approximately 6 miles south of Moab, UT, and proceeds east and north 36.4 miles to the junction with SR-128 in Castle Valley, UT. The route is primarily on federal land within the Manti-La Sal National Forest in Grand and San Juan Counties. The route is designated as the La Sal Scenic Byway.

At the 2010 Utah Forest Highway Tri-Agency meeting it was decided to program a project on the LaSal Mountain Loop Road (UT 46) due to the poor and failed condition of the pavement. The proposed project will be designed to be flexible to utilize available funds. Currently this project is in the program for 2016 for \$ [redacted] million but could be used as a back-up as soon as 2012. The funding is anticipated to change due to high or low bids on other Utah Forest Highway projects, uncertainty in program funding levels, and strategies for the Utah Forest Highway program.

A scoping meeting and field review with the MLSNF and counties was completed in October 2010 looking at the entire route. The group identified four priority segments for improvements that are detailed below.

**Project Location Map**



**PROJECT SCOPE:**

The entire route was scoped during the October 2010 field review to determine segments to move forward with preliminary design based on safety, pavement condition, and other factors. Figure 1 below shows the 4 priority segments.



**Figure 1 - Route Map**

The following segments, listed in order of priority, were agreed upon by the group:

*Segment 1 - Miner's Basin - MP 21.1 (Miners Basin Road) to MP 23.1 (2.0 miles):* This area was part of the 2008 Porcupine Ranch fire that caused some erosion issues as well as severe damage to the pavement. This area contains multiple pavement patches that the county has applied to hold the pavement together. These consist of placing asphalt millings on these sections and then compacted in place. There is also an area where severe erosion upstream of a drainage channel caused a significant mud/rock slide to fill the channel and cross the roadway. The third area of concern is a section that has sloughed off of a cut slope, probably due to the loss of vegetation from the fire.



**Figure 2 – Mud/Rock Slide Area**



**Figure 3 – Cut Slope**

*Segment 2 – Wet Area near Mill Creek - MP 12.6 to 13.3(0.7 miles):* This section of roadway is set along a steep side slope and consists of a narrow bench and a very wet uphill slope. The water in the slope has deteriorated the pavement and base/subgrade. A potential solution for this area would be to extend the H pile timber lagging wall that is located at approximately station 13.3 to widen the bench and then pave the inside ditch as well as place underdrain. This would reduce the amount of water getting into base and subgrade. There are some potential issues with this section that could make it very costly and potentially not a good fit for this project including environmental concerns (slope and ditch wetlands) as well as cost concerns (retaining walls, limited bench width, etc.). Additionally, an existing parking lot located just south of this segment would be formalized to provide an alternate location for climbers that currently park along the road, creating a safety hazard.



**Figure 4 – Existing Timber lagging Wall**



**Figure 5 – Wet Slope**

*Segment 3 - MP 25.8 (Gateway Road intersection) to MP 27.8 (New cattleguard) (2.0 miles):* This section of roadway is narrow with failed pavement. Since this section receives traffic both continuing along the Loop Road as well as those using the Gateway Road, the ADT is higher than other sections of the Loop Road. Minor widening may warranted in this section. Right of Way acquisition if required would be a potential issue for this segment.



**Figure 6 – Existing Pavement**



**Figure 7 – Existing Pavement**

*Segment 4 - MP 2.0 (Ken’s Lake Road) to MP 5.3 (Pack Creek Road) (3.3 miles):* The pavement in this area is in need of rehabilitation and potentially some minor widening and drainage improvements. This appears to be on federal (BLM) or State land so ROW may not be an issue.



**Figure 8 – Culvert at MP 4**



**Figure 9 – Existing Pavement**

This roadway is classified as rural collector in rolling and mountainous terrain with a design and posted speed of 25 in segments 1-3 and 40 miles per hour in segment 4.

Specific areas of concern or areas of required work by functional discipline are as follows:

### **Typical Section**

The pavement width varies throughout the route. The intent of this project will be to match, at a minimum, the width of the adjacent sections of road and widen where feasible and appropriate.

- Structural section (Pavement) alternatives will be developed based on a subsurface investigation, traffic, and cost. Alternatives will be discussed during preliminary design.

### **Utilities**

- There is an overhead power line that crosses the road at various locations. No conflicts are anticipated.
- There is an underground telephone line that runs along portions of the road. No conflicts are anticipated.

### **Environment and Permits**

- FHWA will complete the NEPA compliance process. It is anticipated that a Categorical Exclusion will be prepared.
- It is anticipated that a 401/404 and NPDES permit will be required.

### **Right of Way**

- Segments 1 and 2 are located on Federal Lands. Segment 4 is on BLM and State of Utah lands. There appears to be private property and right-of-way in segment 3. If no HED easement exists in segments 1, 2 and 4, then it is anticipated that the FHWA will prepare one for the Counties. Research is currently ongoing to determine the existing Right-Of-Way width in segment 3. It is anticipated that the roadway improvements will be between the existing private fencing within segment 3 and that no additional property acquisition will be required.

### **Hydraulics**

- Isolated culverts will be replaced within each segment as deemed appropriate.
- It is anticipated that a box culvert or low water crossing will be installed at the “Burn Area” to accommodate any future debris flows.

### **Highway Design**

- The roadway elevation may need to be raised in Segment 1 at the area of the debris flow to accommodate a drainage structure.

### **Construction**

- It is anticipated that construction will last one season. Traffic delays and potentially closures will be required depending on segment and will be discussed during preliminary design.
- The existing Forest Service pit near Miner’s Basin Road will be researched to determine if feasible to use as a staging/stockpiling area and potentially a material source.

## **PROJECT RESPONSIBILITIES:**

### **Manti-La Sal National Forest**

#### **During Project Development, the FS will:**

1. Review and sign this Project Agreement.
2. Attend field reviews and meetings.

3. Review the plans and specifications at each phase of the design and provide project development support.
4. In coordination with the FHWA project manager, ensure that completed plans, specifications, and estimates (PS&E) are consistent with the intended outcome.
5. Provide overall direction regarding FS policy and administration for the project and concur with the final plans and specifications.
6. Provide a fire plan for incorporation into the Special Contract Requirements.
7. Provide support to FHWA (respond to question regarding environmental issues), as requested, for the development of environmental documents.
8. If required, collaborate with FHWA, San Juan and Grand Counties to develop a Draft Highway Easement Deed. Issue a letter of consent prior to construction.
9. Provide a Special Use permit for any lands within the National Forest used for material sources, waste areas, or as staging areas for the contractor. ***Provide input and direction into the potential use of the Miner's Basin pit for a staging/stockpile and/or material source.***
10. Develop a public information program in coordination with FHWA and San Juan and Grand counties.
11. ***Provide direction on potential development of parking area near Mill Creek.***

**During Construction, the FS will:**

1. If required, enter into a formal partnering work session and agreement with all parties involved in the construction contract (FHWA, San Juan and Grand Counties, contractor, etc.).
2. Designate a representative who will be the primary contact for the FHWA's Construction staff.
3. Continue to update and implement the public information program.
4. Consider proposed design changes, evaluate change impacts, and provide construction oversight as needed, ensuring that requests meet the requirements intended in the PS&E.
5. Attend final inspection with the FHWA, San Juan and Grand Counties upon completion of construction.

**San Juan and Grand Counties**

**During Project Development, San Juan and Grand Counties will:**

1. Review and sign this Project Agreement.
2. Attend reviews and meetings.
3. Provide available data on traffic, accidents, material sources, construction costs, and other technical information, which may be helpful to the project development.
4. Review the plans and specifications at each phase of the design and provide project development support.
5. Provide ROW and utility information and coordination.
6. Responsible for private property acquisition if necessary. ***No property acquisition is anticipated.***
7. Responsible for utility relocations if necessary. ***No utility conflicts are anticipated.***
8. Collaborate with FHWA and FS to collectively develop Highway Easement Deed Stipulations.

**During Construction, San Juan and Grand Counties will:**

1. If required, enter into a formal partnering work session and agreement with all parties involved in the construction contract (FS, FHWA, contractor, etc.).
2. Designate a representative who will be the primary contact for FHWA's construction staff.
3. Consider proposed design changes, evaluate change impacts, and provide construction oversight as needed, ensuring that requests meet the requirements intended in the PS&E.
4. Attend a final inspection with the FHWA and FS upon completion of construction.

**After Construction, San Juan and Grand Counties will:**

1. Assume responsibility of the NPDES permit until the Notice of Termination is filed and accepted.
2. Provide long-term maintenance and operation of FH-46 (CR-1704).
3. Execute Highway Easement Deed with the assistance of FHWA.

**Federal Highway Administration, Central Federal Lands Highway Division**

**During Project Development, the FHWA will:**

1. Develop and sign this Project Agreement.
2. Manage project development schedule and preliminary engineering costs.
3. Perform pavement and geotechnical investigations.
4. Obtain all necessary permits.
5. Prepare the PS&E for the proposed project.
6. Prepare ROW plans for the Highway Easement Deed as necessary.
7. Advertise and award the contract. Bids will not be solicited by FHWA until the FS and the Counties have concurred with the plans and specifications.
8. Collaborate with FS and the Counties to Develop the Draft Highway Easement Deed.

**During Construction, the FHWA will:**

1. Potentially enter into a formal partnering work session and agreement with all parties involved in the construction contract (FS, San Juan and Grand Counties, contractor, etc.).
2. Advertise and award project. Provide Project Engineer on site for construction administration.
3. Determine the need for any proposed changes to contract documents, evaluate change impacts, coordinate technical reviews as needed, and ensure that the construction meets the requirements intended in the PS&E.
4. Ensure that the contractor will bear all expense of maintaining traffic, other than snow removal and normal state maintenance work.
5. Verify adherence to environmental documents.
6. Attend final inspection with the FS and the Counties upon completion of construction.



**Central Federal Lands Highway Division**  
12300 West Dakota Avenue  
Lakewood, CO 80228

Chris Longley                      Phone: 720-963-3733                      Fax: 720-963-3596  
Project Manager                      E-mail: [christopher.longley@dot.gov](mailto:christopher.longley@dot.gov)

Jeff Bellen                              Phone: 720-963-3638                      Fax: 720-963-3610  
Lead Designer                              E-mail: [jeff.bellen@dot.gov](mailto:jeff.bellen@dot.gov)

**PROJECT BUDGET:**

	<u>2011</u>	<u>2012</u>	<u>Total</u>
Bridge	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Design	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Environment	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Geotech	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Hydraulics	\$ [REDACTED]	\$0	\$ [REDACTED]
Materials	\$ [REDACTED]	\$0	\$ [REDACTED]
ROW	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Survey	\$ [REDACTED]	\$0	\$ [REDACTED]
Pavements	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
PM	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Contracting	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Misc.	\$ [REDACTED]	\$0	\$ [REDACTED]
	<b>Preliminary Engineering</b>		\$ [REDACTED]
	<b>Construction (Projected)</b>		\$ [REDACTED]
	<b>Construction Engineering (10%)</b>		\$ [REDACTED]
	<b>Total Program</b>		\$ [REDACTED]

**PROJECT SCHEDULE:**

Task	Responsible Lead	Schedule		Description of Critical Elements
		Start	Finish	
Project Development Planning	FHWA	October 2010	December 2010	Project Development Plan
Environmental Compliance	FHWA	October 2010	May 2011	Environmental Assessment (EA) and FONSI completed
Preliminary Design	FHWA	December 2010	April 2010	Development of Design Study Report (30% Design) of four priority Segments
Pavement Investigation and Recommendations	FHWA	November 2010	March 2011	Perform site investigation and provide pavements recommendations
Geotechnical Investigations	FHWA	November 2010	Summer 2011	Perform site investigation and provide geotechnical recommendations
Intermediate Design	FHWA	April 2011	August 2011	Development of 70% PS&E's
Letter of Consent	FHWA	August 2011	October 2011	Obtain Letter of Consent from the FS for DOT Easement
Final Design	FHWA	September 2011	December 2011	Development of final contract documents
Advertisement/Award/NTP	FHWA	TBD	TBD	Dependent on FH funding

**CONTRACTING AND PROCUREMENT:**

FHWA, as the contracting office, will review the available contracting options, and with the concurrence of the Forest Highway, utilize the most effective contracting method. Where possible, A+B (Cost + Time) will be used to determine the lowest bidder, and minimize disruption due to construction operations.

The Contract Special Provisions will make an offer to the contractor to enter into a partnering work session with all parties involved in the contract. In addition, the contractor will be encouraged to develop, prepare, and submit value engineering change proposals (VECPs) and share in any contract savings realized from accepted VECs.

**ACCEPTABILITY AND CHANGES:**

Unless this agreement is modified in writing, it is expected that this project will be delivered within the stated scope, schedule, and budget. If changes are required, the responsible team member will escalate the change needs, with justification for the change, to the team leaders. The team leaders will assure that additional funds are available to accommodate the change. It is the responsibility of the project

development team to recognize when changes are needed and to make timely notification to management in order to avoid project delivery delays.

**ESCALATION MATRIX:**

<b>CFLHD</b>	<b>FS</b>	<b>San Juan County</b>	<b>Grand County</b>
Project Development Team	Project Development Team	San Juan County Staff	Grand County Staff
Project Manager: Chris Longley (FHWA Team Lead)	Forest Engineer: Seth P Wallace (Forest Engineer)	Preconstruction Engineer: Lynn Laws (County Lead)	Preconstruction Engineer: Bill Jackson (County Lead)
Director, Project Delivery: Dave Zanetell	Forest Supervisor: Pamela Brown	County Commissioners	County Commissioners
Division Engineer: Ricardo Suarez	Region Kay Shurtz Keith Simila		

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LaSal Mountain Loop Road  
UT 46-1(2)

CAUSE		IMPACT		RESULT		RISKS				MITIGATION RESPONSE
						Likelihood	Impact	Score	Rank	
<b>Preliminary Engineering</b>										
Impacts to wetlands	Possible delay in schedule due to permit/mitigation	Schedule delays	5	2	10	3	Coordinate with ACE early in the NEPA process			
Not enough resources	Milestones not met	Project Delay	1	5	5	17	Monitor resource on ongoing basis			
Uncertainty in funding from Forest Highway Program	Possible changes In scope during P.E.	Anticipated SOW may increase or decrease	3	4	12	2	Get frequent updates from programming			
Widening impacts to ROW	Increase in Budget and Resources	Additional ROW Acquisition	1	4	4	19	Determine ROW early then reallocate resources accordingly			
Utility Relocates	Increase in Budget and Resources	Increased EE	1	3	3	20	Obtain mapping early in design process & identify utility impacts			
<b>Advertisement (Procurement)</b>										
Bids do not fit final program amount	Will not be able to do some or all of project	Advertisement Delayed and or readvertise	2	5	10	3	Multiple schedules and or options			
Contractor unqualified to build soldier pile walls	May require additional/new contractor	Delayed Notice to proceed	2	3	6	13	Ensure pre-solicitation notice that includes all items of work			
<b>Construction</b>										
Lack of Detours	Traffic delays	Public Pressure	2	3	6	13	Provide public notice of all closures & delays in multiple public outreach			
Poor communication by contractor with public	Un-informed public	Public Pressure	2	3	6	13	Development of Public Information Plan			
Narrow temporary travel width/one way operation	Increased accident potential	Decreased Safety	2	5	10	3	Concrete barrier on fill slope side of road			
Extent of subsurface H2O exceeds estimates (Wet Area)	The design is insufficient for site conditions	Construction Delay & increase in costs	2	4	8	7	Conduct geotech investigation to determine the extent of subsurface water conditions			

Subsurface conditions inadequate for soldier piles	The design is insufficient for site conditions	Construction Delay & increase in costs due to wall redesign	2	4	8	7	Conduct geotech investigation to determine subsurface conditions or allow alternate wall designs in contract
Slide during excavation of underdrain and Wall (Wet Area)	Possible road closures	Construction Delay & increase in costs	2	4	8	7	Conduct geotech investigation to identify existing slip plane
Environmental Mitigations	Restrictions placed on construction season	Longer construction season	2	3	6	13	Allow for some mitigation in determining completion date
Changing site conditions after design (Burn Area)	Construction modification may increase in cost	Construction Delay & increase in costs	2	4	8	7	Monitor area through design, get updates on existing conditions from Counties
Poor Construction	Overall Decrease in Safety	Construction Modification and Public Pressure	1	5	5	17	Provide good inspection during construction
<b>Post Construction</b>			Likelihood	Impact	Score	Rank	
New cut slope due to widening	Increase in rock fall after construction	Increase in maintenance costs (County)	2	4	8	7	Address rockfall potential in geotech report
Not addressing erosion potential upstream of rock slide area	Damage to new construction if more slides occur	Increase in maintenance costs (County)	4	4	16	1	Oversized proposed drainage structure at burn area and/or include debris rack
Wet Area subsurface water issues persist	Continued safety concerns	No decrease in maintenance costs (County)	2	4	8	7	Geotech investigation and recommendations to include redundancy or lay slopes back to increase sun exposure
	Wetland mitigation does not work	Increase in maintenance costs (FHWA)	1	3	3	20	Push to utilize wetland banks for mitigation
Culvert replacement not adequately designed or constructed	Continued erosion around culvert pipes	Increase in maintenance costs (County)	1	3	3	20	Oversized pipe and include additional quantities of rip rap, and ensure inspection of compacted embankment

Likelihood and Impact based on rating of 1 (low) to 5 (high). Score are these two numbers multiplied together. Scores are then ranked.

# SCOPE OF WORK

## LA SAL MOUNTAIN LOOP ROAD UT PFH 46-1(2) Preliminary Design/Final Design



**Federal Highway Administration  
Central Federal Lands Highway Division**

December 13, 2010

# **I. GENERAL INFORMATION**

## **A. INTRODUCTION**

This Scope of Work (SOW) is to perform environmental, engineering, hydraulic, geotechnical, right-of-way, surveying, mapping, and project management services towards delivery of a 100% plan set for the Federal Highway Administration, Central Federal Lands Highway Division (CFLHD) for proposed improvements to Utah Forest Highway 46, La Sal Mountain Loop Road.

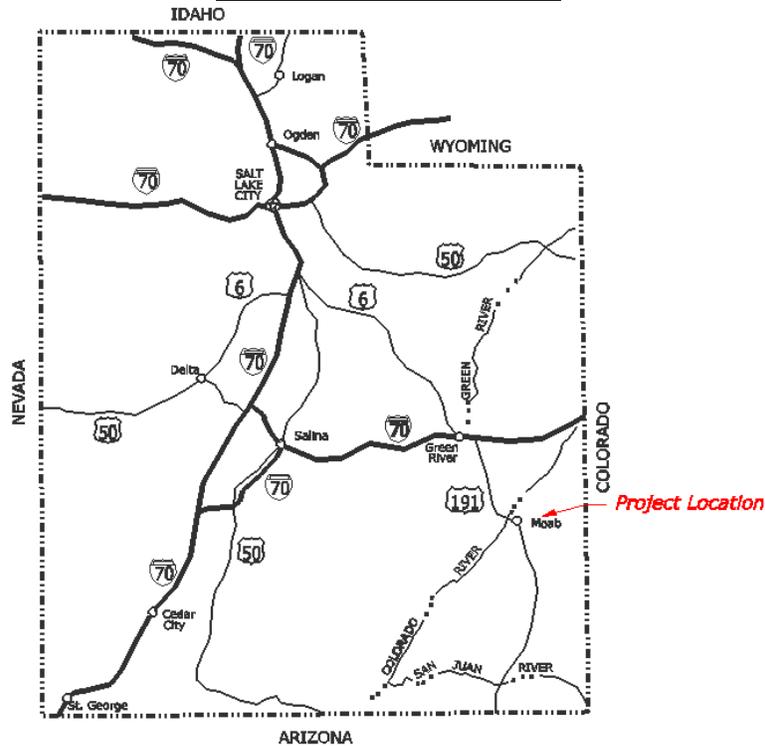
## **B. PROJECT SUMMARY**

The Central Federal Lands Highway Division (CFLHD) of the Federal Highway Administration (FHWA), in cooperation with Manti-La Sal National Forest (MLSNF), San Juan County, and Grand County are proposing improvements to Utah Forest Highway 46 (UT FH 46) near Moab, UT as shown in the project location map below. Utah Forest Highway (FH) 46 is located in San Juan and Grand Counties. The route is also designated as County Route 1704 (CR-1704) and is also known as the La Sal Mountain Loop Road. The route begins at the junction with US-191, approximately 6 miles south of Moab, UT, and proceeds east and north 36.4 miles to the junction with SR-128 in Castle Valley, UT. The route is primarily on federal land within the Manti-La Sal National Forest in Grand and San Juan Counties. The route is designated as the La Sal Scenic Backway.

A previous reconnaissance and scoping effort was completed in 2002. At that time, the scope of work included rehabilitation, restoration, resurfacing and reconstruction of the entire route. The project was subsequently abandoned. It was determined at the 2010 UT Tri-Agency meeting that a project on the LaSal Mountain Loop Road (UT 46) would be developed. This route was selected due to the poor and failed condition of the pavement. The proposed project should be flexible so that the scope could be cut back, bid options, or bid schedules could be used to best utilize available funds. Currently this project is in the program for 2016 but could be used as a back-up as soon as 2012.

A new reconnaissance and scoping effort was completed in October 2010. The report identified four priority segments for improvements as described below.

## Project Location Map



### **C. SCOPE**

The entire route was scoped and reviewed to determine the best segments to move forward with design. The following segments, listed in order of priority, were agreed upon by the Forest Service, San Juan County and Grand County:

*Segment 1:* MP 21.1 (Miners Basin Road) to MP 23.1: This area was part of the 2008 Porcupine Ranch fire that caused some erosion issues as well as caused severe damage to the pavement. This area contains multiple cold patch pavement sections that the county has applied to hold the pavement together. These consist of placing asphalt millings on this section and then compacted in place. There is also an area where severe erosion upstream of a drainage channel caused a significant mud/rock slide to fill the channel and cross the roadway. The third area of concern is a section that has sloughed off of a cut slope, probably due to the loss of vegetation from the fire.

*Segment 2:* MP 12.6 to 13.3: This section of roadway is set along a steep side slope and consists of a narrow bench and a very wet uphill slope. The water in the slope has deteriorated the pavement and base/subgrade. A potential solution for this area would be to extend the H pile timber lagging wall that is located at approximately station 13.3 to widen the bench and then pave the inside ditch as well as place underdrain. This would reduce the amount of water getting into base and subgrade. There are some potential issues with this section that could make it very costly and potentially not a good fit for this project including environmental concerns (slope and ditch wetlands and wildlife restrictions) as well as cost concerns (retaining walls,

limited bench width, etc.).

*Segment 3:* MP 25.8 (Gateway Road intersection) to MP 27.8 (New cattleguard): This section of roadway is narrow with failed pavement. Since this section receives traffic both continuing along the Loop Road as well as those using the Gateway Road, the ADT is higher than other sections of the Loop Road. Minor widening may warranted in this section. Right of Way acquisition if required would be a potential issue for this segment.

*Segment 4:* MP 2.0 (Ken's Lake Road) to MP 5.3 (Pack Creek Road): The pavement in this area is in need of rehabilitation and potentially some minor widening and drainage improvements. This appears to be on federal (BLM) or State land so ROW may not be an issue.

Spot improvement to roadway drainage may be included in other area were the existing drainage is substandard and could have detrimental effects to the roadway.



It is anticipated that all four priorities will be designed. After the 95% milestone, the project will be scaled to accommodate the available funding based on the priority level shown above.

## **II. WORK REQUIRED**

### **A. PROJECT MANAGEMENT (PRMS Activity PM)**

- Step 1. Project Management oversight. Typical activities include, but are not limited to, the following:
- Identify the project requirements and determine complexity of the work, technical activities, schedules and resources
  - Discuss and coordinate project requirements designated project team contacts
  - Prepare and maintain project design files & supporting documentation for correspondence, reports, design details and calculations of quantities that are included in the plans.
  - Update Project Development Plan (PDP)
- Step 2. Develop and maintain a the Project Schedule
- Identify the deliverable item due dates, milestones, reviews, and meetings, that ensures meeting the completion date objective
  - Identify all critical tasks in meeting the completion date
  - This schedule will be used to coordinate activities, meetings, and delivery dates

### **Deliverables for Project Management**

- Initial Schedule and Revised Schedules

### **B. UTILITIES (PRMS Activities U1 to U2)**

Refer to CFLHD [Utility process](#)

[http://www.cflhd.gov/design/survey-map-row/\\_documents/UtilityProcess.pdf](http://www.cflhd.gov/design/survey-map-row/_documents/UtilityProcess.pdf)

### **Identify and Locate Utilities (U1 Activity)**

Identify the type and locations of existing utility facilities and easements within the project limits, legal rights (possible cost liability), and the recommended certification level of the information as defined by the CFL [Utility Data Quality Matrix](#)

[http://www.cflhd.gov/design/survey-map-row/\\_documents/Links/UtilityDataQualityMatrix.xls](http://www.cflhd.gov/design/survey-map-row/_documents/Links/UtilityDataQualityMatrix.xls)

Conduct early coordination with the cooperators and utility owners to identify potential conflicts between utilities and the project.

It is assumed that the following utilities are located within the project limits:

- (For the list of names see Project Scoping Report)

- Step 1. Support the research of existing utility facilities, types and interests completed under the R1 activity, Right of Way research.
- Identify type of facility- include all physical utilities: underground, surface and aerial utilities, within the project area.

- Step 2. Review the existing utilities mapping completed under the S1 activity, Initial Survey and Mapping section.
- Step 3. Initiate early coordination with Cooperator, client agency and utility interests to begin identification of facilities, rights and potential conflicts.
- Organize and attend utility/cooperator meetings to identify facilities and issues
  - Develop a list of contacts for each utility that can represent each company regarding location, design accommodation, relocation and cost liability issues associated with their facility.
- Step 4. Certify utilities at the recommended CFLHD [Utility Data Quality Level](http://www.cflhd.gov/design/survey-map-row/documents/Links/UtilityDataQualityLevelCertification.doc) <http://www.cflhd.gov/design/survey-map-row/documents/Links/UtilityDataQualityLevelCertification.doc>
- Recommend to the Project Manager additional field investigation or research of utilities that would certify the presence and position of utilities at a higher Quality Level.
- Step 5. Develop recommendations for design modifications to accommodate utilities, as much as practical, to avoid or reduce utility impacts and relocation. Support the development of initial drawings of potential utility conflicts (Completed under D activity).
- Step 6. Prepare *Utility Summary Report* containing the following:
- Contact list for each utility showing name, address, phone, email address, and area of responsibility.
  - Recommendations for additional research or field investigation, including potholing (locating) to justify a higher Quality level
  - Utility coordination meeting minutes and “Action Item” list
  - Recommendations or modifications to roadway design and drawings showing potential utility/design conflicts (after 30% design)
  - Cost liability issues

### **Deliverables for U1 Activity**

- Copies of documents (as-built plans, third party mapping, GIS, permits, easements, agreements, etc.) obtained during research
- CFLHD [Utility Data Quality Certification](#)
- *Utility Summary Report*

### **Identify Utility/Design Conflicts (U2 Activity)**

At this time it is assumed there will be no utility conflicts on this project.

## **C. PLANNING (PRMS Activity P1)**

Scoping (P1) activities completed.

## **D. ENVIRONMENT (PRMS Activities E0 to E4)**

### **Environmental Scoping (E0 Activity)**

#### **Establish SEE Team**

Established Social, Economic, and Environmental (SEE) Team (Part of P1 activity)

- Manti-LaSal NF, Don Wilcox, Civil Engineer
- Grand County, Bill Jackson, Supervisor

- San Juan County, Lynn Laws, Superintendent
- CFLHD, Chris Longley, Project Manager
- CFLHD, Jeff Bellen, Design Lead
- CFLHD, Cindy Callahan, Environmental Compliance

### **Initial SEE Team and Interagency Meetings**

Held Initial SEE Team Site Visit and Scoping Meeting, 10/5/10 (Part of P1 Activity)

- Prepared meeting minutes and circulated to SEE Team on 10/22/10.

### **Public Involvement**

Step 1. Conduct Initial Coordination

- Develop initial mailing list
  - Obtained general mailing list from Manti-La Sal NF, 11/8/10
  - Obtain names and addresses from San Juan and Grand counties of private property owners adjacent to the project (from R1 activity)
  - Obtained names/addresses from Manti-La Sal NF of Indian Tribes with potential interest, 10/18/10
  - Coordinate and combine lists into appropriate FHWA-compatible database program
- Prepare and send Letter of Intent
- Request preliminary T&E species information from appropriate agencies (obtained USFWS species list, need species occurrence records from State)
- Perform initial coordination with SHPO to get approval of Area of Potential Effect (APE)
  - Conducted initial coordination with Manti-La Sal NF Archaeologist, 10/17/10
  - Identify APE
  - Research for known NRHP sites within the project vicinity
  - Prepare and send initial SHPO coordination letter

Step 2. Set up Public Scoping Meeting.

**Assumption:** For this project there will be a maximum of one public meeting as recommended by Grand County, location TBD.

- Make all arrangements necessary to locate and secure appropriate meeting place, time, and location.
- Arrange for appropriate media notification and prepare newspaper and other appropriate advertisements
- Public Scoping Meeting Letter to public, agencies, etc
- Prepare agenda, handout information, appropriate exhibits, technical and process information
- Prepare meeting minutes/trip report for the Public Meeting.

Step 3. Close out E0 Activity (schedule, budget, resources).

- Review Project Agreement for clarifications/changes required and coordinate with PM
- Revise/update Mailing List
- Review Scope, Schedule, and Budget resources for next activity, E1; and coordinate any changes with PM,
- Submit completion date of activity to scheduling system

## Deliverables for E0 Activity

- Initial mailing list
- Letter of intent to begin project development
- Documentation of initial Government-to-Government Tribal consultation
- Letter requesting preliminary T&E species information
- Letter of initial coordination with SHPO
- Issues and Concerns
- E0 activity completion date and E1 activity updated in scheduling system

## Environmental Compliance Studies (E1 Activity)

Conduct required surveys for resource assessment. Perform additional SEE Team, Interagency, and Public involvement activities.

### **Planning**

Step 1. Coordinate with USFWS, USACE, SHPO, MLSNF resource staff, and Indian Tribes

- Conduct habitat assessment of potential MSO nesting habitat in Mill Creek Canyon with MLSNF Biologist, 11/16/10.  
**Assumption:** No areas will require T&E surveys based on 11/16 site visit with MLSNF Biologist.

- Confirm APE to be surveyed for cultural resources
- Confirm concerns and or areas to be avoided with Tribes expressing interest. Document consultation.

**Assumption:** All sites except "Wet Area" will require surveys where widening or culvert replacements are proposed. Individual access permission may be required at the Gateway Road Intersection site.

Step 2. Obtain access permission to survey private properties and obtain any necessary FLMA permits, coordinate surveys/studies scope and schedule, and initiate surveys/studies:

- Obtain updated property owner list and, if available, preliminary Right-of-Way Exhibit from R1 activity
- Coordinate with functional disciplines (ROW, Geotech, etc) for who needs access
- Prepare *Access Permission Form(s)* (sample can be provided by FHWA)
- Write and send letter and *Access Permission Form* to property owners
- Follow-up with non-responsive property owners
- Identify on plan sheets, exhibit, or mapping, where access granted and denied
- Determine if critical areas for surveys have been "denied access" and determine how to handle (i.e., obtain court ordered access, commit to survey when ROW purchased, etc.)
- Obtain any necessary land management agency permits (e.g., Forest Service Special Use Permit)

- Coordinate with consultant to perform archaeological survey at Miner's Basin Road/Burn Area, Ken's Lake to Pack Creek, and Gateway Road segments.

**Assumption:** "Wet Area" will not require surveys based on rationale provided by Don Irwin, FS Archaeologist.

- Confirm identification of private property parcels where access allowed and denied for surveying. Clearly denote "access denied" parcels.
- Notify private property owners of initiating surveys.
- Notify land management agency SEE Team member and resource staff of initiating surveys, schedule for field work, and invite to observe surveys
- Develop SOW for surveys and studies
- Coordinate with MLSNF resource staff
- Monitor Survey/Studies Progress
  - Historic and Archeological Resources
 

**Assumption:** Surveys not necessary at "Wet Area" site.
  - Wetlands

**Assumption:** Wetland delineation at "Wet Area" site only.

Step 3. Review survey data, upon completion of surveys, for survey adequacy and completeness for incorporation of data into environmental document and provide data on resource site locations to design for input to CADD files.

### Reporting

Step 4. Review Biological Assessment/Biological Evaluation, Cultural Resource Report, and Wetland Delineation

- Review adequacy of survey results, report conclusions and recommendations
- Identify concerns with proposed limitations of construction operations and mitigation and with eligibility recommendations and proposed mitigation
- Coordinate concerns with PM and Construction and determine how to address modifications to meet needs
- Distribute FINAL Reports to SEE Team and Resource agencies for review and comment

### Meetings

**Assumption:** No SEE team or interagency meetings are required as part of E1 activity.

Step 5. Close out of E1 activity (schedule, budget, resources)

- Re-evaluate Project Agreement for clarifications/changes required, based on additional complexities identified from resource surveys/studies.
- Revise/update mailing list
- Review scope, schedule, and budget resources for next activity-E2; and coordinate any changes with PM,
- Submit completion date of activity to scheduling system.

## **Deliverables for E1 Activity**

- Documented confirmation of no T&E species surveys necessary, including USFWS and MLSNF response on T&E species and sensitive species lists.
- Documented confirmation of APE to be surveyed for cultural resources, including SHPO response on Initial Coordination letter
- Documented Government-to-Government consultation performed with Indian Tribes.
- Property Access Permission Form and Letter to property owners.
- Plan sheet, exhibit, or mapping showing area surveyed (Area of Potential Effect), and areas of survey access “granted” and “denied” for properties.
- Response from property owners on access to survey “granted” or “denied.”
- Documentation of notification to property owners of initiating surveys.
- Various, and appropriate Surveys/Studies data and Resource Survey Reports, including mapping of resources (Draft and Final Reports). Reports include:
  - Biological Assessment/Biological Evaluation
  - Cultural Resource Report, including eligibility of sites recommendations
  - Wetland Delineation Report
  - Electronic data of resource site areas for submitted to Design
  - Updated mailing list

## **Prepare Environmental Document (E2 Activity)**

Perform additional studies, research, analyses, and evaluations necessary for document preparation. Use data and analyses to prepare environmental document (draft) for signature.

### **Perform Additional Studies, Research, Analyses, and Evaluations**

Step 1. Complete all required coordination and consultations.

- Perform cultural resource significance determination
  - Write draft letter to SHPO on “eligible” and “not eligible” sites
  - Coordinate draft SHPO eligibility letter with MLSNF Resource Specialist and obtain written concurrence on determination
  - Finalize and send SHPO eligibility letter, with *Final Cultural Resource Report*, requesting concurrence in eligibility determination.
- **Assumption:** No eligible sites identified.
- Perform T&E species coordination/consultation.
  - Conduct appropriate coordination with MLSNF on Biological Assessment/Biological Evaluation with appropriate Effect Determinations: 1) No Effect, 2) May Affect But Not Likely To Adversely Affect, and/or 3) Adversely Affect. Include recommendations for minimization, including timing restrictions, as appropriate, for T&E and FS sensitive species.
  - Conduct appropriate consultation with Fish & Wildlife Service based on the Biological Assessment’s effect determinations and

recommendations for impact minimization, including timing restrictions, as appropriate.

**Assumption:** Informal consultation for MSO and SW Willow Flycatcher and Formal consultation for Colorado River Species (water depletion)

- Coordinate with State Wildlife agency and State Wildlife Action Plans, as appropriate
- Verify wetland delineation with US Army Corps of Engineers (USACE)  
Assumptions: Access not denied by private landowners, no 4(f) or 6(f) properties within project area.
- Complete all other required coordination and consultations
  - Continue any necessary Government-to-Government consultation with Indian Tribes
  - Conduct appropriate review regarding impacts to a National Scenic Backway.

**Assumption:** No project impacts to character of the roadway.

- Conduct necessary coordination with NRCS regarding Prime and Unique Farmland

**Assumption:** No Prime, Unique, or other Farmland of special significance will be converted by the project.

Step 2. Perform analyses and evaluations including Socio-economic/Recreation, Noise, Noxious Weeds, Air Quality, ROW, Utilities, Biological, Cultural, and Wetlands/Waters of the U.S. resources and Cumulative Effects.

**Assumption:** The analysis for the above-mentioned topics will be basic, with no need to solicit outside expertise to complete extensive studies or reports (except for Biological, Cultural, and Wetlands/Waters of the U.S. resources).

- Use information obtained from Activity E1 and above Steps in E2 and interpret and evaluate applicability of various resources to proposed project alternatives,
- Analyze impacts to all resources identified previously from proposed alternatives,
- Prepare information for inclusion in NEPA document.
- Provide information to Design, including:
  - Agency and Public concerns with potential to affect/change design
  - Updates to or newly identified resource locations (e.g., wetland delineations, etc.)
  - Coordination on resources for which alternatives should be evaluated for avoidance, minimization, and/or mitigation of impacts.
  - Coordination on any potential construction restrictions/limitations (e.g., time period limits due to T&E species)
- Perform additional evaluations based on most recent alternatives design being considered
  - Evaluate SHPO's opinion on impacts to cultural resources for inclusion of information
  - Evaluate FWS's concurrence on BA and Biological Opinion

- Step 3. Develop mitigation measures and coordinate with partner agencies/affected resource agencies
- Coordinate with Design and Construction on possible/proposed mitigation/impact minimization for:
    - Wetlands
    - T&E species,
    - Socio-economic
  - Develop proposed mitigation/minimization measures and draft proposed mitigation write-up for inclusion in CE document
  - Coordinate mitigation measures with partner agencies and with affected resource agencies
    - Write letters/emails to agencies on proposed mitigation measures
    - Prepare for SEE Team and Interagency Team meetings/field reviews to reach consensus on mitigation measures from agencies

### **Prepare Environmental Document**

- Step 4. Prepare illustrations for CE document.
- Vicinity Map
  - Project and/or Study Area Map(s)
  - Existing conditions/problems photographs
  - Typical Section(s)
  - Land Use map
  - Resource maps (e.g., wetlands, etc.)
- Step 5. Write CE Document
- Write all appropriate sections of CE;
  - Perform internal (FHWA) review of CE document
- Step 6. Close out of E2 activity (schedule, budget, resources)
- Re-evaluate Project Agreement for clarifications/changes required, based on additional complexities identified during this activity
  - Revise/update Mailing List by including any new contacts (agencies, public) identified during this activity and coordinate with Right-of-Way section to obtain updates to property owner list
  - Review Scope, Schedule, and Budget resources for next activity-E3; and coordinate any changes with PM
  - Submit completion date of activity to Scheduling system

### **Deliverables for E2 Activity**

- Letter to SHPO on eligibility determination
- Survey Reports from additional surveys/evaluations
  - BA/BE Addendum or Revision to Draft BA/BE
- Locations of any additional resources, if any, and provided to Design
- Mitigation measures
- Illustrations for Environmental Document
- Internal Environmental Document for Review
- Comments on Environmental Document from Internal review

- Various meeting confirmation letters, agendas, handouts, exhibits, technical and process information, presentations, newsletters, other public involvement items
- Coordination/Consultation letters/emails with agencies and Public
- Updated mailing list(s)
- Project Agreement comments
- Updated or confirmed scope, schedule, and budget for next activity (E3)
- Completion date for this Activity (E2) submitted to Scheduling system

### **Environmental Compliance Approval (E3 Activity)**

Signing of, reproduction and circulation of CE. Amending/revising/finalizing, or preparing CE.

### **Sign, Reproduce, and Circulate Document ,Conduct Appropriate Public Involvement, Finalize Document**

Step 1. Sign and Reproduce and e-mail CE Document

- Get appropriate signatures for document
- Determine document distribution in coordination with FHWA's PM and Environment Lead and prepare transmittal letters
- Mail document to appropriate agencies, public, and repositories, etc.
- Prepare and Transmit Draft Environmental Commitments Summary (ECS) to PM, Design, Construction, and others (e.g., Permits, R/W), as appropriate for review.

Step 2. Close out of E3 activity (schedule, budget, resources)

- Re-evaluate Project Agreement for clarifications/changes required, based on CE and Commitments
- Revise/update Mailing List
- Review Scope, Schedule, and Budget resources for next activity-E4; and coordinate any changes with PM
- Submit completion date of activity E3 to Scheduling system

### **Deliverables for E3 Activity**

- Environmental Commitments Memorandum (with mitigation measures, other commitments, special contract requirements, etc.)

### **Supplemental Environmental Mitigation (E4 Activity)**

Implement required mitigation efforts including coordination on Environmental commitments through final design (from 30% through 100%); coordination with FLMA(s), Resource agencies, and others on mitigation work plans; implementing mitigation field work; monitoring implemented mitigation efforts; interim reporting, draft reporting, and final reporting on completed mitigations.

Step 1. Perform additional wetlands work and coordination

- Reporting
- Field Review

Step 2. Coordination with internal and external clients

- Ensure right-of-way or right-of-entry obtained for mitigation site(s)

- Prepare draft mitigation approach letter, review internally, revise and send draft to client agencies for review and comment
  - Receive comments and discuss with client agencies, as necessary, and finalize mitigation approach
  - Send revised mitigation approach letter to regulatory agency
  - Revise mitigation approach in response to regulatory agency and coordinate revisions with appropriate cross-functional team members and with client and regulatory agency.
- Step 3. Obtain mitigation concurrence, coordinate and monitor mitigation, and coordinate clearance to construction
- Coordinate and monitor mitigation efforts
    - Coordinate with Land Management Agency's appropriate Resource staff and include in monitoring
    - Coordinate with appropriate regulatory agency and include in monitoring
    - Coordinate with other cross-functional team members
  - Coordinate clearance to construction
    - Confirm appropriate mitigation field work is completed
    - Prepare Memorandum to Construction and PM that field mitigation is complete and that area is cleared for construction.

### **Deliverables for E4 Activity**

- Construction Clearance Memorandum to Construction
- Comments to Design on plans and specifications (30%, 50%, 70%, 95%)
- Various correspondence (letters, memos, emails, telephone notes, etc.) to client and resource agencies, internal staff
- Re-Evaluation of Document

## **E. SURVEY (PRMS Activities S1 to S4 and M1 to M2)**

### **Initial Survey and Mapping (S1 Activity)**

Perform initial survey work to establish control and initial data for mapping and Right-of-Way

- Step 1. Mobilize and reconnaissance of project site
- Meet with agency contact or representative
  - Perform reconnaissance of project site
    - Identify safety, traffic and private property concerns
  - Formulate a *Work Plan*
- Step 2. Control Network – Set monuments, determine coordinates & elevations of primary control points
- Research and recover existing NGS, CFLHD or other horizontal and/or vertical control points
  - Set control monuments in accordance with the *Work Plan*
  - Perform the required measurements
  - Analyze and adjust measurements

- Create a *Control Report* and *Control Data Sheet* according to the requirements shown under Deliverables
- Step 3. Locate and map utilities according to ASCE Standards (ASCE 38-02);
- Contact locate service to identify utilities to be mapped
  - Perform the required measurements to locate the utilities relative to the CFLHD control network
  - Review, edit & submit files according to the requirements shown under Deliverables
- Step 4. Field Reports
- Submit progress reports
  - Submit *Final Report*
- Step 5. Field Mapping
- Map area as identified in *Work Plan*
  - Review, edit & submit files according to the requirements shown under Deliverables
- Step 6. Office Mapping
- Prepare TIN, map and contour files according to the requirements shown under Deliverables

### **Deliverables for S1 Activity**

All services, data and deliverables shall be to CFLHD standards and specifications. Data to be provided in the applicable digital format, when possible. The final submittal of all files shall be delivered on a CD/DVD, labeled with the Project Designation, Project Name and Final Submittal, i.e. "CA PFH 112-1(1)", South Fork Smith River, Final Submittal". Progress submittals shall be submitted via CD/DVD. All file names shall begin with the "Project Designation". The remaining characters of the file name shall be descriptive of the data contained in the file. The first line of each file shall be a header describing each field and/or the contents within the file.

- Control Data Sheet files (.xls and .dgn),
- 3D Planimetric mapping file (.map),
- 3D Contour mapping file (.con),
- GEOPAK® TIN files (.tin),
- 3-D MicroStation design file, containing space line strings and ground shots on designated levels. These space line strings and ground shots depict (in three dimensions) the topography,

## **F. ROW (PRMS Activities R1 to R6)**

### **Preliminary Right of Way Studies (R1 Activity)**

Perform preliminary right of way research.

- Step 1. Perform preliminary boundary and property ownership research for the project within the limits of work.
- Obtain Federal agency land records
  - Obtain county tax maps and ownership data
  - Obtain road and utility ownership and easement information
  - Prepare *R1 ROW Preliminary research checklist*
- Step 2. Assemble preliminary boundary exhibit.
- Use available fieldwork and preliminary research

- Show existing road and utility easements
  - Show the boundaries between public and non-public land
  - Show the boundaries of individual non-public parcels
- Step 3. Prepare exhibits for public meetings.
- Preliminary boundary exhibits
  - Individual parcel exhibits
  - Preliminary ROW limits exhibits
- Step 4. Identify required field evidence to complete boundary exhibit.
- Identify field evidence to complete boundary exhibit; monuments, evidence of possession.
  - Develop monument descriptions and search coordinates for field crews.
  - Prepare and submit a *Preliminary ROW Summary Report* to FHWA
- Step 5. Coordinate ROW, utility and railroad requirements.
- Prepare a list of utilities, railroads, irrigation ditches, etc. affected by project with contact information.
  - Prepare a contact list for affected utilities.

### **Deliverables for R1 Activity**

Provide data to FHWA (in a digital format where possible).

- *R1 ROW Preliminary Research Checklist*
- Documentation obtained from research
- Preliminary Boundary Compilation
- Monument descriptions and search coordinates for additional fieldwork.
- *Preliminary Right of Way Summary Report*
- List of utilities, railroads, irrigation ditches, etc. affected by project, with contact information
- Highway Easement Deed Evaluation for Design Study Report

The following data is to be retained by the A/E unless requested by FHWA:

- GLO and BLM cadastral plats
- Land management agency plats.
- Any deeds obtained during research.
- Any survey plats obtained during research.

### **Right of Way Boundary Compilation (R2 Activity)**

Compile the title information and property ties into boundary plats, supplemental fieldwork, research, and ownership updates.

- Step 1. Update preliminary boundary exhibit.
- Integrate supplemental research ownership data into boundary exhibit.
  - Integrate supplemental fieldwork/monument ties into boundary exhibit.
- Step 2. Compile the title search results and field work into a comprehensive electronic boundary plat.
- Prepare *Right of Way Property Owner Spreadsheet*

- Resolve property boundary location based on both the record information and field ties to property evidence.
- Update the ROW Summary Report - include ambiguities, conflicts.
- Recommend areas that may require additional title research and/or field ties.
- Prepare the R2 ROW Boundary Compilation Checklist.

### **Deliverables for R2 Activity**

- Boundary plat
- *Right of Way Property Owner Spreadsheet*
- *Right of Way Summary Report*
- *R2 ROW Boundary Compilation Checklist*

### **Final Right of Way Plans (R3 Activity)**

Produce all documents necessary for Right of Way.

- Step 1. Coordinate with acquiring agency for document/recording requirements.
- Size and format
  - Type of land description
  - Drafting standards
- Step 2. Prepare *DRAFT Right of Way Plans* (First Submittal) according to FHWA standards and *R3 ROW Documents Checklist*.
- Project proposed ROW.
  - Develop uniform corridor as much as possible.
  - Develop easements to construct and maintain road including temporary access for construction.
  - Review for adequate ROW.
  - Submit *DRAFT Right of Way Plans* to FHWA for review and comment
  - Provide to cooperating agencies for review
- Step 3. Incorporate FHWA comments and resubmit *FINAL Right of Way Plans* (Second Submittal)
- Step 4. Prepare *DRAFT Legal Descriptions* (First Submittal) for right of way parcels in accordance with *R3 ROW Documents Checklist*.
- Descriptions for permanent acquisitions shall be either of the metes and bounds type, or centerline corridor description with offsets to the right of way as needed at the preference of the acquiring agency.
  - Temporary construction easement descriptions shall be based on station/offset relative to design alignment.
  - Submit to FHWA for review and comment
- Step 5. Incorporate FHWA comments and resubmit *FINAL Legal Descriptions* (Second Submittal)

### **Deliverables for R3 Activity**

- Process Check
- DRAFT Right of Way Documents including R3 Right of Way Documents Checklist

- FINAL Right of Way Documents including R3 Right of Way Documents Checklist
- Copies of transmittals of documents to affected agencies or entities
- Electronic files of all ROW documents

### **Right of Way Acquisition (R4 Activity)**

It is assumed at this time there will be no right-of-way acquisition for this project.

### **Letter of Consent (R5 Activity)**

- Step 1. Transmit ROW documents and requests for Federal Land Transfer
- Step 2. Design modifications and/or revisions to ROW plans
- Step 3. Negotiate terms and stipulations
- Step 4. Coordinate with acquiring agency regarding Letter of Consent

### **Highway Easement Deed (R6 Activity)**

- Step 1. Coordinate with Local Public Agency (LPA) on signature process
- Step 2. Prepare Highway Easement Deed and internal memo for signature
- Step 3. Transmit signed deed to LPA for signature and recordation
- Step 4. Archive copy of recorded deed and transmit copy to the Federal Agency

## **G. GEOTECHNICAL (PRMS Activities G1 to G4)**

### **Preliminary Geotechnical Investigations (G1 Activity)**

Conduct a preliminary geotechnical investigation pertaining to general roadway condition surveys, geotechnical hazards, anticipated excavations and structures, material sources, and general constructability issues.

- Step 1. Conduct research. Typical research shall include but is not limited to the following:
  - Project scoping reports
  - Historical roadway work
  - Geotechnical/geological features
  - Structures
  - As-builts
  - Maintenance records
  - Preliminary design criteria
  - Also research the project setting, including regional and local geology, annual precipitation, frost depths, seismicity, soil conditions, surface and groundwater conditions, etc.
- Step 2. Develop a *Preliminary Field Investigation Plan*
  - Identify necessary permits, clearances, and investigation services.
- Step 3. Preliminary field investigation of Segment 1, Wet Area, and Segment 2, Burn Area. (Weather Permitting)
  - Observe existing conditions including the roadway, pavement, structures and culverts.

- Identify roadway geotechnical repair areas, including possible weak subgrade/subex locations, surface and groundwater problem areas, fill settlement/failures, landslide failures, etc.
  - Identify and generally characterize geological and geotechnical hazards directly or potentially impacting the roadway.
- Step 4. Prepare *DRAFT Preliminary Geotechnical Section of the 30% Design Report* summarizing findings from the aforementioned preliminary investigation steps.
- Step 5. Address review comments and prepare *FINAL Preliminary Geotechnical Section of the 30% Design Report*.

### **Deliverables for G1 Activity**

- *DRAFT Preliminary Geotechnical Section of the 30% Design Report*
- *FINAL Preliminary Geotechnical Section of the 30% Design Report*
- *Geotechnical Evaluation for Design Study Report*

### **Geotechnical Investigations (G2 Activity)**

Conduct surface/subsurface investigations for earthwork estimation, structure/embankment foundation design, landslide assessment and mitigation, material source viability, etc.

- Step 1. Develop a *Comprehensive Geotechnical Investigation Plan*
- Complete the plan approximately two weeks prior to investigation.
- Step 2. Field investigation preparation
- Obtain necessary Right-of-Entry, drilling/excavation permits (e.g., U.S. Forest Service Special Use Permit), utility clearances, environmental clearances, etc.
  - Procure investigation services, including such things as auger/core drilling, test pit excavation, geophysical surveys, traffic control, etc. Provide traffic control for investigations as needed and acceptable to the local road agency and in conformance with the MUTCD.
- Step 3. Conduct a comprehensive subsurface investigation
- Include cuts, fills, structures and material sources; acquire samples, as needed, for laboratory testing.
  - Reclaim all borings and excavations to a condition acceptable to the property owner
  - Log, stake and/or survey all exploration/sampling locations.
  - Compile field notes, field boring/test pit logs, photos, sketches, etc. Photograph all sites of investigation, including the drill rig set up on each hole, and include photographs of all rock core and/or soil samples. Draw a cross-sectional sketch (to be included in the G3 "Final Geotechnical Report") showing exploration locations relative to the ditch line, centerline, or other geographical location, and a generalized subsurface profile, including water observations.
- Step 4. Procure soil/rock/water lab testing for culverts, cut/fill materials, and material sources. Include tests for USCS and AASHTO classification, and material suitability for slopes, fills, walls, foundations, general earthwork, pavements, and materials. Conduct electrochemical testing for design of MSE walls, culverts, anchors, or other buried structures.

Step 5. Issue *Interim Geotechnical Memoranda* regarding preliminary findings of the field investigation, results of laboratory testing, preliminary findings regarding structure foundations

### **Deliverables for G2 Activity**

- *Comprehensive Geotechnical Investigation Plan*
- *Interim Geotechnical Memoranda*

### **Geotechnical Recommendations (G3 Activity)**

Conduct geotechnical analyses and prepare a draft final geotechnical report with recommendations for earthwork, structure foundations, landslides and slopes, material sources, and special construction requirements along Segments 1 and 2.

- Step 1. Conduct geotechnical analyses for slopes, cuts, fills, structures, landslides, and debris flows as required.
- Conduct landslide and slope stability analyses and develop/evaluate slide mitigation and slope design alternatives.
  - Conduct rock slope and rockfall analyses and develop/evaluate excavation and mitigation alternatives.
  - Conduct global and external stability analysis for retaining walls and structures (sliding, bearing, overturning, and slope stability).
  - Develop temporary excavation, shoring, and dewatering alternatives for structure excavations as needed.
  - Conduct shallow foundation and embankment bearing capacity and settlement analyses, and develop/evaluate design alternatives. Develop alternatives to eliminate or minimize excessive settlement in areas of compressible soils.
  - Conduct deep foundation analyses and settlement analyses, and develop/evaluate foundation alternatives.
  - Evaluate constructability issues pertaining to geotechnical features within the project, and develop alternative construction options as needed.
- Step 2. Prepare and issue a *DRAFT Final Geotechnical Report* incorporating the following:
- Relevant findings per the G1 Preliminary Geotechnical Investigation, G2 Evaluation Memoranda, V1 Pavements Report, Hydraulics Report/Memorandums and other geotechnical information sources
  - Summary of findings from G2 field investigations
  - Specific recommendations based on G3 analyses.
    - Present an interpretation of the regional and local geology, seismic conditions, and geographic setting (precipitation, frost depths, etc.).
    - Present details of the investigation plan procedures, methods, and results, including drilling/test pit logs and laboratory testing. Develop interpretive tables and figures to present the field exploration and lab test data, and how the data were interpreted for analysis and design.
    - Present interpreted drilling/test pit explorations and geophysical results on plans, profiles, and sections.

- Provide annotated site photographs, general project location maps, and investigation location maps.
- Present the types and methods of analyses conducted, including tabled input values, criteria, and findings, and append relevant examples.
- Provide a statement of limitations describing the potential for material type and properties variation between exploration locations, and that explorations were conducted for design purposes only. Draw distinctions between factual and interpreted data and findings.
- Provide specific recommendations for the following:
  - Suitable/unsuitable soils and aggregates by location (including wasting options/locations).
  - Soil and rock shrink/swell properties, station-to-station.
  - Topsoil depths and distribution, station-to-station.
  - Rock rippability.
  - Subsurface drainage.
  - Soil corrosivity and required culvert/structure materials.
  - Roadway subex/deep patch repair locations/designs.
  - Excavation requirements, including blasting and shoring.
  - Cut and fill slope ratios, erosion control, and construction requirements.
  - Embankment foundation preparation and construction specifications.
  - Structure foundation type, capacity, and construction/testing specifications.
  - Landslide mitigation requirements.
  - Rockfall mitigation requirements.
  - General constructability requirements for all geotechnical features.
  - Special Contract Requirements (SCR's).

### **Deliverables for G3 Activity**

- *DRAFT Final Geotechnical Report*
- *Interim Geotechnical Memoranda*

### **Final Geotechnical Report (G4 Activity)**

Update, revise and issue the FINAL Geotechnical Report and associated Geotechnical Advisories.

- Step 1. Issue Geotechnical Advisories and plan notes for the final PS&E package.
- Step 2. Update and issue the *FINAL Geotechnical Report*, incorporating the latest geotechnical findings and recommendations, as well as CFLHD review comments and comments from other stakeholders.

### **Deliverables for G4 Activity**

- *Geotechnical Advisories*
- *FINAL Geotechnical Report*

## **H. PAVEMENTS (PRMS Activities V1 to V3)**

## **Preliminary Pavement Recommendation (V1 Activity)**

Complete project initiation, field investigation, materials testing, analysis, and determination of cost effective pavement material, design, and rehabilitation recommendations (as applicable). Communication between the A/E and the CFLHD pavement engineer throughout this activity is essential for successful completion.

In addition to the mainline roads, pavement recommendations for pullouts, parking lots, and overlooks within the project must be included. These pavement recommendations may vary from the mainline road because existing conditions and features may vary (i.e. parking lots may have curb and gutter).

### Step 1. Project Initiation

- Gather information (archived reports/files, as-builts, scoping reports, PMS data, maintenance records, traffic data, climate data, etc)
- Develop a *Field Investigation Plan* including the investigation, sampling, and testing plan, schedule, and budget. Submit the plan, schedule, and budget to FHWA
- Assume the following sample and data collection methods for this project:

Sampling / Data Collection	Depth(s)	Interval (total) <sup>1</sup>	Offset or Location
Borings	1'-5'	¼ mile	At the discretion of the Engineer
Cores	N/A	N/A	N/A
FWD <sup>2</sup>	N/A		
DCP	N/A		
Test Pits	N/A		
Other (i.e. traffic data)	N/A		

<sup>1</sup>Actual quantities or number of samples may go up or down based on field conditions encountered. The task order will be modified, as necessary, to account for changes to the estimate.

<sup>2</sup>Refer to FLH FWD Testing and Analysis Guidelines.

- Assume the following tests/analyses for this project:

Tests / Analysis	Selected Test(s)	Estimated Number of Tests <sup>3</sup>

<b>Tests / Analysis</b>	<b>Selected Test(s)</b>	<b>Estimated Number of Tests<sup>3</sup></b>
<u>Soil Strength / Stiffness</u> -R-Value (AASHTO T 190) -CBR (AASHTO T 193) -Resilient Modulus (AASHTO T 307) -Backcalculation of FWD Data <sup>4</sup> -Correlation of DCP Data (ASTM D 6951)	R-Value	12
<u>Soil Classification &amp; Gradation</u> -AASHTO M 145 -ASTM 2487 -AASHTO T 27	AASHTO M 145 AASHTO T 27	14
<u>Moisture Content of Soil (in situ)</u> -AASHTO T 255 or T 265	T265	20
<u>Moisture-Density Relation</u> -AASHTO T 99, method C -AASHTO T 180, method D	N/A	
<u>Soil Stabilization</u> (evaluate feasibility, application rate, and structural value) -Lime, Cement, and/or fly ash	N/A	
<u>Cold In-Place Recycling (CIPR) or Full-Depth Reclamation (FDR):</u> Preliminary Mix Designs (evaluate feasibility, application rate, and structural value)	N/A	
<u>Other Testing / Analysis</u>	N/A	

<sup>3</sup>Actual quantities or number of tests may go up or down based on field conditions encountered. The task order will be modified, as necessary, to account for changes to the estimate.

<sup>4</sup>Refer to FLH FWD Testing and Analysis Guidelines.

- Step 2. Obtain additional investigative services (traffic control, drilling rigs, etc.)
- Provide traffic control, as needed and acceptable to the local road agency and in conformance with the MUTCD.
- Step 3. Complete field investigation
- Coordinate investigation, coring, and drilling access with the FHWA and the appropriate land owning/management agency. Obtain all necessary subsurface utility clearances and access permits prior to commencing investigations.
  - Perform field investigation per the standards and guidance of the PDDM and supplements. This includes but is not limited to: sampling and logging (including photos); surveying pavement condition and distresses (including photos); identifying potential material sources; identifying special pavement issues (i.e. frost heave); identifying areas for subexcavation, pavement drainage, or other spot repairs; identify obstacles for construction or rehabilitation (i.e. suitability of existing shoulder/bench for minor widening of the roadway).
  - Upon completion of the field investigation, submit a brief *Field Investigation Summary Memo* (1-page typically) or E-mail to FHWA that summarizes the investigation.
- Step 4. Review and compile field notes, logs, photos, etc.
- Step 5. Evaluate and submit samples/data for testing and analysis
- Assure submitted samples are an adequate representation of project conditions.
- Step 6. Evaluate results from lab testing, field investigation, and engineering analysis. Determine if additional investigation, testing, or analysis is necessary.
- Coordinate additional work with the FHWA
- Step 7. Develop *Preliminary Pavement Recommendations Technical Memo*. This technical memo should include, but not be limited to, the following:
- ESALs for the design life of the pavement
  - Effective soil resilient modulus
  - Pavement structural design
  - Design multiple alternatives, especially on pavement rehabilitation projects
  - Economic analysis on design alternatives and a recommended alternative
  - Material recommendations
  - Special recommendations, spot repairs, or other pertinent information (i.e. subexcavation locations, constructability issues, local material availability, material haul distances, pavement depth variability, steep grades, recommended follow-up investigation, etc.).
  - Submit to FHWA for review and comment.

### **Deliverables for V1 Activity**

- *Field Investigation Plan*
- *Field Investigation Summary Memo/E-mail*
- *Preliminary Pavement Recommendations Technical Memo*
- *Pavement Evaluation for Design Study Report*

### **Final Pavement Recommendation (V2 Activity)**

Finalize the pavement recommendations within a comprehensive report.

- Step 1. Identify and/or develop needed SCRs related to the pavement structural section.
- Step 2. Finalize design recommendations
  - Pavement structural design
  - Material recommendations
  - Spot repair recommendations
  - Recommendations / information on potential material sources
  - Design exceptions.
- Step 3. Develop a *DRAFT Pavement Report* per the PDDM and supplements. The activity includes, but is not limited to, the following:
  - Development of a comprehensive report that documents all information, assumptions, and calculations that were gathered and completed during the V1 and V2 tasks
  - Completing a QA review
  - Submit to FHWA for review and comment
- Step 4. Prepare *FINAL Pavement Report*
  - Address comments by FHWA
  - Submit to FHWA

### **Deliverables for V2 Activity**

- *DRAFT Pavement Report*
- *FINAL Pavement Report* (hard and electronic copies)

### **Final Design (Support) (V3 Activity)**

- Step 1. Assure alignment of pavement report recommendations and PS&E.
  - Develop addendum to Pavements Report
- Step 2. Answer technical questions during the final design stage

## **I. HYDROLOGY/HYDRAULICS (PRMS Activities H1 to H3)**

### **Preliminary Hydraulics Recommendations (H1 Activity)**

Initial hydrology/hydraulics survey to determine the preliminary structural requirements and water resources impact.

- Step 1. Collect existing drainage related data, reports, studies, and other pertinent information.
- Step 2. Perform a preliminary hydrologic and hydraulic analysis of existing conditions
  - Use the 2-, 10-, 50-, and 100-yr events to evaluate potential encroachments and to determine water surface elevations
  - Determine the existing flow rates for the 10-, 50-, and 100-yr events at the bridge locations
- Step 3. Provide support for permitting

- Determine the ordinary high water (OHW) level and extent
    - In the absence of site-specific guidance, use the 2-yr event for this determination
- Step 4. Prepare a *Preliminary Hydraulics Recommendations Report* include, but not limited to, the following:
- Documentation of approved criteria and methods
  - Documentation of data collection and site investigation
    - Examination of overall site
    - Existing low water crossing
    - Existing culverts (size, location, and condition)
  - Identification of channel stability issues

### **Deliverables for H1 Activity**

- *Preliminary Hydraulics Recommendations Report* (Step 4)
- *Hydraulic Evaluation for Design Study Report*

### **Intermediate Hydraulics Recommendations (H2 Activity)**

- Step 1. Perform preliminary roadway hydraulic analysis
- Perform drainage basin delineations for all cross culvert locations that require design discharges. Calculate peak discharges based on the design criteria and methods previously adopted for roadway drainage crossings. Recommend rehabilitation (e.g., lining), replacements, and extensions, as appropriate, considering culvert condition, hydraulic performance, and cost.
  - Design the preliminary type, size, and location for culverts identified for replacement during the preliminary site visit. Use HY8 or equivalent for hydraulic analysis/design. Recommend appropriate end treatments for the major culverts
  - Design the preliminary type, size, and location of the minor cross culverts. Use HY8 or equivalent for hydraulic analysis/design for minor culverts in critical situations such as high likelihood of ice or debris, high tailwater, low culvert barrel slope, increased risks to upstream properties, or other site-specific conditions. Minor culverts in non-critical situations may be designed using HY8 or equivalent, inlet control nomographs, or inlet control equations.
  - Provide preliminary designs for outlet energy dissipation for all culverts.
  - Provide preliminary designs for roadside ditches, including grade control structures and/or temporary/permanent linings to prevent erosion.
- Step 2. Perform preliminary hydraulic analysis for proposed low water crossing
- Model water surface profiles using HEC-RAS or equivalent for the 2-, 10-, 50-, and 100- yr events for water surface elevation and freeboard for proposed preliminary bridge designs. Make capacity design recommendations.
- Step 3. Develop preliminary designs for special hydraulic features
- Storm drains and curb/gutter

- Temporary construction related drainage features.
  - Channel stabilization design(s).
- Step 4. Prepare a *Preliminary Hydraulics Report*. The report will provide the necessary hydrologic and hydraulic analysis to complete the preliminary (30%) design. Contents of the report shall follow the guidance in the PDDM in a bound format. In addition the report shall include:
- Maps indicating the general and specific project location including the stream channel(s) to proposed structure locations and drainage basin boundaries.
  - Brief discussions, documentation, and summaries of all analysis and design activities (including any assumptions used) and results.
  - Detailed hydraulic design recommendations and conclusions.
  - Appendices containing copies of any hand or spreadsheet calculations and the input and output data from any computer models used.
  - Maps and/or exhibits showing the location and orientation of all cross-sections and cross section plots for all locations.
  - Electronic copies of computer input/output files and GIS/DEM files.

### **Deliverables for H2 Activity**

- *Preliminary Hydraulics Report/Design Study Report*

### **Final Hydraulics Recommendations (H3 Activity)**

Finalize the roadway, low water crossing and special features analysis and prepare the Final Hydraulics Report.

- Step 1. Perform final roadway hydraulic analysis
- Design the final type, size, and location for all culverts identified for replacement. Finalize design of end treatments for the major culverts.
  - Design the final type, size, and location of the minor cross culverts
  - Provide final designs for outlet energy dissipation for all culverts
  - Support preparation of culvert cross-sections, including ensuring sufficient cover is provided
  - Provide final designs for roadside ditches, including needed grade control structures and protective linings
- Step 2. Finalize low water crossing analysis analysis and design
- Finalize modeling of water surface profiles
  - Finalize capacity design recommendations
- Step 3. Finalize designs for special hydraulic features
- Storm drains and curb/gutter
  - Temporary construction related drainage features
  - Channel stabilization structures
- Step 4. Incorporate CFLHD review comments, and comments from other stakeholders, on the preliminary hydraulics report and submit a *FINAL Hydraulics Report*.

### **Deliverables for H3 Activity**

- *FINAL Hydraulics Report*

## J. HIGHWAY DESIGN (PRMS Activities D1 to D4, P2 and D5)

### Develop 30% Design (D2 Activity)

Develop and distribute the 30% design. The 30% design will be presented in the 30% Design Study Report. No formal 30% Plan Set will be completed. Specific Plan Sheets will be incorporated into the design as shown below in Step 3.

#### Step 1. Roadway Design

**Assumption:** It is assumed that the following tasks are required to complete the Design Study Report:

- Develop the Typical Sections for each alternative
- Roadway geometric design for each alternative
- Develop horizontal and vertical alignments
- Develop planimetric design features (widening, roadside ditches, guardrail, etc.)
- Develop proposed roadway cross sections
- Ensure proposed elements are within scope, i.e. evaluate the proposed typical section in relation to the available widths in narrower sections of the roadway (Does design stay on bench? Does design stay inside ROW?)

#### Step 2. Plan Production/Document Preparation

- Develop typical sections and other drawings for inclusion in the Design Study Report

**Assumption:** It is assumed that the drawings to be included in the Design Study Report are the following: Site Plan (identifying the four priority segments), Typical Sections for each of the four priority segments, Detail Sheets for various alternatives for geotechnical improvement concepts at the Wet Area (Underdrains, Walls, etc.) and the Burn Area (CBC and LWC), Plan Sheets for the two alternatives at the Burn Area (CBC and LWC).

#### Step 3. Cross Functional Design Support

- Provide highway design support for preliminary structural design and layout.

**Assumption:** There are no Structural (Bridge) work activities prior to the Develop 70% Design (D3) Activity. Therefore, it is assumed that the preliminary wall concepts will not include any structural calculations or structural details. No wall layouts will be provided in the Design Study Report.

- Provide highway design support for hydraulics design.
- Provide highway design support for geotechnical design.
- Provide highway design support for the environmental process.
  - Review the current environmental documents for the project
  - Become familiar with the policy, impacts, and issues associated with the project
  - Incorporate mitigation measures and commitments from the draft environmental document into the design

#### Step 4. Engineer's Estimate

- Develop cost estimate for all identified items for each alternative. Calculate quantities and unit price analysis for all identified pay items. Include a contingency for unknown items.
- Step 5. Construction Schedule
- Identify the major construction bid items, develop the production rates/durations and develop the construction schedule.
- Step 6. Project Documentation
- Develop Draft *Highway Design Standards Form*
  - Compile all *30% Design Study Report Elements*
  - Updated Risk and Opportunity Management Plan
  - Update Designer’s Notebook
  - Complete the 30% Development Checklist
  - Complete 30% Design Study Report
  - Update the electronic file tracker

**30% Peer Review (D2PRE Activity)**

- Step 7. Peer Review
- Assemble, print, and distribute Design Study Report for peer review. Conduct review and incorporate review comments into report.
  - Distribute 30% Design Study Report for an in-office review by the CFT

**30% Plan Review (D2PR Activity)**

- Step 8. Internal and External Review
- Update report from internal review comments
  - Print and distribute the 30% report to external agencies
  - Prepare draft responses to external reviewers

**Deliverables for D2 Activities**

- *30% Design Report for External and Internal FHWA Distribution*  
**Assumption:** *It is assumed that the following elements will be incorporated into the Design Study Report. The responsible parties for the individual elements are as shown. Design will be responsible for compiling all elements and providing the final report.*

<b>Design Study Report Element</b>	<b>Responsible Party</b>
Executive Summary	Design (J. Bellen)
Roadway Design Evaluation - Roadway width evaluation, traffic control discussion	Design (J. Bellen)
Pavement Evaluation - Structural section	Pavements (S. Deppmeier)
Geotechnical Evaluation - “Wet Area” fix & wall discussion - Material source - Cut slope at burn area	Geotech (B. Peters)
Hydraulics/Hydrology Evaluation - Culverts - Burn area – LWC vs. Box culvert	Hydraulics (G. Blackler)

Highway Easement Deed Evaluation	Right-of-Way (A. Blair)
Engineer's Estimate	Design (J. Bellen)
Conclusions & Recommendations	Design (J. Bellen)
Appendices	
Cost Estimate and Construction Schedule	Design (J. Bellen)
Roadway Exhibits	Design (J. Bellen)
<ul style="list-style-type: none"> <li>- Typical sections</li> <li>- Burn Area Alternatives</li> <li>- "Wet Area" Alternatives</li> </ul>	
Highway Design Standards Form	Design (J. Bellen)
Draft Geotech Report/Memo	Geotech (B. Peters)
Draft Hydraulics Report/Memo	Hydraulics (G. Blackler)
Photographs	Design (J. Bellen)
Project Agreement	Design (J. Bellen) from PM
Draft Categorical Exclusion	Environment (C. Callahan)

### **Develop 70% Design (D3 Activity)**

Develop and distribute (70%) detailed plans specifications and estimate (PS&E) package. See 70% Development Checklist for more specific details

- Step 1. Post 30% Internal/External Review
  - Prepare a Comment and Response Form for all comments received
  - Final responses are not required at this time.
- Step 2. Roadway Design
  - Finalize the Typical Sections
  - Complete horizontal and vertical alignments
  - Complete planimetric design features (widening, roadside ditches, guardrail, etc.)
  - Complete roadway cross section
- Step 3. Secondary Roadway Design
  - Complete all geometric design for approaches, major intersection plans, cross sections and intersection safety
  - Complete pullout and parking area design
  - Update erosion control design
  - Update utility resolution/conflict plans
- Step 4. Permanent and Temporary Traffic Control
  - Update permanent traffic control signing and striping design
  - Update construction phasing and/or detour plans
  - Update temporary signing, striping, and traffic control plans
- Step 5. Plan production
  - Develop plan and profile sheets
  - Complete plan quantities, summaries and tabulations.
  - Verify/update all applicable FLH Standard Plans and CFLHD Details to current version
  - Complete project specific details and plan sheets including title and site plan sheets

- Print and assemble the 70% plan package accordance with the CFLHD CADD Manual and the 70% Development Checklist. The plan package may be numbered by hand
- Step 6. Cross Functional Design Support
- Provide highway design support for structural design and layout
  - Provide highway design support for major culvert design
  - Provide highway design support for environmental mitigation design and commitments.
  - Support/finalize all permits and requirements
  - Provide alignments for field review staking
  - Coordinate 70% field review with agencies involved
  - Prepare travel and draft field review agenda
- Step 7. Engineer's Estimate
- Complete the unit price analysis for all pay items and cost estimate
- Step 8. Construction Schedule
- Update CPM construction schedule, production rates/durations for all construction items, update calendar, and written narrative discussing critical schedule elements
- Step 9. Specifications
- Develop the Special Contract Requirements (SCR's). Include all appropriate up-to-date SCR's from the Library of Specifications. Use the Track Changes feature to highlight or redline project specific requirements to facilitate FHWA review
- Step 10. Project Documentation
- Complete Highway Design Standards form
  - Prepare 70% Design Technical Memorandum
  - Updated Risk and Opportunity Management Plan
  - Update Designer's Notebook
  - Complete the 70% Development Checklist
  - Update electronic file tracker

### **70% Pre-submittal/Peer Review (D3PRE Activity)**

- Step 11. Peer Review
- Assemble, print, and distribute PS&E package for peer review. Conduct peer review and incorporate review comments into PS&E package

### **70% Plan Review (D3PR Activity)**

- Step 12. Internal/External Review
- Update PS&E from internal review comments
  - Print and distribute the 70% package to external agencies
  - Distribute 70% Plans, Specifications, and Estimate package for an in-office review by the CFT
  - Prepare draft responses to reviewers

### **Deliverables for D3 Activities**

Peer Review Distribution Deliverables

- 70% Plans, Specifications and Estimate for Internal FHWA Distribution
- 70% Pre-submittal Design Support Documents
  - 30% Comment and Response Form, including responses
  - Draft Unit Price Analysis
  - Draft copy of quantity calculations
  - Draft Highway Design Standards Form
  - Draft 70% Design Technical Memorandum

Internal Distribution Deliverables

- 70% Plans, Specifications and Estimate for Internal FHWA Distribution
- 70% Internal FHWA Distribution Design Support Documents
  - 70% Development Checklist
  - 30% Comment and Response Form, including responses
  - Updated CPM Construction Schedule
  - 70% Unit Price Analysis
  - Copy of final quantity calculations and supporting documentation
  - Final Highway Design Standards Form
  - Updated 70% Design Technical Memorandum
  - Electronic Files and Tracking Sheet (Design files profile at centerline and cross sections. Updated survey topo/planimetric files when applicable.)

External Distribution Deliverables

- 70% Plans, Specifications and Estimate for External FHWA Distribution
- 70% External Distribution Design Support Documents
  - CPM Construction Schedule
  - 70% Internal Distribution Comment and Response Form, including responses
  - Final Highway Design Standards Form
  - Updated 70% Design Technical Memorandum

**Develop 95% Design (D4 Activity)**

Develop and distribute the final design and preparation of the 95% PS&E package. See 95% Development Checklist for more specific details. Hours for incorporating 70% comments into the plans are included in applicable items below

Step 1. Post 70% field review

- Produce master redline plan set with field review comments
- Prepare a Comment and Response Form for all comments received (including both redlined plan comments and type written comments). Final responses are not required at this time.
- Produce trip report, including decision and action register. Submit a draft report to FHWA/CFT for comment. Incorporate comments and finalize and distribute the 70% Trip Report.

Step 2. Roadway Design

- Finalize the Typical Sections
- Finalize all horizontal and vertical alignments
- Finalize all planimetric design features
- Finalize all roadway cross sections

Step 3. Secondary Road Design

- Finalize all geometric design for approaches, major intersection plans, cross sections and intersection safety
  - Finalize pullouts and parking area design
  - Finalize erosion control design
  - Finalize utility relocation and conflict plans
- Step 4. Permanent and Temporary Traffic Control
- Finalize permanent traffic control signing and striping design
  - Temporary Traffic Control
    - Finalize construction phasing and/or detour plans
    - Finalize temporary signing, striping and traffic control plans
- Step 5. Plan production
- Standards, Details, Specials and project specific plan sheets
    - Verify/update all applicable FLH Standard Plans and CFLHD Details to current version
    - Finalize project Special Drawings and project specific plan sheets
  - Finalize Plan and Profile sheets
  - Finalize all plan quantities, summaries and tabulations
  - Assemble the 95% plan package according to the CFLHD CADD Manual and the 95% Development Checklist.
- Step 6. Cross Functional Design Support
- Provide highway design support for final structural design and layout
  - Provide highway design support for final hydraulics design
  - Finalize/support environmental mitigation design and commitments
  - Support/finalize all permits and requirements
- Step 7. Engineer's Estimate
- Finalize the unit price analysis for all pay items and cost estimate for each bid schedule (if more than one)
- Step 8. Construction Schedule
- Finalize CPM construction schedule, production rates/durations for all construction items, update calendar, and written narrative discussing critical schedule elements
- Step 9. Specifications
- Finalize the Special Contract Requirements (SCR's). Include all appropriate up-to-date SCR's from the Library of Specifications. Use the Track Changes feature to highlight or redline project specific requirements to facilitate FHWA review
- Step 10. Project Documentation
- Finalize Highway Design Standards Form
  - Prepare 95% Design Technical Memorandum
  - Updated Risk and Opportunity Management Plan
  - Update Designer's Notebook
  - Complete the 95% Development Checklist
  - Update electronic file tracker
  - Prepare a draft Project Engineer's Memo (PE Memo)

**95% Peer Review (D4PRE Activity)**

Step 11. Peer Review

- Assemble, print, and distribute PS&E package for review. Conduct peer review and incorporate review comments into PS&E package.

### **95% PS&E Internal/External Review (D4PR Activity)**

#### Step 12. External Review

- Update PS&E from internal review comments
- Print and distribute the 95% package to external agencies
- Distribute 95% Plans, Specifications, and Estimate package for an in-office review by the CFT
- Prepare draft responses to reviewers

### **Deliverables for D4 Activities**

- 70% Field Review Trip Report
- 95% Plans, Specifications and Estimate for Pre-Submittal Review
- 95% Design Support Documents
  - 70% Comment and Response Form, including responses
  - 70% Field review Master redlined plan set (no copy, available for meeting review only)
  - Draft Unit Price Analysis
  - Draft copy of quantity calculations
  - Draft Highway Design Standards Form
  - Draft Design Technical Memorandum

#### Internal Distribution Deliverables

- 95% Plans, Specifications and Estimate for Internal FHWA Distribution
- 95% Design Support Documents
  - 95% Development Checklist
  - 70% Comment and Response Form, including responses
  - Final CPM Construction Schedule
  - Final Unit Price Analysis
  - Copy of quantity calculations
  - Final Highway Design Standards Form
  - Final 95% Design Technical Memorandum
  - Draft Project Engineer's memo

#### External Distribution Deliverables

- 95% Plans, Specifications and Estimate for External FHWA Distribution
- 95% Design Support Documents
  - 95% Development Checklist
  - 95% Internal Distribution Comment and Response Form, including draft responses
  - Final CPM Construction Schedule
  - Final Highway Design Standards Form
  - Final 95% Design Technical Memorandum
  - 95% External Distribution Comment and Response Form, including draft responses

## **PS&E Approval and Contract Development (P2 Activity)**

Includes revisions to the PS&E as a result of partner agency reviews and approval comments. This is 100% design. See 100% Development Checklist for more specific details.

### Step 1. Finalize PS&E

- Incorporate comments and print, compile, and deliver the final PS&E package to FHWA

### Step 2. Develop procurement documents and checklists

- PS&E Advertisement Checklist
- Procurement Request (PR) & 1240
- Complete 100% Development Checklist

## **100% Peer Review (P2PRE Activity)**

### Step 1. Peer Review

- Assemble, print, and distribute PS&E package for review. Conduct peer review and incorporate review comments into PS&E package.
- Distribute Final Plans, Specifications, and Estimate package for an in-office review by the CFT

## **Deliverables for P2 Activities**

- 100% Plans, Specifications and Estimate for Internal FHWA Distribution
- 100% Design Support Documents
  - 100% Development Checklist
  - 95% Comment and Response Form, including responses
  - Final CPM Construction Schedule
  - Final Unit Price Analysis
  - Copy of quantity calculations
  - Designer's Notebook
  - Final Highway Design Standards Form (signed)
  - Final Design Technical Memorandum
  - Draft Project Engineer's memo
  - Final Electronic File Tracker
  - All Microstation design files (on CD)
  - All Excel design files (on CD)
  - All Geopak design files (on CD)
  - Geopak Earthwork reports
  - Contact Distribution List (on CD)
  - Final electronic Plans (on CD)
  - PS&E advertisement checklist

## **Assemble Project Engineer's Design Package (D5 Activity)**

Assemble Project Engineer's Design Package. See Project Engineer's Notebook checklist for more specific details

### Step 1. Complete the Project Engineer's Notebook

- Complete checklist. See the Project Engineer's Notebook checklist for more information

- Finalize Project Engineer's memo
- Assemble Project Engineer's Notebook according to the PE notebook checklist including project documentation.

### **Deliverables for D5 Activity**

- Final PE memo
- Project Engineer's Design Package, including two complete hard copies and three CD's of Staking data

## **K. BRIDGE (PRMS Activities B3 to B4)**

### **Structural Design and Check (B3 Activity)**

Structural analysis, design, and check of the tieback walls.

- Step 1. Provide calculations for the structural design of soldier pile/tieback retaining walls. Annotate design calculations with specific references to the applicable design specification. Incorporate recommendations from *Final Hydraulics Report*, *Draft Geotechnical Report*, and *Geotechnical Memoranda* as issued.
- Step 2. Prepare complete set of plan sheets for the retaining walls. Follow the format in the FLHBO Bridge Plan Checklist specified in Section III. Incorporate recommendations from *Final Geotechnical Report* and *Final Hydraulics Report*. Include plan sheets for the following:
- Revise 70% structure drawings as necessary
- Step 3. Prepare independent design calculations for the retaining walls as detailed in the 95% Structure Drawings. The independent check will verify design methods, functional requirements, and conformance to the *Structure Design Criteria*. Check calculations shall be annotated with specific references to the applicable design specification sections.
- Step 4. Check the 95% Structure Drawings for completeness and accuracy.

### **95% Structure Quantities and Itemized Cost Estimate**

- Step 5. Revise 70% wall plan item quantity calculations and itemized cost estimate.
- Step 6. Check the revised Structure Quantities and Itemized Cost Estimate for completeness and accuracy.

### **95% Structure Special Contract Requirements**

- Step 7. Revise 70% Wall Special Contract Requirements.
- Step 8. Check the revised Structure Special Contract Requirements for completeness and accuracy.

### **Deliverables for B3 Activity**

- 70% Structure Design Calculations and Independent Check
- 70% Structure PS&E
- 95% Structure Design Calculations and Independent Check
- 95% Structure PS&E

## **Structural PS&E Revisions (B4 Activity)**

Complete any necessary revisions to the Structure 95% PS&E package.

### **100% Structural PS&E Supporting Data**

Step 1. Complete any necessary revisions to the 95% Structure Design. Provide calculations and independent check calculations for the 100% Structural Design.

### **100% Structural PS&E**

Step 2. Revise 95% Structural Drawings.

Step 3. Revise 95% Structural Special Contract Requirements.

Step 4. Revise 95% Structure Quantities and Itemized Cost Estimate.

## **Deliverables for B4 Activity**

- 100% Structural PS&E Supporting Data
- 100% Structural PS&E

## **L. Permits (E4.1 Activity)**

Identify environmental permitting/certification needs, coordinate with the regulatory agencies, and prepare applications.

It is anticipated that the following permits will be required for this project:

- Section 401/404
- Sovereign Land Permit. Assumption: County or USFS will obtain if required.
- Stream Alteration Permit
- NPDES

Step 1. Research environmental permit/certification/authorization needed for construction projects, including NEPA documents.

Step 2. Coordinate with regulatory agencies if there is any question on the proper permitting/certification application process. Coordination is anticipated with the following agencies:

- Utah Division of Forest, Fire, Sovereign Land
- Utah Division of Water Rights

Step 3. Prepare the 404 permit application and the stream alteration permit with the required attachments (as appropriate) including, but not limited to the following:

- Transmittal letter
- Environmental documents
- Jurisdictional Determination letter from the Corps of Engineers
- Plans (Include appropriate 8½" x 11" plans in the project description of the application)
- Maps (Include a general location geographic map, topographic site map, and site locator map in the project description of the application)
- Wetlands Delineation Report and Wetland Mitigation and Monitoring Plan

- Quantification (surface area, volume) of impact areas to the jurisdictional waters in tabular form. Show wetland impacted and surface area of impact on plan sheets (plan/profile or erosion control)
- Step 4. Prepare NPDES Notice of Intent (NOI) or Application including, but not limited to, the following information/attachments:
- Identify any Waters of the US on the 303 d list that may be impacted by Stormwater runoff
  - Stormwater Pollution Prevention Plan
  - Transmittal letter

#### **Deliverables for E4.1 Activity**

- 404 Application (individual) or Preconstruction Notification (PCN) and required attachments
- Stream alteration permit application
- 401 Certification Application and required information/attachments
- NPDES NOI or Application and required information/attachments

### **M. Meetings and Field Reviews**

#### **Design Meetings, Plan Reviews, and Field reviews**

- Step 1. 30% CFT plan review
- Step 2. 30% CFT review meeting
- Step 3. 30% field review. It is anticipated that the field review will last 3 days including travel
- Step 4. 70% CFT plan review
- Step 5. 70% CFT review meeting
- Step 6. 70% field review. It is anticipated that the field review will last 3days including travel
- Step 7. 95% CFT plan review
- Step 8. 95% CFT review meeting

#### **Environmental Meetings and Field Reviews**

- Step 9. Attend Public Meeting
  - Assume 2 days including travel for meeting
  - Assume 1 meeting
  - Set up meeting room in appropriate format (i.e., open house style, presentation style, sign-in table, court reporter location, exhibits/displays, etc.)
  - Ensure all A/V equipment operating
  - Ensure all staffing personnel know their roles and Exhibits to staff
  - Conduct close out review of PH meeting with SEE Team (what we heard, any possible problem areas, etc)

#### **Deliverables for Meetings and Field Reviews**

- None

### **N. Materials and Construction Support During Design (P3 Activities C3, MAT1, and MAT2) (CFL Internal Projects Only)**

### **Materials Recommendations (MAT1 Activity)**

Review (1) Interim Geotechnical Memoranda (G2 activity); (2) Pavement Field Investigation Plan; (3) Pavement Field Investigation Summary Memo; and (4) Preliminary Pavement Recommendations Technical Memo (V1 activities). Provide Materials recommendations for incorporation into Draft Final Geotechnical Report (support of G3 activity) Pavement Field Investigation Plan (support of V1 activity) and Draft Pavement Report (support of V2 activity).

- Step 1. Review Interim Geotechnical Memoranda and make recommendations for use in DRAFT Final Geotechnical Report.
- Review field investigations data contained in Interim Geotechnical Memoranda relative to soil/aggregate/water and electrochemical (i.e. soil corrosivity) testing for cut/fill materials, materials sources and buried structures.
  - Provide Materials recommendations for use in DRAFT Final Geotechnical Report pertaining to materials suitability as well as types of materials (i.e. cement type) and structures (i.e. culvert type) required for construction.
- Step 2. Review and make recommendations to Pavement Field Investigation Plan and Preliminary Pavement Recommendations Technical Memos for use in Draft Pavement Report.
- Review Pavement Field Investigation Plan and provide Materials recommendations relative to sampling and testing (i.e. types of test/analysis, selected tests and estimated number of tests).
  - Review Pavement Field Investigation Summary and Preliminary Pavement Recommendations Technical Memos and provide Materials recommendations for use in Draft Pavement Report pertaining to material suitability, types of materials, materials recycling and overall constructability of the pavement structural section.

### **Deliverables for MAT1 Activities**

- Materials Recommendations for Draft Final Geotechnical Report.
- Materials Recommendations for Pavement Field Investigation Plan.
- Materials Recommendations for Draft Pavement Report.

### **Materials Final Recommendations (MAT2 Activity)**

Review Draft Pavement Report (V1 activity). Provide Materials recommendations and sign-off on the Final Pavement Report (support of V2 activities). Identify and develop Materials Special Contract Requirements for the 70% Plans, Specifications and Estimates Package.

- Step 1. Review and sign-off of FINAL Pavements report.
- Review Draft Pavement Report and provide Materials recommendations for use in Final Pavement Report pertaining to material suitability, types of materials, materials recycling and overall constructability of the pavement structural section. Sign Final Pavements report.
- Step 2. Identify and/or develop special contract requirements and specifications for use in the 70% Plans, Specifications and Estimates Package relative to

materials, testing, equipment and construction processes for the pavement structural section and other structures.

**Deliverables for MAT2 Activities**

- Materials Recommendations for Final Pavement Report.
- Materials Special Contract Requirements for 70% Plans, Specifications and Estimates Package.

**Construction Support During Design (C3 Activity)**

Step 1. Construction support during design

- Hours for plan reviews are included in section M. Meetings and field reviews.

**III. DELIVERABLES AND SCHEDULE**

Milestone Activity Schedule	
Milestone	Completion Date
30% Field Review	04/2011
70% Field Review	09/2011
95% External Review	11/2011
Project Manager Delivery Date	12/2011
Advertisement Date	TBD based on funding

**IV. CROSS FUNCTIONAL TEAM**

FHWA-CFLHD Cross Functional Team

Project Manager: Christopher Longley  
 ROW & Utilities: Alan Blair, Richard Vanderbeek  
 Environment: Cindy Callahan  
 Survey: Bob Bell  
 Geotechnical: Braden Peters  
 Materials: Mike Peabody  
 Pavements: Steve Deppmeier  
 Hydraulics: Scott Hogan  
 Highway Design: Jeff Bellen  
 Bridge Design: Karl Eikermann  
 QA/QC: Mike McCann  
 Safety: Ed Demming



**FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
CFL INTERNAL BASELINE BUDGET**



PROJECT NUMBER: **UT PFH 46-1(2)**

BUDGET  
DATE:

**December 13, 2010**

PROJECT NAME: **La Sal Mountain Loop Road**

### Start-Up Page

Please complete the information in the blue cells above and below. Data will be automatically transferred to successive worksheets.

<b>Personnel ==&gt;</b>	Karl Eikermann	Ryan Owen	Cindy Callahan	Burnnie Robinson	Dave Stogsdill	Jeff Bellen	Dan Sorensen (CDP)	Gen Design 1	Braden Peters	Charlie Martinez
<b>Wage Rate =====&gt;</b>										
<b>Personnel ==&gt;</b>	Christopher Longley	Bob Bell	Bryan Clark	Jim Holben	Richard Vanderbeek	Scott Hogan		Steve Deppmeier	Beau Williams	Daryl Lamb
<b>Wage Rate =====&gt;</b>										
<b>Personnel ==&gt;</b>	Dylan Buffington	Dominic Monarco	Shay Witucki	Danielle Germani		Gerald Blackler	Jim Bumanglag	Safety	Materials	Marilyn Dodson
<b>Wage Rate =====&gt;</b>										

Instructions for Use

- 1) Fill in all Personnel and burdened Rates. Note that up to 30 classifications can be used. If more are needed, use a generic classification and rate (ex. Designer, Grade 11)
- 2) On the 'Personnel Tab', fill in the Department and the role of each person.
- 3) For each discipline/activity tab, select from the pull-down list the appropriate personnel in row 6
- 4) For each discipline, add/remove/revise the tasks in column B.
- 5) Fill in required information in the meetings, travel, equipment and materials, and task order tabs.

General Notes

- 1) Rows can be inserted into each worksheet by pressing CTRL+I or Tools>Macros>Run Macro "InsertRow". Copy the format in column A from the row above down to the new row.
- 2) Do not delete unnecessary worksheets(tabs) from this file! Simply hide the worksheets as needed.
  - > To Hide Worksheets: Click 'Format' > 'Sheet' > 'Hide'
  - > To Unhide Worksheets: Click 'Format' > 'Sheet' > 'Unhide'
- 3) To print, select a range of tabs from Summary to end. Each sheet will be numbered sequentially from X to Y. Print the Start and Personnel tabs separately.



**FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
CFL INTERNAL BASELINE BUDGET**



PROJECT NUMBER: **UT PFH 46-1(2)**

BUDGET DATE:

**13-Dec-2010**

PROJECT NAME: **La Sal Mountain Loop Road**

**PERSONNEL**

<b>Name</b>	<b>Department</b>	<b>Role</b>
Karl Eikermann	Bridge	Bridge Design Team Leader
Ryan Owen	Bridge	Bridge Designer (CDP)
Cindy Callahan	Environment	
Burnie Robinson	Bridge	Bridge CADD
Dave Stogsdill	Survey	
Jeff Bellen	Design	Lead Designer
Dan Sorensen (CDP)	Design	CDP
Gen Design 1	Design	Peer Reviewer
Braden Peters	Geotech	Geotechnical Engineer
Charlie Martinez	Geotech	Geologist
Christopher Longley	Project Manager	
Bob Bell	Survey	
Bryan Clark	Survey	
Jim Holben	ROW/Utilities	
Richard Vanderbeek	ROW/Utilities	
Scott Hogan	Hydraulics	
0	Hydraulics	
Steve Deppmeier	Pavements	
Beau Williams	Pavements	
Daryl Lamb	Permits	
Dylan Buffington	Survey	
Dominic Monarco	Survey	
Shay Witucki	ROW/Utilities	
Danielle Germani	Pavements (CDP)	
0		
Gerald Blackler		
Jim Bumanglag		
Safety		
Materials		
Marilyn Dodson		



**FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
CFL INTERNAL BASELINE BUDGET**



PROJECT NUMBER: **UT PFH 46-1(2)**  
PROJECT NAME: **La Sal Mountain Loop Road**

BUDGET DATE: **April 25, 2008**

**SUMMARY**

	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>G</b>	<b>H</b>	<b>R (Including U)</b>	<b>Q</b>	<b>S</b>	<b>V</b>	<b>W</b>	<b>X</b>	<b>TOTAL</b>
<b>PE (Hours)</b>	170		1132	377	418	178	381	12	324	250	731	2% of PE	3973
<b>PE (Labor Costs)</b>													
<b>PE (Indirect Costs)</b>				⌘	⌘				⌘	⌘	⌘	⌘	⌘
<b>PE Total</b>				⌘	⌘				⌘	⌘	⌘	⌘	⌘
<b>AE-P (Task Orders)</b>				⌘									⌘
<b>AG-P (Agreements)</b>													
<b>TOTALS</b>				⌘	⌘				⌘	⌘	⌘	⌘	⌘

**TOTAL BUDGET**

⌘



**FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
CFL INTERNAL BASELINE BUDGET**



PROJECT NUMBER: **UT PFH 46-1(2)**

BUDGET DATE: **13-Dec-2010**

PROJECT NAME: **La Sal Mountain Loop Road**

BREAKDOWN	P3 Activity	Work Code	Hours	Labor Costs	Equipment/ Material Costs	Travel Costs	Task Order Costs	Agreement Costs	Total	Personnel	Hours	Rate	Labor Cost
Project Management	Total	W	731			\$ [REDACTED]			[REDACTED]	Karl Eikermann	76		
	PM	W	120							Ryan Owen	73		
	P1	W								Cindy Callahan	343		
	P1SV	W								Burnnie Robinson	58		
	D1PRI	W								Dave Stogsdill	100		
	D1SV	W								Jeff Bellen	412		
	D2PRI	W	54							Dan Sorensen (CDP)	798		
	D2SV	W	243			\$ [REDACTED]			[REDACTED]	Gen Design 1	70		
	D2.1PR	W								Braden Peters	277		
	D2.1SV	W								Charlie Martinez	100		
	D3PRI	W	76							Christopher Longley	216		
	D3SV	W	108			\$1,147.50			[REDACTED]	Bob Bell	4		
	D4PRI	W	82							Bryan Clark	132		
	D4SV	W								Jim Holben	92		
	E0SV	W								Richard Vanderbeek	249		
	E1SV	W								Scott Hogan	10		
	E2SV	W											
	E3SV	W	48							Steve Deppmeier	165		
	E4SV	W								Beau Williams	62		
Utilities	Total	U	56							Daryl Lamb	95		
	U1	U	56							Dylan Buffington	100		
Environment	Total	E	377			\$ [REDACTED]	[REDACTED]		[REDACTED]	Dominic Monarco	104		
	E0	E	56							Shay Witucki	79		
	E1	E	66			\$ [REDACTED]	[REDACTED]		[REDACTED]	Danielle Germani	68		
	E2	E	94										
	E3	E	10							Gerald Blackler	217		
	E4	E	56							Jim Bumanglag	28		
	E4.1	E	95							Safety	6		



**FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
CFL INTERNAL BASELINE BUDGET**



PROJECT NUMBER: **UT PFH 46-1(2)**

BUDGET DATE: **13-Dec-2010**

PROJECT NAME: **La Sal Mountain Loop Road**

BREAKDOWN	P3 Activity	Work Code	Hours	Labor Costs	Equipment/ Material Costs	Travel Costs	Task Order Costs	Agreement Costs	Total
Surveys	Total	S	324			\$ [REDACTED]			\$ [REDACTED]
	S1	S	324			\$ [REDACTED]			\$ [REDACTED]
	SC15	S							
	SC30	S							
	SC50	S							
	SC70	S							
	M1	S							
	M2	S							
	M3	S							
Right of Way	Total	R	325						
	R1	R	158						
	R2	R	18						
	R3	R	66						
	R5	R	83						
Geotechnical	Total	G	418		\$ [REDACTED]	\$ [REDACTED]			\$ [REDACTED]
	G1	G	60						
	G2	G	170		\$ [REDACTED]	\$ [REDACTED]			\$ [REDACTED]
	G3	G	152						
	G4	G	36						
Pavements	Total	V	250		\$ [REDACTED]	\$ [REDACTED]			\$ [REDACTED]
	V1	V	140		\$ [REDACTED]	\$ [REDACTED]			\$ [REDACTED]
	V2	V	80						
	V3	V	30						
Hydraulics	Total	H	178						
	H1	H	86						
	H2	H	68						
	H3	H	24						
Highway Design	Total	D	1,132						

Personnel	Hours	Rate	Labor Cost
Materials	30		
Marilyn Dodson	9		
<b>Totals</b>	<b>3,973</b>		



**FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
CFL INTERNAL BASELINE BUDGET**



PROJECT NUMBER: **UT PFH 46-1(2)**

BUDGET DATE: **13-Dec-2010**

PROJECT NAME: **La Sal Mountain Loop Road**

BREAKDOWN	P3 Activity	Work Code	Hours	Labor Costs	Equipment/ Material Costs	Travel Costs	Task Order Costs	Agreement Costs	Total	Personnel	Hours	Rate	Labor Cost
	D1	D											
	D1PRE	D											
	D1PR	D											
	D2	D	306										
	D2PRE	D	42										
	D2PR	D	10										
	D2.1	D											
	D2.1PRE	D											
	D2.1PR	D											
	D3	D	282										
	D3PRE	D	24										
	D3PR	D	12										
	D4	D	170										
	D4PRE	D	20										
	D4PR	D	12										
	P2	D	170										
	P2PRE	D	36										
	D5	D	48										
Bridge	Total	B	170										
	B2	B											
	B3	B	151										
	B4	B	19										
Materials	Total	M	12										
	MAT1	M	4										
	MAT2	M	8										
Construction	C3	C											
<b>PE Totals</b>			<b>3,973</b>		\$	\$	\$		\$				





**FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
CFL INTERNAL BASELINE BUDGET**



PROJECT #: **UT PFH 46-1(2)**

BUDGET DATE: **13-Dec-2010**

PROJECT: **La Sal Mountain Loop Road**

<b>UTILITIES</b>			Richard Vanderbeek	Shay Witucki								Totals
WORK ACTIVITY												
<b>U1</b>	<b>Identify and Locate Utilities</b>	<b>Step Weight</b>										
Step 1	Support research	54%	20	10								30
Step 2	Review utility mapping	18%	6	4								10
Step 3	Initiate early coordination	11%	6									6
Step 4	Certify utilities	4%	2									2
Step 5	Develop recommendations	7%	2	2								4
Step 6	Utility Summary Report	7%	2	2								4
Subtotal of hours for U1			38	18								56
Subtotal of hours for U			38	18								56
Salary Rate, per hour												
Subtotal Labor Costs for U1												
Subtotal Labor Costs for U												
<b>TOTAL LABOR COST, (this sheet)</b>												

Formula Check OK



**FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
CFL INTERNAL BASELINE BUDGET**



PROJECT #: **UT PFH 46-1(2)**

BUDGET DATE: **13-Dec-2010**

PROJECT: **La Sal Mountain Loop Road**

<b>D. Environment (E0)</b>			Cindy Callahan									Totals
WORK ACTIVITY												
<b>E0</b>	<b>Environmental Scoping</b>	<b>Step Weight</b>										
	Established SEE Team											
	Held Initial SEE Team Site Visit and Scoping Meeting											
Step 1	Conduct initial coordination	18%	10									10
Step 2	Set up/Conduct Public Scoping Meeting	79%	44									44
Step 3	Close out E0 activity	4%	2									2
Subtotal of hours			56									56
Salary Rate, per hour												
Subtotal Labor Costs												
<b>TOTAL LABOR COST, (this sheet)</b>												

Formula Check **OK**



**FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
CFL INTERNAL BASELINE BUDGET**



PROJECT #: **UT PFH 46-1(2)**

BUDGET DATE: **13-Dec-2010**

PROJECT: **La Sal Mountain Loop Road**

<b>D. Environment (E1)</b>			Cindy Callahan										Totals
WORK ACTIVITY													
<b>E1</b>	<b>Environmental Compliance Studies</b>	<b>Step Weight</b>											
Step 1	Coordinate with USFWS, USACE, SHPO, MLSNF resource staff, and Indian tribes	45%	30										30
Step 2	Obtain access permission to survey private properties and obtain any necessary FLMA	21%	14										14
Step 3	Review survey data for adequacy and completeness	12%	8										8
Step 4	Review BA/BE, Cultural Resource Rpt., and Wetland Delineation Rpt.	18%	12										12
Step 5	Close out E1 activity	3%	2										2
Subtotal of hours			66										66
Salary Rate, per hour													
Subtotal Labor Costs													
<b>TOTAL LABOR COST, (this sheet)</b>													
											Formula Check	OK	



**FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
CFL INTERNAL BASELINE BUDGET**



PROJECT #: **UT PFH 46-1(2)**

BUDGET DATE: **13-Dec-2010**

PROJECT: **La Sal Mountain Loop Road**

<b>D. Environment (E2)</b>			Cindy Callahan									Totals
WORK ACTIVITY												
<b>E2</b>	<b>Prepare Environmental Document</b>	<b>Step Weight</b>										
Step 1	Complete all required coordination and consultation	17%	16									16
Step 2	Perform analyses and evaluations	9%	8									8
Step 3	Develop mitigation measures and coordinate with partner/resource agencies	9%	8									8
Step 4	Prepare illustrations for CE Document	9%	8									8
Step 5	Write and Review CE Document	55%	52									52
Step 6	Close out E2 activity	2%	2									2
Subtotal of hours			94									94
Salary Rate, per hour												
Subtotal Labor Costs												
<b>TOTAL LABOR COST, (this sheet)</b>												

Formula Check **OK**



**FEDERAL HIGHWAY ADMINISTRATION**  
**CENTRAL FEDERAL LANDS HIGHWAY DIVISION**  
**CFL INTERNAL BASELINE BUDGET**



PROJECT #: **UT PFH 46-1(2)**

BUDGET DATE: **13-Dec-2010**

PROJECT: **La Sal Mountain Loop Road**

<b>D. Environment (E3)</b>			Cindy Callahan									Totals
WORK ACTIVITY												
<b>E3</b>	<b>Environmental Compliance Approval</b>	<b>Step Weight</b>										
Step 1	Sign, reproduce and email CE document	80%	8									8
Step 2	Close out E3 activity	20%	2									2
Subtotal of hours			10									10
Salary Rate, per hour												
Subtotal Labor Costs												
<b>TOTAL LABOR COST, (this sheet)</b>												

Formula Check **OK**



**FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
CFL INTERNAL BASELINE BUDGET**



PROJECT #: **UT PFH 46-1(2)**

BUDGET DATE: **13-Dec-2010**

PROJECT: **La Sal Mountain Loop Road**

<b>D. Environment (E4)</b>			Cindy Callahan									Totals
WORK ACTIVITY												
<b>E4</b>	<b>Supplemental Environmental Mitigation</b>	<b>Step Weight</b>										
Step 1	Perform additional wetlands work and coordination	71%	40									40
Step 2	Coordination with internal and external clients	14%	8									8
Step 3	Obtain mitigation concurrence, coordinate/monitor mitigation, coordinate	14%	8									8
Subtotal of hours			56									56
Salary Rate, per hour												
Subtotal Labor Costs												
<b>TOTAL LABOR COST, (this sheet)</b>												

Formula Check OK



**FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
CFL INTERNAL BASELINE BUDGET**



PROJECT #: **UT PFH 46-1(2)**

BUDGET DATE: **13-Dec-2010**

PROJECT: **La Sal Mountain Loop Road**

<b>E. Survey (S1, S4)</b>			Bob Bell	Bryan Clark	Dylan Buffington	Dave Stogsdill						Totals
WORK ACTIVITY												
<b>S1</b>	<b>Initial Survey and Mapping</b>	<b>Step Weight</b>										
Step 1	Mobilize and reconnaissance of project site	7%		8	8	8						24
Step 2	Control network	17%		18	18	18						54
Step 3	Locate and map utilities	4%		4	4	4						12
Step 4	Field reports	2%		2	2	2						6
Step 5	Field mapping	63%		68	68	68						204
Step 6	Office mapping	7%	4	20								24
Subtotal of hours for S1			4	120	100	100						324
Subtotal of hours			4	120	100	100						324
Salary Rate, per hour												
Subtotal Labor Costs for S1												
Subtotal Labor Costs												
<b>TOTAL LABOR COST, (this sheet)</b>												
											Formula Check	OK



**FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
CFL INTERNAL BASELINE BUDGET**



PROJECT #: **UT PFH 46-1(2)**

BUDGET DATE: **13-Dec-2010**

PROJECT: **La Sal Mountain Loop Road**

<b>F. Right of Way (R1, R2, R3)</b>			Jim Holben	Richard Vanderbeek	Shay Witucki							Totals
WORK ACTIVITY												
<b>R1</b>	<b><u>Preliminary Right of Way Studies</u></b>	<b><u>Step Weight</u></b>										
Step 1	Preliminary boundary and property owner research	37%	4	27	27							58
Step 2	Assemble preliminary boundary exhibit	27%	6	18	18							42
Step 3	Prepare exhibits for public meetings	16%	4	10	12							26
Step 4	Identify required field evidence	6%	4	6								10
Step 5	Coordinate ROW, utility, and railroad requirements	14%	8	10	4							22
<b>R2</b>	<b><u>ROW Boundary Compilation</u></b>											
Step 1	Update preliminary boundary exhibit	44%	4	4								8
Step 2	Prepare comprehensive electronic boundary plat	56%	4	6								10
<b>R3</b>	<b><u>Final Right of Way Plans</u></b>											
Step 1	Coordinate with acquiring agency for document/recordation requirements	20%	9	4								13
Step 2	Prepare DRAFT Right of Way Plans	6%		4								4
Step 3	Incorporate FHWA comments and resubmit FINAL Right of Ways Plans	6%		4								4
Step 4	Prepare DRAFT Legal Descriptions	41%	9	18								27
Step 5	Incorporate FHWA comments and resubmit FINAL Legal Descriptions	27%	9	9								18
	Subtotal of hours for	R1	26	71	61							158
	Subtotal of hours for	R2	8	10								18
	Subtotal of hours for	R3	27	39								66
	Subtotal of hours		61	120	61							242
	Salary Rate, per hour											
	Subtotal Labor Costs for	R1										
	Subtotal Labor Costs for	R2										
	Subtotal Labor Costs for	R3										
	Subtotal Labor Costs											
<b>TOTAL LABOR COST, (this sheet)</b>												

Formula Check **OK**



**FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
CFL INTERNAL BASELINE BUDGET**



PROJECT #: **UT PFH 46-1(2)**

BUDGET DATE: **13-Dec-2010**

PROJECT: **La Sal Mountain Loop Road**

<b>F. Right of Way (R4, R5, R6)</b>			Jim Holben	Richard Vanderbeek							Totals
WORK ACTIVITY											
<b>R5</b>	<b>Letter of Consent</b>										
Step 1	Transmit Row documents	26%	4	9							13
Step 2	Design modifications or revisions to ROW documents	26%	4	9							13
Step 3	Negotiate terms and stipulations	28%	9	5							14
Step 4	Coordinate with acquiring agency	20%	5	5							10
<b>R6</b>	<b>Highway Easement Deed</b>										
Step 1	Coordinate with LPA on signature process	55%	9	9							18
Step 2	Prepare HED and internal memo for signature	15%		5							5
Step 3	Transmit signed deed to LPA for signature and recordation	15%		5							5
Step 4	Archive copy of recorded deed and transmit copy to Federal Agency	15%		5							5
	Subtotal of hours for R5		31	52							83
	Subtotal of hours		31	52							83
	Salary Rate, per hour										
	Subtotal Labor Costs for R5										
	Subtotal Labor Costs										
<b>TOTAL LABOR COST, (this sheet)</b>											

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PROJECT: **La Sal Mountain Loop Road**

<b>G. Geotechnical (G1, G2, G3, G4)</b>			Braden Peters	Charlie Martinez	Dominic Monarco	Marilyn Dodson						Totals
WORK ACTIVITY												
<b>G1</b>	<b>Preliminary Geotechnical</b>	<b>Step Weight</b>										
Step 1	Conduct research	17%	10									10
Step 2	Develop Preliminary Field Investigations Plan	8%	5									5
Step 3	Preliminary field investigation	30%	18									18
Step 4	Prepare DRAFT Preliminary Geotechnical Section of 30% Report	30%	18									18
Step 5	Address FHWA comments and prepare FINAL Preliminary Geotechnical Section of 30%	15%	9									9
<b>G2 Geotechnical Investigation</b>												
Step 1	Develop comprehensive Geotechnical Investigation Plan	5%	9									9
Step 2	Field investigation preparation	16%	5	18	5							28
Step 3	Conduct a comprehensive subsurface investigation	59%		50	50							100
Step 4	Procure soil/rock/water lab testing	9%	5	5	5							15
Step 5	Issue Interim Geotechnical Memoranda	11%	9	9								18
<b>G3 Geotechnical Recommendation</b>												
Step 1	Conduct geotechnical analyses	47%	54		18							72
Step 2	Prepare and issue a DRAFT Final Geotechnical Report	53%	27	18	26	9						80
<b>G4 Geotechnical PS&amp;E</b>												
Step 1	Issue Geotechnical Advisories and plan notes	50%	18									18
Step 2	Update and issue FINAL Geotechnical Report	50%	18									18
	Subtotal of hours for	G1	60									60
	Subtotal of hours for	G2	28	82	60							170
	Subtotal of hours for	G3	81	18	44	9						152
	Subtotal of hours for	G4	36									36
	Subtotal of hours		205	100	104	9						418



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<b>G. Geotechnical (G1, G2, G3, G4)</b>		Braden Peters	Charlie Martinez	Dominic Monarco	Marilyn Dodson						Totals
WORK ACTIVITY											
Salary Rate, per hour											
Subtotal Labor Costs for	G1										
Subtotal Labor Costs for	G2										
Subtotal Labor Costs for	G3										
Subtotal Labor Costs for	G4										
Subtotal Labor Costs											
<b>TOTAL LABOR COST, (this sheet)</b>											
										Formula Check	OK



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PROJECT #: **UT PFH 46-1(2)**

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PROJECT: **La Sal Mountain Loop Road**

<b>H. Pavements (V1, V2, V3)</b>			Steve Deppmeier	Beau Williams	Danielle Germani							Totals
WORK ACTIVITY												
<b>V1</b>	<b><u>Preliminary Pavement Recommendation (3R)</u></b>	<b>Step Weight</b>										
Step 1	Project initiation	1%		2								2
Step 2	Obtain additional investigative services	14%		17	2							19
Step 3	Complete field investigation	46%		32	32							64
Step 4	Review and compile field notes, logs, photos, etc.	6%		3	6							9
Step 5	Evaluate and submit samples/data for testing and analysis	9%	4	4	4							12
Step 6	Evaluate results from lab testing, field investigation, and engineering analysis	9%	4	4	4							12
Step 7	Develop Preliminary Pavement Recommendations Technical Memo	16%	2		20							22
<b>V2</b>	<b><u>Final Pavement Recommendation (3R)</u></b>											
Step 1	Identify and/or develop needed SCR's	25%	20									20
Step 2	Finalize design recommendations	25%	20									20
Step 3	Develop a DRAFT Pavement Report	25%	20									20
Step 4	Prepare FINAL Pavement Report	25%	20									20
<b>V3</b>	<b><u>Final Pavement Recommendation (3R)</u></b>											
Step 1	Assure alignment of pavement report recommendations and PS&E	50%	15									15
Step 2	Answer technical questions during final design stage	50%	15									15
	Subtotal of hours for	V1	10	62	68							140
	Subtotal of hours for	V2	80									80
	Subtotal of hours for	V3	30									30
	Subtotal of hours		120	62	68							250
	Salary Rate, per hour											
	Subtotal Labor Costs for	V1										
	Subtotal Labor Costs for	V2										
	Subtotal Labor Costs for	V3										
	Subtotal Labor Costs											



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PROJECT: **La Sal Mountain Loop Road**

H. Pavements (V1, V2, V3)	Steve Deppmeier	Beau Williams	Danielle Germani							Totals
WORK ACTIVITY										
<b>TOTAL LABOR COST, (this sheet)</b>										Formula Check <span style="color: green;">OK</span>



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PROJECT: **La Sal Mountain Loop Road**

<b>I. Hydraulics (H1, H2, H3)</b>			Scott Hogan	Garald Blackler								Totals
WORK ACTIVITY												
<b>H1</b>	<b>Preliminary Hydraulics Recommendations</b>	<b>Step Weight</b>										
Step 1	Collect drainage related data	5%		4								4
Step 2	Perform hydrologic and hydraulic analysis of existing conditions	72%	2	60								62
Step 3	Provide support for permitting	2%		2								2
Step 4	Prepare Preliminary Hydraulics Recommendations Report/Design Study	21%	2	16								18
<b>H2</b>	<b>Intermediate Hydraulics Recommendations</b>											
Step 1	Perform preliminary roadway hydraulics/culverts	50%	2	32								34
Step 2	Perform preliminary low water crossing analysis	18%		12								12
Step 3	Develop preliminary designs for special features	6%		4								4
Step 4	Develop Preliminary Hydraulics Report	26%	2	16								18
<b>H3</b>	<b>Final Hydraulics Recommendations</b>											
Step 1	Perform final roadway hydraulics	17%		4								4
Step 2	Finalize low water crossing design	33%		8								8
Step 3	Finalize design for special features	8%		2								2
Step 4	Prepare FINAL Hydraulics Report	42%	2	8								10
	Subtotal of hours for	H1	4	82								86
	Subtotal of hours for	H2	4	64								68
	Subtotal of hours for	H3	2	22								24
	Subtotal of hours		10	168								178
	Salary Rate, per hour											
	Subtotal Labor Costs for	H1										
	Subtotal Labor Costs for	H2										
	Subtotal Labor Costs for	H3										
	Subtotal Labor Costs											
<b>TOTAL LABOR COST, (this sheet)</b>												

Formula Check **OK**



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PROJECT #: **UT PFH 46-1(2)**

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PROJECT: **La Sal Mountain Loop Road**

<b>J. Highway Design (D2)</b>			Jeff Bellen	Dan Sorensen (CDP)	Gen Design 1							Totals
WORK ACTIVITY												
<b>D2 - Develop 30% Design</b>	<b>Step Weight</b>											
Step 1	Roadway design	27%	20	60	4							84
Step 2	Plan Production/Document Prep	33%	20	80								100
Step 3	Cross functional design support	18%	16	40								56
Step 4	Engineer's Estimate	12%	18	20								38
Step 5	Construction schedule	3%	2	4	4							10
Step 6	Project documentation	6%	8	10								18
<b>D2PRE - 30% Peer Review</b>												
Step 7	Peer review	14%	10	20	12							42
<b>D2PR - 30% External Review</b>												
Step 8	External Review	3%	4	6								10
Subtotal of hours for D2			84	214	8							306
Subtotal of hours for D2PRE			10	20	12							42
Subtotal of hours for D2PR			4	6								10
Subtotal of hours			98	240	20							358
Salary Rate, per hour												
Subtotal Labor Costs for D2												
Subtotal Labor Costs for D2PRE												
Subtotal Labor Costs for D2PR												
Subtotal Labor Costs												
<b>TOTAL LABOR COST, (this sheet)</b>												

Formula Check **OK**



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PROJECT: **La Sal Mountain Loop Road**

<b>J. Highway Design (D3)</b>			Jeff Bellen	Dan Sorensen (CDP)	Gen Design 1							Totals
WORK ACTIVITY												
<b><u>D3 - Develop 70% Design</u></b>												
	<b>Step Weight</b>											
Step 1	Post 30% field review	4%	2	8								10
Step 2	Roadway design	27%	14	60	3							77
Step 3	Secondary roadway design	18%	10	40								50
Step 4	Permanent and temporary traffic control	4%	2	6	2							10
Step 5	Plan Production	18%	10	40								50
Step 6	Cross functional design support	10%	13	14								27
Step 7	Engineer's Estimate	8%	4	16	2							22
Step 8	Construction schedule	1%	1		1							2
Step 9	Specifications	9%	16	8								24
Step 10	Project documentation	4%	2	8								10
<b><u>D3PRE - 70% Peer Review</u></b>												
Step 11	Peer review	9%	4	12	8							24
<b><u>D3PR - 70% External Review</u></b>												
Step 12	External review	4%	4	8								12
Subtotal of hours for D3			74	200	8							282
Subtotal of hours for D3PRE			4	12	8							24
Subtotal of hours for D3PR			4	8								12
Subtotal of hours			82	220	16							318
Salary Rate, per hour												
Subtotal Labor Costs for D3												
Subtotal Labor Costs for D3PRE												
Subtotal Labor Costs for D3PR												
Subtotal Labor Costs												



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J. Highway Design (D3)	Jeff Bellen	Dan Sorensen (CDP)	Gen Design 1							Totals
WORK ACTIVITY										
<b>TOTAL LABOR COST, (this sheet)</b>										Formula Check <span style="color: green;">OK</span>



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<b>J. Highway Design (D4)</b>			Jeff Bellen	Dan Sorensen (CDP)	Gen Design 1							Totals
WORK ACTIVITY												
<b><u>D4 - Develop 95% Design</u></b>												
	<b>Step Weight</b>											
Step 1	Post 70% field review	15%	10	16								26
Step 2	Roadway design	16%	7	18	2							27
Step 3	Secondary roadway design	12%	8	10	2							20
Step 4	Permanent and temporary traffic control	6%	2	6	2							10
Step 5	Plan Production	15%	5	20								25
Step 6	Cross functional design support	11%	6	12								18
Step 7	Engineer's Estimate	8%	4	8	2							14
Step 8	Construction schedule	2%	2		2							4
Step 9	Specifications	7%	8	4								12
Step 10	Project documentation	8%	6	8								14
<b><u>D4PRE - 95% Peer Review</u></b>												
Step 11	Peer review	12%	4	8	8							20
<b><u>D4PR - 95% External Review</u></b>												
Step 12	External review	7%	4	8								12
Subtotal of hours for D4			58	102	10							170
Subtotal of hours for D4PRE			4	8	8							20
Subtotal of hours for D4PRE			4	8								12
Subtotal of hours			66	118	18							202
Salary Rate, per hour												
Subtotal Labor Costs for D4												
Subtotal Labor Costs for D4PRE												
Subtotal Labor Costs for D4PRE												
Subtotal Labor Costs												



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J. Highway Design (D4)	Jeff Bellen	Dan Sorensen (CDP)	Gen Design 1							Totals
WORK ACTIVITY										
<b>TOTAL LABOR COST, (this sheet)</b>										Formula Check <span style="color: green;">OK</span>



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PROJECT: **La Sal Mountain Loop Road**

<b>J. Highway Design (P2&amp;D5)</b>			Jeff Bellen	Dan Sorensen (CDP)	Gen Design 1							Totals
WORK ACTIVITY												
<b>P2</b>	<b>PS&amp;E Approval and Contract Development</b>	<b>Step Weight</b>										
Step 1	Finalize PS&E	81%	50	80	8							138
Step 2	Develop procurement documents and checklists	19%	12	20								32
<b>P2PRE 100% Peer Review</b>												
Step 3	Peer review	21%	8	20	8							36
<b>D5</b>	<b>Assemble Project Engineer's Design Package</b>											
Step 1	Complete PE Notebook Checklist	100%	8	40								48
Subtotal of hours for P2			62	100	8							170
Subtotal of hours for P2PRE			8	20	8							36
Subtotal of hours for D5			8	40								48
Subtotal of hours			78	160	16							254
Salary Rate, per hour												
Subtotal Labor Costs for P2												
Subtotal Labor Costs for P2PRE												
Subtotal Labor Costs for D5												
Subtotal Labor Costs												
<b>TOTAL LABOR COST, (this sheet)</b>												

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PROJECT: **La Sal Mountain Loop Road**

<b>K. Bridge</b>			Karl Eikermann	Ryan Owen	Burnnie Robinson							Totals
WORK ACTIVITY												
<b>B2</b>	<b>Structural Layout</b>	<b>Step Weight</b>										
Step 1												
<b>B3</b>	<b>Structural Design and Check</b>											
Step 1	Provide calculations for revised wall sections	42%	4	60								64
Step 2	Prepare complete set of retaining wall plan sheets	33%			50							50
Step 3	Prepare independent design calculations for retaining walls	13%	20									20
Step 4	Check 95% structure drawings	3%	4									4
Step 5	Revise 70% wall plan item quantity calculations	3%		4								4
Step 6	Check revised structure quantities	1%	2									2
Step 7	Revise 70% wall SCR's	4%	6									6
Step 8	Check revised SCR's	1%		1								1
<b>B4</b>	<b>Structural PS&amp;E Revisions</b>											
Step 1	Complete revisions to 95% structure design	21%		4								4
Step 2	Revise 95% structural drawings	42%			8							8
Step 3	Revise 95% structural SCR's	11%	2									2
Step 4	Revise 95% structure quantities and itemized cost estimate	26%	1	4								5
	Subtotal of hours for	B2										
	Subtotal of hours for	B3	36	65	50							151
	Subtotal of hours for	B4	3	8	8							19
	Subtotal of hours		39	73	58							170
	Salary Rate, per hour											
	Subtotal Labor Costs for	B2										
	Subtotal Labor Costs for	B3										
	Subtotal Labor Costs for	B4										
	Subtotal Labor Costs											



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K. Bridge	Karl Eikermann	Ryan Owen	Burnnie Robinson							Totals
WORK ACTIVITY										
<b>TOTAL LABOR COST, (this sheet)</b>										Formula Check <span style="color: green;">OK</span>



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PROJECT: **La Sal Mountain Loop Road**

<b>L. Permits (E4.1)</b>			Daryl Lamb									Totals
WORK ACTIVITY												
<b>E4.1</b>	<b>Permits</b>	<b>Step Weight</b>										
Step 1	Research permit requirements	5%	5									5
Step 2	Coordinate with regulatory agencies	11%	10									10
Step 3	Prepare 404 application and stream alteration permit	53%	50									50
Step 4	Prepare NPDES	32%	30									30
Subtotal of hours E4.1			95									95
Salary Rate, per hour												
Subtotal Labor Costs E4.1												
<b>TOTAL LABOR COST, (this sheet)</b>												

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<b>M. Meetings and Reviews</b>		Karl Eikermann	Jeff Bellan	Dan Sorensen (CDP)	Braden Peters	Christopher Longley	Bryan Clark	Richard Vanderbeek	Gerald Blackler	Cindy Callahan	Steve Deppmeier	Safety	Materials	Jim Bumanglag							Total Hours
WORK ACTIVITY																					
<b>Plan Reviews, Meetings and Site Visits</b>																					
E3SV	Public Meeting		16			16				16											48
D2PRI	30% Review		4		2	4	2	2	4	4	4	2	4								32
D2PRI	30% Review Mtg.	2	2	2	2	2	2	2	2	2	2		2								22
D2SV	30% Site Visit	27	27	27	27	27		27	27	27	27										243
D3PRI	70% Review	2	4		6	8	2	2	6	4	4	2	4	8							52
D3PRI	70% Review Mtg.	2	2	2	2	2	2	2	2	2	2		2	2							24
D3SV	70% Site Visit		27	27	27	27															108
D4PRI	95% Review	2	4		4	8	2	2	6	4	4	2	4	16							58
D4PRI	95%Review Mtg.	2	2	2	2	2	2	2	2	2	2		2	2							24
Subtotal of hours		37	88	60	72	96	12	39	49	61	45	6	18	28							611
Salary Rate, per hour																					
Subtotal Labor Costs																					
<b>TOTAL LABOR COST, (this sheet)</b>																					

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<b>O. Materials and Construction Support during Design</b>		Materials										Total Hours
WORK ACTIVITY												
<b>MAT1 Material Recommendations</b>		<b>Step Weight</b>										
Step 1	Review Pavt Field Investigation Plan and Prelim Pavt Recommendations Tech Memos	100%	4									4
<b>MAT2 Final Materials Recommendations</b>												
Step 1	Review and sign-off of FINAL Pavements report	50%	4									4
Step 2	Identify/develop SCR's for 70% submittal	50%	4									4
<b>C3 Construction Support During Design</b>												
	Subtotal of hours	MAT1	4									4
	Subtotal of hours	MAT2	8									8
	Subtotal of hours	C3										
	Subtotal of hours		12									12
	Salary Rate, per hour											
	Subtotal Labor Costs	MAT1										
	Subtotal Labor Costs	MAT2										
	Subtotal Labor Costs	C3										
	Subtotal Labor Costs											
<b>TOTAL LABOR COST, (this sheet)</b>												

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PROJECT: **La Sal Mountain Loop Road**

Equipment and Materials			
	P3 Activity Code	Total Cost	
Project Management			
Utilities			
Project Development			
Environment			
Surveys			
Right of Way			
Geotech	G2	\$ [REDACTED]	Drilling
Pavements	V1	\$ [REDACTED]	Drilling
Hydraulics			
Highway Design			
Bridge			
Permits			
Meetings and Reviews			
Pavements	V1	\$ [REDACTED]	Lab Charges
<b>TOTAL EQUIPMENT AND MATERIALS COST</b>		<b>\$ [REDACTED]</b>	



**FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
CFL INTERNAL BASELINE BUDGET**



PROJECT #: **UT PFH 46-1(2)**

BUDGET DATE: **13-Dec-2010**

PROJECT: **La Sal Mountain Loop**

Travel										Burden Rate	100%	
<a href="http://www.gsa.gov">For Per Diem rates, go to gsa.gov</a>		P3 Activity	# of People	# of Days	Per Diem (per day)	Per Diem Total	Aifare (Each)	Airfare Total	Car Rental Total (Incl Gas)	Misc. Each (Parking, Mileage, Tolls)	Misc. Total	Total (Including Burden)
		Surveying	S1	3	8	\$█	\$█					
Pavement Investigation	V1	2	5	\$█	\$█						\$█	
Subsurface Investigation	G2	1	5	\$█	\$█				\$█	\$█	\$█	
Public Meeting	E1	2	2	\$█	\$█						\$█	
30% Field Review	D2SV	9	3	\$█	\$█						\$█	
70% Field Review	D3SV	3	3	\$█	\$█						\$█	
<b>TOTAL TRAVEL COSTS</b>					\$█							



FEDERAL HIGHWAY ADMINISTRATION  
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 CFL INTERNAL BASELINE BUDGET



PROJECT #: **UT PFH 46-1(2)**

BUDGET DATE: **13-Dec-2010**

PROJECT: **La Sal Mountain Loop Road**

Task Order Summary	P3 Activity Code (What Activity will it be budgeted to)	P3 Activity Codes (What Activities will it Cover)	Total Estimated Task Order Cost	
Consultant (cultural resource surveys)	E1		\$ [REDACTED]	
Consultant (Biology [BA/BE] and Wetland Delineation)	E1		\$ [REDACTED]	
Consultant				
<b>Total Task Order Cost</b>			\$ [REDACTED]	

Agreement Summary	P3 Activity Code (What Activity will it be budgeted to)	P3 Activity Codes (What Activities will it Cover)	Total Estimated Agreement Cost	
Agency				
<b>Total Task Order Cost</b>				

**Conceptual Level Estimate of Probable Construction Costs  
LaSal Mountain Loop Road, UT 46-1 (2)**

Base Level Estimate - Total Cost

Segment	Segment Cost
Kens Lake to Pack Creek	0
Castle Valley	0
Wet Area	0
Miners Basin	0
<b>SUB TOTAL</b>	<b>0</b>

Conceptual Level Estimate of Probable Construction Costs				
LaSal Mountain Loop Road, UT 46-1(2)				
Base Level Estimate - Wet Area				
Item Description	Unit	2010 Unit Cost	Quantity	2010 Total
H-Pile Wall	EACH	\$ [REDACTED]	1	\$ [REDACTED]
Underdrain	LNFT	\$ [REDACTED]	3,700	\$ [REDACTED]
Pulverizing, 4-Inch Depth	SQYD	\$ [REDACTED]	9,045	\$ [REDACTED]
4" Aggregate Base	TON	\$ [REDACTED]	97	\$ [REDACTED]
3" HACP (145.2 lb/ft3)	TON	\$ [REDACTED]	1,480	\$ [REDACTED]
Prime Coat (0.27 gal/sy, 251 gal/ton)	TON	\$ [REDACTED]	10	\$ [REDACTED]
Tack Coat (0.1 gal/sy, 233gal/ton)	TON	\$ [REDACTED]	4	\$ [REDACTED]
Blotter (14.75lb/sy)	TON	\$ [REDACTED]	67	\$ [REDACTED]
<b>SUB TOTAL Civil Construction</b>				\$ [REDACTED]
Mobilization ( 12% of civil construction)				\$ [REDACTED]
Erosion Control (2% of civil construction)				\$ [REDACTED]
Temporary Traffic Constrol (10% of civil construction)				\$ [REDACTED]
Construction Contingency (20% of civil construction)				\$ [REDACTED]
<b>Total Construction</b>				\$ [REDACTED]

Conceptual Level Estimate of Probable Construction Costs				
LaSal Mountain Loop Road, UT 46-1(2)				
Base Level Estimate - Miners Basin				
Item Description	Unit	2010 Unit Cost	Quantity	2010 Total
Box Culvert	Each	\$ [REDACTED]	1	\$ [REDACTED]
Excavation	CY	\$ [REDACTED]	2,370	\$ [REDACTED]
Embankment	CY	\$ [REDACTED]	4,180	\$ [REDACTED]
Pulverizing, 4-Inch Depth	SQYD	\$ [REDACTED]	25,970	\$ [REDACTED]
4" Aggregate Base	TON	\$ [REDACTED]	400	\$ [REDACTED]
3" HACP (145.2 lb/ft3)	TON	\$ [REDACTED]	4,400	\$ [REDACTED]
Prime Coat (0.27 gal/sy, 251 gal/ton)	TON	\$ [REDACTED]	29	\$ [REDACTED]
Tack Coat (0.1 gal/sy, 233gal/ton)	TON	\$ [REDACTED]	12	\$ [REDACTED]
Blotter (14.75lb/sy)	TON	\$ [REDACTED]	191	\$ [REDACTED]
<b>SUB TOTAL Civil Construction</b>				\$ [REDACTED]
Mobilization ( 12% of civil construction)				\$ [REDACTED]
Erosion Control (2% of civil construction)				\$ [REDACTED]
Temporary Traffic Constrol (10% of civil construction)				\$ [REDACTED]
Construction Contingency (20% of civil construction)				\$ [REDACTED]
<b>Total Construction</b>				\$ [REDACTED] 0

Conceptual Level Estimate of Probable Construction Costs				
LaSal Mountain Loop Road, UT 46-1(2)				
Base Level Estimate - Kens Lake to Pack Creek				
Item Description	Unit	2010 Unit Cost	Quantity	2010 Total
Pulverizing, 4-Inch Depth	SQYD	\$ [REDACTED]	42,800	\$ [REDACTED]
3" HACP (145.2 lb/ft3)	TON	\$ [REDACTED]	7,000	\$ [REDACTED]
Prime Coat (0.27 gal/sy, 251 gal/ton)	TON	\$ [REDACTED]	46	\$ [REDACTED]
Tack Coat (0.1 gal/sy, 233gal/ton)	TON	\$ [REDACTED]	19	\$ [REDACTED]
Blotter (14.75lb/sy)	TON	\$ [REDACTED]	316	\$ [REDACTED]
<b>SUB TOTAL Civil Construction</b>				\$ [REDACTED]
Mobilization ( 12% of civil construction)				\$ [REDACTED]
Erosion Control (2% of civil construction)				\$ [REDACTED]
Temporary Traffic Constrol (10% of civil construction)				\$ [REDACTED]
Construction Contingency (20% of civil construction)				\$ [REDACTED]
<b>Total Construction</b>				\$ [REDACTED] 0

Conceptual Level Estimate of Probable Construction Costs				
LaSal Mountain Loop Road, UT 46-1(2)				
Base Level Estimate - Castle Valley				
Item Description	Unit	2010 Unit Cost	Quantity	2010 Total
Pulverizing, 4-Inch Depth	SQYD	\$ [REDACTED]	10,560	\$ [REDACTED]
4" Aggregate Base	TON	\$ [REDACTED]	969	\$ [REDACTED]
3" HACP (145.2 lb/ft3)	TON	\$ [REDACTED]	4,215	\$ [REDACTED]
Prime Coat (0.27 gal/sy, 251 gal/ton)	TON	\$ [REDACTED]	28	\$ [REDACTED]
Tack Coat (0.1 gal/sy, 233gal/ton)	TON	\$ [REDACTED]	11	\$ [REDACTED]
Blotter (14.75lb/sy)	TON	\$ [REDACTED]	190	\$ [REDACTED]
<b>SUB TOTAL Civil Construction</b>				\$ [REDACTED]
Mobilization ( 12% of civil construction)				\$ [REDACTED]
Erosion Control (2% of civil construction)				\$ [REDACTED]
Temporary Traffic Constrol (10% of civil construction)				\$ [REDACTED]
Construction Contingency (20% of civil construction)				\$ [REDACTED]
<b>Total Construction</b>				\$ [REDACTED]

Conceptual Level Estimate of Probable Construction Costs				
LaSal Mountain Loop Road, UT 46-1(2)				
Base Level Estimate - Miners Basin (Cut slope)				
Item Description	Unit	2010 Unit Cost	Quantity	2010 Total
Excavation, including Disposal	CY	\$ [REDACTED]	2,370	\$ [REDACTED]
Pulverizing, 4-Inch Depth	SQYD	\$ [REDACTED]	9,800	\$ [REDACTED]
3" HACP (145.2 lb/ft3)	TON	\$ [REDACTED]	1,600	\$ [REDACTED]
Prime Coat (0.27 gal/sy, 251 gal/ton)	TON	\$ [REDACTED]	11	\$ [REDACTED]
Tack Coat (0.1 gal/sy, 233gal/ton)	TON	\$ [REDACTED]	4	\$ [REDACTED]
Blotter (14.75lb/sy)	TON	\$ [REDACTED]	72	\$ [REDACTED]
<b>SUB TOTAL</b>				\$ [REDACTED]

Conceptual Level Estimate of Probable Construction Costs				
LaSal Mountain Loop Road, UT 46-1(2)				
Base Level Estimate - Miners Basin (Middle)				
Item Description	Unit	2010 Unit Cost	Quantity	2010 Total
Pulverizing, 4-Inch Depth	SQYD	\$ [REDACTED]	14,700	\$ [REDACTED]
3" HACP (145.2 lb/ft3)	TON	\$ [REDACTED]	2,400	\$ [REDACTED]
Prime Coat (0.27 gal/sy, 251 gal/ton)	TON	\$ [REDACTED]	16	\$ [REDACTED]
Tack Coat (0.1 gal/sy, 233gal/ton)	TON	\$ [REDACTED]	7	\$ [REDACTED]
Blotter (14.75lb/sy)	TON	\$ [REDACTED]	108	\$ [REDACTED]
<b>SUB TOTAL</b>				\$ [REDACTED]

Conceptual Level Estimate of Probable Construction Costs				
LaSal Mountain Loop Road, UT 46-1(2)				
Base Level Estimate - Miners Basin (Slide)				
Item Description	Unit	2010 Unit Cost	Quantity	2010 Total
Box Culvert	EACH	\$ [REDACTED]	1	\$ [REDACTED]
Embankment	CY	\$ [REDACTED]	4,180	\$ [REDACTED]
Pulverizing, 4-Inch Depth	SQYD	\$ [REDACTED]	1,470	\$ [REDACTED]
4" Aggregate Base	TON	\$ [REDACTED]	400	\$ [REDACTED]
3" HACP (145.2 lb/ft3)	TON	\$ [REDACTED]	400	\$ [REDACTED]
Prime Coat (0.27 gal/sy, 251 gal/ton)	TON	\$ [REDACTED]	2	\$ [REDACTED]
Tack Coat (0.1 gal/sy, 233gal/ton)	TON	\$ [REDACTED]	1	\$ [REDACTED]
Blotter (14.75lb/sy)	TON	\$ [REDACTED]	11	\$ [REDACTED]
<b>SUB TOTAL</b>				\$ [REDACTED]

Conceptual Level Estimate of Probable Construction Costs				
LaSal Mountain Loop Road, UT 46-1(2)				
Base Level Estimate - Kens Lake to Pack Creek				
Item Description	Unit	2010 Unit Cost	Quantity	2010 Total
Pulverizing, 4-Inch Depth	SQYD	\$ [REDACTED]	42,800	\$ [REDACTED]
3" HACP (145.2 lb/ft3)	TON	\$ [REDACTED]	7,000	\$ [REDACTED]
Prime Coat (0.27 gal/sy, 251 gal/ton)	TON	\$ [REDACTED]	46	\$ [REDACTED]
Tack Coat (0.1 gal/sy, 233gal/ton)	TON	\$ [REDACTED]	19	\$ [REDACTED]
Blotter (14.75lb/sy)	TON	\$ [REDACTED]	316	\$ [REDACTED]
<b>SUB TOTAL Civil Construction</b>				\$ [REDACTED]
Mobilization ( 12% of civil construction)				\$ [REDACTED]
Erosion Control (2% of civil construction)				\$ [REDACTED]
Temporary Traffic Constrol (10% of civil construction)				\$ [REDACTED]
Construction Contingency (20% of civil construction)				\$ [REDACTED]
<b>Total Construction</b>				\$ [REDACTED] 0

Conceptual Level Estimate of Probable Construction Costs				
LaSal Mountain Loop Road, UT 46-1(2)				
Base Level Estimate - Castle Valley				
Item Description	Unit	2010 Unit Cost	Quantity	2010 Total
Pulverizing, 4-Inch Depth	SQYD	\$ [REDACTED]	10,560	\$ [REDACTED]
4" Aggregate Base	TON	\$ [REDACTED]	969	\$ [REDACTED]
3" HACP (145.2 lb/ft3)	TON	\$ [REDACTED]	4,215	\$ [REDACTED]
Prime Coat (0.27 gal/sy, 251 gal/ton)	TON	\$ [REDACTED]	28	\$ [REDACTED]
Tack Coat (0.1 gal/sy, 233gal/ton)	TON	\$ [REDACTED]	11	\$ [REDACTED]
Blotter (14.75lb/sy)	TON	\$ [REDACTED]	190	\$ [REDACTED]
<b>SUB TOTAL Civil Construction</b>				\$ [REDACTED]
Mobilization ( 12% of civil construction)				\$ [REDACTED]
Erosion Control (2% of civil construction)				\$ [REDACTED]
Temporary Traffic Constrol (10% of civil construction)				\$ [REDACTED]
Construction Contingency (20% of civil construction)				\$ [REDACTED]
<b>Total Construction</b>				\$ [REDACTED]

Conceptual Level Estimate of Probable Construction Costs				
LaSal Mountain Loop Road, UT 46-1(2)				
Base Level Estimate - Wet Area				
Item Description	Unit	2010 Unit Cost	Quantity	2010 Total
H-Pile Wall	EACH	\$ [REDACTED]	1	\$ [REDACTED]
Underdrain	LNFT	\$ [REDACTED]	3,700	\$ [REDACTED]
Pulverizing, 4-Inch Depth	SQYD	\$ [REDACTED]	9,045	\$ [REDACTED]
4" Aggregate Base	TON	\$ [REDACTED]	97	\$ [REDACTED]
3" HACP (145.2 lb/ft3)	TON	\$ [REDACTED]	1,480	\$ [REDACTED]
Prime Coat (0.27 gal/sy, 251 gal/ton)	TON	\$ [REDACTED]	10	\$ [REDACTED]
Tack Coat (0.1 gal/sy, 233gal/ton)	TON	\$ [REDACTED]	4	\$ [REDACTED]
Blotter (14.75lb/sy)	TON	\$ [REDACTED]	67	\$ [REDACTED]
<b>SUB TOTAL Civil Construction</b>				\$ [REDACTED]
Mobilization ( 12% of civil construction)				\$ [REDACTED]
Erosion Control (2% of civil construction)				\$ [REDACTED]
Temporary Traffic Constrol (10% of civil construction)				\$ [REDACTED]
Construction Contingency (20% of civil construction)				\$ [REDACTED]
<b>Total Construction</b>				\$ [REDACTED]

Conceptual Level Estimate of Probable Construction Costs				
LaSal Mountain Loop Road, UT 46-1(2)				
Base Level Estimate - Miners Basin				
Item Description	Unit	2010 Unit Cost	Quantity	2010 Total
Box Culvert	Each	\$ [REDACTED]	1	\$ [REDACTED]
Excavation	CY	\$ [REDACTED]	2,370	\$ [REDACTED]
Embankment	CY	\$ [REDACTED]	4,180	\$ [REDACTED]
Pulverizing, 4-Inch Depth	SQYD	\$ [REDACTED]	25,970	\$ [REDACTED]
4" Aggregate Base	TON	\$ [REDACTED]	400	\$ [REDACTED]
3" HACP (145.2 lb/ft3)	TON	\$ [REDACTED]	4,400	\$ [REDACTED]
Prime Coat (0.27 gal/sy, 251 gal/ton)	TON	\$ [REDACTED]	29	\$ [REDACTED]
Tack Coat (0.1 gal/sy, 233gal/ton)	TON	\$ [REDACTED]	12	\$ [REDACTED]
Blotter (14.75lb/sy)	TON	\$ [REDACTED]	191	\$ [REDACTED]
<b>SUB TOTAL Civil Construction</b>				\$ [REDACTED]
Mobilization ( 12% of civil construction)				\$ [REDACTED]
Erosion Control (2% of civil construction)				\$ [REDACTED]
Temporary Traffic Constrol (10% of civil construction)				\$ [REDACTED]
Construction Contingency (20% of civil construction)				\$ [REDACTED]
<b>Total Construction</b>				\$ [REDACTED] 0

Conceptual Level Estimate of Probable Construction Costs				
LaSal Mountain Loop Road, UT 46-1(2)				
Base Level Estimate - Miners Basin (Cut slope)				
Item Description	Unit	2010 Unit Cost	Quantity	2010 Total
Excavation, including Disposal	CY	\$ [REDACTED]	2,370	\$ [REDACTED]
Pulverizing, 4-Inch Depth	SQYD	\$ [REDACTED]	9,800	\$ [REDACTED]
3" HACP (145.2 lb/ft3)	TON	\$ [REDACTED]	1,600	\$ [REDACTED]
Prime Coat (0.27 gal/sy, 251 gal/ton)	TON	\$ [REDACTED]	11	\$ [REDACTED]
Tack Coat (0.1 gal/sy, 233gal/ton)	TON	\$ [REDACTED]	4	\$ [REDACTED]
Blotter (14.75lb/sy)	TON	\$ [REDACTED]	72	\$ [REDACTED]
<b>SUB TOTAL</b>				\$ [REDACTED]

Conceptual Level Estimate of Probable Construction Costs				
LaSal Mountain Loop Road, UT 46-1(2)				
Base Level Estimate - Miners Basin (Middle)				
Item Description	Unit	2010 Unit Cost	Quantity	2010 Total
Pulverizing, 4-Inch Depth	SQYD	\$ [REDACTED]	14,700	\$ [REDACTED]
3" HACP (145.2 lb/ft3)	TON	\$ [REDACTED]	2,400	\$ [REDACTED]
Prime Coat (0.27 gal/sy, 251 gal/ton)	TON	\$ [REDACTED]	16	\$ [REDACTED]
Tack Coat (0.1 gal/sy, 233gal/ton)	TON	\$ [REDACTED]	7	\$ [REDACTED]
Blotter (14.75lb/sy)	TON	\$ [REDACTED]	108	\$ [REDACTED]
<b>SUB TOTAL</b>				\$ [REDACTED]

Conceptual Level Estimate of Probable Construction Costs				
LaSal Mountain Loop Road, UT 46-1(2)				
Base Level Estimate - Miners Basin (Slide)				
Item Description	Unit	2010 Unit Cost	Quantity	2010 Total
Box Culvert	EACH	\$ [REDACTED]	1	\$ [REDACTED]
Embankment	CY	\$ [REDACTED]	4,180	\$ [REDACTED]
Pulverizing, 4-Inch Depth	SQYD	\$ [REDACTED]	1,470	\$ [REDACTED]
4" Aggregate Base	TON	\$ [REDACTED]	400	\$ [REDACTED]
3" HACP (145.2 lb/ft3)	TON	\$ [REDACTED]	400	\$ [REDACTED]
Prime Coat (0.27 gal/sy, 251 gal/ton)	TON	\$ [REDACTED]	2	\$ [REDACTED]
Tack Coat (0.1 gal/sy, 233gal/ton)	TON	\$ [REDACTED]	1	\$ [REDACTED]
Blotter (14.75lb/sy)	TON	\$ [REDACTED]	11	\$ [REDACTED]
<b>SUB TOTAL</b>				\$ [REDACTED]



ID	Activity Name	Orig. Dur.	Rem. Dur.	% Compl.	Start	Finish	Total Float	BQ Hours	AQ Hours	RQ Hours	At Cmpl Hrs	Units % Compl.	Cross Funct Team Lead	2011				2012				2013				2014			
														J	J	J	A	J	J	J	A	J	J	J	A	J	J	J	S
V2A3	FHWA ADVERTISE DATE	0	0	0%		18-Jan-12*	0	0	0	0	0	0%	Aaron Sanford																
V2D5	PROJECT ENGINEER'S PACKAGE	20	20	0%	19-Jan-12	15-Feb-12	22	50	0	50	50	0%	Jeff Bellen																
V2Q2	P&A ADVERTISEMENT PHASE	37	37	0%	19-Jan-12	12-Mar-12	0	32	0	32	32	0%	Aaron Sanford																
V2R6	DOT HIGHWAY EASEMENT DEED	90	90	0%	19-Jan-12	24-May-12	373	33	0	33	33	0%	Alan Blair																
V2C1	BID OPENING	0	0	0%	21-Feb-12		0	0	0	0	0	0%	C																
V2C2	CONTRACT AWARD	0	0	0%		12-Mar-12	0	0	0	0	0	0%	C																
V2C5	NOTICE TO PROCEED	0	0	0%	13-Mar-12		0	0	0	0	0	0%	C																
V2Q3	P&A CLOSEOUT	10	10	0%	13-Mar-12	26-Mar-12	5	21	0	21	21	0%	Aaron Sanford																
V2C7	FUNCTIONAL SUPPORT DURING CONSTRUCTION	426	426	0%	13-Mar-12	19-Nov-13	5	189	0	189	189	0%	Jeff Bellen																
V2PMC	PROJ. MANAGEMENT - (CONSTRUCTION)	426	426	0%	13-Mar-12	19-Nov-13	5	160	0	160	160	0%	Christopher Longley																
V2C10	CONSTRUCTION-MATERIALS	426	426	0%	13-Mar-12	19-Nov-13	5	0	0	0	0	0%	Christopher Longley																
V2CM	CONSTRUCTION MANAGEMENT	411	411	0%	03-Apr-12	19-Nov-13	0	160	0	160	160	0%	C																
V2CA	CONTRACT ADMINISTRATION	411	411	0%	03-Apr-12	19-Nov-13	5	320	0	320	320	0%	C																
V2CI	CONSTRUCTION INSPECTION	411	411	0%	03-Apr-12	19-Nov-13	5	240	0	240	240	0%	C																
V2C6	CONSTRUCTION CONTRACT COMPLETE	0	0	0%		19-Nov-13	0	0	0	0	0	0%	C																
V2C8	PENDING FINAL RECORD - CHECK & VOUCHER	111	111	0%	20-Nov-13	30-Apr-14	0	40	0	40	40	0%	C																

◆ FHWA ADVERTISE DATE, FHWA ADVERTISE DATE  
 ■ PROJECT ENGINEER'S PACKAGE  
 ■ P&A ADVERTISEMENT PHASE  
 ■ DOT HIGHWAY EASEMENT DEED  
 ◆ BID OPENING, BID OPENING  
 ◆ CONTRACT AWARD, CONTRACT AWARD  
 ◆ NOTICE TO PROCEED, NOTICE TO PROCEED  
 ■ P&A CLOSEOUT  
 ■ FUNCTIONAL SU  
 ■ PROJ. MANAGEM  
 ■ CONSTRUCTION  
 ■ CONSTRUCTION  
 ■ CONTRACT ADM  
 ■ CONSTRUCTION  
 ◆ CONSTRUCTION  
 ■ PENDIN