Note to Project Managers:

Below is a sample PDP that was used for a project in HI. Note that there are a couple of sections that only apply to this project (such as the HDS Addendum to Design Flood Criteria). Be sure that you're modifying your PDP's to fit the size and needs of your individual projects.

Always use the most current templates located on the Sharepoint site as changes are made to the PDP documents on a regular basis.

Federal Highway Administration
Central Federal Lands Highway Division

Wainiha Bridges
Project Delivery Plan



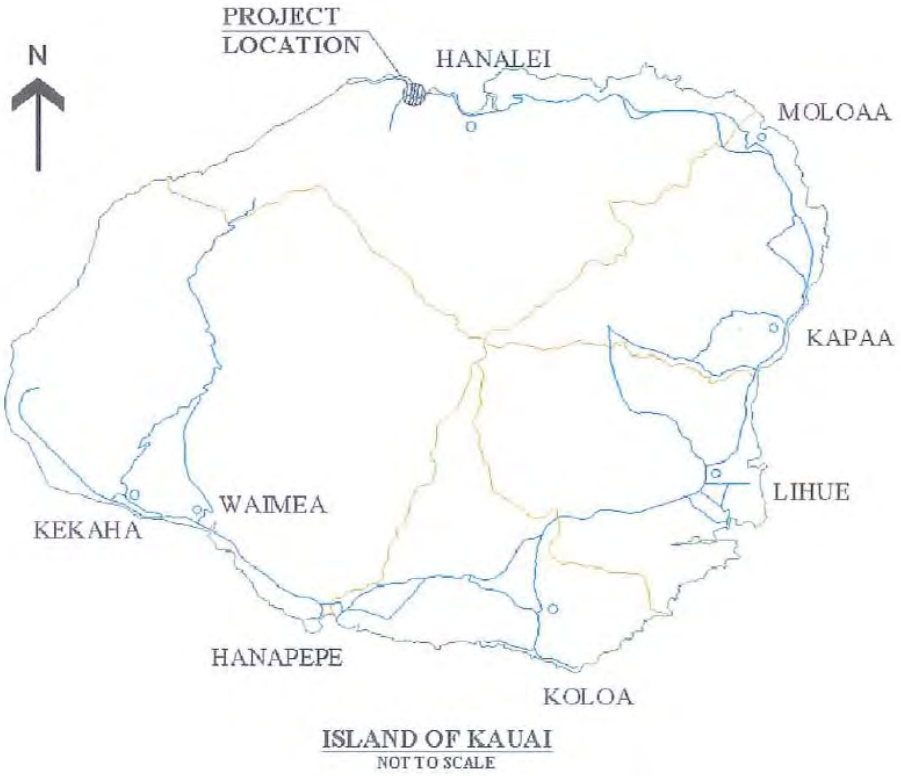



February 6, 2014
State of Hawaii DOT
District of Hanalei
Island of Kauai

CENTRAL FEDERAL LANDS HIGHWAY DIVISION
SCOPING SUMMARY

Project Name:	**HI Wainiha Bridge Replacements**
Interagency Team:	Federal Highway Administration – Central Federal Lands Highway Division Hawaii Department of Transportation – Headquarter Office Hawaii Department of Transportation – Kauai District Office
Scoping Construction Estimate	**TOTAL REQUIRED FUNDING: TBD**
Scoping Construction Estimate	

Preliminary Engineering Costs	
	Scoping
Total	$1.8M
Construction Engineering Costs	
	Scoping
Total	$0.7M
Projected Construction Costs (2016)	
	Scoping
Total	$17.8M



BASE PROJECT SCOPE

General. The proposed project is located on Kuhio Highway (Route 560) between mile post 6.4 and 6.7 near the mouth of Wainiha Stream before it feeds into Wainiha Bay on the island of Kauai. The purpose of the project is to replace three temporary bridges with permanent structures.

Highway Design and Safety. The posted speed on Kuhio Highway at the project location is 15 mph. The current lane width on the existing one-lane temporary bridges at Bridge #1 and Bridge #3 is 12 feet with a 1-foot shoulder on each side. Bridge #2 is only 12 ft wide total. The proposed lane width on the new one-lane bridges is 11 feet. The shoulder width will be determined as design and the environmental process proceed and roadway, bicyclist and pedestrian needs are evaluated. For now, it is assumed that a 2.5 ft shoulder on each side will be provided. The proposed wider shoulders will improve safety for bicyclists, pedestrians, and motorists. Sight distance will be improved as feasible.

New bridges on the existing alignment as well as an adjacent alignment (for ease of construction) will be considered for Bridges #2 and #3. One lane of traffic must be maintained throughout construction, and staged construction is not feasible due to the existing one-lane bridges. For now, it's assumed that temporary abutments will be constructed on the mauka side of these bridges and the existing ACROW bridges will be moved to accommodate traffic during construction. This will allow the proposed bridges to be constructed on the existing alignment.

It's assumed that a temporary detour will be constructed on the makai side at Bridge #1 (moving the existing ACROW bridge into place) to accommodate construction traffic. The proposed bridge will be constructed on the existing alignment.

Temporary bridges will be required at the load-restricted Waioli, Waipa, and Waikoko bridges to

accommodate construction traffic. It is assumed that the retro-fitted Hanalei bridge is sufficient to handle construction loads.

ROW. There is a roadway and a boat ramp near Bridge #1 that appear to be on private property. There is also a private property near Bridge #2 and another one past Bridge #3. Access to private properties will be maintained during and after construction. The ROW limits will be identified as design proceeds. Temporary easements will be required during construction. Permanent ROW will be obtained if the new bridges are constructed on an adjacent alignment. No permanent ROW acquisition is anticipated at Bridge #1.

Utilities. There is a 3" waterline on Bridge #1 and both a 3" and a 6" waterline on Bridge #2 and #3. There are also overhead power lines adjacent to all three bridges. All utilities will be maintained during and after construction. The water lines will be placed on the new bridges once they are constructed. It's assumed that there will be no impacts to overhead utilities at the Wainiha bridges or the temporary detours at the Waioli, Waipa, and Waikoko bridges.

Bridge and Geotech. Due to the historic nature of the original structures, as well as public outreach efforts, the proposed bridges will also be one-lane structures. The bridges will be designed to meet current standards for seismic and live loading (HL-93). The bridge deck will consist of a concrete surface and may require special details to mimic the sound and feel of the original timber decking. The bridge approaches will consist of an asphalt pavement over an aggregate base. The new bridge rail height will meet current standards for roadways and bicyclists (3'6"). The bridge rail will be designed to meet a Test Level 2 (TL-2); however a TL-1 rail is allowable for this speed according to HDOT specs and may be considered if needed to meet environmental and aesthetic requirements to match the look of the original bridges.

The existing foundations are from the original bridge construction and it's assumed that they will not be reused. Innovative design techniques (such as prefabricated elements and slide-in bridge construction) will be considered as appropriate.

Based on existing boring logs previously obtained by others, the soils are alluvial soils with lenses of marsh. Therefore, deep foundations are anticipated. Drilled shafts are assumed, but the foundation type will be determined once geotechnical investigations have been performed and as design proceeds.

Hydraulics. Private properties and insurable structures are located adjacent to the stream channels immediately upstream of all three bridges. Bridge #1 is in FEMA Zone VE and Bridges #2 and #3 are in FEMA Zones VE and AE. Consequently, any decrease in hydraulic capacity of the bridges or increase in approach roadway elevations may have an adverse impact on upstream flood elevations. For this reason, hydraulic bridge design will proceed in a manner that will not create an increase in flood elevations over those created by existing conditions. This strategy will allow a 'no-rise' certification to be obtained for the project from FEMA, as well as help preserve the visual character of the original crossing.

Based on the hydraulics of the proposed structures and the channel bed material characteristics, scour analyses will be conducted and total scour depths will be estimated for all proposed bridges as input for all foundation designs.

Drainage. There are no existing culverts in the project area. It is assumed at this time that drainage on the bridges will include scuppers or sheet flow into the water below to match the existing condition.

Environment and Permits. Biological and cultural resource surveys will be performed as part of project development. Additional surveys and studies will be performed as required. At this time it is anticipated that an Environmental Assessment will be developed for this project. A 404/401 and NPDES permits will be required. A Conservation District Use Permit will also be required.

OTHER POTENTIAL OPTIONS

1. The current assumption is to replace the existing abutments and piers. Further investigation will take place during design to determine if the existing substructure can be re-used, which would result in cost savings.

BASE DELIVERY SCHEDULE

To be determined.

FHWA CFLHD/HDOT

PROGRAM OF PROJECTS

The following document contains proposed highway design standards for the Wainiha Bridge project based on national and state standards. Also included is additional clarification on the hydraulic design approach, standards, and criteria (Clarification of Hydraulic Design Approach, Standards, and Criteria; dated January 28, 2014). By signing this document, you are acknowledging that you have read the following attached documents and agree with the proposed recommendations.

I CONCUR WITH THE PROPOSED RECOMMENDATIONS:

HDOT Highway Administrator or Designee	Date
Director, Project Delivery, CFLHD - FHWA	Date

Kuhio Highway, Route 560
Wainiha Bridges
HIGHWAY DESIGN STANDARDS

Design Standards __X__**AASHTO** __X__**STATE** ____**OTHER**

Functional Classification: **Rural Minor Arterial**

Design Vehicle: **Single Unit Truck**

The design will aim to exceed both HDOT and AASHTO criteria. A design exception will only be triggered if AASHTO minimum criteria is not met.

DESIGN CRITERIA	EXISTING CONDITIONS	STANDARD		PROPOSED	REMARKS / POSSIBLE VARIANCES
		AASHTO	STATE		
Design Speed	Posted Speed = 15 mph Observed Operating Speed = <15 mph	20 mph	45-60 mph (Section 9-02.2)	20 mph	Although this is a minor arterial, this road is narrow and winding. There are also several one-lane bridges on this roadway. Therefore, the posted and design speed are lower than what's typical on a rural minor arterial. HDOT recommends using 20 mph.
Travel Way Width (ft)	12 ft	11 ft (Table 7-3)	12 ft (Section 9-02.4)	11 ft	Although HDOT prfers 12 ft lanes, 11 ft lanes may be considered under special conditions (HDOT 9-02.4).
Shoulder Width (ft)	1 ft	8 ft (Table 7-3)	10 ft (Table 9-2)	To be determined (assume 2.5 ft)	The bridge widths will be decided during the environmental process, but 16' curb-to-curb width is preferred by HDOT for safety (11 ft lane with 2.5 ft shoulders).
Horizontal Curvature (min. radius, ft)	Unknown	81 ft (Table 3-9)	116 ft (Table 4-3)	81 ft	There are a couple of curves that might not meet the standard for a design speed of 20 mph. However, vehicles are entering the curves at a very slow speed (often times coming from a stopped condition).
Superelevation (%)	Unknown	6%	6%	To be determined	Since vehicles are entering the curves adjacent to the bridges at low speeds (often times coming from a stopped condition) and we need to tie into the approach roads at either sides of the bridges, a different superelevation may be used.

Superelevation Runoff (ft)	Unknown	97 ft (Table 3-17b)	150 ft (Figure 4-G)	Match existing	"…where the standard superelevation rate is not feasible, or a given transition length is not attainable, the highest possible rate and longest length, respectively, should be used. ", HDOT Standards
Vertical Curvature (K value = L/A)	Unknown	K sag = 17 (Table 3-36) K crest = 7 (Table 3-34)	N/A	K sag = 17 K crest = 7	Due to the limited scope and short length of the project, there may be design exceptions to vertical curvature.
Crown (%)	2%	2% (Table 4-1)	2% (Section 9-02.4)	2%	
Grade (max. %)	Unknown	6% (Table 7-2)	7% (Table 9-1)	6%	There is no AASHTO listed value for maximum grade for 20 mph. The max grade for 40 mph is 6%.
Stopping Sight Distance (ft)	Unknown	< 200 ft (Table 7-1)	125 ft (Table 4-2)	Match existing	AASHTO doesn't have a SSD value for a 20 mph design speed (200 ft is for 30 mph). Due to the limited scope of the project and the historic nature of the roadway, minimal changes to the horizontal and vertical alignment will be included in this project.
Horizontal Clearance to Structures (ft) (tunnels & underpasses)	N/A	N/A	N/A	N/A	
Vertical Clearance to Structures (ft)	Unknown	16 ft	16.5 ft (9-02.6)	N/A	Vertical clearance only applies to the light poles adjacent to the bridges.
Clear Zone (ft)	1 ft on the bridges	16-18 (2011 AASHTO Roadside Design Guide Table 3-1)	< 30 ft (Section 12-02)	2.5 ft	HDOT standards recommend a clear zone of 30 ft when design speeds are > 45mph. No recommended value is given for slower speeds. Clearzone on bridge will be 2.5 ft. The clearzone on the approaches will match the existing clearzone.

OTHER DESIGN CRITERIA

DESIGN CRITERIA	EXISTING CONDITIONS	STANDARD		PROPOSED	REMARKS / POSSIBLE VARIANCES
		NATIONAL/FLH	STATE		
Bridge Loading	HS-20	HL-93	HL-93	HL-93	
Barrier Crashworthiness	TL-2	TL-2	TL-1	TL-2	HDOT allows a TL-1 for this design speed, but a TL-2 is assumed at this time.
Pavement Design Service Life	Unknown (pavement is deteriorating on the approaches)	20 years	20 years	20 years	State requirement is based on medium volume (3,000 to 10,000 ADT)
Capacity Design Flood	Unknown at this time.	Q100 (for bridges located within FEMA floodplains)	Q100 (for bridges located within FEMA floodplains)	Q100 (may be limited by site constraints, but not less than existing conditions)	See attached Addendum to Design Flood Criteria dated February 21, 2014

DETOUR DESIGN CRITERIA

DESIGN CRITERIA	EXISTING CONDITIONS	STANDARD		PROPOSED	REMARKS / POSSIBLE VARIANCES
		AASHTO	STATE		
Design Speed	N/A	-	-	Design Speed = 15 mph Posted Speed = 10 mph	
Travel Way Width (ft)	N/A	-	-	10 ft for one lane alternating	Per FHWA Standard Practices
Shoulder Width (ft)	N/A	-	-	1 ft	

FHWA CFLHD/HDOT MOA
Hawaii Program of Bridge Projects

HDS ADDENDUM to DESIGN FLOOD CRITERIA
(Clarification of Hydraulic Design Approach, Standards, and Criteria)
March 20, 2014

General

It is recommended that the standards, criteria, and guidance within HDOT Highways Division manual, "Design Criteria for Highway Drainage," Oct. 2010, govern the hydraulic evaluation, analysis, and design of the subject bridge projects whenever applicable. Whenever the HDOT manual does not provide guidance on an aspect of hydraulic analysis or design that is needed for project development and delivery, the FLH document, "Project Development and Design Manual" (PDDM) may be used for this purpose.

An important implication of the above is that the hydraulic analysis and design of the bridges in this program will be based on riverine hydrology and hydraulics. No hydraulic parameters generated from coastal events, such as storm surges, storm waves, tsunamis, or hurricanes will govern the capacity or stability design of the bridges. The only coastal parameter that will be used in analyses/designs is astronomical tidal elevations. This tidal information will be used, as applicable, to establish appropriate tailwater elevations for controlling riverine modeling, such as that performed with HEC-RAS.

Specific

Given the above, the following table contains specific hydraulic-related guidance, identified during the field reviews, which needs clarification, along with a recommended approach.

Hydraulic Issue	**Recommended Approach**
Define how the project design flood recurrence interval (standard) will be selected for bridges not located within FEMA Zone A or AE, as identified by a FEMA Flood Insurance Rate Map (FIRM).	Perform hydrologic analyses for Q50 and Q100 in accordance with acceptable HDOT methods and select the method/magnitudes that are most applicable to the site. The Q50 magnitude will be used as the project design flood, while the Q100 magnitude will be used as the capacity check flood to assess potential impacts to insurable buildings. If Q100 encroaches on an insurable building, it will become the project design flood. Otherwise, Q50 will be used. This is consistent with FLH hydraulic design guidance.

Define how the project design flood magnitude will be selected for bridges located within FEMA Zone A or AE, as identified by a FEMA Flood Insurance Rate Map (FIRM).	Perform hydrologic analyses for Q100 in accordance with acceptable HDOT methods. Evaluate results, including the result of method used in a FEMA Flood Insurance Study (FIS) when available. Use the Q100 magnitude resulting from the method that is most applicable to the site as the project design flood. Regardless of selected project design flood method, the FEMA Q100 magnitude will be used to certify the "No-Rise" determination.
HDOT manual defers to the FHWA HEC manuals to determine the recurrence interval (design standard) for scour design. Current HEC 18 (5^{th} edition) recommends risk-based standards for scour design based on the hydraulic capacity of the bridge crossing. This is a change from previous guidance that recommended a standard Q100 scour design flood and Q500 scour check flood for foundation design, regardless of hydraulic capacity of the crossing. As an example, the current recommended minimum scour design standard for a bridge crossing that is put out of service by a 10-year flood (say by approach roadway overtopping) is Q25.	Since the subject projects are on State highways, the minimum risk-based scour design standards may be too low for the expected level of service. It is recommended that Q100 be used as the scour design flood standard (or lesser overtopping flood, if it results in greater scour) for waterways that <u>are not</u> regulated by FEMA, regardless of crossing capacity. This is consistent with the HDOT Q50 capacity design standard. Similarly, it is recommended that Q200 be used as the scour design flood standard (or lesser overtopping flood, if it results in greater scour) for waterways that <u>are</u> regulated by FEMA, regardless of crossing capacity. This is consistent with the HDOT Q100 capacity design standard.

Current HEC 18 risk-based standards for scour countermeasure design are based on the hydraulic capacity of the bridge crossing. The recommended scour countermeasure design flood is the same as the scour check flood, i.e. one level of service higher than the scour design flood. As an example, the current recommended minimum countermeasure design standard for a bridge crossing that is put out of service by a 10-year flood (say by approach roadway overtopping) is Q50. The countermeasure design standard is important when considering the rehabilitation an existing bridge foundation that is currently rated as scour-critical.	Since the subject projects are on State highways, the minimum risk-based countermeasure design standards may be too low for the expected level of service. It is recommended that Q200 be used as the scour countermeasure design flood standard (or lesser overtopping flood, if it results in more intense hydraulics) for waterways that <u>are not</u> regulated by FEMA, regardless of crossing capacity. This is consistent with the HDOT Q50 capacity design standard and the FHWA minimum risk-based standards. Similarly, it is recommended that Q500 be used as the scour countermeasure design flood standard (or lesser overtopping flood, if it results in more intense hydraulics) for waterways that <u>are</u> regulated by FEMA, regardless of crossing capacity. This is consistent with the HDOT Q100 capacity design standard and the FHWA minimum risk-based standards.
Available bridge scour evaluation reports estimated scour assuming the channel beds were composed of erodible material (sand).	Assume the same for replacement bridge foundations as a worst-case condition, unless the foundations will be located on competent rock.
How to handle the potential 'long-term degradation' scour component when bridges are located in an area influenced by tidal action.	Long-term degradation will be completed by comparing existing conditions with the as-builts
HDOT manual specifies using the mean high-high tide as the starting water-surface elevation for hydraulic analyses. Depending upon location of the bridge relative to the coast, this may not be a conservative approach for evaluating scour.	Use lowest low tide as the starting water-surface elevation for scour analyses, since this may produce greater scour.
HDOT manual specifies temporary structures needed for construction will be designed for a Q5 flood and any temporary foundations will be designed for scour based on the risk at the site and engineering judgment.	Provide the contractor with the hydrology (Q5 to Q100) for the site and allow the contractor to design the temporary structure based on the risk that the contractor is willing to accept.

Federal Highway Administration
Central Federal Lands Highway Division
Project Delivery Plan

Wainiha Bridges
Route 560, Kuhio Highway

State of Hawaii Department of Transportation
District of Hanalei
Island of Kauai

Table of Contents

Scoping Report

Federal Highway Administration
Central Federal Lands Highway Division
Scoping Report

State of Hawaii Department of Transportation

District of Hanalei
Island of Kauai

Hawaii

Wainiha Bridges

Prepared By:
FHWA – CFL

I. ROUTE DESCRIPTION

State: Hawaii

County: District of Hanalei, Island of Kauai

Route Number and Name: Kuhio Highway (Route 560)

Route Location (include map): The three Wainiha Bridges are located along Kuhio Highway between mile post 6.4 and 6.7 near the mouth of Wainiha Stream before it feeds into Wainiha Bay, on the island of Kauai. See Project Location Map below.

Route Length: 10 miles (Project Length: 0.2 miles)

Maintaining Agency: State of Highway Department of Transportation (HDOT)

Route Segments: This project consists of 3 bridges located along Kuhio Highway between mile post (MP) 6.5 and 6.7

Kuhio Highway MP 6.5 to MP 6.7

Functional Classification	Terrain	Type	Posted Speed	ADT	Vehicle Classification	Surface Type	Existing Paved/ Bench Width	Structures on Segment
Rural Minor Arterial	Rolling	4R/ Bridge Replacement	15 mph	Current: 5,025 Projected: 8,450	%Trucks: 0% %Buses: 0% %RV's: 0%	Asphalt	12-14' on temp. bridges	3 ACROW temporary bridges

Project Funding:

Fiscal Year: This project is not currently programmed. TBD

Construction Cost: $19.2M (based on a Class C Estimate)

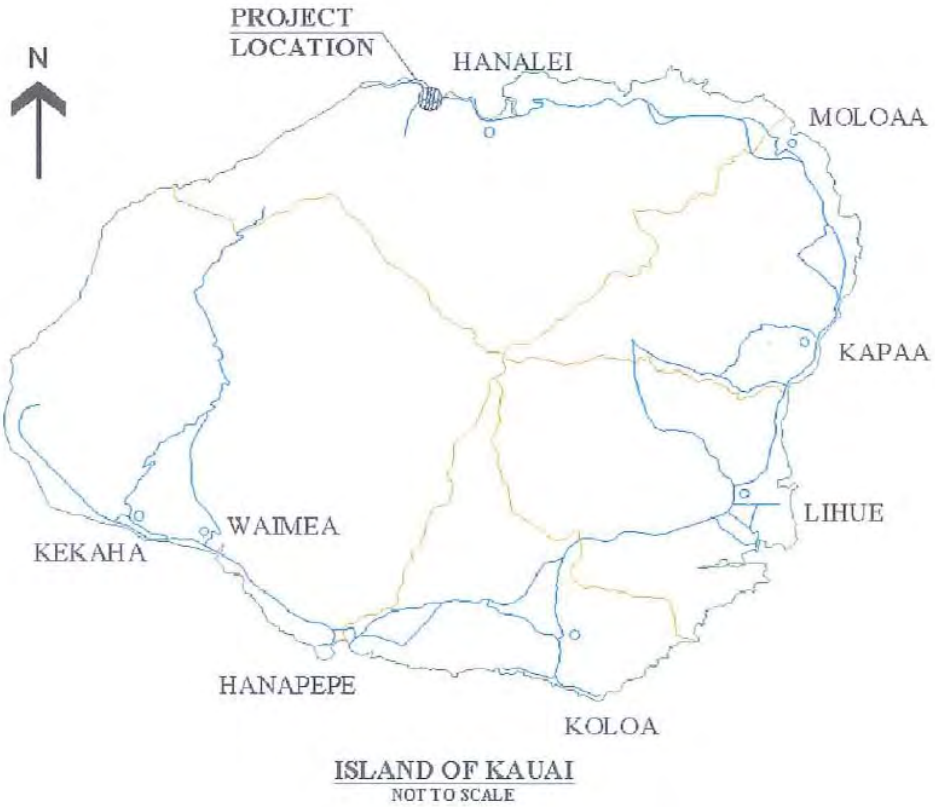
Seasonal Restrictions:

Construction Season: Construction can occur year-round, weather permitting

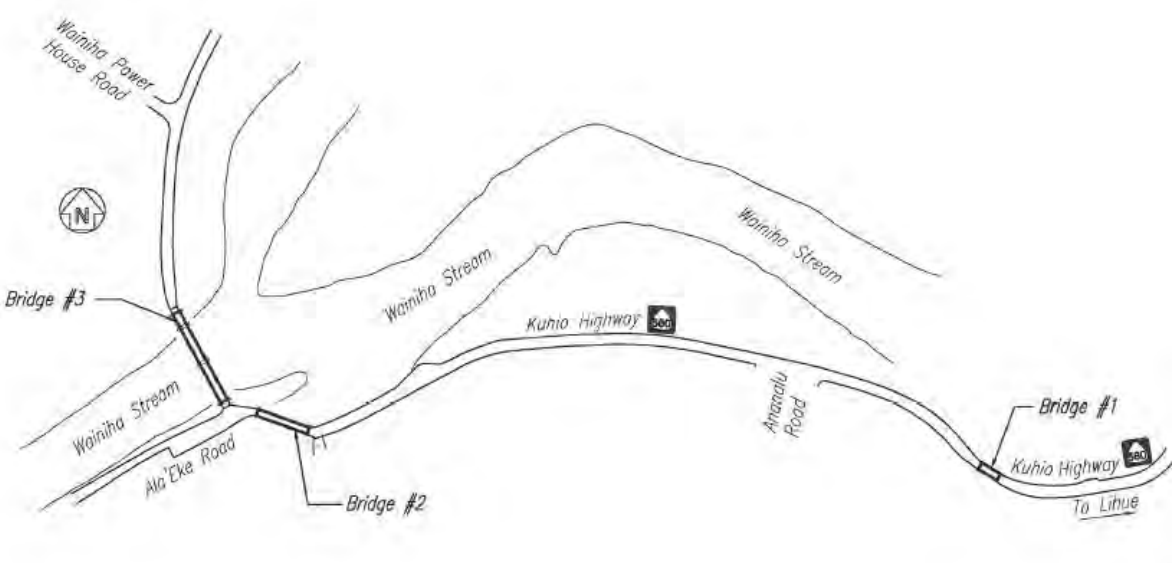
Field Work Season: Night work is potentially limited to Jan 1 to August 31 (no night-time construction lighting permitted outside of those dates), Field work can occur year-round, weather permitting

Other Restrictions: Recreation use in the area is typically higher in the summer months; therefore the roadway experiences increased traffic during that time. There are no known special events that require a halt in construction at this time.

Project Location Map:



Vicinity Map:



II. CONTACTS

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

HDOT Headquarters Office:

Name: Marshall Ando
Title: Design Branch Manager
Address: 869 Punchbowl Street
Honolulu, HI 96813
Phone: (808) 692-7559
Fax:
Email: marshall.ando@hawaii.gov

FHWA-CFLHD:

Name: Mike Will
Title: Project Manager
Address: 12300 West Dakota Ave., Suite 380A
Lakewood, CO 80228
Phone: (720) 963-3647
Fax: (720) 963-3596
Email: Michael.Will@dot.gov

CH2M HILL, Honolulu, HI:

Name: Kathleen Chu
Title: Program Manager
Address: 1132 Bishop St, Suite 1100
Honolulu, HI 96813
Phone: (808) 440-0283
Fax:
Email: Kathleen.Chu@CH2M.com

CH2M HILL, Denver, CO:

Name: Bill Lang
Title: Program Director
Address: 9191 South Jamaica St
Englewood, CO 80112
Phone: (720) 286-5132
Fax:
Email: Bill.Lang@CH2M.com

HDOT Kauai District Office:

Name: Ray McCormick
Title: District Engineer
Address: 1720 Haleukana St
Lihue, HI 96766
Phone: (808) 241-3000
Fax: (808) 241-3011
Email: ray.mckormick@hawaii.gov

III. AVAILABLE DATA

____	Pre-Programming Scoping Report	____ On File	____ Available From:
____	General Management Plan	____ On File	____ Available From:
X	As Builts / As Constructed (ACROW Bridges)	X On File	____ Available From:
____	Previous Project Plans	____ On File	____ Available From:
____	Construction Records	____ On File	____ Available From:
X	Survey Data (some previous survey data is available from HDOT Division Office)		
	____ Digital Ortho Quarter Quads	____ On File	____ Available From:
	____ Digital Raster Graphics	____ On File	____ Available From:
	____ Quad Maps	____ On File	____ Available From:
	____ GPS Trace / Data	____ On File	____ Available From:
	____ Tax Maps	____ On File	____ Available From:
	____ Utility Agreements	____ On File	____ Available From:
	____ BLM Master Title Plats	____ On File	____ Available From:
____	Geographic Information Systems Data	____ On File	____ Available From:

____ Right-of-Way Information	____ On File	____ Available From:
X Bridge Inspection Report	X On File	____ Available From:
X Engineering Studies / Reports	____ On File	____ Available From:
X Geotechnical Reports	____ On File	X Available From: AECOM (through District office)
____ Pavements/Materials Reports	____ On File	____ Available From:
X Hydraulics Report	____ On File	X Available From: AECOM (through District office)
X Bridge Scour Evaluation Report	____ On File	X Available From: AECOM (through District office)
____ Transportation/Traffic Reports	____ On File	____ Available From:
X Traffic Volume Data (in	X On File	____ Available From:
X Accident Reports / Crash Data	____ On File	X Available From: HDOT
____ Safety Studies	____ On File	____ Available From:
____ Environmental Reports	____ On File	____ Available From:

IV. REGULATORY FLMA SELECTION CRITERIA

1. Describe the primary highway related needs for improvement of this route (safety, operational, capacity, structural deficiency, travel corridor demand, system continuity, etc.).

   The original bridges at these three locations were replaced with temporary ACROW bridges after Bridge #2 suffered permanent damage and Bridges #1 and #3 were determined to be structurally deficient. The ACROW bridges were installed as a temporary measure to keep the roadway open to residents and public traffic until environmental clearance and funding for the permanent structures could be secured.

   The existing ACROW bridges are narrow and do not provide much room for pedestrians and bicycles. Bridge width will be determined during preliminary design and the environmental process, 16' curb-to-curb width is preferred by HDOT for safety. The public wants no more than 16' wide bridges (curb to curb) for traffic calming and to maintain the historical nature of the roadway. Per HDOT, assume minimal vertical and horizontal alignment changes, but engineering will try to improve sight distance where feasible.

   The proposed project will increase safety along the route by replacing the temporary bridges with permanent structures, meeting the current standards for seismic and loading. The bridge rail will be updated to meet current standards.

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

   There are several pedestrians and bicyclists that use this route for recreation. The shoulders on the bridge will be widened to improve safety for these users.

   Also, the temporary ACROW bridges are not considered contributing elements to the Kuhio Highway Historic District; whereas the previous bridges were (see below photos). The proposed project will consider this through the Section 106 consultation during the environmental process.

Original Historic Bridges

3. How would improvement of this route aid in the development, use, protection and administration of the area and its renewable resources?

   This roadway provides access to the Wainiha and Ha'ena area, including both private residents and a large recreational and tourist area. The proposed project would replace three temporary bridges, ensuring continued safe access to these areas for the proposed design life of the project.

4. How would improvement of this route aid in the enhancement of economic development at the local, regional and national level?

   Kuhio Highway provides access to Ke'e Beach, the Haena Caves, the Napali Coast, and Kalalau Trail. At the trail head, locals sell fruit, coconut milk, baskets, food, and jewelry. Tourism is an important economic stimulant in this area. Replacing these bridges provides safe, continued access to these sites.

5. How would improvement of this route aid in the continuity of the transportation network serving the area and its dependent communities?

   These bridges lie along the only direct access to the above sites and attractions, as well as several residents. The current ACROW bridges are only temporary and need to be replaced with permanent structures.

6. How would improvement of this route aid in the improvement of the transportation network for economy of operation, maintenance and safety of its users?

   The proposed bridges will be designed to meet current standards for seismic and loading (HL-93). The new bridge rail height will meet current standards for roadways and bicyclists. The updated structures and bridge rail will improve safety for its users. The new bridges will reduce maintenance costs.

7. Have there been public requests for improvement of the route?

   The public has expressed that they do not like the temporary ACROW bridges. The bridge rail hinders sight distance across the one-lane bridges and they are not considered contributing elements to the historic district, which is important to the locals.

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

   The Governor issued a Proclamation on September 22, 2004 and October 29, 2007 to install the temporary bridges to maintain access to this area. In the Governor's Proclamation, she (Governor Linda Lingle) was clear that these bridges were temporary and would be replaced with permanent structures.

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

Public and private development is not anticipated as a result of the improvement of the route.

V. FUNCTIONAL DISCIPLINE CONSIDERATIONS

A. SAFETY

1. Provide accident history if available. If not available, obtain anecdotal accident information or look for evidence of crashes.

   HDOT performed a traffic accident analysis in July 2008 in the project area. The analysis identified one major accident at each of the Wainiha Bridges over a three-year time period. All three of these accidents involved a collision with the wooden railings and two of these three accidents involved alcohol.

   (Note: The State of Hawaii, Department of Transportation, has provided this traffic accident information under the protection of 23 USC §§ 402(k) and 409. As such, this information may not be subject to discovery, admitted into evidence, or used in any Federal or State court proceeding in any action for damages arising from any occurrence at a location mentioned or addressed in the information provided.)

2. For projects other than 4R – define the existing clear zone area. What is the typical width? Is it adequate or does it need to be widened? If so, how much and is it feasible? Document design clear zone width.

   The existing temporary bridges #1 and #3 are approximately 14 feet wide (curb to curb) with a 12 foot lane and 1 foot shoulders. Bridge #2 is approximately 12 feet wide (curb to curb). Therefore, the existing clearzone on the bridge is 0-1 foot. Due to the historic nature of this roadway and the original bridges, the bridges will be replaced with one-lane bridges. The proposed bridges will likely be 16 ft wide. The clearzone is minimal adjacent to the bridges at some locations. Due to the limited scope of this project (bridge replacement), a design exception for clearzone is anticipated.

3. List roadside hazards and locations (Headwalls, Cut slopes, utility poles, etc.).

   There are utility poles and trees adjacent to the roadway near all three bridges.

4. If the scope of the project is 3R and the profile of the roadway is raised, will the roadway and foreslopes still fit on the existing bench? Will the foreslopes still be an acceptable slope? Will the new pavement edge drop-offs be less than 2 inches in height?

   N/A – This is a 4R/bridge replacement project. The new pavement edge will be designed to ensure there is no drop-off.

5. 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 median barriers on this project. The bridge rail, transition rail, and end sections will all be replaced and designed to meet current standards for barrier height.

6. Do the existing barriers, including bridge rail and transition sections, meet current standards? Do terminal sections meet current standards and correct test level? Are barriers in good condition? Consider installation of new barriers and removal of existing barriers based on crash data and barrier warrants (clear zone and severity of hazards).

The bridge rail, transition rail, and end sections will be designed to meet current standards for a Test Level 2. At this low speed, HDOT policy allows for a TL-1 to be used; however, a TL-2 will be considered per HDOT's request.

7. Inspect sign supports for crashworthiness. Replace as needed.

   All new sign supports within the project area will be crashworthy. All existing sign supports that are not crashworthy will be replaced with new signs meeting current standards.

8. Review signing. Replace sign panel unless installed recently. Are passing zones and other pavement markings appropriate?

   Signs within the project area will be replaced as needed to meet current retroreflectivity and crashworthiness standards. There are no passing zones within the project area. Pavement markings will be replaced and updated to meet current standards.

9. Review pavement markings and passing zones for compliance with MUTCD. Consider upgrading to durable markings if maintenance is a problem.

   Pavement markings will be placed on the proposed bridges to meet current design standards.

10. Review all intersections sight distances. Consider adding auxiliary lanes when conditions indicate need. (Crashes, capacity issues) Consider roundabouts for unusually configured intersections or as a traffic calming measure for high crash sites.

    This is a bridge replacement project. Sight distance approaching the one-lane bridges will be improved where feasible. Auxiliary lanes and roundabouts are not warranted and are out of the scope of this project.

11. Describe other safety improvements (centerline rumble strips or shoulder rumble strips) based on safety recommendations of evidence of run off the road or head on crashes.

    There is no history or evidence of run off the road or head on crashes. The crash history shows that the most common crash that occurs in the project area is a single-lane crash where the driver hit the bridge rail. Bridge rail will be updated to meet current standards. New pavement markings will also help delineate the lane on the bridge.

Temporary Traffic Control

12. Describe temporary traffic control management strategy: Include any restrictions for widths, seasons, structures, etc. Can the road be closed during part of all of construction? Can vehicles be restricted (shuttles only, school bus and mail vehicles only, etc.)?

    Alternating two-way traffic must be maintained on the bridges throughout construction. A short full closure may be allowed (1 day or less) if required for certain activities. New bridges on the existing alignments with an adjacent temporary structure, as well as new bridges on an adjacent alignment (using the existing ACROW bridges in place for traffic during construction) will both be considered to maintain traffic throughout construction. There are no available detour routes in the area.

13. Any temporary detours or diversions to be constructed need to be planned and included in plans? Consider existing bridge/structure locations and possible construction phasing requirements.

Construction phasing will be an important element of the design and construction of these bridges. As stated above, new bridges on the existing alignment as well as new bridges on an adjacent alignment will be considered in preliminary design.

14. Any traffic restrictions for rush hours, special events, weekends and holidays?

    There are no known restrictions at this time. Depending on Section 7 consultation during the NEPA process, night work may be limited to Jan 1 to Aug 31 due to construction lighting limitations during shearwater birds' fledgling season.

B. HIGHWAY DESIGN

AASHTO standards, HDOT's "Statewide Uniform Design Manual for Streets and Highways" (Oct 1980), and HDOT's "Standard Specifications for Roads and Bridge Construction" (2005) will be considered during design.

1. Describe any problems related to roadway geometry (horizontal, vertical alignment, superelevation corrections, sight distance, lane width, etc.).

   There is limited sight distance at bridges #2 and #3, making it difficult for vehicles entering the one-lane bridges to see if another bridge is entering from the other side. The sight distance will be improved at this location if possible through vegetation removal, raising the approach road profile, and consideration during the bridge rail selection process. This will all be looked at during the initial design and NEPA phase.

   It appears that the roadway alignment contains horizontal curves that do not meet the design standards. Due to the limited scope of this project and the historic nature of the roadway, realignment of the roadway to meet current standards will not be included in this project.

2. Describe any intersection problems.

   There is a private road that intersects Kuhio Highway between bridge #2 and bridge #3. Based on field observations, access to the highway from this roadway can be difficult. When vehicles traveling over bridge #2 see that an opposing vehicle is traveling over bridge #3 (and vice versa), vehicles sometimes take refuge in the intersection with this private roadway. Once the bridges are clear, the vehicle then has to do a 3 or 4 point turn to get back on the bridges. This creates a lot of confusion and congestion at this intersection.

3. List the Public Access approach roads within the project limits*:*

   There are private access roads/ driveways located on both sides of bridge #1. There is also a private driveway located east of bridge #2. Access to these driveways must be maintained throughout construction.

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

   Wainiha Power House Road is located north of bridge #3. This road is expected to be outside of the project limits; however, access to this roadway must be maintained throughout construction. Ala'Eke Road is located between bridge #2 and bridge #3. These two roadways will need to be considered if the new bridges are built on an adjacent

alignment. A standard paved apron will be used at approach roads, unless the grade is raised, in which case, the design will depend on the amount of grade raise.

5. Describe any maintenance problems.

   The atmosphere at the Wainiha River is corrosive. This can lead to additional maintenance costs and should be considered in the design of the proposed bridge and barriers.

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 or pullouts within the project area.

7. Are projected bicycle and pedestrian uses accommodated?

   Pedestrian and bicycle use is not accommodated on the existing structure. The proposed project will improve access for bicycles and pedestrians with a wider bridge and shoulders.

8. 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?

   No other roadway features are proposed to be rehabilitated or rebuilt as part of the project.

9. Any vistas or vegetation to preserve? Photo document these areas.

   There are no vistas within the project area. Vegetation that will be potentially impacted by the project improvements does not appear to be unique.

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

    A seed mix will be obtained from HDOT to be included in the final plans. It will be applied during the preferred seeding season, as feasible.

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

    There are no known architectural or decorative aspects known at this time. Since this roadway is located in a historic district and the original bridges were contributing elements, the aesthetics of the bridges will likely be addressed during the Section 106 process and the bridge rail selection process.

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

    No major realignments will be considered in this project. Minor alignments shifts will be considered in preliminary design to evaluate the benefits of using the existing temporary ACROW structures to carry traffic during construction.

13. 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.

No, this project is not a part of any other project or a completion of a defaulted contract. There are no known projects under design or construction that will affect this project. As this project proceeds, discussions with HDOT will continue regarding other possible projects in the area.

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

    Aside from the challenges presented from maintaining two-way traffic during highway and bridge replacement projects, there are no known construction problems on previous projects.

15. Discuss any restrictions for construction equipment (limited working space, no driving on newly paved areas, etc.).

    The highway accessing these sites is narrow and winding with several one-lane bridge structures. The bridge structures on the highway accessing these sites are posted at 8 tons, limiting the type of construction equipment and materials that can be transported to the site via roadway. Bringing in materials and equipment by barge at Wainiha Bay will be considered. Placing temporary bridges at the Waioli, Waipa, and Waikoko bridges to accommodate construction traffic will also be considered. There are limited staging areas adjacent to the proposed project area.

16. Are there load or hauling restrictions on the project or on roads leading to the project?

    The three bridges on Kuhio Highway (Waioli, Waipa, and Waikoko Bridges) approaching these three Wainiha Bridges are posted at 8 tons. The Hanalei Bridge is posted at 15 tons; however, HDOT stated that this bridge has been retro-fitted to carry legal loads and can be used as is during construction.

17. List potential staging areas and any restriction or access problems.

    No staging areas were identified in the field during the scoping site visit. Comments listed in the October 2012 Engineering Design Report mentioned Wainiha County Park as a potential construction staging area. This will be explored as design proceeds.

18. Any potential water sources within or near the project?

    There is a fire hydrant adjacent to bridge #2 that could potentially be used during construction. Additional water sources will be explored as design proceeds.

19. Are there plans or proposals for other developments along the route that could interfere or be coordinated with the road project?

    None known at this time.

20. Provide a report or listing from maintenance personnel about problem sites, accident history or other areas of concern.

    No additional areas of concern were addressed as part of the project, other than what was discussed above.

21. 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.

No fencing is proposed for the project.

22. 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.

    Based on discussion with HDOT regarding previous work done at these locations, there may be public opposition depending what alternative is selection. Extensive public involvement is anticipated for this project.

C. 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.

   The following utility companies should be contacted during preliminary design:
   Hawaiian Telecom – Telephone
   Oceanic Time Warner Cable – Cable
   Kauai Island Utility Cooperative (KUC) – Power
   Sandwich Isle Communication (SIC) – Fiber Optic, provider of communication lines for the Department of Hawaiian Home Lands (DHHL)

   Wainiha Bridge #1- There are overhead power lines along the mauka (mountain) side of the bridge which cross over the roadway just past the north end of the bridge. There is a 3”diameter waterline hung off mauka side of the bridge.
   Wainiha Bridge #2- There are overhead power lines along the mauka side of the bridge. There is a 4”diameter PVC pipe and a 7” dia. PVC hung off mauka and makai (water) sides of the bridge, respectively.
   Wainiha Bridge #3- There are overhead power lines along the mauka side of the bridge. There is a 4”dia. PVC pipe and a 7” dia. PVC hung off mauka and makai sides of the bridge, respectively.

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.).

   The overhead power lines are not expected to be impacted by this project. Service to the waterlines on the bridges will be maintained throughout construction. Once the new bridges are constructed, the waterlines will be moved to the new bridges. A short interruption in service is possible as the lines are moved. This will be coordinated with HDOT and the public.

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?

   There are no known utility agreements or easements at this time.

4. Any irrigation ditches within the project corridor? Are there time constraints or mandatory operation periods? List owner/contact person if available.

   There are no irrigation ditches within the project corridor.

D. PERMITS

Section 404 / 401 Permit:

	YES	NO	UNK	COMMENTS
Does the project involve discharge of dredge or fill into a water of the U.S. Note: All efforts to avoid and minimize impacts to wetlands and waters of the U.S. must be documented. 404(b)(1) guidelines require the selection of the least environmentally damaging practicable alternative (LEDPA).	☒	☐	☐	
Will the project require discharging fill into a perennial river/stream, intermittent stream, or ephemeral drainage? If yes, please describe.	☒	☐	☐	
Will the project require discharging fill into a pond or lake? If yes, please describe.	☐	☒	☐	
Will the project require discharging fill into a special aquatic site including: wetlands, mudflats, riffle and pool complexes, sanctuaries and refuges, vegetated shallows, and coral reefs? If yes, please describe.	☒	☐	☐	
Will the project require a water diversion (cofferdam, pumping, etc.) to complete construction?	☐	☐	☒	
Will any channelization, channel realignment, or channel armoring be required for any proposed structures or drainage features?	☐	☐	☒	Unknown without design, but possible.
Does the project qualify for a Nationwide Permit (NWP)? All of the questions below must be answered "YES".	☐	☐	☒	Unknown without design. However, for purposes of scope it is prudent to anticipate an IP.
Does the project comply with NWP general conditions?	☐	☐	☐	
Does the project comply with NWP regional conditions?	☐	☐	☐	
Would the project cause the loss of less than 1/2 acre of non-tidal waters of the U.S. or 1/3 acre of tidal waters of the U.S.? • If yes, project is likely eligible for coverage under a NWP. • If no, a letter of permission (LOP) or individual permit (IP) is likely required.	☐	☐	☒	Unknown without design, but IP a possibility.
Does the project require compensatory mitigation?	☐	☐	☒	Likely, however restoration may be possible onsite depending on impacts.
Would the project cause the loss of less than 1/10 acre of wetlands? • If yes, and a PCN is required then Corps will determine on a case-by-case basis if	☐	☐	☒	A PCN at a minimum is anticipated. An IP may be required. Mitigation is anticipated for purposes of scope, however it is

	YES	NO	UNK	COMMENTS
compensatory mitigation is required. • If no, compensatory mitigation is required.				dependent on project design.
Does the project require a LOP or IP for authorization? • If yes, compensatory mitigation is required. • If no, see answer to question above.	☐	☐	☒	
If compensatory mitigation is required, are there any Corps-approved mitigation bank or in-lieu fee programs that service the project area?	☐	☐	☒	None identified thus far.

NPDES Permit:

	YES	NO	UNK	COMMENTS
Is it anticipated that more than 1 acre of land be disturbed by the project?	☒	☐	☐	
If yes, will more than 5 acres of land be disturbed?	☐	☒	☐	
Is the project subject to any State, County or Local sediment/erosion management plan (MS4)?	☐	☒	☐	HDOT does not have an MS4 permit on Kauai.
Is the project subject to a State or Basin sediment/erosion management plan?	☐	☐	☒	
Is the Cooperator willing to assume responsibility for the NPDES Permit upon completion of construction?	☐	☐	☒	This will be determined through the Project Agreement.
Are there any post-construction BMP requirements? If yes, please describe.	☐	☐	☒	None are anticipated; however, it will be dependent on final project design.

Other Permits/Authorizations:

	YES	NO	UNK	COMMENTS
Are any of the following permits required or potentially required?				
FLMA Special Use Permit	☐	☒	☐	
Staging Area?	☒	☐	☐	All staging areas and non-commercial waste sites will need to be included in state environmental analysis and county permit for the project.
Disposal/Waste Area?	☒	☐	☐	
Material Source?	☐	☐	☒	
Asphalt or Concrete batch plant?	☐	☐	☒	
Utility line or buried pipe?	☒	☐	☐	
Dewatering permit?	☐	☐	☒	
Water rights or appropriation approval?	☐	☐	☒	
Local, County or State Air Quality Permit	☐	☒	☐	

	YES	NO	UNK	COMMENTS
County Road Access or Encroachment permit?	☐	☒	☐	
State Highway Access or Encroachment permit?	☒	☐	☐	
Stream alteration permit?	☒	☐	☐	
Are you aware of any other permits that may be required?	☒	☐	☐	All applicable federal, state, and local laws and regulations. Key relevant state laws include HRS 343, 195D, 6(e), among others. Noise variance from Department of Health for night work. Section 10 permit. County SMA permit. CZMA consistency determination Conservation District Use Permit Kauai County Permits (demolition, grading)

E. ENVIRONMENT

1. What is the anticipated type of NEPA documentation (CE, EA, or EIS) and which agency will be the lead in preparing the documentation?

   An EA for both HEPA and NEPA is anticipated. A NEPA CE is possible if there are no unusual circumstances. CFLHD will be lead for NEPA and will prepare the environmental document to comply with state and federal environmental laws. HDOT will need to approve the state action.

2. Do the partner agencies have any Programmatic Agreements that might be utilized to streamline the environmental process? If yes, please describe.

   No programmatic agreements have been identified.

3. Is there any public involvement required for the project?

   Extensive public involvement is anticipated for this project.

   If yes, please provide the following:

   - Please describe the level of public involvement anticipated, including type of outreach, number of meetings, materials to be developed, etc.

     Approximately up to three public and/or organization meetings are anticipated.

- Please describe any known or anticipated public or agency interests surrounding the project or resources.

  Hanalei Roads Committee (HRC) and community will be actively engaged in NEPA and Section 106 process and design elements of project. Substantial interest exists in retaining narrow one-lane bridges to be consistent with the National Register-listed overall road resource. HDOT has already performed public involvement activities; however, HDOT and HRC are still at a disagreement on width of proposed bridges. Public involvement is essential through NEPA and project development.

- Do the partner agencies maintain mailing lists for those that may have an interest? If so, please state the point of contact for each agency responsible for providing the mailing list.

  Yes – Kauai District Engineer can provide mailing lists and contacts for outreach.

- Based on partner agency knowledge of the area, what are possible locations for public meetings?

  Past public meetings have been held at Hanalei District Courthouse, Hanalei Elementary School.

  Small group meetings have been held at Hanalei Community Center.

  Kauai District indicated likely strong participation and attendance in public meetings.

4. Please complete the following table to help assess the potential involvement or presence of resources in the project area and the level of analysis that may be needed. The table should be completed through a combination of research, discussions with partner agencies, and site visit observations. (Please retain copies of supporting documentation, when applicable, to provide to CFLHD for the project file.)

Air Quality

	YES	NO	UNK	COMMENTS
Is the project in an air quality non-attainment or maintenance area? If yes, please list which pollutants.	☐	☒	☐	The entire state of Hawaii is in attainment for all criteria pollutants.
Is the project exempt from conformity requirements?	☒	☐	☐	
If conformity applies, is the project included in the STIP or regional TIP?	☐	☐	☐	N/A – Conformity does not apply.
Does the project involve adding or removing lanes, signalization, and/or alignment changes?	☐	☒	☐	
Are there state or local air quality studies that will be required?	☐	☐	☐	Not aware of any local requirements.

Biological Resources

	YES	NO	UNK	COMMENTS

	YES	NO	UNK	COMMENTS
Is there any local knowledge of federal T&E (threatened & endangered) or candidate species in the area?	☒	☐	☐	
After reviewing the USFWS list of T&E species, is there potential for suitable habitat of any listed species in or near the project area? If so, please describe.	☒	☐	☐	An online species list is not available; however there are 48 listed species on Kauai. Substantial T&E analysis and coordination with FWS is anticipated. Newell's shearwater and Hawaiian hoary bat consultation anticipated. All species with potential to occur will be evaluated in BA. Potential lighting restrictions and vegetation removal timing restrictions may be associated with the project.
Is there any designated critical habitat in the project area?	☐	☒	☐	
Is there any local knowledge of state protected species in the area?	☒	☐	☐	
Does the project occur on or adjacent to BLM or USFS land?	☐	☒	☐	
If yes, are there any BLM or USFS sensitive species the FLMA is concerned about?	☐	☐	☐	N/A
Are any migratory bird nest observed in the project area? If yes, please describe.	☐	☐	☐	None identified; however, nesting habitat exists in project area.
Are there any wildlife or aquatic organism passage issues?	☒	☐	☐	Aquatic organism passage should be maintained.
Is the project located within 100 miles of the coast (National Oceanic and Atmospheric Administration (NOAA), Fisheries jurisdiction)?	☒	☐	☐	
Are there any known noxious weed occurrences in the project area or concerns regarding noxious weeds?	☐	☒	☐	No known noxious weed presence; however, prevention practices will be essential throughout construction.

Cultural Resources

	YES	NO	UNK	COMMENTS
Does the project involve new ground disturbance outside the existing roadway prism?	☒	☐	☐	

	YES	NO	UNK	COMMENTS
Has the project area been previously surveyed for cultural resources?	☐	☐	☐	Partial work done regarding bridge structures. A full cultural resources inventory, including additional arch and built environment survey, will be required for the project.
If yes to above question, are there any previously identified resources in the project area that have been evaluated for eligibility for the National Register of Historic Places (NRHP)?	☒	☐	☐	Yes – roadway is listed in the NRHP. ACROW bridges do not contribute; however, new structures will be added.
Are there any properties including buildings, bridges, trails, etc. thought to be older than 50 years of age? If yes, please describe.	☒	☐	☐	
Are there any apparent / unique / suspect structures of possible historical interest?	☒	☐	☐	
Are there any tribes who will have an interest in the project? If yes, state the point of contact for obtaining a tribal mailing list.	☒	☐	☐	Native Hawaiian organizations interested in action. HDOT and DOI lists will be reviewed and NHOs contacted.
Are there any Traditional Cultural Properties (TCPs) in the area?	☐	☐	☒	No known TCPs. Consultation will need to occur.

Energy

	YES	NO	UNK	COMMENTS
Does project affect energy use as a result of changes to traffic patterns or volumes, or involve speed zone changes?	☐	☒	☐	

Geology

	YES	NO	UNK	COMMENTS
Do discussions with Geotechnical staff indicate any concerns?	☒	☐	☐	Foundation concerns and seismic, tsunami design considerations.
Is drilling / exploration anticipated? If so, state when in the project development process.	☒	☐	☐	Yes – permits and approvals will be needed. Advancement of drilling prior to NEPA completion is a possibility so separate clearances are anticipated.

Hazardous Materials

	YES	NO	UNK	COMMENTS

	YES	NO	UNK	COMMENTS
Does a search of the federal and state hazmat databases indicate any sites in the project area? If yes, please describe.	☐	☒	☐	There are no known releases or sites of concern in the project vicinity. EPA: http://www.epa.gov/emefdata/em4ef.home
Is there any known or possible hazardous waste on the project (lead paint, asbestos, underground storage tanks, unidentified 55 gallon drums, etc.)?	☐	☐	☒	None observed in the field with the exception of historic bridge piers and abutments.
Will any structure with potential to contain asbestos, lead-based paint, or any other hazardous material be altered or demolished? If yes, please describe.	☒	☐	☐	Piers and abutment are concrete and of age that asbestos may be present.

Land Use / Planning

	YES	NO	UNK	COMMENTS
Does the project require land use actions from FLMA or local jurisdictions?	☒	☐	☐	Yes- project is in state Conservation District and Special Management Area. Separate coordination, permits, and approvals will be needed.
Are there any concerns regarding consistency with federal, state, or local land use policies or plans?	☐	☒	☐	No- however, consistency determinations will need to be made and approved. (CZMA, Conservation District, SMA).
Does Coastal Zone Management Act apply?	☒	☐	☐	Located within coastal zone.
Will the project result in the conversion of prime farmland, unique farmland, or land of statewide or local importance as defined by Farmland Protection Policy Act (FPPA)?	☒	☐	☐	According to NRCS web soil survey, lands outside the right-of-way near Bridges 2 and 3 are Hanalei silty clay, which is categorized as prime farmland. Near Bridge 1 there is Mokuleia fine sandy loam, which is considered prime farmland if irrigated. Very minor conversion is possible.
If applicable, are there any other specially designated or protected lands such as timberlands, greenways, etc. that may be affected?	☒	☐	☐	Special Management Area and Conservation District Land Use Area.

Noise

	YES	NO	UNK	COMMENTS
Will there be any shift in horizontal or vertical alignment? If so, amount of shift: Horizontal: Vertical:	☒	☐	☐	Potential for very minor alignment shift for approaches to bridges which would be away from receptors. It is assumed this is not a Type I project. Design will need to be continually monitored. If project becomes Type I, a traffic noise analysis will be required.
Does project increase the number of through travel lanes? Number of existing lanes: Number of proposed lanes:	☐	☒	☐	
Is this a new roadway located on a new alignment?	☐	☒	☐	
Will this project result in the removal of topographical features which currently shield receptors?	☐	☒	☐	
Approximate number of buildings / activity areas within 61 meters (200 feet) of proposed right of way line: Commercial: Industrial: Public: Residences: 2: One residence near Bridge #2& #3 and one residence near Bridge #1 Schools: Churches: Parks:	☒	☐	☐	Construction noise is a consideration to residences and wildlife. A county noise variance for any night work will be required.

Section 4(f) Potential

	YES	NO	UNK	COMMENTS
Are there any parks, wildlife refuges, historic properties, recreational areas, campgrounds, trails, etc. that may be impacted? If yes, please explain:	☒	☐	☐	The road is NRHP-listed. If effects are adverse, an individual Section 4(f) Evaluation will need to be prepared. Net Benefit may also be a possibility from removal of temporary bridges and construction of new bridges that better match historic context) based on proposed design and input from consulting parties and SHPO. Effort and schedule considerations for Individual

				Evaluation should be assumed at this point.

Section 6(f) Potential

	YES	NO	UNK	COMMENTS
Were Land & Water Conservation Funds used to acquire parks, or to make improvements, etc.? If yes, please explain:	☐	☒	☐	

Socioeconomics

	YES	NO	UNK	COMMENTS
Would the project involve any building displacements or relocations?	☐	☒	☐	
Will any new right of way be required for the project?	☒	☐	☐	Minor right of way may be required.
Does this project divide or disrupt an established community, or affect neighborhood character or stability?	☐	☒	☐	No – however, consideration needs to be carried through analysis for community interest in wider bridges, if proposed, affecting the community character of this unique area.
Does this project affect minority, elderly, handicapped, low income, transit-dependent, or other specific interest group?	☐	☐	☒	Impacts will be analyzed through the environmental process.

Visual

	YES	NO	UNK	COMMENTS
Is the project on a designated state or federal scenic route? If yes, please indicate the designation.	☐	☒	☐	
Are major cuts/fills associated with this project?	☐	☒	☐	
Are bridges or large retaining walls anticipated?	☒	☐	☐	Visual interest very great on this project. Visual analysis efforts anticipated.
Does project affect waterways designated as National Wild and Scenic Rivers? If yes, please list the classification.	☐	☒	☐	No designated wild and scenic rivers in Hawaii. The Wainiha Stream is not on Nationwide Rivers Inventory.

Waterways / Water Quality

	YES	NO	UNK	COMMENTS
Is the project within FEMA 100-year floodplain?	☒	☐	☐	The project is located in Zone VE. (FIRM Community Panel No. 1500020035E, dated September 16, 2005) Zone VE is defined as "Coastal flood with velocity hazard (wave action); base flood elevations determined," meaning the area is subject to high wave action (tsunamis). The identified zone VE flood elevation is 27-feet for Bridge #I, 21-feet for Bridges #2, and 18-feet for Bridge #3. (HDOT EDR 2012).
Is the project within FEMA regulated floodway?	☐	☒	☐	It is thought it is not in a floodway; however, this needs to be confirmed with more recent FEMA data. (FIRM Community Panel No. 1500020035E, dated September 16, 2005)
Will a water quality impaired stream (303(d) listed) be impacted?	☐	☒	☐	Wainiha Stream is not 303(d)-listed.
Are there any Outstanding Resource Waters that may be affected?	☐	☒	☐	No, however project affects special aquatic sites (estuary).

Will any active wells be impacted?	☐	☐	☒	None known.
Are there navigable waterway(s) within the project area?	☐	☒	☐	
Are there any irrigation ditches that may be impacted?	☐	☒	☐	

Wetlands and Waters of the US

	YES	NO	UNK	COMMENTS
Are there any intermittent streams, ephemeral drainages, or perennial rivers/streams in the project area?	☒	☐	☐	
Do any wetlands mapped on the Nationals Wetlands Inventory (NWI) occur in the project area?	☒	☐	☐	

	YES	NO	UNK	COMMENTS
Review the National Hydrographic Datum (NHD). Are there any blue line features in the project area? If yes, please describe.	☒	☐	☐	
Is riparian or wetland vegetation evident from visual inspection?	☒	☐	☐	
Does a delineation of waters of the U.S. including wetlands and other special aquatic sites need to be completed for the project area? Please describe rationale.	☒	☐	☐	

Wilderness

	YES	NO	UNK	COMMENTS
Does the project occur in or near designated wilderness?	☐	☒	☐	

F. SURVEY

1. Is any existing survey, mapping or GIS information available?

   HDOT has some survey information available for the bridge areas. Additional ground survey will be obtained to supplement the available survey information as required. Survey will also be required at the Waioli, Waipa, and Waikoko bridges to design the temporary bridges at these locations.

2. What type of survey is recommended for the project?
   i. Describe the terrain: Rolling
   ii. Take pictures
   iii. Is it open to the sky for aerial topography (if sunlight can penetrate the tree canopy, LiDAR may be effective)? With the scope of the project being bridge replacements, LiDAR is not recommended. A channel profile will also require ground survey.
   iv. Will there be any possible realignments? Small realignments adjacent to the existing structures will be considered for constructability purposes.
   v. How wide a corridor will need to be mapped? Approximately 100 feet on either side of the centerline of the bridges and 500 feet along the roadway at either end of the bridges will be mapped. This area will be refined as preliminary design proceeds.
   vi. Are recommendations consistent with the 3R Survey Matrix? Yes, this is a 4R/bridge replacement project.

3. Are there special features that require precise location (walls, fences, complicated utilities, arch. Sites, wetlands, bridges, other structures, etc.)?
   Wainiha Bridge #1 Existing abutment walls.
   Wainiha Bridge #2 Existing abutment walls and ends of bridge.
   Wainiha Bridge #3 Existing abutment walls, piers and ends of bridge.

4. Are there any existing control monumentation records?

Control monumentation was not observed in the field; however, with the presence of existing survey in the area, it is assumed that control is present at the Wainiha bridges. This will be confirmed as design proceeds.

5. Get GPS positions at the beginning, end and any significant locations throughout the project.

   Some survey information is available for these sites. Additional ground survey will be obtained design proceeds.

G. RIGHT OF WAY (ROW)

1. Determine the agency(s) and contact(s) that will coordinate and be responsible for any right of way acquisition.

   All of the ROW and TCE's will be obtained and coordinated through HDOT. Permanent ROW acquisition is not expected at this time.

2. Is there an existing right of way corridor along the route? If so, provide any available documents. If the right of way is prescriptive, will the local maintaining agency need to prepare and execute documents to certify that they have sufficient rights to construct and maintain the facility?

   According to the October 2012 Engineering Design Report, no formal record of the highway ROW exists; however, some ROW property lines are shown on the as-built plans for the ACROW bridges. CFL will work with HDOT to locate the ROW limits in the project area.

3. If right-of-way documents need to be prepared for acquisition, provide examples of standards to be followed. Identify the need for any special documents to complete the acquisition. Identify local and state recordation requirements for the documents and whether the right of way will be acquired as a fee or an easement. Will a land surveyor, licensed in the state, be required to prepare any of the documents (i.e. records of survey):

   Right of way documents and plans will be developed to CFL standards.

4. Determine the approximate number of private parcels along the route that may be affected.

   It appears that there is one private parcel along the roadway that may be affected by at least a Temporary Construction Easement (TCE) at bridge #1. Depending on the locations of the temporary detours, additional TCE's may be required.

5. Are there any special right of way fencing requirements?

   No fencing is included in this project.

6. Are the existing utilities within the existing right of way franchise?

   To be determined.

7. Does the maintaining agency require the placement of right of way monuments on the corridor?

   Yes.

8. The maintaining agency may need to assist with the process of obtaining rights of entry for preliminary surveys, studies and investigations. Describe the processes used and who is the contact for this information?

   To be determined.

H. GEOTECHNICAL/PAVEMENT

1. Describe the regional and local geologic setting.

   The Wainiha bridge sites are located on the north shore of Kauai near the town of Hanalei along Kuhio Highway. The Island of Kauai is the oldest and most eroded of the main Hawaiian Islands. Mount Waialeale, located in the middle of the Island, is one of the wettest places on Earth. As a result, stream erosion and flooding are common, carving deep valleys and canyons and transporting abundant sediment to the coast.The majority of the Island is formed by lava flows of the Waimea Canyon Volcanic Series (formed over 2 million years ago). As shown in figure 1, the flows are comprised of four distinct formations: Napali, Olokele, Haupu, and Makaweli that are varied from thinly-bedded a'a and pahoehoe flows to massive dense basalt flows. Following the main lava flow building phase, renewed volcanic activity occurred on the Island with the extrusion of basaltic lavas of the post-erosional Koloa Volcanic Series and the concurrent deposition of alluvial sediments of the Palikea Formation. Volcanic rocks of the Koloa Volcanic Series cover most of the eastern half of the Island. These rocks are generally characterized as thick flows of dense basalt extruded from groups of vents aligned in north-south trends in various locales. Associated with the vents are pyroclastic materials, which usually form low cinder cones at the vent.

   During the Ice Ages, sea level changes occurred as a result of widespread accumulation and melting of continental glaciers. The higher sea levels caused the accumulation of deltas and fans of terrigenious sediments in the heads of the old bays, accumulation of reef deposits at correspondingly higher elevations, and marine sediments in the river waters protected by fringing reefs. The project site is mainly underlain by young alluvial and unconsolidated marine deposits.

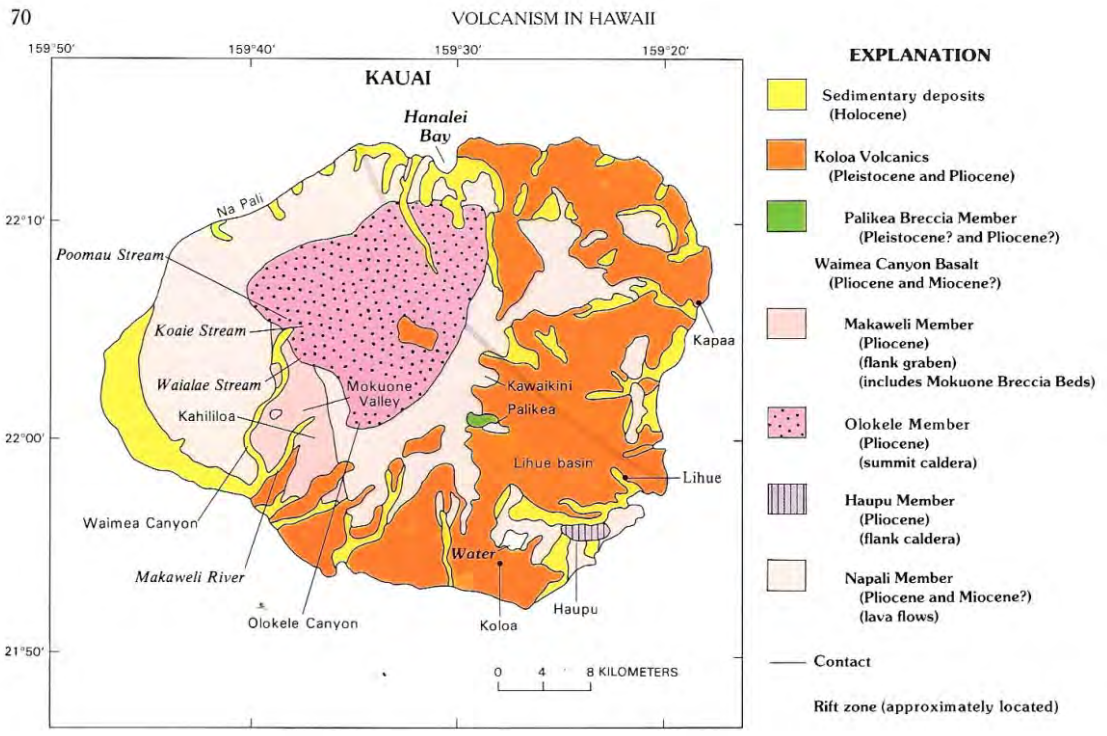


Figure 1.- Geological Map of the Island of Kauai Showing the Various Lava Flows.

2. Describe the seismicity in the vicinity of the proposed project, including the location of faults which may affect existing or proposed structures within the project limits. For projects with bridge structures, provide an estimate of the seismic zone, based on likely site classes, per subsection 3.10 of the AASHTO LRFD Bridge Design Specifications.

   Recommended seismic response parameters for use in design will be based on the recently released *"2008 Interim Revisions of the AASHTO LRFD Bridge Design Specifications"* and represents ground motion corresponding to an exceedance probability of 7% in 75 years for an earthquake with an approximate 1000-year return period. The 1000-year return period data for the bridge site located at 22.22470º N latitude and -159.55443º W longitude, was obtained in accordance with the AASHTO ground motion maps for the probabilistic horizontal acceleration values corresponding to specific peak ground acceleration (PGA) and the spectral coefficients, namely the short- and long- period ground acceleration (S_s and S_1 respectively) for a certain soil profile at the bridge site.

   Based upon the geologic setting and anticipated conditions at the site, the subsurface profile will likely be classified as *"Site Class D"* where deep (>100 feet) alluvial and unconsolidated beach (silty clayey sands with cobbles and boulders) deposits exist. The recommended acceleration coefficient values for design with a return period of 1000-years were calculated using the program provided with the AASHTO LRFD Bridge Design manual and are summarized in the Table below.

TABLE 1:- Summary of Seismic Parameters for Earthquake with 1000-Year Return Period.

Site Soil Classification	**Class D**
Horizontal Peak Ground Acceleration, (As)	0.089
Horizontal Response Spectral Acceleration at Period of 0.2 sec, (SD_s)	0.193g

Horizontal Response Spectral Acceleration at Period of 1.0 sec, (SD_1)	0.083g
Site Factor at Zero-Period of Acceleration Spectrum, (F_{pga})	1.60
Site Factor at Short-Period Range of Acceleration Spectrum, (F_a)	1.60
Site Factor at Long-Period Range of Acceleration Spectrum, (F_v)	2.40
Seismic Zone	**Zone 1**

3. Characterize existing conditions along the proposed route, including the roadway, pavement, structures, retaining walls, and culverts.

   The project is for the rehabilitation or replacement of three temporary modular steel-truss bridge structures crossing over different branches of the Wainiha River along Kuhio Highway in northern Kauai. The bridges designated as Wainiha Bridge 1 (MP 6.44), Bridge 2 (MP 6.70), and Bridge 3 (MP 6.73) suffered permanent damage due to loss of structural members and were replaced (Bridge 1 in 2004 and Bridges 2 and 3 in 2007) with ACROW bridges constructed over existing concrete abutments and piers. The ACROW bridges do not meet the regional historic requirements, the geometric criteria, and the structural standards and are planned for replacement with permanent structures that resemble the original structures. In general, no visual evidence of abutment or pier foundation distress, undermining, or significant erosion that would affect the support of any of the temporary bridges.

   It is anticipated that the proposed structures will be slightly shifted downstream to meet the roadway design standards. Since Kuhio Highway is the only road serving the north shore of Kauai and road closure is not a viable option, most likely,the ACROW bridges will be utilized for maintaining traffic flow during construction. Therefore the designed bridges will be supported on newly constructed foundations.

   If the bridge location is shifted from the existing alignment it is recommended to keep the abutment walls in place to retain the soil slopes. The following is a brief summary of the Wainiha temporary bridges**.**

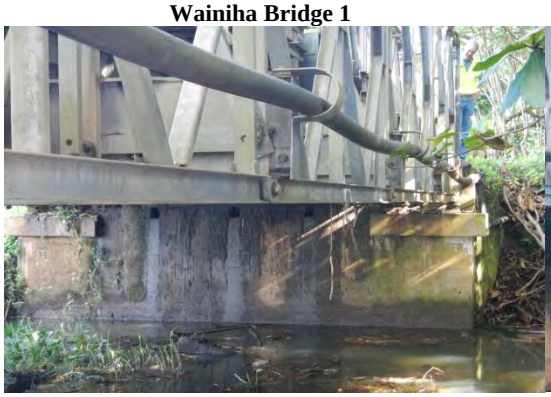
   Wainiha Bridge No 1**:** This bridge is a single-span steel structure with steel plate decking. This bridge was constructed as a temporary structure in 2004. The bridge width allows for only one lane of traffic. The roadway approaches are two-lanes paved with asphaltic concrete (AC). The maximum embankment height is approximately 10 feet above the channel elevation. The vertical concrete abutments are assumed to be founded on timber piles. The upstream and downstream areas of the bridge are heavily vegetated with dense trees and brush.

   Wainiha Bridge No 2**:** This bridge is a single-span steel ACROW structure with steel plate decking that was recently constructed (2007) for temporary replacement of the original bridge that failed. The bridge width allows for only one lane of traffic. The roadway approaches are two-lanes paved with asphaltic concrete. The maximum embankment height is about 15 feet above the channel elevation. The vertical concrete abutments are assumed to be founded on timber piles. The upstream area of the bridge is heavily vegetated with dense trees and brush.

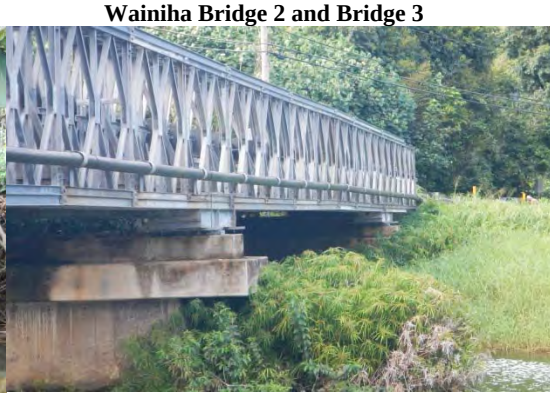
   Wainiha Bridge No 3**:** This Bridge is a three-span steel ACROW structure with steel plate decking that was recently (2007) constructed for temporary replacement of the original bridge that failed. The bridge width allows for only one lane of traffic. The roadway approaches are two-lanes paved with asphaltic concrete. The maximum embankment height is about 15 feet above the river elevation. The vertical concrete abutments are assumed to be founded on timber piles. The upstream area of the bridge is heavily vegetated with dense trees and brush. Alaeke Road is a private property located on the south side of the bridge. This road is gravel road and is severely potholed.

Wainiha Bridge 1

Wainiha Bridge 2 and Bridge 3



Abutment at Wainiha Bridge 1



Pier at Wainiha Bridge 3

PAVEMENT CONDITION

Pavement reconstruction will be limited to the bridge approach distance. Based on borings in the preliminary geotechnical report the HACP thickness ranged from 8 to 15 inches and the base thickness ranged from 0 to 6 inches. The predominant subgrade material type is clayey silts (MH).

The existing asphalt pavement condition along the approaches ranges from fair to good and exhibits minor cracks and areas of edge deterioration. A few isolated potholes / patches were observed, which is likely due to localized saturated subgrade conditions. The approaches will be paved with HACP in accordance with the structural section used by HDOT for the region.

Existing Bridge Approaches Pavement Condition

Pavement conditions near Bridge 2

Pavement Conditions near Bridge 3

4. Describe the soil and rock types along the proposed route in tabular form and by milepost. Include estimated cut and fill slope ratios and shrink-swell properties by material type.

   Geolabs Inc., conducted a ***preliminary*** geotechnical investigation for the Wainiha Bridges and reported the findings in a geotechnical report entitled "*Preliminary Geotechnical Engineering Exploration, Wainiha Bridge Improvements, Kuhio Highway*."

   The investigation included five deep borings (>100 feet each) and several test pits near the proposed structures. In general the exploratory borings encountered a 5-to 8-foot thick surface fill layer consisting of stiff silts/clays with sand, cobbles and boulders underlain by an approximately 40-foot thick alluvial deposit. The alluvium consisted mainly of loose to medium dense silty sand and soft to stiff clays and silts. A 4- to 18-feet thick layer of soft to stiff swamp deposit was encountered within the alluvium. Two borings encountered residual and saprolitic soil below the alluvium. Groundwater was encountered in the borings at depths ranging from about 7 to 10 feet below the existing ground surface at the time of the field exploration.

   Based on the available subsurface information, preliminary design loads, and preliminary scour depths, deep foundations will be required to resist the bridge loads. Due to the existence of boulders within the subsurface, drilled shafts will be the foundation type used. It is anticipated that the shafts will be more than 80-feet deep and will derive support primarily from adhesion between the drilled shaft and the medium stiff to hard and medium dense to very dense alluvial soils, and stiff to hard residual and saprolitic soils encountered in the subsurface. Drilled shaft installation may be difficult due to the presence of cobbles and boulders in the subsurface. Detailed boring logs are available in the aforementioned geotechnical report.

5. Provide the locations of non-commercial borrow pits, quarries, or any material sources. Describe access constraints and any potential restrictions.

   Several noncommercial borrow pits exist on the islands and are within ten miles of the site. Other materials including Hot Mix Asphalt (HMA), Portland Cement Concrete, Aggregate Base Course and rip-rap which are commercially available within two hours of the project site.

6. Provide anticipated drilling requirements, including access limitations, required permits, easements or agreements needed for drilling, environmental requirements associated with drilling, and existing utilities along the proposed route.

The information in the preliminary geotechnical report for this site published by Geolabs will be utilized and augmented to reduce the number of additional borings required for design and construction of the proposed replacement structures. A limited number of additional borings may be required depending on the location of the new structures. Anticipated drilling for this project includes about 5 shallow borings for pavement investigations and pavement thickness design and **possibly** two additional borings to evaluate/design foundations for the proposed structures. **The foundation borings will only be drilled if the pier location is altered or if additional piers are required**. Backhoe test pits may be required at various locations along the existing slopes near the bridge sites to assess existing retained soil material for stability analysis. Borings will also be required at the temporary bridge site locations at the Waioli, Waipa, and Waikoko bridge locations. Assume 2 borings on each site for a total of 6 additional borings.

All explorations will likely be drilled within the existing roadway right-of-way and through the existing pavement. Therefore environmental impacts and access constraints will not likely be a factor. Permits required for exploration within Kuhio Highway by the County and HDOT will be required.

TABLE 2.-Preliminary Anticipated Drilling Requirements

Boring Type	Number of Explorations	Estimated Depth	Drill Type	Possible Water Source	Testing
Pavement	5 borings (meas. AC and ABC thickness each location)	5 feet	Truck Drill Rig: HSA	Fire Hydrant	Classification Moisture R-value
Bridge Foundations**	2 borings IF NEEDED	75 foot borings/5 foot backhoe pits	Truck Drill Rig: HSA/MR Backhoe		Classification Moisture Density Strength
Temporary Bridge Foundations (Waioli, Waipa, and Waikoko bridges)	6 borings	20 foot borings	Truck Drill Rig: HAS/MR	TBD	Classification Moisture Density Strength

Notes: HAS = Hollow Stem Auger, MR-Mud Rotary
**Foundation borings will only be advanced if the alignment is altered.

The preliminary exploration program presented above will likely take 9 on-site days to drill, not including mobilization/preparation time. Traffic control and material testing (including corrosion potential) will be required. The drilling at the temporary bridge site locations will likely take 2 additional on-site days to drill.

7. Identify and provide the location and description of geologic hazards and their potential impacts on the proposed route. Potential geologic hazards include: earthquakes, landslides, rockfall, liquefaction, subsidence, corrosive soils, erosion, etc.

The project alignment crosses alluvial deposits in an area of possible seismic activity. No fault zones are mapped across the alignment and liquefaction is not a likely hazard based on subsurface materials.

Observed hazards include minor slope erosion of roadway shoulders and areas near the bridge abutments. Extreme events such as tsunamis or hurricanes may occur and should be accounted for during the design.

Existing bridges along the Kuhio Highway crossing the Waoli, Waipa, Waikoko streams are posted for 8 Ton limit. The bridge crossing the Hanalei stream is posted at 15 tons. These bridges are along the only highway leading to the Wainiha bridges and may limit the type of construction equipment that can be used at the site. Provisions may be required to the aforementioned load deficient bridges to allow heavy construction equipment to reach the Wainiha bridge sites.

8. Identify and provide the location and description of geotechnical repair areas, including possible weak subgrade or subexcavation locations, fill settlement or failure locations, landslide failure areas, etc.

   In general the bridge approaches are in good condition and there are no signs of subgrade failures. Areas near the bridge approaches that exhibit minor rutting and alligator cracking are limited and may require minor repair and re-compaction prior to placement of the new pavement section.

9. Identify and provide the location and description of surface and groundwater problem areas.

   Shallow groundwater conditions may exist in the lower roadway sections where drainages are located adjacent to or cross the road alignment. Groundwater levels are generally at the same elevation of the channel water and may fluctuate depending on the river and tidal fluctuations, seasonal precipitation, and other factors.

I. HYDROLOGY / HYDRAULICS

Address the following items for all major drainage structures (i.e. bridge and culvert structures having a vertical opening greater than 48 inches; open-bottom structures; fish passage/AOP structures):

1. Are there any state or local design standards and/or criteria for design floods, roadway overtopping, backwater, freeboard, or analytical methods at waterway crossings that will supersede the PDDM?

   Yes. Reference HDOT Highways Division manual, “Design Criteria for Highway Drainage,” Oct. 2010, for design flood standards, freeboard criteria, and acceptable hydrological methods.

2. Describe type, size, location, and condition of existing major drainage structures to be retained. Photograph structure inlet/outlet and stream channel looking from structure upstream and downstream.

   Existing superstructures for Bridges 1, 2, and 3 are temporary ACROW trusses. Potential re-use of existing masonry substructures/foundations for replacement Bridges 1, 2, and 3 will be evaluated. Re-use will be dependent on horizontal alignment, concrete condition/strength, and foundation capacity. Due to the age of these structures, it is not anticipated that they will be re-used.

Downstream of Bridge 1 looking at west abutment

Upstream of Bridge 2 looking at east abutment

Upstream of Bridge 3 looking at east pier

Looking Downstream from between Bridges 2 & 3

Looking upstream from Bridge 2

Looking upstream from Bridge 3

3. Describe existing scour/erosion at structure inlets/outlets, deposition of sediment or debris at inlets/outlets, abrasion or corrosion of structure material, presence of riprap aprons at inlets/outlets, and any associated roadway embankment stability concerns. Photograph cited problems.

   The following conditions were identified in the 2011 bridge inspection reports and verified during the field review:

   - Bridge 1 – Minor embankment erosion behind abutments
   - Bridge 2 – Exposed footings at abutments
   - Bridge 3 – Exposed concrete apron around Pier 1

   No deposition concerns identified during visit. Potential for debris generation exists. No significant debris present at bridge site during visit. Approach roadways overtopped by overbank flows, i.e. approaches are not on elevated embankments. Reference following photos of approach roadways.

East approach to Bridge 2

West approach to Bridge 3

4. Photograph and describe the character of channel bed and bank material (e.g. rock, rock-like; cohesive sand, silt, clay; non-cohesive sand, gravel, cobble, boulder; mix) in all channels that may be crossed by open-bottom structures (bridges, arch culverts, etc.). Note below if sampling and testing of channel bed material will be required to accurately define character.

   All three channels are in the tidal zone. Tidal inundation made it impossible to photograph bed material. By inspection, channel bed surface material appears to be sand, gravel, cobble, and boulder alluvium. Subsurface borings contained in 2012 Engineering Report by AECOM confirm the presence of this material.

5. Describe any channel migration concerns that may impact the roadway now or in the future (photograph problem area looking up and downstream).

   None identified.

6. Is the project within a floodplain regulated by FEMA? If yes, provide the name of the local floodplain administrator.

   Bridge 1 is in FEMA Zone VE. Bridges 2 & 3 are in FEMA Zone VE and AE. Local floodplain administrator for Kauai is Standford Iwamoto at (808) 241-4896.

7. Is the project located within 100 miles of the West coastline (National Oceanic and Atmospheric Administration (NOAA) fisheries jurisdiction)?

   No.

8. For existing bridges over waterways with a total span of 20’ or greater, has the bridge been evaluated for scour susceptibility? If yes, obtain Bridge Scour Evaluation Report.

Existing foundations at Bridges 1, 2, & 3 received a scour evaluation in 2005. Evaluations were conducted by West Consultants. Total scour estimates ranged from 3.8' at Bridge 1 to 23.5' at Pier 2, Bridge 3. Information on foundation types was unavailable; however, they have survived a number of severe storms.

9. For non-major drainage structures or features, such as culverts, roadside ditches, pavement inlets, etc. locate, describe and photograph any known or identified condition or performance problems.

   Not applicable.

K. BRIDGE

Wainiha Bridge #1

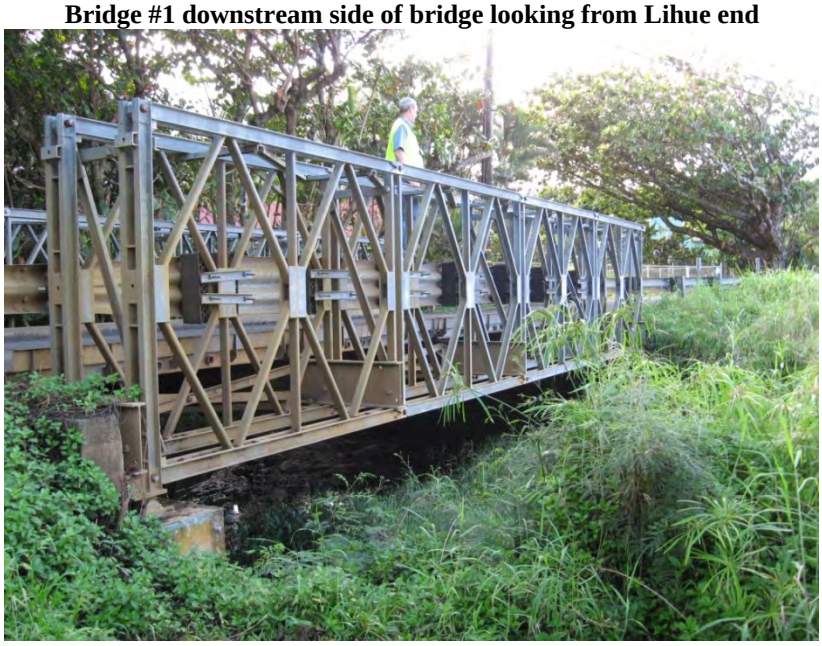
1. Provide existing structure data (bridges, retaining walls, tunnels).

   a) Collect structure as-builts, contract plans, inspection reports, structure ratings, NBIS reports. Original single lane, single span King Post truss bridge (L=42', W=11') was replaced in 2007 by an ACROW bridge on the original foundations after being declared deficient. Have as-built drawings for the current ACROW Bridge and 2011 inspection report prepared by Kai Hawaii. Out-to-out width of ACROW = 21'-3".
   b) Determine/measure type, span length, bridge width, curb-to-curb width. Existing bridge: single span, single lane, double panel ACROW truss bridge, single panel height (7'-6" total with 5'-4" above deck surface). Length=40', Width=13.8' curb to curb & 21.5' out to out. (Dimensions per inspection report). ACROW bridge concrete cap founded on exising concrete abutment walls on deep foundations. No wingwalls.
   c) Describe hydraulic conditions including bridge opening (waterway) characteristics, visible scour, deposition of sediment, debris passage, or apparent instabilities around the structure. Abutment walls are in the water. Bridge is at the mouth of Wainiha Stream before it feeds into Wainiha Bay Waterway channel upstream is fairly well contained. The bay is just downstream of the bridge. Water was muddy and the stream depth and scour could not be determined, but depth appears to be relatively shallow. There is potential for debris passage due to thick vegetation along the stream. 2011 Inspection report noted erosion behind the abutments . Hydraulic and scour study contained in the Oct 2012 Engineering Design Report for Kuhio Highway. Study shows that this bridge would not be overtopped by Q50. Study also says that the bridge is subject to flooding from stormwater runoff and tsunamis.
   d) Describe foundation conditions including shallow or deep, founding material (rock or soil) and groundwater conditions. Deep foundations assumed due to alluvial soils and proximity to the bay. Abandoned pile in downstream channel.
   e) Describe apparent structure condition. Note if load posted. Bridge appears to be in good condition with only abutment erosion noted on past inspection reports. Bridge posted at 8 tons. Existing ACROW bridge was designed for HS20-44 according to the as-built plans.
   f) Describe bridge railing, transitions, and existing utilities. Existing bridge railing is galvanized thrie-beam along panels and there are non-standard transition railings on all four corners. 3" dia. Waterline mounted to upstream side of bridge with lines running parallel to the roadway on the Lihue bridge end and perpendicular (under) the roadway behind the Haena abutment. Overhead power along US side of bridge which crosses the roadway just north of the bridge.
   g) Describe potential structure removal issues, ie. hazardous material (paint), access limitations, etc. ACROW bridge can be taken apart and removed in pieces but three

bridges approaching the site from the south (Lihue end) are posted at 8 tons and the Hanalei truss bridge is posted at 15 tons.

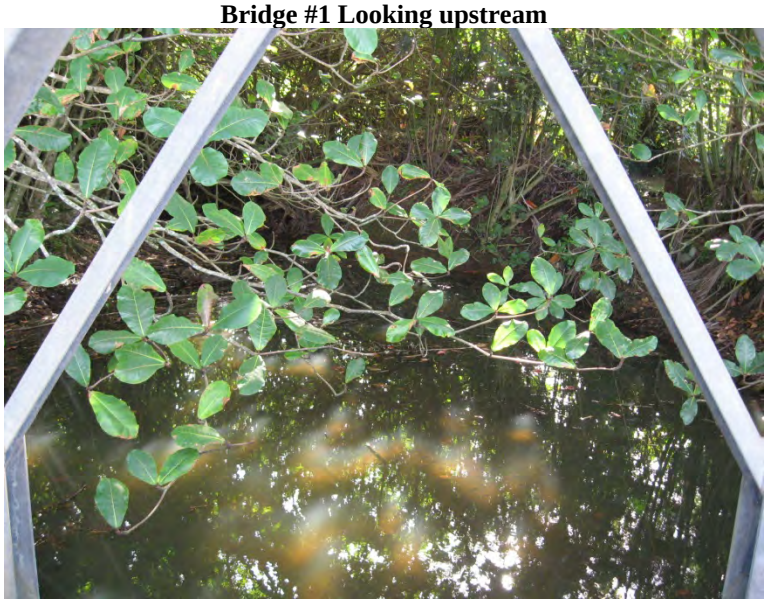
h) Provide photos of all structures, any apparent deficiencies, and upstream and downstream stream channels.

Bridge #1 downstream side of bridge looking from Lihue end

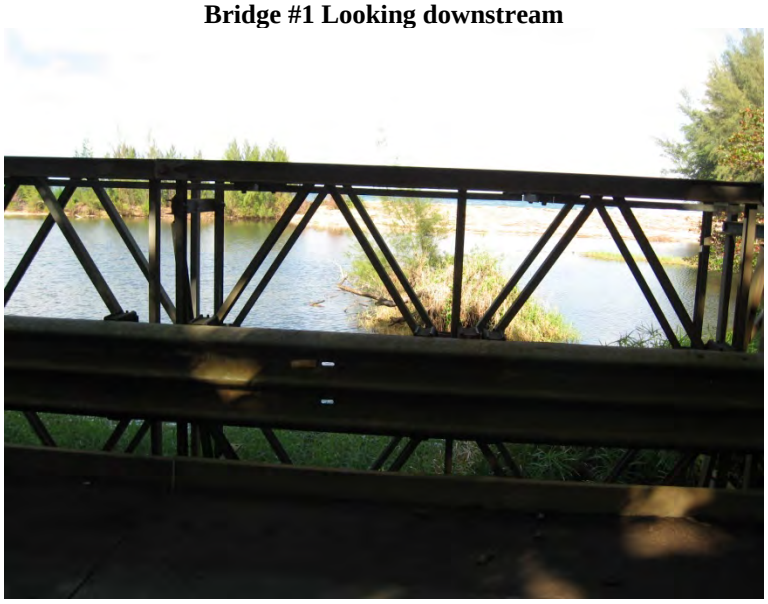


Bridge #1 looking along upstream side of bridge from Lihue end

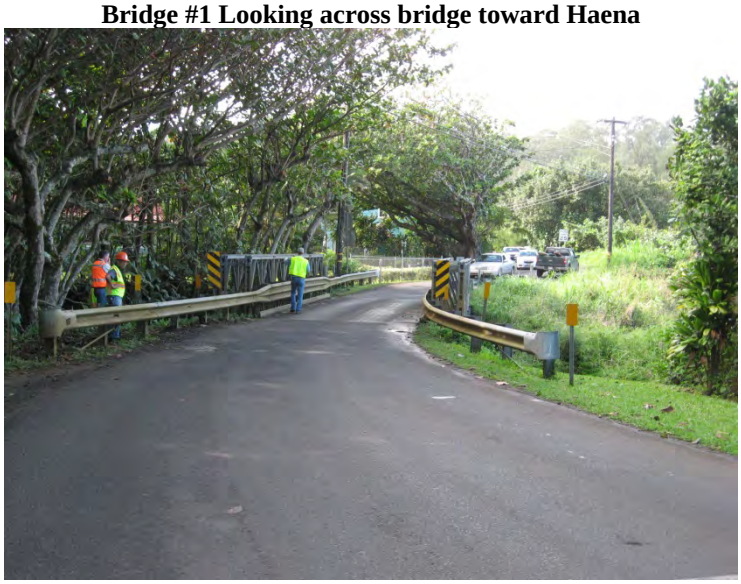
Bridge #1 Looking upstream



Bridge #1 Looking downstream



Bridge #1 Looking across bridge toward Haena



Bridge #1 Looking across bridge toward Lihue

Bridge #1 Looking at Lihue abutment wall

Bridge #1 Looking toward Lihue at potential realignment

2. Provide available roadway data at existing structure site.

    a) Document typical roadway section and approach railing. When available, obtain roadway plan and profile sheets, mapping, and ROW limits. See Roadway Section. No approach railing other than transition railing.
    b) Document potential environmental issues and apparent ROW limits. Private residences with fences on the makai side on the Lihue corner and on the mauka side on the Haena corner.
    c) Posted speed 15 mph

3. Describe project specific issues that influence structure type.

    a) Discuss structure design criteria or special design criteria (exceptions to AASHTO LRFD Design Specifications) required by local/state/owner agencies. Include special loading conditions (i.e. snow loads, overload vehicles, etc.) and load rating requirements. AASHTO LRFD Bridge Specifications for design and seismic criteria using USGS maps. HL93 live load. Tsunami area: use AASHTO Guide specs for storm surges. Need discussion on whether to use HDOT Bridge Design Criteria.
    b) Note bridge superstructure and substructure types along the route. Hanalei bridge is a steel deck through truss reinforced by another truss. The three concrete bridges to the south of the 3 Wainiha bridges appear to be U-shaped single span bridges with the beams serving as the barriers.
    c) Note bridge rail types in the vicinity. Include owner agency preferences and crash test level requirements. One of the bridges called the Fall-Down Bridge has a stone barrier. The other two bridges appeared to have concrete barriers which serve as the beams. All three bridges appear to be very old and likely do not meet crash-tested requirements. The October 2012 design study report mentions steel railing on the Hanalei bridge.
    d) Locate nearest ACI ready mix concrete plants, PCI girder fabrication plant, and AISC structural steel fabrication plants as applicable. According to the HDOT District, the nearest concrete plant is in Lihue. Precast girder fabrication plant is in Oahu, but girders in HI have also been fabricated in WA state.
    e) Describe work areas adjacent to proposed alignment. Determine available staging areas and potential erection locations. Due to the proximity of private land, there is not much work area for staging.
    f) Describe site accessibility including local roadway geometry and local bridge weight limits as it affects member hauling limitations. There is a two-lane road leading to the bridges, but all bridges along the route are one-lane. Approaching the Hanalei Bridge, there is a very winding road leading down the hill. The Hanalei Bridge is posted at 15 tons and the subsequent 3 bridges, Waioli, Waipa, and Waikoko, are posted at 8 tons. May need temporary bridges to get construction loads to the Wainiha bridges.
    g) Discuss road/bridge closure and detour options, with consideration to temporary bridge if necessary. Investigate existing structure for construction staging feasibility. Maintain one lane of traffic at all times as there are no detour options. The three Wainiha bridges are posted at 8 tons. According to HDOT, there is a gate at the Hanalei Bridge that is closed when flooding occur.
    h) Consider feasibility of spill through vs. vertical abutment types for the structural layout. Abutments will likely be vertical abutment walls on shafts or piles with the walls close to or in the water based on the limited area for extending bridges and maintaining traffic.
    i) Locate possible locations for retaining walls and potential wall types.
    j) Consider possible foundation types and semi integral vs. integral abutment types. Deep foundations anticipated to support abutment walls.
    k) Address economical structure types to meet the serviceability requirements of the agency or route as they relate to type and volume of traffic. Concrete structures types

are anticipated because of the highly corrosive environment near the ocean. Precast concrete would be economical if geometric access and the bridge load rating restrictions leading up to the 3 bridges are addressed.

l) Determine estimated construction season limits and multi-season impacts to project. There should not be weather-related construction season issues. Heavy tourist traffic may impact the project.

m) Determine aesthetic requirements and owner agency special requests. The October 2012 Engineering Design Report describes the aesthetic considerations to this point in the environmental process including rail type to match the original King post truss bridge, using or mimicking the sound of wood plank decking which was on the original bridges. See Section VI, K, Proposed Improvements.

n) Determine maintenance concerns (i.e. chloride use on roads, painting vs. weathering steel, drift issues). There are maintenance concerns with timber decking which had been in service on the previous bridges and with structural steel corrosion. Galvanized steel railings may be acceptable. Provide 3" clear to reinforcing steel due to corrosive environment.

Wainiha Bridge #2

1. Provide existing structure data (bridges, retaining walls, tunnels).

a) Collect structure as-builts, contract plans, inspection reports, structure ratings, NBIS reports. Original single lane, single span Queen Post truss bridge (L=78', W=10') was replaced in 2004 by an ACROW bridge on the original foundations and over the existing truss bridge after being damaged by a storm and being declared deficient. Have as-built drawings for the ACROW Bridge and 2011 inspection report prepared by Kai Hawaii. .

b) Determine/measure type, span length, bridge width, curb-to-curb width. Existing bridge: single span, single lane, square, double panel ACROW truss bridge, single panel height (7'-6" total with 5'-4" above deck surface assumed to be same as Br #1, but was not measured). Length=100', Width=12.0' curb to curb & 18.5' out to out as shown on as-builts. ACROW bridge concrete cap founded behind existing original concrete abutment walls which are on a skew on deep foundations.

c) Describe hydraulic conditions including bridge opening (waterway) characteristics, visible scour, deposition of sediment, debris passage, or apparent instabilities around the structure. Abutment walls are in the water. Bridge is at the mouth of Wainiha Stream before it feeds into Wainiha Bay There is approximately 50' between the ends of Bridges #2 and #3 with a strip of land and an approach roadway between the two. Waterway channel upstream is fairly well contained, but the entire downstream area between the bridges is marshy. The bay is downstream of the bridge, but was barely visible. Stream depth and scour could not be determined. There is potential for debris passage due to thick vegetation along the stream. Hydraulic and scour study contained in the Oct 2012 Engineering Design Report for Kuhio Highway. Study shows that this bridge would be overtopped by Q50. Study also says that the bridge is subject to flooding from stormwater runoff and tsunamis.

d) Describe foundation conditions including shallow or deep, founding material (rock or soil) and groundwater conditions. Deep foundations assumed due to alluvial soils and proximity to the bay.

e) Describe apparent structure condition. Note if load posted. Bridge appears to be in good condition with minor maintenance to the ACROW bridge bolts and corrosion noted on past inspection report. Bridge posted at 8 tons. Existing ACROW bridge is designed for HL93 per the as-built plans.

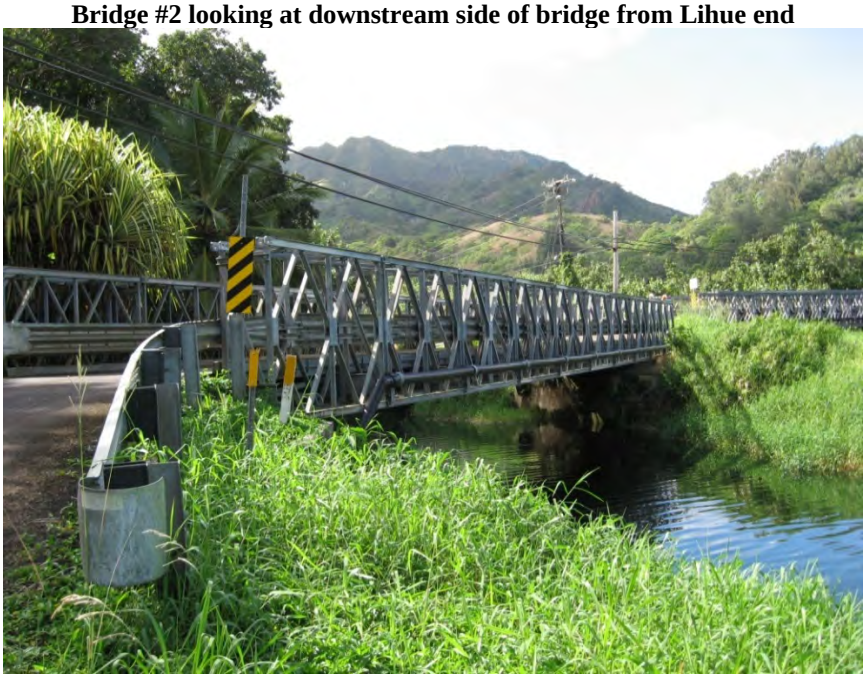
f) Describe bridge railing, transitions, and existing utilities. Existing bridge railing is galvanized thrie-beam along panels and there are non-standard transition railings on three corners and no transition railing on the upstream Lihue corner. Guardrail connects the Bridge #2 and #3 railings on the downstream side and wraps along the

approach road on the upstream Haena corner. 4" dia. PVC mounted to upstream side of bridge and 7" OD PVC on makai side. Overhead power along US side of bridge.

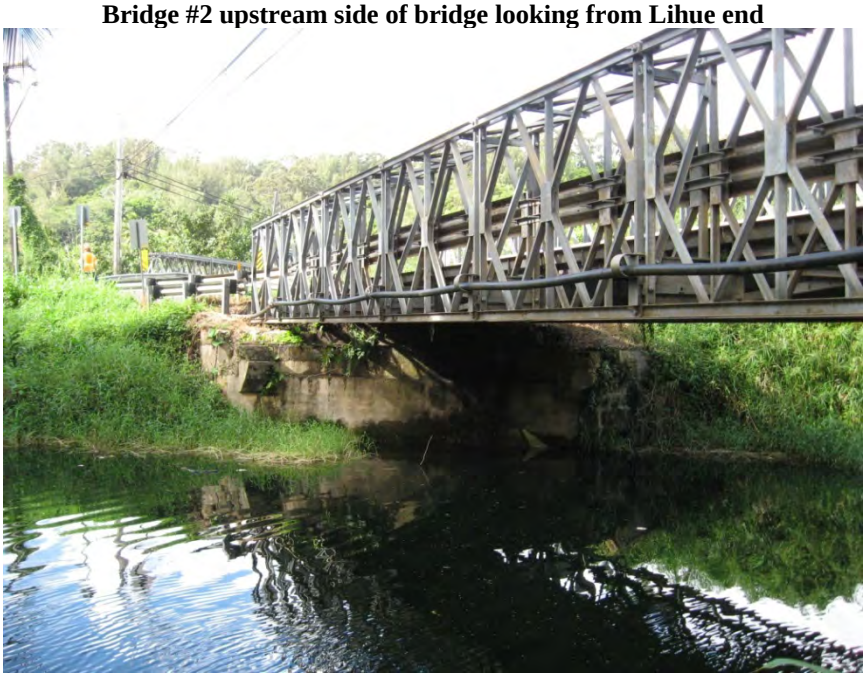
g) Describe potential structure removal issues, ie. hazardous material (paint), access limitations, etc. ACROW bridge can be taken apart and removed in pieces but three bridges approaching Bridge #1 from the south (Lihue end) are posted at 8 tons and the Hanalei truss bridge is posted at 15 tons.

h) Provide photos of all structures, any apparent deficiencies, and upstream and downstream stream channels.

Bridge #2 looking at downstream side of bridge from Lihue end



Bridge #2 upstream side of bridge looking from Lihue end



Bridge #2 looking downstream

Bridge #2 looking upstream

Bridge #2 looking at Lihue end of bridge and private driveway

Bridge #2 looking at Haena end of bridge

2. Provide available roadway data at existing structure site.

    d) Document typical roadway section and approach railing. When available, obtain roadway plan and profile sheets, mapping, and ROW limits. See Roadway Section. No approach railing other than transition railing.
    e) Document potential environmental issues and apparent ROW limits. See Section VI, K, for environmental issues at the bridge. Private driveway on the mauka, Lihue corner of the bridge with upstream bridge wingwall retaining roadway fill. County road on mauka Haena corner of the bridge.
    f) Posted speed 15 mph

1. Describe project specific issues that influence structure type.

    a) Discuss structure design criteria or special design criteria (exceptions to AASHTO LRFD Design Specifications) required by local/state/owner agencies. Include special loading conditions (i.e. snow loads, overload vehicles, etc.) and load rating requirements. AASHTO LRFD Bridge Specifications for design and seismic criteria using USGS maps. HL93 live load. Tsunami area: use AASHTO Guide specs for storm surges. Need discussion on whether to use HDOT Bridge Design Criteria.
    b) Note bridge superstructure and substructure types along the route. Hanalei bridge is a steel deck through truss reinforced by another truss. The three concrete bridges to the south of the 3 Wainiha bridges appear to be U-shaped single span bridges with the beams serving as the barriers.
    c) Note bridge rail types in the vicinity. Include owner agency preferences and crash test level requirements. One of the bridges called the Fall-Down Bridge has a stone barrier. The other two bridges appeared to have concrete barriers which serve as the beams. All three bridges appear to be very old and likely do not meet crash-tested requirements. The October 2012 design study report mentions steel railing on the Hanalei bridge.
    d) Locate nearest ACI ready mix concrete plants, PCI girder fabrication plant, and AISC structural steel fabrication plants as applicable. According to the HDOT District, the nearest concrete plant is in Lihue. Precast girder fabrication plant is in Oahu, but girders in HI have also been fabricated in WA state.
    e) Describe work areas adjacent to proposed alignment. Determine available staging areas and potential erection locations. There is a small area for staging adjacent to the county approach road between the two bridges. It will be explored during design if use of this area for staging will be permitted.
    f) Describe site accessibility including local roadway geometry and local bridge weight limits as it affects member hauling limitations. There is a two-lane road leading to the bridges, but all bridges along the route are one-lane. Approaching the Hanalei Bridge, there is a very winding road leading down the hill. The Hanalei Bridge is posted at 15 tons and the subsequent 3 bridges, Waioli, Waipa, and Waikoko, are posted at 8 tons. May need temporary bridges to get construction loads to the Wainiha bridges.
    g) Discuss road/bridge closure and detour options, with consideration to temporary bridge if necessary. Investigate existing structure for construction staging feasibility. Maintain one lane of traffic at all times as there are no detour options. The three Wainiha bridges are posted at 8 tons. According to HDOT, there is a gate at the Hanalei Bridge that is closed when flooding occur. No construction staging opportunities with existing bridge.
    h) Consider feasibility of spill through vs. vertical abutment types for the structural layout. Abutments will likely be vertical abutment walls on shafts or piles with the walls close to or in the water based on the limited area for extending bridges and maintaining traffic and to maintain the aesthetics of the existing bridges.

i) Locate possible locations for retaining walls and potential wall types.
j) Consider possible foundation types and semi integral vs. integral abutment types. Deep foundations anticipated to support abutment walls.
k) Address economical structure types to meet the serviceability requirements of the agency or route as they relate to type and volume of traffic. Concrete structures types are anticipated because of the highly corrosive environment near the ocean. Precast concrete would be economical if geometric access and the bridge load rating restrictions leading up to the 3 bridges are addressed.
l) Determine estimated construction season limits and multi-season impacts to project. There should not be weather-related construction season issues. Heavy tourist traffic may impact the project.
m) Determine aesthetic requirements and owner agency special requests. The October 2012 Engineering Design Report describes the aesthetic considerations to this point in the environmental process including rail type to match the original Queen post truss bridge, using or mimicking the sound of wood plank decking which was on the original bridges. See Section VI, K Proposed Improvements.
n) Determine maintenance concerns (i.e. chloride use on roads, painting vs. weathering steel, drift issues). There are maintenance concerns with timber decking which had been in service on the previous bridges and with structural steel corrosion. Galvanized steel railings may be acceptable. Provide 3" clear to reinforcing steel due to corrosive environment.

Wainiha Bridge # 3

1. Provide existing structure data (bridges, retaining walls, tunnels).

a) Collect structure as-builts, contract plans, inspection reports, structure ratings, NBIS reports. Original single lane, three-span bridge with two steel Queen Post spans totaling approximately 146' long (Inspection report shows 156.2' between CL Pier 2 and Begin Bridge) and one approximately 24' long span (Inspection report shows 29.1' between CL Pier 2 and End Bridge) without tension rods (L~170', W=11') was replaced in 2007 by an ACROW bridge on the original foundations and over the existing truss bridge after being declared deficient. Have as-built drawings for the ACROW Bridge and 2011 inspection report prepared by Kai Hawaii.
b) Determine/measure type, span length, bridge width, curb-to-curb width. Existing bridge: five span, single lane, square, triple panel ACROW truss bridge, single panel height (7'-6" total with 5'-5"+ above deck surface - not measured). Length=205'-3" = 10'/18.25'/74.92'/29.1'/10' measured from Lihue end, Width=13.8' curb to curb (Out-to-out dimensions not measured). ACROW bridge concrete abutment cap founded behind existing original concrete abutment walls which are assumed to be on deep foundations.
c) Describe hydraulic conditions including bridge opening (waterway) characteristics, visible scour, deposition of sediment, debris passage, or apparent instabilities around the structure. Abutment walls are in the water. Bridge is at the mouth of Wainiha Stream before it feeds into Wainiha Bay There is approximately 50' between the ends of Bridges #2 and #3 with a strip of land and an approach roadway between the two. Waterway channel upstream is fairly well contained, but the entire downstream area between the bridges is marshy. The bay is downstream of the bridge, but was barely visible. Stream depth and scour could not be determined. There is potential for debris passage due to thick vegetation along the stream. Hydraulic and scour study contained in the Oct 2012 Engineering Design Report for Kuhio Highway. Study shows that this bridge would be overtopped by Q50. Study also says that the bridge is subject to flooding from stormwater runoff and tsunamis.
d) Describe foundation conditions including shallow or deep, founding material (rock or soil) and groundwater conditions. Deep foundations assumed due to alluvial soils and proximity to the bay.

e) Describe apparent structure condition. Note if load posted. Bridge appears to be in good condition with minor maintenance to the ACROW bridge bolts and corrosion noted on past inspection report. Bridge posted at 8 tons. Existing ACROW bridge was designed for HS20-44 loading according to the as-built plans.

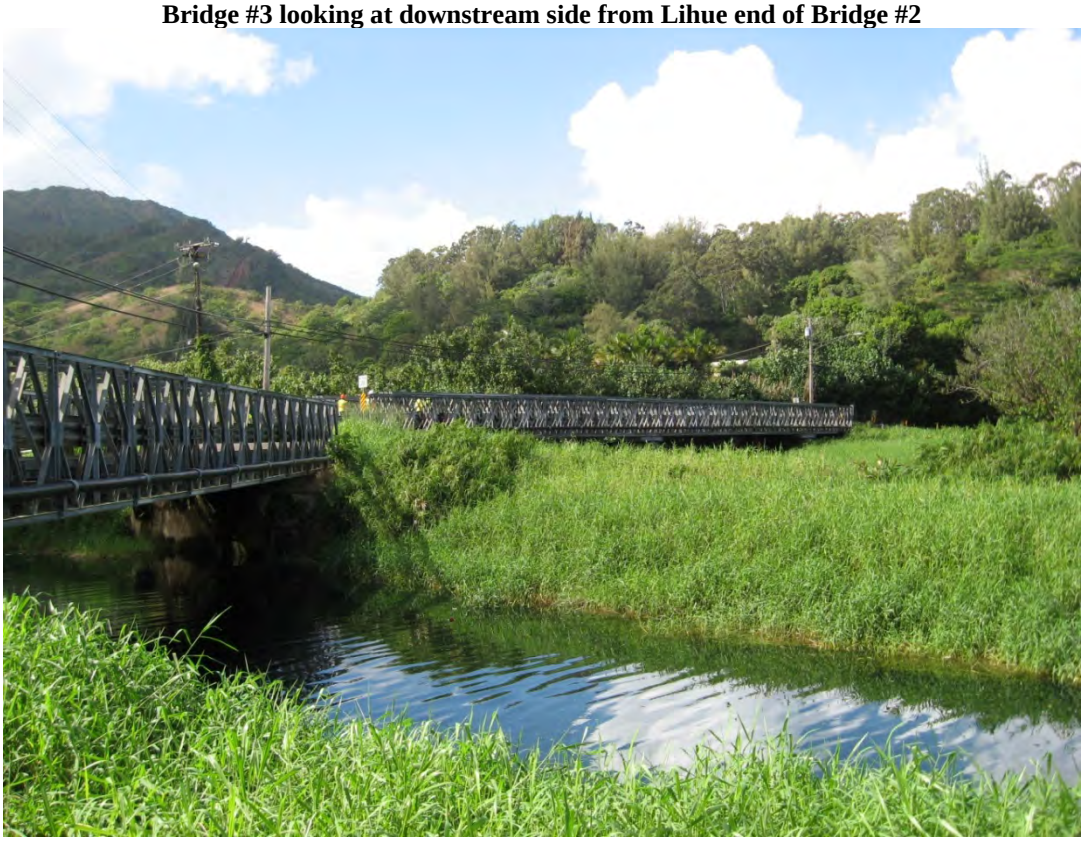
f) Describe bridge railing, transitions, and existing utilities. Existing bridge railing is galvanized thrie-beam along panels and there are non-standard transition railings on two corners of the Haena end of the bridge. Guardrail connects the Bridge #2 and #3 railings on the downstream side and wraps along the approach road on the upstream Lihue corner. 4" dia. PVC mounted to upstream side of bridge and 7" OD PVC on makai side. Overhead power along US side of bridge.

g) Describe potential structure removal issues, ie. hazardous material (paint), access limitations, etc. ACROW bridge can be taken apart and removed in pieces but three bridges approaching Bridge #1 from the south (Lihue end) are posted at 8 tons and the Hanalei truss bridge is posted at 15 tons.

h) Provide photos of all structures, any apparent deficiencies, and upstream and downstream stream channels.

Bridge #3 Lihue Span looking downstream from county road

Bridge #3 looking at downstream side from Lihue end of Bridge #2



Bridge #3 Looking downstream

Bridge #3 Looking upstream (County road on left)

Haena end of Bridge #3 looking along downstream side @ Bridge #2

2. Provide available roadway data at existing structure site.

    a) Document typical roadway section and approach railing. When available, obtain roadway plan and profile sheets, mapping, and ROW limits. See Roadway Section. No approach railing other than transition railing.
    b) Document potential environmental issues and apparent ROW limits. See Section VI, K, for environmental issues at the bridge. County road on mauka Lihue corner of the bridge.
    c) Posted speed 15 mph

3. Describe project specific issues that influence structure type.

    a) Discuss structure design criteria or special design criteria (exceptions to AASHTO LRFD Design Specifications) required by local/state/owner agencies. Include special loading conditions (i.e. snow loads, overload vehicles, etc.) and load rating requirements. AASHTO LRFD Bridge Specifications for design and seismic criteria using USGS maps. HL93 live load. Tsunami area: use AASHTO Guide specs for storm surges. Need discussion on whether to use HDOT Bridge Design Criteria.
    b) Note bridge superstructure and substructure types along the route. Hanalei bridge is a steel deck through truss reinforced by another truss. The three concrete bridges to the south of the 3 Wainiha bridges appear to be U-shaped single span bridges with the beams serving as the barriers.
    c) Note bridge rail types in the vicinity. Include owner agency preferences and crash test level requirements. One of the bridges called the Fall-Down Bridge has a stone barrier. The other two bridges appeared to have concrete barriers which serve as the beams. All three bridges appear to be very old and likely do not meet crash-tested requirements. The October 2012 design study report mentions steel railing on the Hanalei bridge.
    d) Locate nearest ACI ready mix concrete plants, PCI girder fabrication plant, and AISC structural steel fabrication plants as applicable. According to the HDOT District, the nearest concrete plant is in Lihue. Precast girder fabrication plant is in Oahu, but girders in HI have also been fabricated in WA state.
    e) Describe work areas adjacent to proposed alignment. Determine available staging areas and potential erection locations. There is a small area for staging adjacent to the county approach road between the two bridges.
    f) Describe site accessibility including local roadway geometry and local bridge weight limits as it affects member hauling limitations. There is a two-lane road leading to the bridges, but all bridges along the route are one-lane. Approaching the Hanalei Bridge, there is a very winding road leading down the hill. The Hanalei Bridge is posted at 15 tons and the subsequent 3 bridges, Waioli, Waipa, and Waikoko, are posted at 8 tons. May need temporary bridges to get construction loads to the Wainiha bridges.
    g) Discuss road/bridge closure and detour options, with consideration to temporary bridge if necessary. Investigate existing structure for construction staging feasibility. Maintain one lane of traffic at all times as there are no detour options. The three Wainiha bridges are posted at 8 tons. According to HDOT, there is a gate at the Hanalei Bridge that is closed when flooding occur. No construction staging opportunities with existing bridge.
    h) Consider feasibility of spill through vs. vertical abutment types for the structural layout. Abutments will likely be vertical abutment walls on shafts or piles with the walls close to or in the water based on the limited area for extending bridges and maintaining traffic and to maintain the aesthetics of the existing bridges.
    i) Locate possible locations for retaining walls and potential wall types.
    j) Consider possible foundation types and semi integral vs. integral abutment types. Deep foundations anticipated to support abutment walls.

k) Address economic structure types to meet the serviceability requirements of the agency or route as they relate to type and volume of traffic. Concrete structures types are anticipated because of the highly corrosive environment near the ocean. Precast concrete would be economical if geometric access and the bridge load rating restrictions leading up to the 3 bridges are addressed.

l) Determine estimated construction season limits and multi-season impacts to project. There should not be weather-related construction season issues. Heavy tourist traffic may impact the project.

m) Determine aesthetic requirements and owner agency special requests. The October 2012 Engineering Design Report describes the aesthetic considerations to this point in the environmental process including rail type to match the original Queen post truss bridge, using or mimicking the sound of wood plank decking which was on the original bridges. See Section VI, K Proposed Improvements.

n) Determine maintenance concerns (i.e. chloride use on roads, painting vs. weathering steel, drift issues). There are maintenance concerns with timber decking which had been in service on the previous bridges and with structural steel corrosion. Galvanized steel railings may be acceptable. Provide 3" clear to reinforcing steel due to corrosive environment.

VI. PROPOSED IMPROVEMENTS *(Provide a narrative or brief description of the proposed improvements for each functional area. Address the specific improvements, as noted below.)*

A. SAFETY

The proposed bridges will be designed to meet current bridge standards for seismic and loading. The bridge rail, transition rail and end sections will all be designed to meet the current standards for a test level 2 (unless HDOT requirements allow a TL-1 and everyone approves its use). The shoulders along the bridges will be widened to improve safety for pedestrians and bicyclists.

B. HIGHWAY DESIGN

Sight distance at the bridges will be improved where feasible. Due to the historic nature of the roadway and the limits of the project funding and scope, large improvements to the alignment will not be included under this project.

C. UTILTIES

It is not anticipated that the overhead utilities adjacent to the project will be impacted. Service to the waterlines on the existing bridges will be maintained throughout construction and the waterlines will be placed on the new bridges once construction is complete.

D. PERMITS

The proposed project will comply with all of the conditions of the required permits. Best management practices will be implemented during design and construction.

E. ENVIRONMENT

The proposed structures will be designed to be consistent with the historic context of the NRHP-listed roadway. The project would be designed to minimize impacts to the surrounding environment, as practicable.

F. SURVEY

Ground survey will be obtained for the project area to supplement the existing survey. This survey will then be available to the HI DOT for future projects at these sites if practical.

G. RIGHT OF WAY (ROW)

No improvements to ROW anticipated.

H. GEOTECHNICAL

1. Discuss potential mitigation measures for the following:
   a) Geotechnical hazards – There are no significant geotechnical hazards at the Wainiha Bridge sites. The only extreme events are the possibilities of a tsunami or hurricane which may cause severe scour or damage to the bridge and foundation structures. The effect of these extreme events on the structural stability will be evaluated by the hydraulics section. The structures will be designed to accommodate the Extreme Strength Limit State.
   b) Geotechnical repair areas – No failures were observed that will require repairs. If any of the foundations are to be reused, comprehensive nondestructive testing of the foundation elements will be conducted to evaluate the structural and geotechnical integrity of these elements.
   c) Surface water and groundwater problem areas – The ground water is expected to be at the same elevation as the river water. The surface water is mitigated by the design and is not expected to pose any stability issues. No mitigation methods will be required for water problems. Deep foundations will be used to accommodate scour in the river.

2. Provide the location of anticipated structures types (bridge, retaining wall or other earth retaining structures, box culvert of other drainage features) along the proposed route, including anticipated foundation requirements. List any potential constructability issues or impacts to the project associated with construction of the structures. List potential, feasible alternatives to anticipated structures, including EDC initiatives.

   Three bridges will be constructed to replace the temporary ACROW bridges over the river. It is anticipated that new foundations will be constructed since the bridges may be shifted off of the existing alignment to facilitate construction and accommodate minor roadway geometry improvements. Deep foundations will be required to support the imposed bridge loads.

I. PAVEMENTS

The proposed surface of the bridges is concrete. The approaches to the bridge will be constructed of asphalt pavement over an aggregate base using agreed upon design standards. For purposes of this scope, 5” of asphalt on 6” of aggregate base is assumed.

J. HYDROLOGY/HYDRAULICS

1. Are any stream and/or floodplain restoration efforts anticipated? If so, describe.

   No.

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

   No. Although it is anticipated that the overtopping characteristics of the existing approach roadways will remain as-is for the permanent design. Raising the approach roadways is out of the scope of this project.

3. Are any fish passage needs anticipated? If so, describe issues and locations.

No.

4. Is there a potential for embankment and/or retaining walls being located in and parallel to streams/channels or floodplains? If yes, describe.

   None anticipated.

5. Describe any anticipated channel stabilization work needed to protect the proposed roadway.

   None anticipated.

K. BRIDGE

Wainiha Bridge #1

1. Discuss proposed structural improvements

   a) Determine/propose structure design criteria - AASHTO LRFD Bridge Design Specifications with exceptions in HDOT Bridge Design Criteria. Seismic criteria in accordance with AASHTO LRFD Bridge Design Specs using USGS maps. HL93 live load. Tsunami area: use AASHTO Guide specs for storm surges.
   b) Structure type(s), layout, and alignment, including retaining walls and extent of falsework clearances. Single lane, single-span bridge. Bridge width still to be decided during environmental process, but 16' curb-to-curb width preferred by HDOT for safety. Public wants 11' curb-to-curb width for traffic calming and to maintain the historical nature of the roadway. Per HDOT, assume minimal vertical and horizontal alignment changes, but engineering will try to improve sight distance. It may not be feasible to achieve CFL and HDOT requirements for freeboard due to adjacent property. The Oct 2012 Engineering Design report recommended long-span precast, prestressed concrete planks (slabs) to eliminate the need for additional piers in the water and to comply with HDOT's hydraulic capacity criteria. Size and weight of members must be studied to take into account winding highway and load-posted bridges. The Oct 2012 Engineering Design report shows four precast slabs 4' wide x 1'-4" deep, with CIP 6' thick topping and outside CIP fascia concrete. Bridge length = 39'.HDOT prefers concrete deck instead of asphalt overlay.
   c) Proposed foundation options. The Oct 2012 Engineering Design report mentions deep foundations with concrete abutments/piers extending below the waterline to replicate the original. Drilled shafts anticipated, but considerations for size of equipment must be studied due to load posted bridges.
   d) Number of lanes, sidewalk, deck drains, and utility requirements. One-lane bridge with 11' travel lane and 2.5' shoulders for 16' curb-to curb width. No sidewalk or drains. Utilities: 3" dia. Waterline attached to US side of bridge.
   e) Detour needs/alignment location. Detour anticipated based on requirement to keep one lane of traffic open and residences on adjacent corners of the bridge. Horizontal alignment may be shifted to improve sight distance for single lane bridge.
   f) Bridge railing and transition railing type and crash test level provided. Bridge barrier must accommodate bicyclists and traffic. The Oct 2012 Engineering Design report proposed vehicular structural steel tube railings that comply with TL-2 similar to the Hanalei Bridge with pedestrian railing constructed out of timber or timber facsimile. Railing post spacing to mimic the original bridges and allow peak flood flows to pass through with minimal obstruction and facilitate driver's sight distance across the bridge. Transition railings will be standard thrie or W-beam with a concrete pedestal between bridge and transition railing.
   g) Design live loading and permit loads, as required. Design for legal loads, HL93
   h) Rehabilitation/repairs proposed.

i) Aesthetic provisions proposed. Attempt to replicate the look of the original bridges as rendered in the Oct 2012 Engineering Design Report and match the bridge rail types along the route. Do not use wood decking due to maintenance concerns. It may be necessary to maintain the sound and feel of wood decking. This will be evaluated during the environmental process.
j) Every-Day–Counts initiatives proposed. CMGC, prefabricated bridge elements, slide-in.
k) Historical context. Per the Oct 2012 Engineering Design Report, the bridge is on the Kauai Belt Road Historic District and listed on the Hawaii and National Register of Historic Places. The 3 Wainiha bridges were considered contributing elements to the roads historic integrity and must adhere to Secretary of Interior Standards for Treatment of Historic Places. Bridge rehabilitiation being in-fill structures to the overall historic district. 2007 HABS and HAER were prepared and approved to allow demolition of the original bridges with abutments and piers remaining. Page 25of the report outlines the KHRCP (corridor plan) framework for the Kuhio Highway and specifically addresses replacement of one-lane bridges: 1) be reconstructed as much as practical, with bridge similar in design, 2) have a single 11' wide travel lane and 2.5' wide shoulders, 3) have parapets or rails that are designed to be in character with the existing one-lane bridges along Route 560, 4) accommodate pedestrian/bicycle access within or outside the bridge, 5) have a posted load of 15 tons and be capable of accommodating 18-ton fire trucks and other public utility or service vehicles, and 6) incorporate AASHTO guidance or crash-tested features.

Wainiha Bridge #2

1. Discuss proposed structural improvements

a) Determine/propose structure design criteria - AASHTO LRFD Bridge Design Specifications with exceptions in HDOT Bridge Design Criteria. Seismic criteria in accordance with AASHTO LRFD Bridge Design Specs using USGS maps. HL93 live load. Tsunami area: use AASHTO Guide specs for storm surges.
b) Structure type(s), layout, and alignment, including retaining walls and extent of falsework clearances. Single lane, single-span bridge. Bridge width still to be decided during environmental process, but 16' curb-to-curb width preferred by HDOT for safety. Public wants 16' curb-to-curb width (11' travel lane + 5' bike lane) for traffic calming and to maintain the historical nature of the roadway. Per HDOT, assume minimal vertical and horizontal alignment changes, but engineering will try to improve sight distance. Bridges #2 and #3 must be laid out concurrently due to the close proximity and intersecting roadway between the bridges. It may not be feasible to achieve CFL and HDOT requirements for freeboard due to adjacent property and roadway tie-ins. The Oct 2012 Engineering Design report recommended long-span precast, prestressed concrete planks (slabs) to eliminate the need for additional piers in the water and to comply with HDOT's hydraulic capacity criteria. Size and weight of members must be studied to take into account winding highway and load-posted bridges. The Oct 2012 Engineering Design report shows four precast slabs 4' wide x 2'-0" deep, with CIP 5" thick topping and wood planks bolted to concrete in travel lane with outside CIP fascia concrete. Bridge length = 76'.HDOT prefers concrete deck instead of asphalt overlay.
c) Proposed foundation options. The Oct 2012 Engineering Design report mentions deep foundations with concrete abutments/piers extending below the waterline to replicate the original. Drilled shafts anticipated, but considerations for size of equipment must be studied due to load posted bridges.
d) Number of lanes, sidewalk, deck drains, and utility requirements. One-lane bridge with 11' travel lane and 2.5' shoulders for 16' curb-to curb width. No sidewalk. The need for deck drains will be studied. Utilities: 4" dia. PVC mounted to upstream side of bridge and 7" OD PVC on makai side with tie-ins along the road.
e) Detour needs/alignment location. Detour anticipated based on requirement to keep one lane of traffic open on the main road and access roads open. Horizontal alignment may be

shifted to improve sight distance for single lane bridges #2 and #3. The existing ACROW bridges can be used to maintain traffic on existing alignment if new alignment is shifted to the inside (downstream) side.

f) Bridge railing and transition railing type and crash test level provided. Bridge barrier must accommodate bicyclists and traffic. The Oct 2012 Engineering Design report proposed vehicular structural steel tube railings that comply with TL-2 similar to the Hanalei Bridge with pedestrian railing constructed out of timber or timber facsimile. Railing post spacing to mimic the original bridges and allow peak flood flows to pass through with minimal obstruction and facilitate driver's sight distance across the bridge. Transition railings will be standard thrie or W-beam with a concrete pedestal between bridge and transition railing.

g) Design live loading and permit loads, as required. Design for legal loads, HL93

h) Rehabilitation/repairs proposed.

i) Aesthetic provisions proposed. Attempt to replicate the look of the original bridges as rendered in the Oct 2012 Engineering Design Report and match the bridge rail types along the route. Do not use wood decking due to maintenance concerns. It may be necessary to maintain the sound and feel of wood decking. This will be evaluated during the environmental process.

j) Every-Day–Counts initiatives proposed. CMGC, prefabricated bridge elements, slide-in.

k) Historical context. Per the Oct 2012 Engineering Design Report, the bridge is on the Kauai Belt Road Historic District and listed on the Hawaii and National Register of Historic Places. The 3 Wainiha bridges were considered contributing elements to the roads historic integrity and must adhere to Secretary of Interior Standards for Treatment of Historic Places. Bridge rehabilitiation being in-fill structures to the overall historic district. 2007 HABS and HAER were prepared and approved to allow demolition of the original bridges with abutments and piers remaining. Page 25of the report outlines the KHRCP (corridor plan) framework for the Kuhio Highway and specifically addresses replacement of one-lane bridges: 1) be reconstructed as much as practical, with bridge similar in design, 2) have a single 11' wide travel lane and 2.5' wide shoulders, 3) have parapets or rails that are designed to be in character with the existing one-lane bridges along Route 560, 4) accommodate pedestrian/bicycle access within or outside the bridge, 5) have a posted load of 15 tons and be capable of accommodating 18-ton fire trucks and other public utility or service vehicles, and 6) incorporate AASHTO guidance or crash-tested features.

l) Existing structural removal. Remove existing ACROW bridge with abutment cap and footings as well as original abutment walls in front of ACROW caps.

Wainiha Bridge #3

1. Discuss proposed structural improvements

   a) Determine/propose structure design criteria - AASHTO LRFD Bridge Design Specifications with exceptions in HDOT Bridge Design Criteria. Seismic criteria in accordance with AASHTO LRFD Bridge Design Specs using USGS maps. HL93 live load. Tsunami area: use AASHTO Guide specs for storm surges.

   b) Structure type(s), layout, and alignment, including retaining walls and extent of falsework clearances. Single lane, three-span bridge. Bridge width still to be decided during environmental process, but 16' curb-to-curb width preferred by HDOT for safety. Public wants 16' curb-to-curb width (11' travel lane + 5' bike lane) for traffic calming and to maintain the historical nature of the roadway. Per HDOT, assume minimal vertical and horizontal alignment changes, but engineering will try to improve sight distance. Bridges #2 and #3 must be laid out concurrently due to the close proximity and intersecting roadway between the bridges. It may not be feasible to achieve CFL and HDOT requirements for freeboard due to adjacent property and roadway tie-ins. The Oct 2012 Engineering Design report recommended long-span precast, prestressed concrete planks (slabs) to eliminate the need for additional piers in the water and to comply with HDOT's

hydraulic capacity criteria. Size and weight of members must be studied to take into account winding highway and load-posted bridges. The Oct 2012 Engineering Design report shows four precast slabs 4' wide x 2'-0" deep, with CIP 5" thick topping and wood planks bolted to concrete in travel lane with an outside CIP fascia concrete. Bridge length = 200'.HDOT prefers concrete deck instead of asphalt overlay.

c) Proposed foundation options. The Oct 2012 Engineering Design report mentions deep foundations with concrete abutments/piers extending below the waterline to replicate the original. Drilled shafts anticipated, but considerations for size of equipment must be studied due to load posted bridges.
d) Number of lanes, sidewalk, deck drains, and utility requirements. One-lane bridge with 11' travel lane and 2.5' shoulders for 16' curb-to curb width. No sidewalk. The need for deck drains will be studied. Utilities: 4" dia. PVC mounted to upstream side of bridge and 7" OD PVC on makai side with tie-ins along the road.
e) Detour needs/alignment location. Detour anticipated based on requirement to keep one lane of traffic open on the main road and access roads open. Horizontal alignment may be shifted to improve sight distance for single lane bridges #2 and #3. The existing ACROW bridges can be used to maintain traffic on existing alignment if new alignment is shifted to the inside (downstream) side.
f) Bridge railing and transition railing type and crash test level provided. Bridge barrier must accommodate bicyclists and traffic. The Oct 2012 Engineering Design report proposed vehicular structural steel tube railings that comply with TL-2 similar to the Hanalei Bridge with pedestrian railing constructed out of timber or timber facsimile. Railing post spacing to mimic the original bridges and allow peak flood flows to pass through with minimal obstruction and facilitate driver's sight distance across the bridge. Transition railings will be standard thrie or W-beam with a concrete pedestal between bridge and transition railing.
g) Design live loading and permit loads, as required. Design for legal loads, HL93
h) Rehabilitation/repairs proposed.
i) Aesthetic provisions proposed. Attempt to replicate the look of the original bridges as rendered in the Oct 2012 Engineering Design Report and match the bridge rail types along the route. Do not use wood decking due to maintenance concerns, but mimic the sound of wood decking.
j) Every-Day–Counts initiatives proposed. CMGC, prefabricated bridge elements.
k) Historical context. Per the Oct 2012 Engineering Design Report, the bridge is on the Kauai Belt Road Historic District and listed on the Hawaii and National Register of Historic Places. The 3 Wainiha bridges were considered contributing elements to the roads historic integrity and must adhere to Secretary of Interior Standards for Treatment of Historic Places. Bridge rehabilitiation being in-fill structures to the overall historic district. 2007 HABS and HAER were prepared and approved to allow demolition of the original bridges with abutments and piers remaining. Page 25of the report outlines the KHRCP (corridor plan) framework for the Kuhio Highway and specifically addresses replacement of one-lane bridges: 1) be reconstructed as much as practical, with bridge similar in design, 2) have a single 11' wide travel lane and 2.5' wide shoulders, 3) have parapets or rails that are designed to be in character with the existing one-lane bridges along Route 560, 4) accommodate pedestrian/bicycle access within or outside the bridge, 5) have a posted load of 15 tons and be capable of accommodating 18-ton fire trucks and other public utility or service vehicles, and 6) incorporate AASHTO guidance or crash-tested features.
l) Existing structural removal. Remove existing ACROW bridge with abutment cap and footings as well as original abutment walls in front of ACROW caps and two concrete pier walls.

L. TECHNOLOGY AND INNOVATION INITIATIVES

1. Complete the following table and discuss technology and innovation initiatives that can be suitably deployed on this project. Provide justification for those EDC initiatives that do not apply or were not considered.

EDC INITIATIVE www.fhwa.dot.gov/everydaycounts/	INITIATIVE APPLICABLE TO THE PROJECT?		
	YES	NO*	Justification*
Geosynthetic Reinforced Soil – Integrated Bridge System	☐	☒	Bridge hydraulic requirements warrant deep foundations
Prefabricated Bridge Elements and Systems	☒	☐	
Slide-in Bridge Construction	☒	☐	
Intersection and Interchange Geometrics	☐	☒	Only minor intersections/accesses in the project area
Intelligent Compaction	☒	☐	
High Friction Surface Treatments	☐	☒	There are no sharp curves or locations where greater friction is desired within the project area
Safety Edge	☒	☐	
Warm Mix Asphalt	☒	☐	
Three-Dimensional Modeling	☒	☐	
Programmatic Agreements	☐	☒	There are no known available Programmatic Agreements
Implementing Quality Environmental Documentation	☒	☐	
Geospatial Data Collaboration	☒	☐	
Construction Manager/General Contractor	☒	☐	
Design Build	☐	☒	Due to the nature of this project, design build is not expected to provide cost or schedule savings
Alternative Technical Concepts	☒	☐	Use of Accelerated Bridge Const. methods will be considered. Bridges will also be combined into one construction package for cost & schedule savings

List potential new, emerging, innovative, and underused technologies identified as potentially beneficial to the project. These ideas may come from not only FHWA's Every Day Counts (EDC) www.fhwa.dot.gov/everydaycounts/, but a variety of other programs such as the FHWA's Turner Fairbanks Highway Research Facility including its Research Partnership Programs www.fhwa.dot.gov/research/, FHWA's Highways for Life (HfL) www.fhwa.dot.gov/hfl/, or other FHWA programs; the Transportation

Research Board's (TRB) Strategic Highway Research Program 2 (SHRP2) www.trb.org/AboutTRB/SHRP2.aspx, and National Cooperative Highway Research Program (NCHRP) www.trb.org/NCHRP/NCHRP.aspx; and new industry products, or other technical sources.

Approved for Distribution:

_____ _____

Project Manager **Date**

DISTRIBUTION

HI DOT
Local FLMA
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

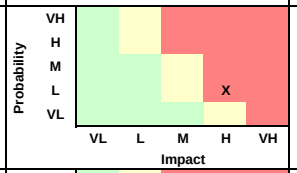
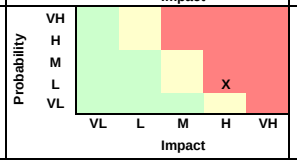
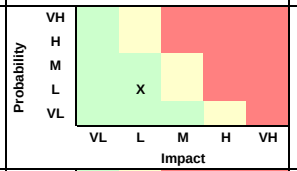
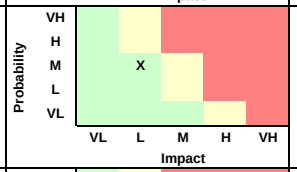
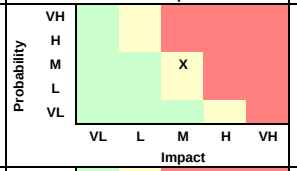
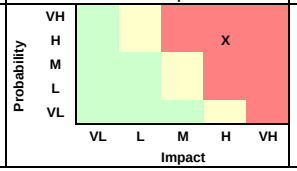
County

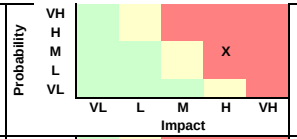
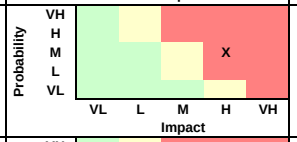
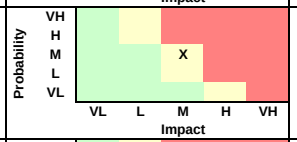
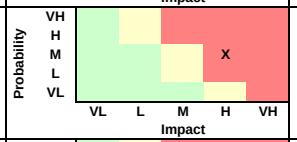
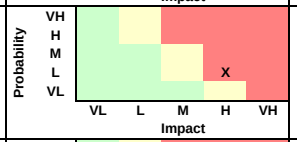
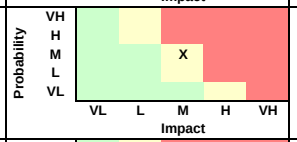
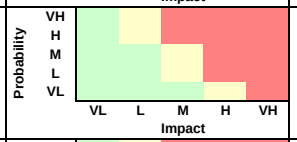
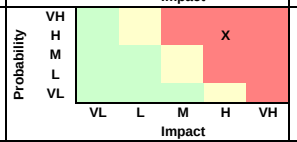
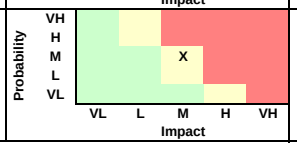
Project Agreement

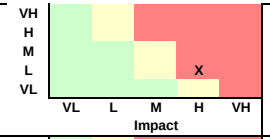
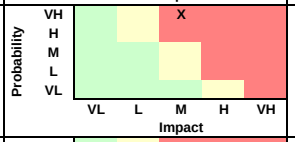
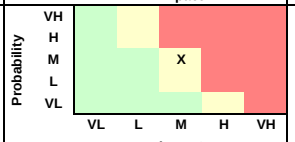
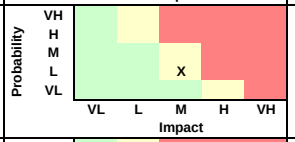
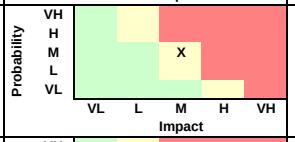
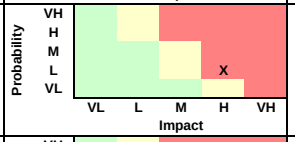
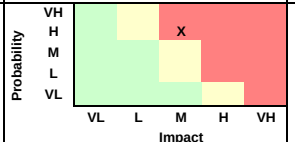
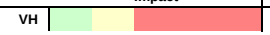
(To be incorporated at a later date)

Risk and Opportunity Management Plan

Sample Risk Management Register for Project XXXX

Risk Identification								Qualitative Risk Assessment			Risk Response Plan		Monitoring and Control	
#	Status	Risk Category	Risk Event	Cause	Effect	Threat or Opportunity	Primary Objective	Probability	Impact	Risk Matrix	Response Strategy	Response Actions	Responsibile Entity	Interval or Milestone Check
1	Active	External	Project not funded	Budget Constraints- allocation in doubt or subject to change	Project delayed	Threat	Time	High	Very High		Mitigate	Program Management Plan is developed to communicate schedule of funding needs. STIP revision is likely. Program Advisory Committee is established to mitigate risk occurance.	Program Advisory Council	Quarterly Program Advisory Committee Meetings
2	Active	Design	Budget and schedule variance	Significant variance from baseline	Increased project costs or delayed delivery	Threat	Cost	Low	High		Mitigate	Ensure all members endorse PDP, budgets and timelines; continuous earned value monitoring thru construction completion	Project Manager, CFT	Monthly
3	Active	Construction	Unidentified utility impacts	Unidentified utilities	Increased project costs	Threat	Cost	Low	Low		Transfer	Contingency plan. Contractor is responsible for coordination.	Utility Engineer	Monthly
4	Active	External	Permit delays	Permits expire. Permits or agency actions are delayed or take longer then expected.	Fines, penalties and project delays	Threat	Time	Moderate	Low		Transfer	Permits Specialist reponsible for coordinating permits and identifying permit requirements. Early coordination is necessary to evaluate and mitigate risks	Permits Specialist	Monthly
5	Active	Construction	Differing site conditions	Unexpected geotechnical issues. Natural or manmade obstructions.	Increased project costs	Threat	Cost	Moderate	Moderate		Mitigate	Thorough geotechnical investigations performed	Geotechnical Engineer	At completion of subsurface exploration
6	Active	Project Management	Marketing opportunities	Public exposure of a high profile HDOT/FLH project	Improves viability of HDOT / FLH partnership	Opportunity	Quality	High	High		Exploit	Future marketing of this successful project by the Division	Project Manager	Monthly

7	Active	Design	Construction Delay	Inability to finalize Right of Way	Delayed construction	Threat	Time	Moderate	High		Mitigate	CFL's ROW section is familiar with the chanllenges of obtaining ROW in HI and will be proactive throughout the process, maintaining contact w/ appropriate agencies	ROW Specialist	Monthly
8	Active	Design	Permit / Agency Delays	Unexpected Permits or Agency actions are delayed or take longer than expected	Delayed construction	Threat	Time	Moderate	High		Mitigate	CFL's Environmental Specialist is working closely with env folks in HI and familiar with HI permits and processes. Develop communications plan to facilitate effective communication	Environmental Specialist	Monthly
	Active	Design	Working out design standards or specifications to be used.	Multiple changes to project details, standards, specifications, etc due to multiple agencies involved in project.	Project Delays and Increased Project Costs	Threat	Time	Moderate	Moderate		Mitigate	HDOT Program Delivery Plan lays out processes and method for communication and decision making.	Project Manager and Designer	Monthly
9	Active	NEPA	Public Objections	Public or stakeholder controversy regarding the proposed action	Increased project costs	Threat	Time and Cost	Moderate	High		Mitigate	Develop public involvement strategy. Perform public involvement early and frequently. Develop communications plan and committee structure to help with resolution of issues.	Environmental Specialist	Bi-Monthly (or as needed)
10	Active	Design/ Construction	Utility Relocations	Failure of the cooperating agency to relocate utilities in a timely manner	Delayed construction	Threat	Time	Low	High		Mitigate	Look at including utility relocations in our contract to allow us more control over the schedule.	Roadway Designer and Utility Specialist	Throughout design
11	Active	Design/ Construction	Construction site access due to bridge deficiencies along access route	Opportunies to make permanent improvements to the three bridges accessing the project.	Improves HDOT's infrastructure and grows FHWA/HDOT partnership	Opportunity	Quality/ Partnership	Moderate	Moderate		Share	Discuss improvement opportunities with HDOT, evaluate potential retrofits, etc during design	Bridge Enginner	Throughout design
12	Active	Design/ Construction	Construction site access due to bridge deficiencies along access route	Will require temporary modification, detour, or barging of construction materials to the three bridge apporaching the project site	Increased project costs	Threat	Cost	High	Moderate		Accept	In order to construct the Wainiha bridges, the other bridges will need to be retro-fitted or a temp structure installed. All methods will be evaluated to access cost	Bridge Enginner	Throughout design
13	Active	Design/ Construction	Alternate Delivery Considerations	Use of Accellerated bridge / CMGC methods relatively new	Increased innovation, decreased construction time and potential decreased project costs	Opportunity	Reduced schedule and overall project costs	High	High		Exploit	Accelerated bridge construction will help shorten the length of construction. CMGC will allow the contractor to have input and offer expertise on construction methods, detours, etc	CFT	Throughout design and construction
15	Active	NEPA	Programatic approach to addressing SHPO involvement and considerations.	Coordination of multiple project revolved around similar issues	Decreased time	Opportunity	Schedule	Moderate	Moderate		Enhance	Increase efficiency of 106 Consultation by coordinating with SHPO on multiple bridges and potentially multiple projects	Environmental Specialist	During NEPA

16	Active	Planning	Available Resourcing	Inadequate resources to complete project per baseline	Project Delayed	Threat	Schedule	Low	High		Avoid	Baseline project and assign adequate resources to the project early on to ensure availability	CFL Management	Project Scoping/ P1 activity
17	Active	NEPA	NEPA Compliance	Project requires an Environmental Assessment	Project Delayed	Threat	Schedule	Very High	Moderate		Mitigate	Environmental Specialist assigned to project has experience with similar types of projects and documents	Environmental Specialist	During NEPA
18	Active	Planning	Design Quantities	Variances in actual quantities from design assumptions	Increased project costs	Threat	Cost	Moderate	Moderate		Mitigate	Initial project budget is created off of assumptions. A contingency amount is applied to this project to account for missed items. Input was obtained from each discipline to increase accuracy of estimate	CFT	Project Scoping/ P1 activity
19	Active	Design	NEPA Compliance	Design changes occur and design is outside of survey areas covered during NEPA	Increased project costs and potential schedule delays	Threat	Cost	Low	Moderate		Mitigate	Early coordination between environment and design will occur to cover all probably alternatives. Experienced designer and env specialist will mitigate impacts.	Environmental Specialist and Roadway Design	Preliminary Design and NEPA
20	Active	Pre-NEPA	Permit delays	Permit issues related to advanced geotechnical studies which may cause project delay	Schedule Delays	Threat	Schedule	Moderate	Moderate		Mitigate	Identify investigation needs early on and coordinate with appropriate agencies, as applicable.	Environmental Specialist	Preliminary Design and NEPA
21	Active	Design	Utility Conflict	Water lines need to be designed to avoid conflict with guardrail posts	Increased project costs	Threat	Cost	Low	High		Avoid	Verify guardrail post lengths early on and design water lines accordingly	Roadway Designer and Utility Specialist	Throughout design
22	Active	NEPA	NEPA Compliance	Lenghty response timeframes from resource agencies or permitting entities.	Schedule Delays	Threat	Schedule	High	Moderate		Mitigate	Begin consultation early in project development. Advance design details that support permit to accelerate permit application submittal to allow float.	Environmental Specialist and Roadway Design	Preliminary Design and NEPA
														

Preliminary Construction Cost Estimate

Hawaii Program of Projects - Wainiha Bridges

SCOPING ESTIMATE - BRIDGE REPLACEMENT

5/21/14 10:58 AM

Item Number	Item Description	Unit	Estimated Quantity	Unit cost	Estimated Cost
15201-0000	CONSTRUCTION SURVEY AND STAKING (Includes 6 detour locations)	LPSM	ALL	$150,000	$150,000
15214-1000	SURVEY AND STAKING, BRIDGE (3 Permanent Bridges)	LPSM	ALL	$100,000	$100,000
20304-2000	REMOVAL OF BRIDGE (3 bridges)	LPSM	ALL	$750,000	$750,000
	EARTHWORK	LPSM	ALL	$150,000	$150,000
25101-0000	PLACED RIPRAP	CUYD	3,000	$250	$750,000
30101-0000	AGGREGATE BASE	TON	1,112	$95	$105,640
40301-0000	HOT ASPHALT CONCRETE PAVEMENT	TON	3,000	$275	$825,000
	BRIDGE	SQFT	6,800	$900	$6,120,000
	TEMPORARY BRIDGE (Rental, w/ temp abutments)	EACH	3	$300,000	$900,000
	MOVE TEMPORARY BRIDGES (w/ temp abutments)	EACH	3	$200,000	$600,000
	GUARDRAIL/BRIDGERAIL	LNFT	800	$200	$160,000
	TEMPORARY TRAFFIC CONTROL	LPSM	ALL	$440,000	$440,000
	PERMANENT TRAFFIC CONTROL	LPSM	ALL	$80,000	$80,000
	ENVIRONMENTAL MITIGATION	LPSM	ALL	$200,000	$200,000
	DEWATERING	LPSM	ALL	$200,000	$200,000
				SUBTOTAL	**$12,490,640**
15101-0000	MOBILIZATION (10%)	LPSM	ALL	$1,250,000	$1,250,000
15301-0000	CONTRACTOR QUALITY CONTROL (2%)	LPSM	ALL	$250,000	$250,000
15401-0000	CONTRACTOR TESTING (1.5%)	LPSM	ALL	$190,000	$190,000
15501-0000	CONSTRUCTION SCHEDULE	LPSM	ALL	$20,000	$20,000
15701-0000	SOIL EROSION CONTROL (1.5%)	LPSM	ALL	$190,000	$190,000
	CONTINGENCY (18%)	LPSM	ALL	$2,250,000	$2,250,000
				TOTAL	**$16,640,640**
	CM/GC Saves 7 percent				**$16,483,140**

Note:

1 Inflation forecast based on ENR Construction Cost Index, US 20 City Average
Source: ENR/Global Insight

2 Utility relocation costs assumed to be shared with utility companies.

Construction Inflation Forecast		
Year	**Rate**	**TOTAL**
2015	4.2%	$17,175,432
2016	3.4%	$17,759,397
2017	2.8%	$18,256,660
2018	2.6%	$18,731,333

C:\Users\jill.mathewson\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\9ODCWDAD\[Wainiha_Bridges_Cost_Estimate.xlsx]Scoping Base

Internal Statement of Work

SCOPE OF WORK

WAINIHA BRIDGES
ROUTE 560, KUHIO HIGHWAY

Scoping/Preliminary Design/Final Design

Federal Highway Administration
Central Federal Lands Highway Division

June 16, 2014

I. GENERAL INFORMATION

A. INTRODUCTION

This Scope of Work (SOW) is to perform engineering, hydraulic, environmental, geotechnical, pavement design, and project management services towards delivery of a final set of plans, specifications and estimate for the Federal Highway Administration, Central Federal Lands Highway Division (CFLHD) for proposed replacements of the three Wainiha Bridges on Kuhio Highway.

B. PROJECT SUMMARY

The proposed project includes the reconstruction of three bridges on Kuhio Highway (Route 560) on the north side of the island of Kauai. The bridges are located between mile post 6.4 and 6.7 near the mouth of Wainiha Stream before it feeds into Wainiha Bay. The original bridges at these three locations were replaced with temporary ACROW bridges after Bridge #2 suffered permanent damage and Bridges #1 (the southern-most bridge) and #3 (the northern-most bridge) were determined to be structurally deficient. The ACROW bridges were installed as a temporary measure to keep the roadway open to residents and public traffic until environmental clearance and funding for the permanent structures could be secured. The three bridges are owned and maintained by the State of Hawaii Department of Transportation (HDOT).

II. WORK REQUIRED

A. PROJECT DEVELOPMENT PLANNING

No work under this Scope of Work. Project Development Planning activities provided under previous Scope of Work.

B. PROJECT MANAGEMENT

Project Management (P6 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 with the 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)

Project Management During Acquisitions (P6 Activity PMA)

Step 1. Project Management support during acquisition. Typical activities include, but are not limited to, the following:

- Coordination with acquisitions
- Response to bidder questions

C. ENVIRONMENT

Environmental Scoping (P6 Activity E0)

Develop agreements establishing roles, responsibilities, and partnering methods during initial coordination with agencies. Identify potential resource issues or concerns based on preliminary information, research, and coordination. Develop draft purpose and need, and alternatives. Initiate coordination with stakeholders, tribes, and the public.

Assumptions for E0 Activity:

- CFL is the lead agency for the NEPA process.
- An Environmental Assessment is assumed.
- CFL will prepare environmental compliance documents for both NEPA and HI statutes. HDOT will make final approval for HDOT compliance.
- On island public scoping and agency meetings can be scheduled to occur in one site visit in E0 activity.
- Specific assumptions regarding technical studies and level of effort is included in the table in Step 2, below.
- Scope assumes possibility of involving local facilitator if project team determines the project will benefit. This is included as contingency under E0.

Step 1. Perform Preliminary Partner Agency Coordination

- Establish Interagency (SEE) Team
  - Create Project Contacts List for environmental activities
  - Define Environmental Roles and Responsibilities

Step 2. Conduct Preliminary Environmental Research

- Continue collection of data on all resource areas to ensure surveys for E1 activity are appropriately scoped. It is assumed nearly all of the preliminary environmental research was conducted in the P1 activity.
  - Confirm resources that have potential impacts or that do not fall within project area or have no potential for impacts
  - Complete the table below to document scope of work assumptions for all resources, and/or the work anticipated.

Resource	Action or Assumption
Air Quality	The entire state of Hawaii is in attainment for all criteria pollutants. A brief qualitative discussion of impacts is assumed.
Coastal Areas	The project occurs within a coastal zone. A consistency determination for federal activities and development projects and a consistency certification for federal permits and licenses will be needed.
Cultural Resources	A complete cultural resources survey will be conducted. This survey will include past eligibility information on bridges and the overall road resource (which is NRHP-listed), and will be supplemented with archaeological field survey and additional built environment survey as needed for the Area of Potential Effect (APE). For the purpose of this scope, it is assumed that if archaeological

	resources are present, they will not be affected; therefore, no extensive archeological testing or data recovery plan is included. If these elements are necessary, additional funding, effort and schedule impacts are possible. No subsurface testing for archeological resources is assumed.
Farmlands	According to NRCS web soil survey, lands outside the right-of-way near Bridges 2 and 3 are Hanalei silty clay, which is categorized as prime farmland. Near Bridge 1 there is Mokuleia fine sandy loam, which is considered prime farmland if irrigated. Very minor conversion is possible. There are no farmlands present. NRCS Form AD-1006 will be prepared for the project if necessary based on Design.
Floodplains	The project is located within a FEMA-designated Zone VE floodplain. It is assumed no significant encroachment will result from the project. Hydraulics staff will perform necessary studies and provide CFL Environment with findings.
Geology/ Soils	No intensive environmental analyses are expected for environmental compliance. Geotechnical testing is anticipated and drilling being advanced pre-NEPA is assumed.
Hazardous Substances	A database search and field reconnaissance did not indicate any hazmat concerns. No hazardous material studies are included in this scope. An Initial Site Assessment (ISA) will be conducted for the project consistent with ASTM E1527 standards. Contamination at levels requiring additional investigation is not anticipated.
Land Use	No inconsistencies with local and regional plans. A qualitative analysis of applicable land uses and the project's consistencies with those uses is assumed. Special land use designations apply to the project, including its location in a Conservation District Land Use Area and county Special Management Area.
Noise	There are noise sensitive locations adjacent to the roadway, but project would not increase noise levels over the long term. It is assumed this is not a Type I project. Short-term, localized construction noise would occur. No measureable change from existing conditions expected in the long term. Consideration of temporary construction noise will be included in environmental analysis process. Assumptions regarding potential noise and vibration analyses in relation to wildlife impacts are included under T&E species below.
Noxious Weeds	No specific noxious weed problems have been identified. Noxious weed identification will be considered in the biological surveys for the project. Noxious weeds would be managed with standard noxious weed specifications.
Recreation	The road accesses recreational opportunities. It is assumed that access to these areas will be maintained through construction, with minor construction delays or temporary closures at certain construction milestones. Minimal effort is assumed for this resource.

Right-of-way	Minor right-of-way will be required. No relocations or displacements.
Section 4(f) Properties	The roadway is NRHP-listed and therefore qualifies as a Section 4(f) property. No other Section 4(f) properties have been identified. If effects through the Section 106 process are adverse which is a possibility but dependent on Design, an Individual Section 4(f) Evaluation or Programmatic Section 4(f) Evaluation will be needed. This scope assumes a Section 4(f) Evaluation will be prepared.
Section 6(f) Properties	No impact. No 6(f) properties present.
Social & Economical	The project involves isolated bridge locations and is not anticipated to have measurable social or economic impacts. There are no relocations or acquisitions associated with the project. The road will remain open during construction, with minor construction delays or temporary closures at certain construction milestones. A minor level analysis is assumed. Impacts to environmental justice populations will also be included.
T&E and Sensitive Species	Biological surveys and preparation of a Biological Assessment and Biological Evaluation will be prepared for the project. Several T&E and state-protected species have potential to occur in the project area. Section 7 consultation is assumed for the project, as well as consultation with the HI Division of Forestry and Wildlife. Depending on the outcome of suitable habitat for protected species and if pile driving is necessary, a bioacoustics analysis may be required to assess noise and vibration impacts to fish and wildlife species. This scope assumes a moderate level of effort of bioacoustic evaluation in support of biological assessment. Newell's shearwater and Hawaiian hoary bat consultation anticipated. All species with potential to occur will be evaluated in BA. Potential lighting restrictions and vegetation removal timing restrictions may be associated with the project.
Utilities	There are overhead electric utility lines and an adjacent power pole that may be avoided. Water lines across existing structures would be impacted. No major utility conflicts are assumed.
Vegetation	Limited vegetation disturbance is assumed. Habitat impacts will be considered in the Biological Evaluation for the project.
Visual Quality	The long-term visual impacts and the design of the new bridges will be of high interest to the public and of consideration through the Section 106 process. A visual analysis is assumed for this project, to include renderings and visual simulations. Aesthetic treatments and the project design will be closely coordinated and be sensitive of the historic context of the roadway.
Water Quality	It is anticipated the project will disturb more than one acre, therefore it is assumed the project will require an NPDES permit and incorporate water quality BMPs. No water quality monitoring is assumed in this scope.
Wetlands and Waters of the US	Wetlands and estuarine resources are in the project area. A wetland and waters of the US delineation to identify jurisdictional boundaries is assumed. Coordination with USACE and the state through the permitting process will be completed.

	It is assumed that some wetland mitigation may be necessary. A separate 401 permit will be required.
Wild and Scenic Rivers	There are no designated wild and scenic rivers to be impacted. No analysis is needed.

Step 1. Develop Draft Purpose and Need and Draft Alternative(s)

- Review and supplement data to identify key issues
- Draft Purpose and Need statement
- Draft Alternative description(s) to be studied
  - Two alternatives assumed, No Action Alternative and Build Alternative
  - No more than two different design options for constructability are assumed

Step 2. Perform Resource Agency, Tribal, and Public Coordination

- Refine Communications Plan for the project (original draft template developed during P1 activity)
- Coordinate with other resource agencies
  - Identify key issues, potential constraints, opportunities, and past resource surveys conducted
  - Create an agency scoping mailing list.
  - Draft agency scoping letters (e.g., SHPO, USFWS).
  - Draft resource agency issues for incorporation into environmental document
- Coordinate with Native Hawaiian Organizations (NHOs)
  - Develop tribal mailing list.
  - Prepare and distribute tribal review package (newsletter or scoping letter, project maps, consultation letter, and newspaper public notice)
  - Address comments from review
- Coordinate with public
  - Develop public scoping mailing list.
  - Make all arrangements necessary to locate and secure appropriate meeting place, times, and locations.
  - Arrange for appropriate media notification and prepare newspaper and other appropriate advertisements
  - Prepare and send public scoping notices (notice of project) to public, agencies, etc.
  - Design and develop CFL web page content for the project
  - Prepare agenda, handout information, appropriate exhibits, technical and process information, and presentations.
  - Attend meeting (actual attendance under “Meetings” in this scope)
  - Summarize public, organization, and agency input in a Scoping Summary Report.

Step 3. Provide Environmental Support to the Cross Functional Team

- Attend/Participate in CFT meetings
- Provide technical support
  - Informal meetings, and correspondence
  - Misc. coordination and progress with design/CFT
- Update Environmental Project Controls
  - Review Project Agreement and coordinate changes with the PM
  - Review Scope, Schedule and Budget, and coordinate changes with the PM

Deliverables for E0 Activity:

- SEE team list and contacts
- List and/or table of all resource areas with initial impact assessments
- Draft Purpose and Need statement
- Draft Alternative descriptions
- Updated Communications Plan
- Agency coordination letters
- Draft Resource Agency issues
- Tribal mailing list
- Tribal review package
- Public notice materials
- Public meeting presentation materials
- Scoping Summary Report
- Documentation of scope, schedule, and budget modifications

Environmental Compliance Studies (P6 Activity E1)

Determine project specific needs for surveys and studies for resources, and develop a plan for the methods to deliver the studies. Conduct required surveys for resource assessment and prepare resource reports. Perform additional partner, interagency and public involvement activities.

Assumptions for E1 Activity:

- Assume that the following separate technical reports will be required:
    - Cultural Resources Survey and Assessment of Effect. No subsurface archaeological testing or data recovery is included in scope at this time.
    - Biological Assessment (to include federally listed species)
    - Biological Evaluation (to include state-listed species and general wildlife and vegetation analysis)
    - Wetland and Waters of the US Delineation Report
    - Visual Impact Assessment
    - Initial Site Assessment
- Assume that permission will be obtained for all necessary areas to be surveyed. If critical areas are unable to be accessed, additional effort may be involved in the form of later re-survey or schedule delay if critical information for consultation and/or analysis is missing.
- Assume that a local A/E will be used for performance of specialized technical field surveys, including field work and report development for Cultural, Biological, Waters of the US, Visual, and Initial Site Assessment.
- Assume that all areas to be disturbed by the action will be identified, including but not limited to, construction and construction access areas, private drives and connection roadways, staging areas, utility relocations, traffic detours, and areas needed for construction signing. Once this area is confirmed with Design staff, environmental surveys will be conducted. Any later additions to this survey area will likely require additional effort and schedule delays.
- Assume temporary structures will be provided at three historic load-restricted bridges en route to Wainiha Bridges. No rehabilitation activities to the original historic bridges will occur.

Step 1. Develop Delivery Plan for Compliance Studies

- Determine Project Compliance Needs
    - The following studies and reports are required:
        - Cultural Resources Report and Archeological Survey
        - Biological Assessment

        - Biological Evaluation
        - Wetland delineation and jurisdictional determination
        - Visual Impact Assessment
        - Initial Site Assessment
    - Develop and manage task order for A/E development of above technical reports.
    - Refine environmental study corridor with Design and PM and obtain concurrence. No changes to project footprint after surveys performed are assumed.
    - Obtain access permission to survey private properties:
        - Right-of-entry is assumed for adjacent properties
        - Prepare and mail access permission forms
        - Follow up with nonresponsive landowners
        - Coordinate with survey team regarding access

Step 2. Perform Cultural Surveys/Studies and Coordination

- Conduct Cultural Resources research
    - Identify APE
    - Prepare letter, and/or document initial SHPO coordination, including concurrence of APE
- Prepare for Survey, Delineation, and Report(s)
    - Obtain any necessary permits for Class III inventory:
        - Right-of-entry is assumed for adjacent properties
        - Coordinate with survey team regarding access
- Conduct Surveys, Studies, & Delineations
    - A/E to perform – Assume two days of travel, four days in field
    - Review survey data for adequacy, completeness, and for inclusion into environmental document.
- Prepare Cultural Resources Report
    - Prepare DRAFT report
    - Circulate DRAFT within FHWA and externally (after FHWA approval) for review and comment as appropriate
    - Distribute FINAL Report to partners, SHPO/THPO, and tribes
    - Coordinate findings with design for incorporation into plans

Step 3. Perform Biology Surveys/Studies and Coordination

- Conduct T&E species research
    - Prepare request letter(s), and/or hold consultation with USFWS and state.
    - Document initial federally listed T&E; state, county or agency listed; or sensitive species data.
    - Document species habitat requirements
- Prepare for Survey, Delineation, and Report(s)
    - Obtain access permission to survey private properties (done in Step 1, above)
    - Obtain any necessary permits to perform field work
- Conduct Surveys, Studies, & Delineations

- Conduct general reconnaissance surveys for special status species using established protocols to determine habitat types, quality, and potential for federal and state listed species to occur within the study area.
- Review survey data for adequacy, completeness, and for inclusion into environmental document.

- Prepare Studies Reports
  - Prepare DRAFT reports (BA/BE assumed)
    - Prepare a Biological Evaluation/Report documenting existing conditions, results of research and survey work for protected species, and assessment of impacts to protected species. A discussion of general and wildlife and vegetation impacts will also be included.
    - Prepare one Biological Assessment for terrestrial, aquatic, and plant species as part of formal consultation with USFWS and NMFS.
    - A/E to perform surveys – Assume two days of travel, two days in the field
  - Circulate DRAFTs within FHWA and externally (after FHWA approval) for review and comment as appropriate
  - Distribute FINAL Reports to partners and Resource agencies
  - Coordinate findings with design for incorporation into plans

Step 4. Perform Wetland Surveys/Studies, and Coordination

- Prepare for Survey, Delineation, and Report(s)
  - A/E to perform - Assume two days of travel, two days in the field, and preparation of the report for submittal to USACE by CFL.
- Conduct Surveys, Studies, & Delineations
  - Establish project limits and survey boundaries
- Prepare Delineation Report
  - Prepare DRAFT reports
  - Prepare GIS information
  - Develop project maps (location, vicinity, etc.)
  - Circulate DRAFTs within FHWA and externally for review and comment as appropriate
  - Revise and develop FINAL Reports
  - Coordinate findings with design for incorporation into plans

Step 5. Perform Other Environmental Surveys/ studies, coordination

- Conduct an Initial Site Assessment (ISA) along project area consistent with ASTM E1527 standards for hazardous material
  - A/E to perform – Assume two days of travel, two days in the field
- No additional hazardous materials studies are assumed.
- Visual impact assessment report
  - A VIA will be prepared to assess the visual effects of new bridges in the historic setting of the Kuhio Highway. Local land use plans and historic documents will be reviewed to identify goals and policies concerning visual resources in the study area. Up to 4 visual simulations will be used to demonstrate the anticipated changes in

visual quality associated with the project. The impact analysis will identify and evaluate potential adverse effects of the proposed project and recommend appropriate mitigation.
    - A/E to perform – Assume two days of travel, one day in the field

Step 6. Perform Resource Agency, Tribal, and Public Coordination

Assumes public/organization meeting during E1 activity can coincide with a plan field review. This meeting is optional depending on need.

- Continue coordination with partners, other agencies, and public
    - Refine P&N and alternatives
    - Refine alternatives to consider and alternatives to eliminate
        - Two alternatives assumed, No Action Alternative and Build Alternative
- Develop presentation materials for public, agency, and/or organization meetings. Minimal presentation materials are assumed for this meeting. This meeting is optional depending on project need.

Step 7. Provide Environmental Support to the Cross Functional Team

- Attend/Participate in CFT meetings
- Provide technical support
    - Informal meetings, and correspondence
    - Misc. coordination and progress with design/CFT
- Update Environmental Project Controls
    - Review Scope, Schedule and Budget, and coordinate changes with the PM

Deliverables for E1 Activity:

- A/E contract documents including: SOW, IGE, purchase request (if necessary)
- Survey Data: (Photos, records forms, GPS data, survey limits, maps)
- Draft and Final Resource Report(s): (Cultural, Biological assessment, Biological Evaluation, Wetland Delineation, Initial Site Assessment, Visual Impact Assessment)
- Initial coordination letter for Section 106
- Initial coordination for T&E
- Revised Purpose and Need statement
- Revised Alternative descriptions

DOCUMENT PREPARATION (E2 ACTIVITY)

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

Assumptions for E2 Activity:

- Assume no design changes outside of original surveyed area.
- Assume no changes to proposed action after consultation underway or completed. Re-initiating or revising consultation will affect project schedule.
- Assume that if eligible archeological resources are identified, they will not be affected.
- Assume timely response of resource agencies to avoid unnecessary project delays.

Step 1. Finalize Purpose and Need (P&N) and Alternatives

Step 2. Perform Additional Studies, Research, Analyses, and/or Evaluations

- Evaluate alternatives and Impacts; interpret and evaluate applicability of all resources to proposed project alternatives
- Resource topics to be analyzed include:
  - Biological Resources – including common wildlife, vegetation, and T&E and sensitive species
  - Coastal Areas
  - Cultural Resources
  - Farmlands
  - Floodplains
  - Geology/Soils
  - Hazardous materials
  - Air quality
  - Noise
  - Section 4(f) Properties
  - Social & Economical – including land use, recreation, right-of-way
  - T&E and Sensitive Species
  - Utilities
  - Vegetation (includes noxious weeds)
  - Visual Quality
  - Water resources – including wetlands and waters of the US and water quality
- Resource topics to be dismissed from analysis include:
  - Environmental Justice
  - Section 6(f) Properties
  - Wild and Scenic Rivers

- Incorporate analysis results/data into environmental document.
- Coordinate possible/proposed mitigation measures with Design and Construction
- Coordinate mitigation measures with partner agencies and with affected resource agencies

Step 3. Continue Coordination (w/Tribes, Partners, Agencies)

- Write and send letters/emails responding to questions and comments from agencies
- Coordinate with the Cross Functional Team/Design on:
  - Agency and Public concerns with potential to affect/change design
  - Updates to or newly identified resource locations (e.g., wetland delineations, T&E species occurrences, 4(f) property, 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 periods due to T&E species)

Step 4. Conclude Section 106 SHPO Consultation

- Cultural Resources-Section 106 Consultation:
  - Make eligibility determinations
  - Coordinate with partner agencies on determinations
  - Draft, Finalize, & Send letter to SHPO on determination of eligibility (DOE) of sites
  - Make effect determinations for alternatives under consideration
  - Coordinate with partner agencies on determinations

- Draft, Finalize, & Send letter to SHPO on finding of effect (FOE) determination
- Coordinate with design to address any avoidance and minimization actions
- Continue Government-to-Government consultation

- If adverse effects, notify and invite ACHP
- If adverse effects, prepare draft MOA to resolve adverse effects and coordinate with consulting parties

Step 5. Conclude Section 7 and Sensitive Species Consultations

- T&E species (Section 7 Consultation) and Sensitive Species:
  - Consult with state wildlife agency on state-listed species; negotiate appropriate mitigation or timing restrictions
  - Consult with Fish & Wildlife Service on BA; negotiate appropriate mitigation and minimization measures
  - Secure Biological Opinion, if applicable

Step 6. Prepare draft environmental assessment

- Finalize purpose and need and alternatives chapters for the administrative draft EA
- Prepare or compile illustrations for administrative draft EA
- Prepare affected environment and environmental consequences
- Prepare consultation and coordination summary
- Develop mitigation commitment summary
- Prepare appropriate Section 4(f) documentation

Step 7. Provide Environmental Support to the Cross Functional Team

- Attend/Participate in CFT meetings
- Provide technical support
  - Informal meetings, and correspondence
  - Misc. coordination and progress with design/CFT
- Update Environmental Project Controls
    - Review Scope, Schedule and Budget, and coordinate changes with the PM

Deliverables for E2 Activity:

- Section 106 consultation materials
- Section 7 consultation materials
- Administrative draft environmental document

ENVIRONMENTAL DOCUMENT APPROVAL (E3 ACTIVITY)

Finalize the environmental document through the process of review and signature, reproduction, and circulation.

Assumptions:

- Assume that the document will be reviewed by partner agencies.
- Assume one internal review cycle
- Assume one external review cycle
-

Step 1. Perform Draft Document Review

- Internal Review
  - Distribute draft for review
  - Address & Respond to comments, revise document
- External Review

- Distribute draft for review
- One review assumed
- Address and respond to comments, revise document

Step 2. Obtain Final Document Signature and Distribute

- Obtain Signature(s)
  - Prepare signature transmittal memo for signature with summary of project, key issues, risks, etc.
- Prepare & Distribute signed edition
  - Transmittal Letter(s)
  - Printing & distribution

Step 3. Perform Public Involvement

- Prepare and Hold public meeting(s) and/or review(s) - Assumes meeting preparation included in E3 activity, actual meeting attendance included in site visits
- Set up, prepare for, and attend Public Hearings (PH)
  - Arrange all PH logistics (location, dates, notifications, court reporters)
  - Make all arrangements necessary to locate and secure appropriate meeting place, times, and locations
  - Arrange for appropriate media notification and prepare newspaper, website, and other appropriate advertisements
  - Prepare agenda, handout information, appropriate exhibits, technical and process information (including presentations)
  - Prepare and Distribute Public Notices for PH
  - Conduct pre-hearing internal coordination
- Review comments from PH(s)
  - Review PH transcript(s) and make necessary corrections
  - Review comments received and respond to comments
  - Meet internally and with partner agencies to discuss comments

Step 4. Prepare and Review Draft Decision Document

- Update EA and Prepare Decision Document – Assumes decision document can be prepared. If EIS needs to be prepared, a modification to this scope will need to occur.
  - Internal Review
  - Distribute updated EA and Decision Document for review
  - Address and respond to comments, revise documents
- External Review (may be concurrent with internal)
  - Distribute updated EA and Decision Document for review
  - Address and respond to comments, revise documents

Step 5. Obtain Final Document Signature and Distribute

- Obtain Signature(s) on Decision Document
  - Prepare Signature Transmittal Memo
  - Coordinate management meeting
  - Route for signature(s)

- Prepare & Distribute updated EA and signed Decision Document
  - Transmittal Letters,
  - Website & public notices,
  - Printing & distribution

Step 6. Prepare Environmental Commitment Summary Table

Step 7. Provide Environmental Support to the Cross Functional Team

- Attend/Participate in CFT meetings
- Provide technical support
  - Informal meetings, and correspondence
  - Misc. coordination and progress with design/CFT
  - Coordinate Environmental Commitments with CFT
  - Update CFT team on any design changes required in response to comments
- Update Environmental Project Controls
  - Review Scope, Schedule and Budget, and coordinate changes with the PM

Deliverables for E3 Activity:

- Draft document comment responses
- Signed environmental document
- Revised EA and decision document
- Signature transmittal memos
- Signed decision document
- Environmental commitment summary table

Environmental Mitigation and Support (P6 Activity E4)

Assess project for changes requiring reevaluation. Review the environmental document including the determinations and measures for the development of a plan to fulfill compliance. Implement required mitigation efforts including coordination on Environmental commitments through final design (from 30% through 100%); coordination with 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.

Assumptions for E4 Activity:

- Preconstruction avian surveys by A&E are assumed.
- If wetland impacts are unavoidable, mitigation will likely be necessary. This scope assumes preparation of a wetland mitigation plan.
- No design changes outside the environmental survey area are assumed. No major regulatory changes are assumed.
- Assume minor design refinements may occur post-NEPA but the original decision will still be valid.
- Assumes permit support for state, local, and federal permits outside of water resources and stormwater permits (which are included in EP1 and EP2 activities).
- Assumes any necessary wetland mitigation can be performed onsite.
- Assumes A/E survey work pre- and during construction is captured under Construction budget.

Step 1. Review Project for Changes

- Evaluate environmental document, conditions, and design
- Review mitigation measures and/or commitments

- Document reevaluation as necessary

Step 2. Develop Delivery Plan for Mitigation

- Determine Project Mitigation Needs
  - Determine necessary studies and reports
  - Determine permit needs
  - Coordinate preliminary mitigation estimate needs with PM
  - Prepare/Review/Revise/Distribute draft mitigation approach letter for review and comment
  - Address comments with client agencies, as necessary, and finalize mitigation approach
- Determine Method of Delivery (In-house, Partner, or A/E)
- Acquire A/E Services (Prepare SOW, TO, IGE, etc.)
- Develop Agreements (Reimbursable, Grant, etc.)

Step 3. Finalize Mitigation Commitments and Delivery Plan

- Perform required surveys, studies, and/or report updates
- Complete consultation
- Coordinate with internal and external teams
  - Ensure right-of-way or right-of-entry obtained for mitigation site(s)
  - Coordinate revisions with appropriate cross-functional team members, clients, and regulatory agency

Step 4. Implement and Monitor Mitigation and Commitments

- Perform necessary work and coordination
- Complete and Closeout Mitigation
  - Verify mitigation is complete
  - Document results as necessary (e.g. Tech Memo)
  - Provide Environmental Support to the Cross Functional Team
- Attend/Participate in CFT meetings
- Provide technical support
  - Informal meetings, and correspondence
  - Misc. coordination and progress with design/CFT
- Update Environmental Project Controls
  - Review Scope, Schedule and Budget, and coordinate changes with the PM

Deliverables for E4 Activity:

- Reevaluation documentation as necessary
- Mitigation Delivery Plan as necessary
- Mitigation studies and/or reports

D. PERMITS

Jurisdictional Determination and Permit Approach (P6 Activity EP1.0)

Prior to preparing permit packages, review the Waters of the U.S. Delineation report and determine jurisdictional approach.

Assumptions for EP1.0 Activity:

- This scope assumes that a Nationwide Permit (NWP) will be secured from the USACE for compliance with Section 404 of the Clean Water Act.
- A 401 Water Quality Certification (WQC) will be secured from the Hawaii Department of Health and Environmental Management Division
- USACE will not require a field verification
- FHWA will obtain concurrence from USACE for leading the Section 7 and 106 consultations with USFWS and SHPO, respectively.

Step 1. Review Waters of the U.S. Delineation and Report

Step 2. Jurisdictional determination and approach

- Preliminary JD
- Approved JD

Step 3. Prepare appropriate JD request

Step 4. Coordinate with CFT

- Coordinate with PM or environment lead on WUS Delineation SOW
- Determine preliminary impacts to jurisdictional waters
- Document avoidance and minimization efforts to jurisdictional waters
- Quantify preliminary impacts for NEPA documentation
- Identify anticipated permit(s)

Deliverables for EP1.0 Activity:

- Jurisdictional determination request
- Table or list of preliminary impacts to jurisdictional waters
- Avoidance and minimization documentation

Develop 404/401 Permit Package (P6 Activity EP1.1)

Assess and establish 404/401 Wetlands and Waters of the US permits as required.

Assumptions for EP1.1 Activity:

- Assume mitigation is necessary.

Step 1. Determine impacts to jurisdictional waters

- Coordinate with CFT to identify design revisions
- Recalculate avoidance and minimization efforts to jurisdictional waters
- Finalize impacts

Step 2. Coordinate with Federal and State regulatory agencies to obtain permit application requirements

- Determine project specific permit requirements (Federal, State, and Local)

Step 3. Prepare and Submit 404 and 401 permit applications

Step 4. Prepare a mitigation plan or purchase credits for impacts from bank or in lieu fee program.

Step 5. Receive permits, Coordinate terms & conditions with PM, and electronically archive

- Confirm EP1.2 & EP1.3 activity expiration dates in P6 w/the Project Manager

Step 6. Upon project completion, prepare and submit 404/401 certification of compliance

- Permit close out
- Transfer of responsibility

Deliverables for EP1.1 Activity:

- Table or list of final impacts to jurisdictional waters
- Permit application(s)
- 404/401 permit(s)

Develop Draft NPDES Permit Package (P6 Activity EP2.0)

Determine permit types and then develop SWPPP and NOI

Assumptions for EP2.0 Activity:

- Project will need NPDES permit
- Permit NOI submission 30 days prior to construction start

Step 1. Assess NPDES Permit requirements
- Review project documents (plans, SCRs, NEPA, etc)
- Review applicable stormwater construction general permit

Step 2. Communicate with CFT any conditions that need to be addressed in plans and SCR's
- Monitoring requirements
- Reporting requirements
- Pollution Prevention devices required by permit

Step 3. Prepare NPDES Storm Water Pollution Prevention Plan
- Include: narrative, maps, figures, and any other appendices
- Determine area of disturbance and total area
- Determine impervious area before and after construction
- Determine Risk Level (California only)
- Determine receiving water and 303(d) or Tier status

Step 4. Prepare Notice of Intent and submit to State.

Deliverables for EP2.0 Activity:

- SWPPP and NOI

Permits CFT Support (P6 Activity CFT)

Provide support to CFT after Environmental Activities are complete.
- Provide support to CFT.

E. SURVEY

Initial Survey and Mapping (P6 Activity S1)

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

Assumptions for S1 Activity:

- Survey will be required for three temporary bridge structures on detours at the three 8 ton load posted bridges leading up to the Wainiha bridges.
- Assume survey control at the three temporary bridge locations needs to be set.
- Assume existing survey information at Bridges #1 through #3 needs to be supplemented with additional field survey to cover proposed project area.
- Assume survey control for Bridges #1 through #3 is already set.

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. Locate cadastral and private property monuments and other evidence

- Identify aliquot, right of way, property and other monumentation and evidence of possession to be mapped
- Perform the required measurements to locate the evidence relative to the CFLHD control network
- Review, edit & submit files according to the requirements shown under Deliverables

Step 5. Field Reports

- Submit progress reports
- Submit *Final Report*

Step 6. Field Mapping

- Map area as identified in *Work Plan*
- Review, edit & submit files according to the requirements shown under Deliverables

Step 7. 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,

Survey CFT Support (P6 Activity CFT)

Provide support to CFT after Initial Survey is complete (not including supplemental survey).

- Provide support to CFT.

Alignment Staking for 70% Field Review (P6 Activity SC70)

Stake the construction limits for the detours for the 70% Field Review.

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. Stake Centerline Alignment

- Perform the required measurements to confirm existing CFLHD control points
- Set points on the construction limits as directed
- Compare elevations between set points and existing TIN file
- Review, edit & submit files according to the requirements shown under Deliverables

Deliverables for SC70 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.

- Staked point coordinates data in ASCII format as follows:
  - Point Number,Northing,Easting,Elevation,PCode;Point Descriptor
  - The file shall be comma delimited and have a header record that defines the fields,
  - The extension shall be .nez.

F. HIGHWAY DESIGN

Develop 15% Design - Preliminary Line and Grade (P6 Activity D1)

No work under this activity.

Develop 30% Design (P6 Activity D2)

Develop and distribute the 30% design. See 30% Development Checklist for more specific details.

Assumptions for D2 Activity:

- Assume no pullouts or parking areas will be included in this project.
- Assume standard erosion control measures and best management practices (BMP's) will be sufficient. Erosion Control Plans will not be prepared at this milestone. Only the standard details will be provided.
- Assume cross-sections will only be provided for one alternative for each bridge location.
- Assume only minor intersection design at two approach roads.
- Assume only the water line conduits on the bridges will need to be relocated. Assume no overhead utilities will be impacted by this project.
- Assume no utilities will be impacted at the three temporary bridge sites leading up to Wainiha bridges.
- Assume only one alternative will be considered for Bridge #1. Assume new temporary abutments will be constructed adjacent to the existing ACROW bridge on the makai (ocean) side and the existing temporary bridge will be slid in place to accommodate construction traffic. Assume the new bridge will be designed on the existing alignment due to right of way constraints.
- Assume two alternatives will be looked at for Bridges #2 and #3. Assume two new bridges on an adjacent alignment the makai (ocean) side will be considered, using the existing ACROW bridges for construction traffic in their current location. Assume a second alternative will be considered constructing the new bridges on existing alignment. Under this alternative, temporary abutments will be constructed on the mauka (mountain) side and the existing ACROW bridges will be slid into place to accommodate construction traffic on an adjacent alignment.
- Assume an alignment will be selected at each bridge site prior to 30% PS&E and only one alignment will be included in the 30% package for each bridge.
- Assume a Class C cost estimate will be developed for two alternatives at Bridges #2 and #3, the new bridges on the existing alignment and the new bridges on an adjacent alignment.
- Assume there are no culverts within the project limits and no minor hydraulics required under the design activities.
- Assume there are no retaining walls on this project.
- Assume Permanent Traffic Control Plans will not be provided at this milestone.
- Assume a temporary bridge on an adjacent roadway alignment will be required at the three 8 ton load posted bridges leading up to the Wainiha bridges (the Waioli, Waipa, and Waikoko bridges). Assume the Hanalei bridge can accommodate construction traffic and will require no detour.

Step 1. Roadway Design

- Develop the Typical Sections for each alternative
- Roadway geometric design for each alternative
- Develop horizontal and vertical alignments (Assume two alternatives will be evaluated at Bridges #2 and #3, one on existing alignment and one on an adjacent alignment. Assume only one alternative will be evaluated for Bridge #1.)
- Develop planimetric design features (widenings, roadside ditches, guardrail, etc.)
- Develop roadway cross sections

Step 2. Secondary Roadway Design

- Develop all geometric design for approaches, major intersection plans, and cross sections (Assume only minor intersection design required at two approach roads near Bridges #2 and #3.)

- Develop utility resolution/conflict plans. Compare the horizontal and vertical alignments with available utility information and determine any locations for potential conflict. (Assume only the water lines on the bridges will require relocation. Assume no overhead utilities will be impacted by this project.)

Step 3. Develop preliminary temporary traffic control design for unique or major items.

- Identify potential detours and road closures (Assume temporary bridges on temporary detours will be required at the three bridges leading up to the Wainiha bridges to accommodate construction traffic. Assume a temporary detour will be required at Bridges #1 through #3 as well.)
- Identify possible construction phasing. (Assume a rough site plan identifying the horizontal alignment of the detour will be provided at this phase. Assume no cross-sections will be provided for the detours at this time.)

Step 4. Plan Production

- Standards, details, Specials and project specific plan sheets
  - Include all applicable FLH Standard Plans and CFLHD Details
  - Develop project specific details and plan sheets as necessary including title and site plan sheets
- Plan and Profile sheets
  - Develop plan and profile sheets
- Develop plan quantities, summaries and tabulations.
- Print and assemble the 30% plan package accordance with the CFLHD CADD Manual and the 30% Development Checklist. The plan package may be numbered by hand.

Step 5. Cross Functional Design Support

- Provide highway design support for preliminary structural design and layout.
- Provide highway design support for hydraulics 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 environmental document into the design
- Assist with identifying and researching the need for permits.

Step 6. 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. (Assume a Class C cost estimate will be developed for two alternatives, the new bridges on the existing alignment and the new bridges on an adjacent alignment for Bridges #2 and #3.)

Step 7. Construction Schedule

- Identify the major construction bid items, develop the production rates/durations and develop the construction schedule's calendar.

Step 8. Project Documentation

- Develop the *Highway Design Standards Form*
- Prepare *30% Design Technical Memorandum*
- Risk and Opportunity Management Plan
- Update Designer's Notebook
- Complete the 30% Development Checklist
- Update the electronic file tracker

Design Peer Review & Update 30% Design (P6 Activity D2PRE)

Step 1. Pre-submittal/Peer Review

- Assemble, print, and distribute PS&E package for pre-submittal/peer review. Conduct review and incorporate review comments into PS&E package
- Distribute 30% Plans, Specifications, and Estimate package for an in-office review by the CFT

30% Update for External Review (P6 Activity D2PR)

Step 1. External Review

- Update PS&E from internal review comments
- Print and distribute the 30% package to external agencies
- Prepare draft responses to external reviewers

Deliverables for D2 Activities

Internal Distribution Deliverables

- 30% Plans, Specifications and Estimate for Internal FHWA Distribution (with only one alternative/alignment for each bridge)
- 30% Internal FHWA Distribution Design Support Documents
  - 30% Development Checklist
  - Updated CPM Construction Schedule
  - 30% Unit Price Analysis
  - Risk and Opportunity Management Plan
  - Copy of quantity calculations and supporting documentation
  - Draft Highway Design Standards Form
  - Updated Design Technical Memorandum

External Distribution Deliverables

- 30% Plans, Specifications and Estimate for External FHWA Distribution
- 30% External Distribution Design Support Documents
  - CPM Construction Schedule
  - 30% Internal Distribution Comment and Response Form, including responses
  - Draft Highway Design Standards Form
  - Updated Design Technical Memorandum

Develop 50% Design (P6 Activity D2.1)

No work under this activity.

Develop 70% Design (P6 Activity D3)

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

Assumptions for D3 Activity:

- Assume no pullouts or parking areas will be included in this project.
- Assume standard erosion control measures and best management practices (BMP's) will be sufficient. Erosion Control Plans will be provided at this milestone.
- Assume an alternative for each location was selected at 30% design and only one alternative will be included in the 70% plan package.

- Assume only minor intersection design at two approach roads.
- Assume only the water line conduits on the bridges will need to be relocated. Assume no overhead utilities will be impacted by this project.
- Assume there are no culverts within the project limits and no minor hydraulics required under the design activities.
- Assume there are no retaining walls on this project.

Step 1. Post 30% 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 30% Trip Report.

Step 2. Roadway Design

- Finalize the Typical Sections
- Complete horizontal and vertical alignments
- Complete planimetric design features (widenings, roadside ditches, guardrail, etc.)
- Complete roadway cross sections

Step 3. Secondary Roadway Design

- Complete all geometric design for approaches, major intersection plans, and cross sections
- Develop erosion control design
- Update utility resolution/conflict plans

Step 4. Permanent and Temporary Traffic Control

- Develop permanent traffic control signing and striping design
- Update construction phasing and/or detour plans (Assume detours required for three bridges leading up to the Wainiha bridges, as well as for the three Wainiha bridges.)
- Develop temporary signing, striping, and traffic control plans

Step 5. Plan production

- Update/refine 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 hydraulics design
- Provide highway design support for environmental mitigation design and commitments.
- Support/finalize all permits and requirements
- Provide survey points 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

- Update 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
- Risk and Opportunity Management Plan
- Prepare 70% Design Technical Memorandum
- Update Designer's Notebook
- Complete the 70% Development Checklist
- Update electronic file tracker

Design Peer Review & Update 70% Design (P6 Activity D3PRE)

Step 1. Pre-submittal/Peer Review

- Assemble, print, and distribute PS&E package for peer review. Conduct peer review and incorporate review comments into PS&E package
- Distribute 70% Plans, Specifications, and Estimate package for an in-office review by the CFT

70% Update and External Review (P6 Activity D3PR)

External client plan review for 70% design. Update PS&E with selected comments from the internal review.

Step 1. External Review

- Update PS&E from internal review comments
- Print and distribute the 70% package to external agencies
- Prepare draft responses to external reviewers

Deliverables for D3 Activities

- 30% Field Review Trip Report

Pre-submittal/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
  - Risk and Opportunity Management Plan
  - 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
- Risk and Opportunity Management Plan
- 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 (P6 Activity D4)

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 in 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
- 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
- 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)

Design Peer Review & Update 95% Design (P6 Activity D4PRE)

Step 1. Pre-submittal/Peer Review

- Assemble, print, and distribute PS&E package for review. Conduct peer review and incorporate review comments into PS&E package.
- Distribute 95% Plans, Specifications, and Estimate package for an in-office review by the CFT

95% Update and External Review (P6 Activity D4PR)

Step 1. Update PS&E from internal review comments

Step 2. External Review

- Print and distribute the 95% package to external agencies
- Prepare draft responses to external reviewers

Deliverables for D4 Activities

- 70% Field Review Trip Report

Pre-Submittal/Peer Review Deliverables

- Draft 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
  - Risk and Opportunity Management Plan
  - 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
  - Risk and Opportunity Management Plan
  - 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

Develop 100% Design and Contract Development (P6 Activity P2)

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

Design Peer Review and Update 100% Design (P6 Activity P2PRE)

Step 1. Peer/Pre-submittal 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

Project Engineer's Package (P6 Activity D5)

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

G. RIGHT OF WAY

Preliminary Right of Way Studies (P6 Activity R1)

Perform preliminary right of way research.

Assumptions for R1 Activity:

- Assume there are private acquisitions to be made.
- Assume CFLHD will prepare the right of way (ROW) plans and descriptions.

- Assume CFLHD will manage a task order to acquire the ROW in HDOT's name working in conjunction with HDOT and according to the Uniform Act and other federal laws and regulations pertinent to the acquisition of ROW on federally-funded projects
- Assume 2 parcels per bridge site.
- According to the Engineering Design Report (2012):

Past construction plans and documents available for the Wainiha Bridges and adjacent Kuhio Highways were reviewed. No formal record of the highway right-of-way exists. The right-of way, as well as other property boundary information was obtained from a 1947 subdivision map that was filed in circuit court. This is the only map with property information that the State possesses for the project area.

Step 1. Assemble preliminary boundary exhibit.
- Using available fieldwork and preliminary research, compile, geo-reference and reconcile field evidence with title information.
- Show existing road and utility easements.
- Show the boundaries between public and private land.
- Show the boundaries of individual private parcels.

Step 2. Prepare exhibits for public meetings.
- Preliminary boundary exhibits for a route or project.
- Individual parcel exhibits.
- Preliminary exhibits show calculated areas for possible acquisition.

Step 3. Identify required field evidence to complete boundary exhibit.
- Identify field evidence to complete boundary map i.e. monuments, evidence of possession, parol evidence.
- Develop monument descriptions and search coordinates for additional field data collection.
- Determine the need for additional record information that may be acquired locally during the field campaign.

Step 4. Prepare a Summary Report describing the results of the initial research and the need for additional research.
- Prepare a list of affected landowners, utilities, railroads, irrigation ditches, etc. affected by the project.
- Include contact information

Deliverables for R1 Activity

- R1 ROW Preliminary Research Checklist
- Documentation obtained from research
- Preliminary electronic boundary map
- Monument descriptions and search coordinates for additional fieldwork
- Summary Report
- List of property owners, utilities, railroads, irrigation ditches, etc. and contact information

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

- Land management agency plats
- Any deeds obtained during research

Boundary Mapping (P6 Activity R2)

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

Assumptions for R2 activity:

- A task order will be managed by CFLHD for a title search and commitment
- Title insurance will not be required.

Step 1. Update the preliminary boundary map.

- Perform fieldwork as necessary to resolve boundary ambiguities
- Integrate supplemental research ownership data into boundary map.
- Integrate supplemental fieldwork/monument ties into boundary map.

Step 2. Perform a title search to 30 years in the past and research easements to patent.

- Research federal agencies land records.
- Research private property records including court decisions and county road records.
- Research easements to patent.
- Research the basis and limits of prescriptive rights for the road.
- Update property owner information including contacts and associated data.
- Research all the encumbrances, including easements for roads and utilities within the project limits.

Step 3. Compile the title search results and fieldwork into the comprehensive electronic boundary map.

- Prepare a property owner spreadsheet to organize contact information, preliminary area of right of way acquisition, title citations and possible issues affecting acquisition.
- Resolve property boundary locations based on both the record information and field ties to property evidence.
- Update the summary report - include ambiguities and conflicts.
- Recommend areas that may require additional title research and field ties or resolution by the HDOT.

Deliverables for R2 Activity

- Digital boundary map
- Property owner list with contact information and parcel identifier and information to identify the location of the record in the county data base used to graphically place the parcel in the map
- Summary report of the boundary compilation, including how boundaries were determined, any unresolved boundaries or significant difficulties in resolving boundaries
-

Final Right of Way Plans (P6 Activity R3)

Produce all documents necessary for the acquisition of right of way.

Assumptions for R3 activity:

- Plans will be prepared by CFLHD or a consultant managed by CFLHD
- Documents will be prepared to facilitate the acquisition process and may not be prepared to strict HDOT standards.

- Landowner exhibits will not be required.
- Metes and bounds descriptions will be prepared.
- Right of way will be acquired with fee title to HDOT.

Step 1. Coordinate with HDOT for document/recordation requirements.
- Size and format
- Type of land description
- Drafting standards
- Prepare draft plans in accordance with FHWA standards and R3 ROW Documents Checklist.
- Project proposed right of way lines.
- Develop uniform corridor as much as possible.
- Develop easements to construct and maintain road including temporary access for construction.
- Review for adequate right of way.

Step 2. Prepare draft legal descriptions for parcels in accordance with the R3 ROW Documents Checklist.
- Use either metes and bounds descriptions for individual acquisitions or corridor descriptions of the right of way encompassing acquisitions for more than one owner or parcel needed at the preference of the acquiring agency.
- Prepare temporary construction easement descriptions based on station/offset relative to the design alignment.

Deliverables for R3 Activity
- Copies of transmittals of documents to affected agencies or entities
- Electronic files of all ROW documents

Land Owner Meeting (P6 Activity R2LM)

Assumptions for R2LM activity:
- Landowner meetings will be required.
- Staking of the right of way and easements will be not be required.

Step 1. Prepare exhibits as necessary and arrange meetings
Step 2. Meet with land owner(s)

Deliverables for R2LM Activity
- None

Right of Way Acquisition (Non Federal) (P6 Activity R4)
Collaborate with the Cross Functional Team (CFT), acquiring agency, and landowners to develop considerations and accommodations, design modifications, and/or revisions to the right of way documents.

Assumptions for R4 activity:
- FHWA will perform the following tasks:

Step 1. Transmit right of way documents to the acquiring agency.
Step 2. Meet with landowners, agencies, and others
Step 3. Provide support and oversight to the HDOT regarding acquisition matters.
Step 4. Provide guidance to the HDOT regarding compliance with all acquisition regulations and obtain right of way and utility certifications according to regulatory requirements.

Deliverables for R4 Activity

- CFL Right of Way Certification signed by the acquiring agency
- Supporting documents including:
    - Appraisals
    - Appraisal waivers and value finding documentation
    - Offer and acceptance letters
    - Summary of status of acquisitions
    - Documentation of contacts with landowners and acquiring agencies.

ROW CFT Support (P6 Activity CFT)

Provide support to CFT after other ROW activities are complete.

- Provide support to CFT.

H. UTILITIES

Refer to CFLHD Utility process and documents on CFL Webpage.

Assumptions:

- Only the water lines located on the bridges will require relocation.

Identify and Locate Utilities (P6 Activity U1)

Identify the type and location of existing utility facilities within the project limits legal rights or cost liability and the recommended certification level of the information as defined by the CFL Utility Data Quality Matrix. 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:

Hawaiian Telecom – Telephone
Oceanic Time Warner Cable – Cable
Kauai Island Utility Cooperative (KUC) – Power
Sandwich Isle Communication (SIC) – Fiber Optic, provider of communication lines for the Department of Hawaiian Home Lands (DHHL)

Step 1. Support the research of existing utility facilities, types and interests completed under the R1 activity.

- Identify type of facility- include all physical utilities: underground, surface and aerial utilities, within the project area.
- Determine cost liability to relocate the facilities.

Step 2. Review the existing utilities mapping completed under the S1 activity, Initial Survey and Mapping section.
Step 3. Initiate early coordination with CFL 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.

- Recommend to the Project Manager additional field investigation or research of utilities that would certify the presence and position of utilities at a higher data quality Level.

Step 5. Coordinate 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 the 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.
- List recommendations for additional research or field investigations, including potholing (locating) to justify a higher data quality level.
- Utility coordination meeting minutes and action item list.
- 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 Level Certification
- Utility summary report

Identify Utility/Design Conflicts (P6 Activity U2)

Identify utility/design or utility/construction conflicts and continue coordination with the utility companies to begin development of a Utility Resolution Plan that addresses these conflicts. This activity may also include additional research and investigation to elevate the Quality Level.

Step 1. Perform additional research, field investigation and mapping to support a higher quality level certification, as needed.

Step 2. Support Design to identify utility/design conflicts, develop or revise utility conflict drawings, based on intermediate design and field reviews.

Step 3. Coordinate with cooperators and each utility company:

- Identify associated requirements.
- Resolve cost liability issues.
- Discuss with utility concerns the Utility Resolution Plan.

Step 4. Support the development of a DRAFT Utility Resolution Plan.

Deliverables for U2 Activity

- Copies of additional research and utility mapping on CFLHD coordinate and datum system
- Updated Utility Data Quality Level Certification of utilities at appropriate quality level based on additional data collected.
- Meeting minutes and action item list from conference calls

Utility Conflict Resolution (P6 Activity U3)

Coordinate a plan for utility resolution, coordinating design, construction and utility issues, resolving cost liability issues, developing utility agreements and cooperator certification that for each facility impacted by the project whether the resolution will be either 1) accomplished prior to construction, 2) identified in the PS&E as a coordination requirement of the construction contractor, or (3) included as items of work in the PS&E for the construction contractor to perform.

Step 1. Coordinate the development of a FINAL Utility Resolution Plan.
- Include a copy in the SCR's and PE Notebook.

Step 2. Support the development of construction plan sheets for the PS&E addressing each utility issue, treatment, relocation or installation that is to be constructed directly under the CFLHD contract.

Step 3. Assist in the development of Special Contract Requirements (SCR's), specifications, quantities and cost estimates for all construction related work and coordination required for the project.

Step 4. Develop utility agreements as defined by the Utility Resolution Plan:
- Agreements are to resolve utility conflicts.
- Reimbursable agreements developed according to current CFLHD policy (executed by CFLHD).
- Include copies of each in the SCR's and PE Notebook.

Step 5. Certify utilities according to CFLHD requirements.
- Utility Data Quality Level Certification signed by the designated project specific official.
- Submit Utility Certification (found on CFLHD web site) to the designated project specific official for execution.
- Include copies in the SCR's and PE Notebook.

Step 6. Constructability Review of proposed utility resolutions.

Deliverables for U3 Activity

- Utility Certification
  - An occurrence specific identification of each utility conflict and its resolution
  - Identification of when and how resolutions will be accomplished
  - Copies of all certifications and agreements in PE notebook (Part of D activity)
- Utility related SCR appendices including:
  - Utility agreements
  - Utility Data Quality Level Certification

I. GEOTECHNIAL

Assumptions:

Wainiha Bridge 1 and 2 will be single span bridges and Bridge 3 will be a 3-span bridge. All bridges will be one lane wide. It is anticipated that three temporary bridges will be constructed on the mauka side adjacent to the existing alignment for traffic flow using the existing ACROW structures. This will require temporary bridge foundation investigation and design for the 3 Wainiha temporary bridges. Also temporary structures will be installed adjacent to the existing (weight limited bridges along the way) Waipa and the Waikoko Bridges. This will require foundation investigations and design for these 3

bridges. Water for drilling will be available from a nearby site. One boring will be drilled at each abutment assuming deep foundations (75 feet). The materials will be tested in a laboratory in HI.

Assume 2 borings will be required for the permanent structures at the three Wainiha bridges. These same borings will be used for the temporary structures at the Wainiha bridges. Assume 6 borings will be required (2 at each bridge) for the temporary structures at the Waioli, Waipa, and Waikoko bridges.

Preliminary Geotechnical Recommendations (P6 Activity G1)

Conduct a preliminary geotechnical investigation, including visual and/or limited surface/subsurface investigations, 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.

Deliverables for G1 Activity

- None

Geotechnical Investigations (P6 Activity G2)

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*

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

- Conduct surface and subsurface exploration for structures, foundations, 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 ditchline, 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 (e.g., bridge foundation soil/rock profiles), constructability issues, etc.

Deliverables for G2 Activity

- *Interim Geotechnical Memoranda*

Draft Geotechnical Report (P6 Activity G3)

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

Step 1. Conduct geotechnical analyses for slopes, cuts, fills, structures, etc., as required.

- 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 deep and/or shallow 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 Report, G2 Evaluation Memoranda, V1 Pavements Report, 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.
  - Subsurface drainage.
  - Soil corrosivity and required culvert/structure materials.
  - Roadway subex/deep patch repair locations/designs.
  - Provide pavement typical sections to be used on the approaches.
  - 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*

Final Geotechnical Report (P6 Activity G4)

Update, revise and issue the FINAL Geotechnical Report.

Step 1. 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

- *FINAL Geotechnical Report*

Geotechnical CFT Support (P6 Activity CFT)

Provide support to CFT after Final Geotech Report is completed.

- Provide support to CFT.

J. PAVEMENTS AND MATERIALS

Preliminary Pavement Recommendations (P6 Activity V1)

Field investigations and data gathering will be completed and coordinated with the geotech activities.

Step 1. Evaluate and submit samples/data for testing and analysis

- Assure submitted samples are an adequate representation of project conditions.

Step 2. Evaluate results from lab testing, field investigation, and engineering analysis. Determine if additional investigation, testing, or analysis is necessary.

Step 3. Determine cost effective pavement material, design, and rehabilitation recommendations (as applicable).

- Develop Preliminary Pavement Recommendations Technical Memo.

Deliverables for V1 Activity

- *Preliminary Pavement Recommendations Technical Memo*

Final Pavement Recommendations (P6 Activity V2)

Finalize the pavement recommendations within a technical memo.

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.

Follow-up Pavements & Materials Work (P6 Activity V3)

Step 1. Assure alignment of report/memo recommendations and plans
Step 2. Address technical questions, complete needed documentation, finalize SCRs

Pavements CFT Support (P6 Activity CFT)

Provide support to CFT after Final Geotech Report is completed.

- Provide support to CFT

K. HYDROLOGY/HYDRAULICS

Assumptions:

- The hydraulic analysis and design of the bridges will be based on riverine hydrology and hydraulics only. No hydraulic parameters generated from coastal events, such as storm surges, storm waves, tsunamis, or hurricanes will govern the capacity or stability design of the bridges. The only coastal parameter that will be used in analyses/designs is astronomical tidal elevations. This tidal information will be used, as applicable, to establish appropriate tailwater elevations for controlling riverine modeling
- The TR55 Hydrologic analyses performed on the watersheds draining to Bridge #1, and Bridges #2 and 3, by AECOM are available and will be provided by HDOT
- The HEC-RAS electronic files for the hydraulic models developed by West Consultants and used to conduct the 2012 scour evaluations for Bridge #1, and Bridges #2 and # are available and will be provided by HDOT
- A plan layout of the above HEC-RAS cross section locations and orientations is available from West Consultants and will be provided HDOT
- The bed material at all bridge locations will be considered fully erodible, i.e. armoring will not be consider and no pebble counts will be required on channel bed or bank materials
- The proposed roadway vertical profiles will remain effectively the same as the existing

- The proposed roadway horizontal alignments will be the same as existing or will be moved downstream just far enough to allow the new bridges to be built adjacent to the existing bridges
- The design of the replacement bridges will not result in any increase in the Q100 water-surface elevations over existing conditions, and FEMA coordination will entail the development and submittal of a 'No-Rise Certification' for each location and associated communications

Preliminary Hydraulics Recommendations (P6 Activity H1)

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. Typical sources include:
- Local and County agencies
- State agencies
- Federal agencies, including applicable land management plans
- FEMA to determine if FEMA floodplain mapping covers the project.

Step 2. Identify existing floodplain encroachments and channel stability issues.

Step 3. Provide support to the NEPA process. Support may be required in the following areas:
- Water quality
- Wetlands

Step 4. Develop a Hydrologic and Hydraulic Criteria and Computational Methods Technical Memorandum
- Define criteria and computational methods to be used for the hydrologic and hydraulic analyses of bridges, including appropriate design standards and flood frequency
- Provide proposed design criteria for other hydraulic features, e.g. storm drains and curb/gutter
  - Criteria and methods should be consistent with HDOT criteria, as well as pertinent site-specific considerations.
- Submit to HDOT for review. Address comments and resubmit if necessary.
- Subsequent hydrologic and hydraulic analysis to be conducted based on the approved criteria and computational methods

Step 5. Perform hydrologic analyses to determine discharge magnitudes for 5-, 10-, 50-, 100-, 200-, and 500-yr events at each bridge location using most applicable HDOT methodology.

Step 6. Perform a preliminary hydraulic analysis of existing conditions
- Use the 5-, 10-, 50-, 100- and 500-yr, as well as FEMA 100-yr events to evaluate potential impacts from encroachments and to determine water surface elevations
- Provide recommendations regarding whether or not the potential encroachments are likely to result in undesirable floodplain effects and/or will likely require FEMA review and approval

Step 7. 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 8. 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 streams and ditches
- Existing culverts (size, location, and condition)

- Identification of floodplain encroachment and channel stability issues
- Environmental support findings in the areas of water quality, wetlands, fish passage, and stream restoration
- Documentation of preliminary hydrologic and hydraulic computations
- Electronic files for floodplain analysis
- Submit to HDOT for review. Address comments and resubmit if necessary.

Deliverables for H1 Activity

- Hydrologic and Hydraulic Criteria and Computational Methods Technical Memorandum (Step 4)
- Preliminary Hydraulics Recommendations Report (Step 7)

Draft Hydraulics Report (P6 Activity H2)

Conduct floodplain and preliminary bridge hydraulic analyses.

Step 1. Perform preliminary bridge waterway analysis for proposed bridge designs (TS&L).

- Model water surface profiles using HEC-RAS or equivalent for the 5-, 10-, 50-, 100-, and 500-yr events for water surface elevation and freeboard for proposed preliminary bridge designs. Make capacity design recommendations.
- Characterize bed and bank materials in the vicinity of proposed bridge piers and abutments from available geotechnical data and reports.
- Assess scour potential at bridge locations for the overtopping, 100-yr, and 200-yr events. Make foundation and scour countermeasure design recommendations following the guidance of HEC-18. (Countermeasures should be avoided for piers on new or replacement bridges.)

Step 2. Perform final floodplain analysis and delineation

- Evaluate the effects of encroachment.
- Model proposed conditions for the 5-, 10-, 50-, 100-, and 500-yr, as well as FEMA 100-yr events.
- Make design recommendations.

Step 3. Prepare draft 'No-Rise' certification, coordinate, and submit to County of Kauai

Step 4. Develop preliminary designs for special hydraulic features

- Stormwater (detention/retention) management and/or water quality measures.
- River training/stabilization design(s).

Step 5. Develop stream restoration and/or wetland mitigation plans in coordination with environmental specialists.

Step 6. 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 HDOT Drainage Manual 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

- Draft 'No-Rise' application package
- *Preliminary Hydraulics Report*

Final Hydraulics Report (P6 Activity H3)

Finalize the bridge and special features analysis and prepare the Final Hydraulics Report.

Step 1. Finalize bridge waterway analysis for proposed bridge designs
- Finalize modeling of water surface profiles and freeboard for proposed bridge designs
- Finalize capacity design recommendations
- Finalize scour assessment and foundation and countermeasure design recommendations

Step 2. Continue FEMA coordination with HDOT and County of Kauai.
- Finalize the 'No-Rise' application package and submit to HDOT and County of Kauai.

Step 3. Finalize designs for special hydraulic features
- Stormwater (detention/retention) management and/or water quality measures

Step 4. Finalize stream restoration and/or wetland mitigation plans in coordination with environmental specialists.

Step 5. Update the *Preliminary Hydraulics Report* to develop the *DRAFT Hydraulics Report*. Submit to HDOT, and other stakeholders upon request, for review.

Step 6. Incorporate HDOT review comments, and comments from other stakeholders, and submit a *FINAL Hydraulics Report*.

Deliverables for H3 Activity

- Final FEMA 'No-Rise' certification package
- *DRAFT Hydraulics Report*
- *FINAL Hydraulics Report*

Hydraulics CFT Support (P6 Activity CFT)

Provide support to CFT after Final Hydraulics Report is complete.

- Provide support to CFT

L. BRIDGE

The structures scope of work includes:
Permanent structures: Replacement of the single-lane, Wainiha #1, #2 and #3 ACROW bridges with single-lane concrete structures. It is assumed that the Wainiha #1 and #2 bridges will be single-span and Wainiha #3 will be a three-span structure due to access issues with the winding road in advance of the Hanalei Bridge and three existing load restricted bridges. Horizontal alignment is assumed to be approximately on existing alignment, however, an alternative Makai side alignment will be studied for Bridges #2 and #3 up to 30% PS&E. In addition, a bridge rail study will be performed to find a

vehicular/pedestrian railing to meet TL-1 or TL-2 crash test criteria while mimicking the aesthetics of the original open railing with diagonal bracing and similar features to the Hanalei Bridge railing.

Temporary Maintenance of Traffic: The existing ACROW bridges will be moved/slid adjacent to the existing alignment onto temporary abutments for maintaining temporary traffic during construction. (According to Tom Pinder of ACROW, the "three-span" Bridge #3 ACROW was designed as a single span and not loading the piers, therefore, only requires abutment support.)

Construction Access: The scope of work includes providing three temporary bridges adjacent to each of the single-span, concrete Waioli, Waipa, and Waikoko bridges (currently posted at 8 tons) for construction equipment and material access to the Wainiha bridge sites.

Assumptions:

- Single-lane bridge with 16' curb-to-curb width (11' travel lane + 2 x 2.5' shoulders). 20' out-to-out bridge width assumed.
- No re-use of existing substructure units for permanent bridges
- Deep foundations with concrete wall abutments and piers extending below waterline to mimic original substructure
- Utilities hung off each bridge
- Bridge railing: Height to accommodate pedestrians, bicyclists and vehicles with aesthetic consideration for original open railing and a goal to meet crash-test level TL-2.
- Design Criteria: AASHTO LRFD Bridge Design Specifications with HDOT exceptions dated January 7, 2014; AASHTO Guide Specifications for Bridge Vulnerable to Coastal Storms; Design live load: HL93
- Avoid steel and timber for main members due to corrosion and maintenance concerns. Possible to use steel railing.
- Provide concrete deck (no asphalt overlay) and mimic the sound and feel of timber decking per original bridge.
- Overhead utilities adjacent to each existing bridge
- Structural removal of existing ACROW bridges and substructure units to below scour elevation
- The Hanalei truss bridge (currently posted at 15 tons), and the Wainiha ACROW bridges #1-#3 (currently posted at 8 tons) were designed for HS20 loading per HDOT and as-built plans. Load postings are for local operational preference.
- No stage construction due to one-lane bridges

Structural Layout (P6 Activity B2)

Determine structural width, length, type, location, alternative types, typical structural section and any special details or client requests. Structures included in this activity are single-lane, Wainiha #1, #2 and #3 permanent bridge replacements. Horizontal alignment is assumed to be tangent on or near the existing alignment with minor vertical profile change and no skew. One alternative Makai side alignment will be studied for Bridges #2 and #3 up to 30% PS&E Based on the extensive alternatives analysis performed in the October 2012 Engineering Design Report for Kuhio Highway Rehabilitiation of Wainiha Bridges, type study will include refinement of the precast, prestressed concrete plank (slab/box beam) alternative, A bridge rail study will be performed to conceptually design a vehicular/pedestrian railing to meet TL-1 or TL-2 crash test criteria while mimicking the aesthetics of the original open railing with diagonal bracing and similar features to the Hanalei Bridge railing. The existing ACROW bridges will be moved/slid adjacent to the existing alignment onto temporary abutments for maintaining temporary traffic during construction. The scope of work also includes providing temporary prefabricated bridges

adjacent to each of the Waioli, Waipa, and Waikoko bridges (currently posted at 8 tons) for construction equipment and material access. There are assumed to be no retaining walls needed on the project.

Structure Selection

Step 1. For Bridge site(s) identified in the Scoping Report, prepare a *Bridge Selection Memo* with supporting drawings, tables, and discussion as needed. Incorporate recommendations from *Preliminary Hydraulic Recommendations* and *Preliminary Geotechnical Investigation*. Incorporate 30% plan and profile from Roadway Design. Include the following:

- Review the structure site data to determine the requirements that will control the structure size, layout, and type.
- Propose recommended superstructure and substructure alternative(s). Precast concrete plank (slab/box beam) superstructure with cast-in-place concrete fascia and deck are assumed. Propose foundation alternative(s). Assuming deep foundations. Determine the structure length, width, and span configurations that satisfy horizontal and vertical clearance criteria. Consider hydraulic opening and potential scour requirements.
- Perform a preliminary bridge rail study to determine a vehicular/pedestrian railing to meet TL-1 or TL-2 crash test criteria, while mimicking the aesthetics of the original open railing with diagonal bracing and similar features to the Hanalei Bridge railing.
- Study existing ACROW structures to be moved onto adjacent alignment with the new temporary abutments for maintenance of traffic.
- Develop concepts and cost estimates for one temporary prefabricated bridge adjacent to each of the3 Waioli, Waipa, and Waikoko bridges (currently posted at 8 tons) for construction equipment and material access.
- Consider environmental constraints.
- Consider restrictions due to site access and transport limitations, and local material availability.
- Recommend proposed adjustments to profile alignment and grade necessary to accommodate bridge location and freeboard requirements.
- Include discussion on major items or issues such as future maintenance that might affect the selection of a preferred alternative.
- Recommend a structure layout and type alternative(s) as applicable. . State criteria used to evaluate each alternative.
- Include a list of references of available reports, investigations, and technical memorandums used in preparation of the *Bridge Selection Memo*.
- Obtain acceptance by HDOT of the *Bridge Selection Memo* prior to beginning work on *Bridge Preliminary Layout (TS&L)*.

Step 2. Prepare a bridge conceptual TS&L drawing for each bridge alternative recommended. Incorporate recommendations from *Preliminary Hydraulic Recommendations* and *Preliminary Geotechnical Investigation*.

Step 3. Prepare bridge preliminary cost estimates for one alternative per bridge based on square foot costs.

Structure Preliminary Layout

Step 4. For one approved alternative(s) identified in the *Bridge Selection Memo* finalize a *Bridge Preliminary Layout (TS&L)* for each of the three Wainiha bridges, including layout of adjacent temporary bridges. Incorporate recommendations from *Preliminary Hydraulic Report* and

Preliminary Geotechnical Investigation. Incorporate 50% plan and profile from Roadway Design.

- See the *Federal Lands Highway Bridge Office* (FLHBO) *Bridge Plan Checklist*, specified in Section III, for information to be included on the *Bridge Preliminary Layout (TS&L)* drawing(s).
- Obtain acceptance by HDOT on the Bridge Preliminary Layout (TS&L) prior to beginning work on Task B3 - Structure Design and Check.

Step 5. Prepare revised bridge preliminary cost estimate for the approved alternative based on square foot costs.

Deliverables for B2 Activity

- Bridge Selection Memo
- Bridge Conceptual TS&L drawings and preliminary cost estimates
- Bridge Preliminary Layout (TS&L) and preliminary cost estimate (include in 30% package)

Structural Design and Check (P6 Activity B3)

Structural analysis, design, and check of the single-lane, single span Wainiha #1 and #2 bridges and the single-lane, three-span Wainiha #3 bridge. Development of temporary detour structures and substructure design related to moving the existing three single-lane ACROW bridges on an adjacent alignment with new temporary abutments. Development of design criteria and performance specifications for one temporary prefabricated bridge adjacent to each of the Waioli, Waipa, and Waikoko bridges for construction equipment and materials access. Draft contract plans, prepare special contract requirements, and the engineer's estimate.

Design Criteria

Step 1. For the approved *Bridge Preliminary Layout (TS&L)* prepare a Structure Design Criteria document for three permanent structures.

- Follow the template referenced in Section III.
- Obtain acceptance by HDOT of the *Structure Design Criteria* prior to beginning work on Step 2 - 70% Structure Design.
- Incorporate recommendations from *Preliminary Hydraulic Report, Draft Geotechnical Report,* and *Geotechnical Memoranda,* as available.

Step 2. For the six temporary structures prepare a Structure Design Criteria document.

- Follow the template referenced in Section III.
- Obtain acceptance by HDOT of the *Structure Design Criteria* prior to beginning work on Step 2 - 70% Structure Design.
- Incorporate recommendations from *Preliminary Hydraulic Report, Draft Geotechnical Report,* and *Geotechnical Memoranda,* as available.

70% Structure Design

Step 3. Provide calculations for the structural design of the bridge superstructure (two single span bridges and one 3-span bridge). Annotate design calculations with specific references to the applicable design specification. Perform calculations for all elements of the superstructure including:

- Girders/beams
- Deck
- Endwalls and wingwalls (where part of superstructure)
- Bearings and connections

- Expansion joints if needed
- Custom bridge railing

Step 4. Provide calculations for the substructure design for three temporary prefabricated ACROW bridges. 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. Include calculations for the following elements:

- Abutments
- Abutment foundations

70% Structure Drawings

Step 5. Prepare plan sheets for the bridge superstructure (two single span bridges and one 3-span bridge. Follow the format in the FLHBO Bridge Plan Checklist specified in Section III. Incorporate recommendations from *Final Hydraulics Report, Draft Geotechnical Report*, and *Geotechnical Memoranda* as issued. Provide plan sheets for the following:

- Plan and elevation
- General notes and estimate
- Summary of boring logs (from *Geotechnical Investigation*)
- Stage construction sequence
- Endwalls and wingwalls
- Girders/beams
- Bearings and connections
- Typical section
- Deck
- Expansion joints
- Aesthetic treatments
- Railing and transition railings

Step 6. Prepare plan sheets for the superstructure concept and substructure for three temporary prefabricated bridges. Follow the format in the FLHBO Bridge Plan Checklist specified in Section III. Incorporate recommendations from *Final Hydraulics Report, Draft Geotechnical Report,* and *Geotechnical Memoranda* as issued. Provide plan sheets for the following:

- Plan and elevation
- General notes and estimate
- Foundation layout
- Summary of borings logs (from *Geotechnical Investigation*)
- Endwalls and wingwalls
- Bearings and connections
- Abutments
- Excavation/backfill details
- Railing and transition railings

70% Structure Independent Check

Step 7. Prepare independent design calculations for the three bridge superstructures. Check the structural design of all elements of the superstructure as detailed in the 70% 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 8. Prepare independent design calculations for the three temporary bridge substructure elements as detailed in the 70% 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 9. Check the 70% Structure Drawings for completeness and accuracy.

70% Structure Quantities and Itemized Cost Estimate

Step 10. Prepare bridge plan item quantity calculations and document itemized cost estimate

Step 11. Prepare temporary bridge plan item quantity calculations and document itemized cost estimate

Step 12. Check the 70% Structure Quantities and Itemized Cost Estimate for completeness and accuracy

70% Structure Special Contract Requirements

Step 13. Prepare Bridge Special Contract Requirements.

- Review Structure Special Contract Requirements provided by FHWA.
- Prepare unique Structure Special Contract Requirements required by the design.

Step 14. Prepare Temporary Bridge Special Contract Requirements.

- Review Structure Special Contract Requirements provided by FHWA.
- Prepare unique Structure Special Contract Requirements required by the design.

Step 15. Check the 70% Structure Special Contract Requirements for completeness and accuracy.

95% Structure Design

Step 16. Provide calculations for the structural design of the bridge substructure. Annotate design calculations with specific references to the applicable design specification. Incorporate recommendations from *Final Geotechnical Report* and *Final Hydraulics Report.* Perform calculations for all elements of the substructure including:

- Abutments for three bridges
- Abutment foundations for three bridges
- Piers for one bridge
- Pier foundations for one bridge

Step 17. Perform bridge load rating for three bridges (Assume load rating performed in a program designated by HDOT (not the beam design program) for future operational use.

- Provide calculations, notes, and assumptions necessary to complete the load rating.
- Complete the FHWA Load Rating form, specified in Section III.

Step 18. Provide revised calculations for substructures for three temporary prefabricated bridges if needed based on final reports. Incorporate recommendations from *Final Geotechnical Report* and *Final Hydraulics Report.* Annotate design calculations with specific references to the applicable design specification.

95% Structure Drawings

Step 19. Prepare complete set of plan sheets for the bridge (three permanent structures). 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:

- Revised 70% structure drawings as necessary

- Foundation layout
- Slope protection
- Abutments
- Piers
- Reinforcing bar lists
- Existing bridge plans

Step 20. Prepare complete set of plan sheets for the three temporary prefabricated ACROW bridges. 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

95% Structure Independent Check

Step 21. Prepare independent design calculations for the bridge substructure (3 bridges). Check the structural design of all elements of the substructure 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 22. Prepare independent load rating of the bridge. (Assume load rating performed in a program designated by HDOT (not the beam design program) for future operational use

- Provide independent calculations, notes, and assumptions necessary to complete the load rating.
- Verify the results of the FHWA Load Rating form, specified in Section III.

Step 23. Prepare independent design calculations for the three temporary prefabricated bridges 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 24. Check the 95% Structure Drawings for completeness and accuracy.

95% Structure Quantities and Itemized Cost Estimate

Step 25. Revise 70% bridge plan item quantity calculations and itemized cost estimate.

Step 26. Revise 70% temporary bridge plan item quantity calculations and itemized cost estimate.

Step 27. Check the revised Structure Quantities and Itemized Cost Estimate for completeness and accuracy.

95% Structure Special Contract Requirements

Step 28. Revise 70% Bridge Special Contract Requirements.

Step 29. Revise 70% temporary bridge Special Contract Requirements.

Step 30. 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 (P6 Activity B4)

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

Bridge CFT Support (P6 Activity CFT)

Provide support to CFT outside of above activities.

- Provide support to CFT

M. MEETINGS AND FIELD REVIEWS

Design Meetings, Plan Reviews, and Field reviews

Step 1. 30% Design Internal CFT Review (D2PRI Activity)
Step 2. 30% CFT Review Meeting (D2PRI Activity)
Step 3. 30% Field Review. It is anticipated that the field review will last 3 days including travel (D2SV Activity)
Step 4. 70% Design Internal CFT Review (D3PRI Activity)
Step 5. 70% CFT Review Meeting (D3PRI Activity)
Step 6. 70% Field Review. It is anticipated that the field review will last 3 days including travel. (D3SV Activity).
Step 7. 95% Design Internal CFT Review (D4PRI Activity)
Step 8. 95% CFT Review Meeting (D4PRI Activity)

Environmental Meetings and Field Reviews

Step 9. Attend SEE Team and Public Meetings

- Assume3 days including travel for each meeting
- Assume 2 public meetings
- Assume additional public meetings, if necessary, will be held in conjunction with design field review

Step 10. Attend Interagency Meeting

- Assume travel for interagency meetings will be held in conjunction with public meeting site visits in prior step or with design field review.
- Assume xx meetings
-
-

-
-

Deliverables for Meetings and Field Reviews

- CFT Meeting Minutes

O. PROCUREMENT AND ACQUISITIONS (CFL Internal Projects Only)

Pre-advertisement (P6 Activity Q1)

Step 1. Procurement acquisition, pre-advertisement tasks and preparation such as synopsis & presolicitation

P&A Advertisement Phase (P6 Activity Q2)

Step 1. Amendments, receipts of questions from bidders, coordination of questions, response to questions

P&A Closeout (P6 Activity Q3)

Step 1. Procurement and acquisition award of bid and final close-out of bid activities

II. CROSS FUNCTIONAL TEAM

FHWA-CFLHD Cross Functional Team
Project Manager: J. Michael Will
Utilities: Alan Blair
Environment: Nicole Winterton
Survey: Bob Bell
ROW Documents: Alan Blair
Geotechnical: Khamis Haramy
Pavements: Mike Voth
Hydraulics: Bart Bergendahl
Highway Design: Jill Mathewson
Bridge Design: Bonnie Klamerus
Construction: J. Michael Will
QA/QC: Chris Longley
Safety: Barbara Burke

Internal Budget Worksheet

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT NUMBER: **HI STP SR560(1)**

PROJECT NAME: **Wainiha Bridges**

BUDGET DATE: **March 21, 2014**

Start-Up Page

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

Personnel ==>	Jill Mathewson	Peer Reviewer	Ryan Olson	Khamis Haramy	Mike Voth	Alan Blair	Nicole Winterton	Mike Will	Ed Hammontree	Charlie Martinez
Wage Rate ====>	$114.00	$114.00	$0.00	$156.12	$0.00	$151.99	$120.91	$139.68	$0.00	$90.00
Personnel ==>	Ramon Sanchez	Jeff Bellen	Bart Bergendahl	Bonnie Klamerus	Bob Bell	Brooke Rosener	Keith Wertz	Bryan Clark	Marylin Dodson	Barbara Burke
Wage Rate ====>	$58.43	$127.82	$189.33	$166.84	$139.68	$90.00	$90.00	$110.00	$120.00	$140.00
Personnel ==>	Bart Bergendahl	Veronica Ghelardi	Opal Forbes	Brooke Davis	Leo Depaula	Dana Christensen	Ryan Wehner	Burnnie Robinson	Ryan Owen	Aaron Sanford
Wage Rate ====>	$190.00	$140.00	$115.00	$47.00	$159.00	$126.00	$101.00	$116.00	$89.00	$120.00
Personnel ==>	Steve Belcher	Marylin Dodson								
Wage Rate ====>	$126.00	$99.50								

Instructions for Use

1) Fill in all Personnel and burdened Rates. Note that up to 40 classifications can be used. If more are needed, use a generic classification and rate (ex. Designer, Grade 11) for multiple staff
2) On the 'Personnel Tab', fill in the Department and the roleof 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 to match your SOW.
5) Fill in requried information in the meetings, travel, equipment and materials, and task order tabs.

General Notes

1) Rows can be inserted into each worksheet by Home>Insert>Insert SheetROW. Copy the formulas in last column of table from the row above.
2) Do not delete unnecessary worksheets(tabs) from this file! Simply hide the worksheets as needed.
   > To Hide Worksheets: Right click on worksheet tab at bottom>Hide
   > To Unhide Worksheets: Right click on worksheet tab at bottom>Unhide>Select Worksheet you want to 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: **HI STP SR560(1)**

PROJECT NAME: **Wainiha Bridges**

BUDGET DATE: **21-Mar-2014**

PERSONNEL

Select Personnel	Department	Role
Jill Mathewson	Design	
Peer Reviewer	Design	
Ryan Olson	Design	
Khamis Haramy	Geotechnical	Sr. Geotechnical Engineer
Marylin Dodson	Geotechnical	Acting Lead geotech Engineer
Charlie Martinez	Geotechnical	Geologist
Mike Voth	Pavement & Materials	Pavement & Materials
Alan Blair	Right of Way	Right of Way and Utility Coordination
Nicole Winterton	Environment	
Mike Will	Project Management	
Ramon Sanchez	Right of Way	
Jeff Bellen	Right of Way	
Ed Hammontree	Project Sponsor	
Bonnie Klamerus	Bridge	Team leader
Bob Bell	Survey/Mapping	
Brooke Rosener	Survey/Mapping	
Keith Wertz	Survey/Mapping	
Bryan Clark	Survey/Mapping	
Bart Bergendahl	Hydraulics	
Barbara Burke	Safety	
Veronica Ghelardi	Hydraulics	
Opal Forbes	Permits	
Brooke Davis		
Leo Depaula	Bridge	TS&L 9 bridges + Check 6 Temp bridges
Dana Christensen	Bridge	TS&L 6 bridges + details + Design 6 temp bridges
Ryan Wehner	Bridge	Technician TS&L 6 temp bridges + 3 perm bridges+ Plans for 3 permnt bridges
Burnnie Robinson	Bridge	Technician - plans for 6 temp bridges
Ryan Owen	Bridge	Design Br #1 & #3, check Br #3
Aaron Sanford	Bridge	
Steve Belcher	Bridge	Design Br #3, Check Br #1 & #2
Aaron Sanford	Acquisitions	

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT NUMBER: **HI STP SR560(1)**

PROJECT NAME: **Wainiha Bridges**

BUDGET DATE: **March 21, 2014**

SUMMARY

	Bridge	Design	Env/Permits	Geotech	Hydraulics	ROW/Util	P&A	Survey	Pavements	PM	Depot	TOTAL
PE (Hours)	5695	1299	1231	448	294	566	103	648	18	564	2% of PE	10866
PE (Labor Costs)	$659,049.36	$146,262.00	$133,205.48	$67,909.20	$54,577.76	$67,658.88	$12,517.44	$72,253.44		$78,336.92		$1,291,770.48
PE (Indirect Costs)											$25,835.41	$25,835.41
PE Total	$659,049.36	$146,262.00	$133,205.48	$67,909.20	$54,577.76	$67,658.88	$12,517.44	$72,253.44		$78,336.92	$25,835.41	$1,317,605.89
Task Orders			$265,000.00	$120,000.00		$83,500.00						$468,500.00
Agreements												
TOTALS	**$659,049.36**	**$146,262.00**	**$398,205.48**	**$187,909.20**	**$54,577.76**	**$151,158.88**		**$72,253.44**		**$78,336.92**	$25,835.41	**$1,786,105.89**

TOTAL BUDGET

$1,786,105.89

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT NUMBER: **HI STP SR560(1)**

BUDGET DATE: **21-Mar-2014**

PROJECT NAME: **Wainiha Bridges**

BREAKDOWN	P6 Activity	Discipline Code	Hours	Labor Costs	Equipment/ Material Costs	Travel Costs	Task Order Costs	Agreement Costs	Total
ProjectDelivery Planning	Total	W							
	P1	W							
	P1SV	W							
Project Management	Total	W	564	$78,336.92					$78,336.92
	PM	W	300	$41,904.00					$41,904.00
	CFT	W	94	$13,951.80					$13,951.80
	D1PRI	W							
	D1PRI	W							
	D1SV	W							
	D2PRI	W	58	$7,735.20					$7,735.20
	D2SV	W							
	D2.1PRI	W							
	D2.1SV	W							
	D3PRI	W	56	$7,372.96					$7,372.96
	D3SV	W							
	D4PRI	W	56	$7,372.96					$7,372.96
	D4SV	W							
	E0SV	W							
	E1SV	W							
	E2SV	W							
	E3SV	W							
	E4SV	W							
	RLMSV	W							
Environment	Total	E	1,231	$133,205.48			$265,000.00		$398,205.48
	E0	E	132	$15,960.12			$15,000.00		$30,960.12
	E1	E	212	$25,632.92			$250,000.00		$275,632.92
	E2	E	340	$40,943.56					$40,943.56
	E3	E	180	$21,653.24					$21,653.24

Personnel	Hours	Rate	Labor Cost
Jill Mathewson	1,267	$114.00	$144,438.00
Peer Reviewer	104	$114.00	$11,856.00
Ryan Olson	32		
Khamis Haramy	448	$156.12	$69,941.76
Mike Voth	18		
Alan Blair	208	$151.99	$31,613.92
Nicole Winterton	952	$120.91	$115,106.32
Mike Will	332	$139.68	$46,373.76
Ed Hammontree			
Charlie Martinez	22	$90.00	$1,980.00
Ramon Sanchez	140	$58.43	$8,180.20
Jeff Bellen	218	$127.82	$27,864.76
Bart Bergendahl	308	$189.33	$58,313.64
Bonnie Klamerus	352	$166.84	$58,727.68
Bob Bell	208	$139.68	$29,053.44
Brooke Rosener	40	$90.00	$3,600.00
Keith Wertz	220	$90.00	$19,800.00
Bryan Clark	180	$110.00	$19,800.00
Marylin Dodson	16	$120.00	$1,920.00
Barbara Burke	20	$140.00	$2,800.00
Bart Bergendahl	308	$190.00	$58,520.00
Veronica Ghelardi	22	$140.00	$3,080.00
Opal Forbes	70	$115.00	$8,050.00
Brooke Davis	203	$47.00	$9,541.00
Leo Depaula	562	$159.00	$89,358.00
Dana Christensen	308	$126.00	$38,808.00
Ryan Wehner	1,450	$101.00	$146,450.00
Burnnie Robinson	121	$116.00	$14,036.00

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT NUMBER: **HI STP SR560(1)**

BUDGET DATE: **21-Mar-2014**

PROJECT NAME: **Wainiha Bridges**

BREAKDOWN	P6 Activity	Discipline Code	Hours	Labor Costs	Equipment/ Material Costs	Travel Costs	Task Order Costs	Agreement Costs	Total
	E4	E	104	$12,574.64					$12,574.64
	EP1.0	E	32	$1,504.00					$1,504.00
	EP1.1	E	171	$8,037.00					$8,037.00
	EP2.0	E	60	$6,900.00					$6,900.00
Surveys	Total	S	648	$72,253.44					$72,253.44
	S1	S	544	$60,310.08					$60,310.08
	S2	S							
	SC15	S							
	SC30	S							
	SC50	S							
	SC70	S	104	$11,943.36					$11,943.36
Right of Way	Total	R	484	$61,896.16			$83,500.00		$145,396.16
	R1	R	82	$11,109.66					$11,109.66
	R2	R	122	$16,609.18			$3,500.00		$20,109.18
	R3	R	108	$14,771.36					$14,771.36
	RLM	R	24	$2,150.80					$2,150.80
	R4	R	148	$17,255.16			$80,000.00		$97,255.16
	R5	R							
	R6	R							
Utilities	Total	U	82	$5,762.72					$5,762.72
	U1	U	38	$2,497.90					$2,497.90
	U2	U	18	$1,190.52					$1,190.52
	U3	U	26	$2,074.30					$2,074.30
Geotechnical	Total	G	448	$67,909.20			$120,000.00		$187,909.20
	G1	G	34	$5,175.84					$5,175.84
	G2	G	192	$29,132.64			$120,000.00		$149,132.64
	G3	G	176	$26,419.20					$26,419.20
	G4	G	46	$7,181.52					$7,181.52

Personnel	Hours	Rate	Labor Cost
Ryan Owen	1,406	$89.00	$125,134.00
Aaron Sanford	95	$120.00	$11,400.00
Steve Belcher	1,544	$126.00	$194,544.00
Marylin Dodson	16	$99.50	$1,592.00
Totals	**11,190**		**$1,351,882.48**

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT NUMBER: **HI STP SR560(1)**

BUDGET DATE: **21-Mar-2014**

PROJECT NAME: **Wainiha Bridges**

BREAKDOWN	P6 Activity	Discipline Code	Hours	Labor Costs	Equipment/ Material Costs	Travel Costs	Task Order Costs	Agreement Costs	Total
Pavements	Total	V	18						
	V1	V	11						
	V2	V	4						
	V3	V	3						
Hydraulics	Total	H	294	$54,577.76					$54,577.76
	H1	H	130	$24,119.60					$24,119.60
	H2	H	130	$24,119.60					$24,119.60
	H3	H	34	$6,338.56					$6,338.56
Highway Design	Total	D	1,299	$146,262.00					$146,262.00
	D1	D							
	D1PRE	D							
	D1PR	D							
	D2	D	336	$38,304.00					$38,304.00
	D2PRE	D	66	$7,068.00					$7,068.00
	D2PR	D	40	$4,560.00					$4,560.00
	D2.1	D							
	D2.1PRE	D							
	D2.1PR	D							
	D3	D	358	$40,812.00					$40,812.00
	D3PRE	D	42	$4,332.00					$4,332.00
	D3PR	D	44	$5,016.00					$5,016.00
	D4	D	213	$24,282.00					$24,282.00
	D4PRE	D	48	$5,016.00					$5,016.00
	D4PR	D	36	$4,104.00					$4,104.00
	P2	D	30	$3,420.00					$3,420.00
	P2PRE	D	36	$3,648.00					$3,648.00
	D5	D	50	$5,700.00					$5,700.00
Bridge	Total	B	5,695	$659,049.36					$659,049.36

Personnel	Hours	Rate	Labor Cost

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT NUMBER: **HI STP SR560(1)**

BUDGET DATE: **21-Mar-2014**

PROJECT NAME: **Wainiha Bridges**

BREAKDOWN	P6 Activity	Discipline Code	Hours	Labor Costs	Equipment/ Material Costs	Travel Costs	Task Order Costs	Agreement Costs	Total
	B2	B	829	$114,214.16					$114,214.16
	B3	B	4,699	$524,443.36					$524,443.36
	B4	B	167	$20,391.84					$20,391.84
Acquisitions	Total	Q	103	$12,517.44					$12,517.44
	Q1	Q	25	$3,000.00					$3,000.00
	Q2	Q	40	$4,800.00					$4,800.00
	Q3	Q	30	$3,600.00					$3,600.00
	PMA	Q	8	$1,117.44					$1,117.44
PE Totals			**10,866**	**$1,291,770.48**			**$468,500.00**		**$1,760,270.48**

Personnel	Hours	Rate	Labor Cost

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

A. PROJECT MANAGEMENT			Mike Will									Totals
WORK ACTIVITY												
PM	**Project Management**	**Step Weight**										
Step 1	Project management oversight	100%	300									300
PMA	**Project Management during Acquisitions**											
Step 1	PM support during acquisitions	100%	8									8
	Subtotal of hours	PM	300									300
	Subtotal of hours	PMA	8									8
	Subtotal of hours	W	308									308
	Salary Rate, per hour		$139.68									
	Subtotal Labor Costs	PM	$41,904.00									41904.00
	Subtotal Labor Costs	PMA	$1,117.44									1117.44
	Subtotal Labor Costs	W	$43,021.44									
TOTAL LABOR COST, (this sheet)			**$43,021.44**							Formula Check		OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

C. ENVIRONMENT			Nicole Winterton	Brooke Davis	Peer Reviewer							Totals
WORK ACTIVITY												
E0	**Environmental Scoping**	**Step Weight**										
Step 1	Perform Preliminary Partner Agency Coordination	12%	16									16
Step 2	Conduct Preliminary Environmental Research	12%	16									16
Step 3	Develop Draft Purpose and Need and Alternative(s)	18%	24									24
Step 4	Perform Resource Agency, Tribal, and Public Coordination	45%	60									60
Step 5	Provide Environmental Support to the CFT	12%	16									16
E1	**Environmental Compliance Studies**											
Step 1	Develop Delivery Plan for Compliance Studies	15%	32									32
Step 2	Perform Cultural Surveys/Studies and Coordination	19%	40									40
Step 3	Perform Biology Surveys/Studies and Coordination	19%	40									40
Step 4	Perform Wetland Surveys/Studies and Coordination	4%	8									8
Step 5	Perform Other Environmental Sureys/Studies and Coordination	19%	40									40
Step 6	Perform resource Agency, Tribal, and Public Coordination	19%	40									40
Step 7	Provide Environmental Support to the CFT	6%	12									12
E2	**Document Preparation**											
Step 1	Finalize Purpose and Need and Alternatives	4%	12									12
Step 2	Perform Additional Studies, Research, Analyses, and/or Evaluations	7%	24									24
Step 3	Continue Coordination (w/Tribes, Clients, Partners, Agencies, and Public)	7%	24									24
Step 4	Conclude Section 106 Consultation	7%	24									24
Step 5	Conclude Section 7 and Sensitive Species Consultations	12%	40									40
Step 6	Prepare Draft Environmental Document	60%	180		24							204
Step 7	Provide Environmental Support to the Cross Functional Team	4%	12									12

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

C. ENVIRONMENT			Nicole Winterton	Brooke Davis	Peer Reviewer							Totals
WORK ACTIVITY												
E3	**Environmental Compliance Approval**											
Step 1	Perform Draft Document Review	27%	40		8							48
Step 2	Obtain Final Document Signature and Distribute	7%	12									12
Step 3	Perform Public Involement	22%	40									40
Step 4	Prepare and Review Draft Decision Document	27%	40		8							48
Step 5	Obtain Final Document Signature and Distribute	7%	12									12
Step 6	Prepare Environmental Commitment Summary Table	4%	8									8
Step 7	Provide Environmental Support to the Cross Functional Team	7%	12									12
E4	**Environmental Mitigation and Support**											
Step 1	Review Project for Changes	12%	12									12
Step 2	Develop Delivery Plan for Mitigation	12%	12									12
Step 3	Finalize Mitigation Commitments and Delivery Plan	12%	12									12
Step 4	Implement and Monitor Mitigation Commitments	58%	60									60
Step 5	Provide Environmental Support to the CFT	8%	8									8
	Subtotal of hours	E0	132									132
	Subtotal of hours	E1	212									212
	Subtotal of hours	E2	316		24							340
	Subtotal of hours	E3	164		16							180
	Subtotal of hours	E4	104									104
	Subtotal of hours	Total	928		40							968
	Salary Rate, per hour		$120.91	$47.00	$114.00							
	Subtotal Labor Costs	E0	$15,960.12									$15,960.12
	Subtotal Labor Costs	E1	$25,632.92									$25,632.92

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

C. ENVIRONMENT WORK ACTIVITY		Nicole Winterton	Brooke Davis	Peer Reviewer							Totals
Subtotal Labor Costs	E2	$38,207.56		$2,736.00							$40,943.56
Subtotal Labor Costs	E3	$19,829.24		$1,824.00							$21,653.24
Subtotal Labor Costs	E4	$12,574.64									$12,574.64
Subtotal Labor Costs	Total	$112,204.48		$4,560.00							
TOTAL LABOR COST, (this sheet)		**$116,764.48**							Formula Check		OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

D. PERMITS			Opal Forbes	Brooke Davis								Totals
WORK ACTIVITY												
EP1.0	**Jurisdictional Determination and Permit Approach**	**Step Weight**										
Step 1	Review Waters of the US Delineation Report	50%		16								16
Step 2	Jurisdictional determination and approach	6%		2								2
Step 3	Prepare apprpriate JD request	19%		6								6
Step 4	Coordiante with CFT	25%		8								8
EP1.1	**Develop 404/401 Permit Package**											
Step 1	Determine impacts to jurisdictional waters	10%		17								17
Step 2	Coordination with Federal and State regulatory agencies to obtain permit application requirements	5%		8								8
Step 3	Prepare and Submit 404/401 permit applications	47%		80								80
Step 4	Prepare a mitigation plan or purchase credits for impacts from bank or in lieu fee program	35%		60								60
Step 5	Receive permits, coordiatne terms & conditions with PM, and archive	4%		6								6
E2.0	**Develop Draft NPDES Permit Package**											
Step 1	Assess NPDES Permit requirements	13%	8									8
Step 2	Communicate with CFT any conditions that need to be addressed in plans and SCR's	7%	4									4
Step 3	Prepare SWPPP/Notice of Intent	67%	40									40
Step 4	Submit permit application	13%	8									8
	Subtotal of hours for	EP1.0		32								32
	Subtotal of hours for	EP1.1		171								171
	Subtotal of hours for	E2.0	60									60
	Subtotal of hours		60	203								263
	Salary Rate, per hour		$115.00	$47.00								

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

D. PERMITS WORK ACTIVITY	Opal Forbes	Brooke Davis								Totals
Subtotal Labor Costs for EP1.0		$1,504.00								$1,504.00
Subtotal Labor Costs for EP1.1		$8,037.00								$8,037.00
Subtotal Labor Costs for E2.0	$6,900.00									$6,900.00
Subtotal Labor Costs	$6,900.00	$9,541.00								
TOTAL LABOR COST, (this sheet)	**$16,441.00**							Formula Check		

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

E. SURVEY			Bob Bell	Bryan Clark	Keith Wertz	Brooke Rosener						Totals
WORK ACTIVITY												
S1	**Initial Survey and Mapping**	**Step Weight**										
Step 1	Mobilize and reconnaissance of project site	11%	20	20	20							60
Step 2	Control network	13%	24	24	24							72
Step 3	Locate and map utilities	7%		20	20							40
Step 4	Locate cadastral and private property monuments	13%	24	24	24							72
Step 5	Field reports	2%		12								12
Step 6	Field mapping	44%	80	80	80							240
Step 7	Office mapping	9%	8			40						48
	Subtotal of hours for	S1	156	180	168	40						544
	Subtotal of hours for	S2										
	Subtotal of hours		156	180	168	40						544
	Salary Rate, per hour		$139.68	$110.00	$90.00	$90.00						
	Subtotal Labor Costs for	S1	$21,790.08	$19,800.00	$15,120.00	$3,600.00						$60,310.08
	Subtotal Labor Costs for	S2										
	Subtotal Labor Costs		$21,790.08	$19,800.00	$15,120.00	$3,600.00						
TOTAL LABOR COST, (this sheet)			**$60,310.08**							Formula Check		OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

E. SURVEY WORK ACTIVITY			Bob Bell	Keith Wertz								Totals
SC70	**Alignment Staking for 70% Review**											
Step 1	Mobilize and reconnaissance of project site	38%	20	20								40
Step 2	Stake centerline alignment	62%	32	32								64
Step 3	Perform measurements to confirm aerial photography											
	Subtotal of hours for	SC15										
	Subtotal of hours for	SC30										
	Subtotal of hours for	SC50										
	Subtotal of hours for	SC70	52	52								104
	Subtotal of hours		52	52								104
	Salary Rate, per hour		$139.68	$90.00								
	Subtotal Labor Costs for	SC15										
	Subtotal Labor Costs for	SC30										
	Subtotal Labor Costs for	SC50										
	Subtotal Labor Costs for	SC70	$7,263.36	$4,680.00								$11,943.36
	Subtotal Labor Costs		$7,263.36	$4,680.00								
TOTAL LABOR COST, (this sheet)			**$11,943.36**							Formula Check		OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

J. HIGHWAY DESIGN			Jill Mathewson	Peer Reviewer	Ryan Olson							Totals
WORK ACTIVITY												
	D2 - Develop 30% Design	**Step Weight**										
Step 1	Roadway design	33%	112									112
Step 2	Secondary roadway design	5%	18									18
Step 3	Preliminary temporary and permanent traffic control	19%	64									64
Step 4	Plan Production	20%	66									66
Step 5	Cross functional design support	10%	32									32
Step 6	Engineer's Estimate	5%	16									16
Step 7	Construction schedule	2%	8									8
Step 8	Project documentation	6%	20									20
	D2PRE - Design Peer Review & Update 30% Design											
Step 1	Peer review	100%	46	16	4							66
	D2PR - 30% Plan Review											
Step 1	External Review	100%	40									40
	Subtotal of hours for	D2	336									336
	Subtotal of hours for	D2PRE	46	16	4							66
	Subtotal of hours for	D2PR	40									40
	Subtotal of hours		422	16	4							442
	Salary Rate, per hour		$114.00	$114.00								
	Subtotal Labor Costs for	D2	$38,304.00									$38,304.00
	Subtotal Labor Costs for	D2PRE	$5,244.00	$1,824.00								$7,068.00
	Subtotal Labor Costs for	D2PR	$4,560.00									$4,560.00
	Subtotal Labor Costs		$48,108.00	$1,824.00								
TOTAL LABOR COST, (this sheet)			**$49,932.00**									Formula Check OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

J. HIGHWAY DESIGN			Jill Mathewson	Peer Reviewer	Ryan Olson							Totals
WORK ACTIVITY												
	D3 - Develop 70% Design	**Step Weight**										
Step 1	Post 30% field review	6%	22									22
Step 2	Roadway design	19%	67									67
Step 3	Secondary roadway design	6%	22									22
Step 4	Permanent and temporary traffic control	12%	44									44
Step 5	Plan Production	18%	64									64
Step 6	Cross functional design support	20%	70									70
Step 7	Engineer's Estimate	3%	12									12
Step 8	Construction schedule	1%	4									4
Step 9	Specifications	11%	40									40
Step 10	Project documentation	4%	13									13
	D3PRE - 70% Pre-submittal/Peer Review & Update											
Step 1	Peer review	100%	22	16	4							42
	D3PR - 70% Update for External Review											
Step 1	External review	105%	44									44
	Subtotal of hours for	D3	358									358
	Subtotal of hours for	D3PRE	22	16	4							42
	Subtotal of hours for	D3PR	44									44
	Subtotal of hours		424	16	4							444
	Salary Rate, per hour		$114.00	$114.00								
	Subtotal Labor Costs for	D3	$40,812.00									$40,812.00
	Subtotal Labor Costs for	D3PRE	$2,508.00	$1,824.00								$4,332.00
	Subtotal Labor Costs for	D3PR	$5,016.00									$5,016.00
	Subtotal Labor Costs		$48,336.00	$1,824.00								
TOTAL LABOR COST, (this sheet)			**$50,160.00**							Formula Check		OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

J. HIGHWAY DESIGN			Jill Mathewson	Peer Reviewer	Ryan Olson							Totals
WORK ACTIVITY												
	D4 - Develop 95% Design	**Step Weight**										
Step 1	Post 70% field review	11%	23									23
Step 2	Roadway design	11%	24									24
Step 3	Secondary roadway design	7%	14									14
Step 4	Permanent and temporary traffic control	8%	16									16
Step 5	Plan Production	15%	32									32
Step 6	Cross functional design support	14%	30									30
Step 7	Engineer's Estimate	4%	8									8
Step 8	Construction schedule	4%	8									8
Step 9	Specifications	12%	26									26
Step 10	Project documentation	15%	32									32
	D4PRE - 95% Pre-submittal/Peer Review & Update											
Step 1	Peer review	100%	28	16	4							48
	D4PR - 95% Update for External Review											
Step 1	External review	100%	36									36
	Subtotal of hours for	D4	213									213
	Subtotal of hours for	D4PRE	28	16	4							48
	Subtotal of hours for	D4PR	36									36
	Subtotal of hours		277	16	4							297
	Salary Rate, per hour		$114.00	$114.00								
	Subtotal Labor Costs for	D4	$24,282.00									$24,282.00
	Subtotal Labor Costs for	D4PRE	$3,192.00	$1,824.00								$5,016.00
	Subtotal Labor Costs for	D4PR	$4,104.00									$4,104.00
	Subtotal Labor Costs		$31,578.00	$1,824.00								
TOTAL LABOR COST, (this sheet)			**$33,402.00**							Formula Check		OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

J. HIGHWAY DESIGN			Jill Mathewson	Peer Reviewer	Ryan Olson							Totals
WORK ACTIVITY												
P2	**Develop 100% Design and Contract Development**	**Step Weight**										
Step 1	Finalize PS&E	80%	24									24
Step 2	Develop procurement documents and checklists	20%	6									6
P2PRE	**100% Peer Review & Update**											
Step 1	Peer review	100%	16	16	4							36
D5	**Assemble Project Engineer's Design Package**											
Step 1	Complete the Project Engineer's Notebook	100%	50									50
	Subtotal of hours for	P2	30									30
	Subtotal of hours for	P2PRE	16	16	4							36
	Subtotal of hours for	D5	50									50
	Subtotal of hours		96	16	4							116
	Salary Rate, per hour		$114.00	$114.00								
	Subtotal Labor Costs for	P2	$3,420.00									$3,420.00
	Subtotal Labor Costs for	P2PRE	$1,824.00	$1,824.00								$3,648.00
	Subtotal Labor Costs for	D5	$5,700.00									$5,700.00
	Subtotal Labor Costs		$10,944.00	$1,824.00								
TOTAL LABOR COST, (this sheet)			**$12,768.00**							Formula Check		OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

F. ROW WORK ACTIVITY			Alan Blair	Jeff Bellen								Totals
R1	**Preliminary Right of Way Studies**	**Step Weight**										
Step 1	Assemble preliminary boundary exhibit	59%	8	40								48
Step 2	Prepare exhibits for public meetings	10%	8									8
Step 3	Identify required field evidence	20%	8	8								16
Step 4	Prepare Summary Report	12%	2	8								10
R2	**Boundary Mapping**											
Step 1	Update preliminary boundary exhibit	39%	8	40								48
Step 2	Perform title search	41%	30	20								50
Step 3	Prepare comprehensive electronic boundary plat	20%	4	20								24
R3	**Final Right of Way Plans**											
Step 1	Coordinate with acquiring agency for document/recordation requirements	30%	24	8								32
Step 2	Prepare and submit Documents	26%	8	20								28
Step 3	Prepare and submit Legal Descriptions	44%	8	40								48
	Subtotal of hours for	R1	26	56								82
	Subtotal of hours for	R2	42	80								122
	Subtotal of hours for	R3	40	68								108
	Subtotal of hours		108	204								312
	Salary Rate, per hour		$151.99	$127.82								
	Subtotal Labor Costs for	R1	$3,951.74	$7,157.92								$11,109.66
	Subtotal Labor Costs for	R2	$6,383.58	$10,225.60								$16,609.18
	Subtotal Labor Costs for	R3	$6,079.60	$8,691.76								$14,771.36
	Subtotal Labor Costs		$16,414.92	$26,075.28								

TOTAL LABOR COST, (this sheet)	**$42,490.20**	Formula Check	OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

F. ROW WORK ACTIVITY			Alan Blair	Ramon Sanchez								Totals
RLM	**Right of Way Acquisition (Non-Federal)**	**Step Weight**										
Step 1	Prepare exhibits as necessary and arrange meetings	83%	4	16								20
Step 2	Meet with land owner(s)	17%	4									4
R4	**Right of Way Acquisition (Non-Federal)**											
Step 1	Transmit ROW documents to acquiring agency	24%	20	16								36
Step 2	Meet with landowners, agencie, and others	32%	40	8								48
Step 3	Provide support and oversight to acquiring agency	11%	8	8								16
Step 4	Provide guidance to acquiring agency regarding compliance and utility cert.	16%	16	8								24
R5	**Letter of Consent**											
Step 1	Transmit documents to Federal Land Transfer											
Step 2	Coordiante design modifications											
Step 3	Negotiate terms and stipulations											
R6	**DOT Easement Deed**											
Step 1	Prepare final deed and exhibits											
Step 2	Route deed for signatures											
Step 3	Transmit deed to grantee											
Step 4	Archive recorded documents and send to federal agency											
	Subtotal of hours for	RLM	8	16								24
	Subtotal of hours for	R4	92	56								148
	Subtotal of hours for	R5										
	Subtotal of hours for	R6										
	Subtotal of hours		100	72								172
	Salary Rate, per hour		$151.99	$58.43								

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

F. ROW WORK ACTIVITY		Alan Blair	Ramon Sanchez								Totals
Subtotal Labor Costs for	RLM	$1,215.92	$934.88								$2,150.80
Subtotal Labor Costs for	R4	$13,983.08	$3,272.08								$17,255.16
Subtotal Labor Costs for	R5										
Subtotal Labor Costs for	R6										
Subtotal Labor Costs		$15,199.00	$4,206.96								
TOTAL LABOR COST, (this sheet)		**$19,405.96**							Formula Check		OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

G. UTILITIES			Ramon Sanchez	Jeff Bellen								Totals
WORK ACTIVITY												
U1	**Identify and Locate Utilities**	**Step Weight**										
Step 1	Support research	21%	8									8
Step 2	Review utility mapping	21%	8									8
Step 3	Initiate early coordination	21%	4	4								8
Step 4	Certify utilities	11%	4									4
Step 5	Coordinate recommendations for design modifications	21%	8									8
Step 6	Utility Summary Report	5%	2									2
U2	**Identify Utility / Design Conflicts**	**Step Weight**										
Step 1	Additional research, field investigation, and mapping	44%	8									8
Step 2	Support utility/design conflict drawings	11%	2									2
Step 3	Utility coordination	22%	4									4
Step 4	DRAFT Utility Resolution Plan	22%	2	2								4
U3	**Implement Utility Relocation Plan**	**Step Weight**										
Step 1	FINAL Utility Resolution Plan	46%	8	4								12
Step 2	Support development of construction drawings	8%	2									2
Step 3	Assist in development of SCR's	8%	2									2
Step 4	Develop and execute Utility Agreements	8%	2									2
Step 5	Certify utilities	8%	2									2
Step 6	Constructability review of proposed utility resolutions	23%	2	4								6
	Subtotal of hours for	U1	34	4								38
	Subtotal of hours for	U2	16	2								18
	Subtotal of hours for	U3	18	8								26
	Subtotal of hours for	U	68	14								82
	Salary Rate, per hour		$58.43	$127.82								

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

G. UTILITIES WORK ACTIVITY		Ramon Sanchez	Jeff Bellen								Totals
Subtotal Labor Costs for	U1	$1,986.62	$511.28								$2,497.90
Subtotal Labor Costs for	U2	$934.88	$255.64								$1,190.52
Subtotal Labor Costs for	U3	$1,051.74	$1,022.56								$2,074.30
Subtotal Labor Costs for	U	$3,973.24	$1,789.48								
TOTAL LABOR COST, (this sheet)		**$5,762.72**							Formula Check		OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

H. GEOTECHNICAL			Khamis Haramy	Charlie Martinez	Marylin Dodson							Totals
WORK ACTIVITY												
G1	**Preliminary Geotechnical Recommendations**	**Step Weight**										
Step 1	Conduct research	53%	16	2								18
Step 2	Develop Preliminary Field Investigations Plan											
Step 3	Field investigation preparation											
Step 4	Preliminary Recommendations	47%	16									16
Step 5	Prepare Interim Geotechnical Evaluation Memorandum											
Step 6	Procure soil/rock/water lab testing											
Step 7	Prepare DRAFT Preliminary Geotechinical Report											
Step 8	Address FHWA comments and prepare FINAL Preliminary Geotechincal Report											
G2	**Geotechnical Investigation**											
Step 1	Develop comprehensive Geotechnical Investigation Plan	15%	16	4	8							28
Step 2	Field investigation preparation	8%	8		8							16
Step 3	Conduct a comprehensive subsurface investigation	52%	100									100
Step 4	Procure soil/rock/water lab testing	13%	24									24
Step 5	Issue Interim Geotechnical Memoranda	13%	24									24
G3	**Draft Geotechnical Report**											
Step 1	Conduct geotechnical analyses	50%	80	8								88
Step 2	Prepare and issue a DRAFT Final Geotechnical Report	50%	80	8								88
Step 3	Issue Interim Geotechnical Memoranda											
G4	**Final Geotechnical Report**											
Step 1	Issue Geotechnical Advisories and plan notes	65%	30									30
Step 2	Update and issue FINAL Geotechnical Report	35%	16									16

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

H. GEOTECHNICAL WORK ACTIVITY		Khamis Haramy	Charlie Martinez	Marylin Dodson							Totals
Subtotal of hours for	G1	32	2								34
Subtotal of hours for	G2	172	4	16							192
Subtotal of hours for	G3	160	16								176
Subtotal of hours for	G4	46									46
Subtotal of hours		410	22	16							448
Salary Rate, per hour		$156.12	$90.00	$120.00							
Subtotal Labor Costs for	G1	$4,995.84	$180.00								$5,175.84
Subtotal Labor Costs for	G2	$26,852.64	$360.00	$1,920.00							$29,132.64
Subtotal Labor Costs for	G3	$24,979.20	$1,440.00								$26,419.20
Subtotal Labor Costs for	G4	$7,181.52									$7,181.52
Subtotal Labor Costs		$64,009.20	$1,980.00	$1,920.00							

TOTAL LABOR COST, (this sheet) **$67,909.20**

Formula Check OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

I. PAVEMENTS			Mike Voth									Totals
WORK ACTIVITY												
V1	**Preliminary Pavement Recommendations**	**Step Weight**										
Step 1	Evaluate and submit samples/data for testing and analysis	9%	1									1
Step 2	Evaluate results from lab testing, field investigation, and engineering analysis	18%	2									2
Step 3	Determine cost effective design, material, and rehab recommendations. Develop Preliminary Pavement Recommendations Technical	73%	8									8
V2	**Final Pavement Recommendations**											
Step 1	Identify and/or develop needed SCR's	50%	2									2
Step 2	Finalize design recommendations	50%	2									2
V3	**Follow-up Pavement & Materials Work**											
Step 1	Assure alignment of pavement memo/report recommendations and PS&E	33%	1									1
Step 2	Answer technical questions during final design stage	67%	2									2
	Subtotal of hours for	V1	11									11
	Subtotal of hours for	V2	4									4
	Subtotal of hours for	V3	3									3
	Subtotal of hours		18									18
	Salary Rate, per hour											
	Subtotal Labor Costs for	V1										
	Subtotal Labor Costs for	V2										
	Subtotal Labor Costs for	V3										
	Subtotal Labor Costs											
TOTAL LABOR COST, (this sheet)									Formula Check			OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

J. HYDRAULICS			Bart Bergendahl	Veronica Ghelardi								Totals
WORK ACTIVITY												
H1	**Preliminary Hydraulics Recommendations**	**Step Weight**										
Step 1	Collect drainage related data	9%	12									12
Step 2	Identify existing floodplain encroachments and channel stability issues	3%	4									4
Step 3	Provide support to NEPA process	3%	4									4
Step 4	Develop a Hydrologic and Hydraulic Criteria and Computational Methods Technical Memorandum	6%	8									8
Step 5	Perform hydrologic analyses per HDOT methodologies	22%	24	4								28
Step 6	Perform preliminary hydraulic analyses of existing conditions	34%	40	4								44
Step 7	Provide support for permitting	3%	4									4
Step 8	Prepare a Preliminary Hydraulics Recommendations Report	20%	24	2								26
H2	**Darft Hydarulics Report**											
Step 1	Perform preliminary bridge waterway analyses	34%	40	4								44
Step 2	Perform final floodplain analyses and delineations	20%	24	2								26
Step 3	Prepare draft "No-Rise" certification packages	6%	8									8
Step 4	Provide preliminary designs for special hydraulic features	3%	4									4
Step 5	Develop stream restoration and/or wetland mitigation	3%	4									4
Step 6	Develop Preliminary Hydraulics Report	34%	40	4								44
H3	**Final Hydraulics Report**											
Step 1	Provide final bridge waterway analyses	24%	8									8
Step 2	Prepare final "No-Rise" certification packages	12%	4									4
Step 3	Provide final design for special hydraulic features	12%	4									4
Step 4	Finalize stream restoration and/or wetland mitigation	12%	4									4

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

J. HYDRAULICS			Bart Bergendahl	Veronica Ghelardi								Totals
WORK ACTIVITY												
Step 5	Prepare DRAFT Hydraulics Report	29%	8	2								10
Step 6	Incorporate comments and prepare FINAL Hydraulics Report	12%	4									4
	Subtotal of hours for	H1	120	10								130
	Subtotal of hours for	H2	120	10								130
	Subtotal of hours for	H3	32	2								34
	Subtotal of hours		272	22								294
	Salary Rate, per hour		$189.33	$140.00								
	Subtotal Labor Costs for	H1	$22,719.60	$1,400.00								$24,119.60
	Subtotal Labor Costs for	H2	$22,719.60	$1,400.00								$24,119.60
	Subtotal Labor Costs for	H3	$6,058.56	$280.00								$6,338.56
	Subtotal Labor Costs		$51,497.76	$3,080.00								
TOTAL LABOR COST, (this sheet)			**$54,577.76**							Formula Check		OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

K. Bridge			Bonnie Klamerus	Ryan Owen	Steve Belcher			Leo Depaula	Dana Christensen	Ryan Wehner	Burnnie Robinson	Totals
WORK ACTIVITY												
B2	**Structural Layout**	**Step Weight**										
Step 1	Structure Preliminary Layout	47%	36					260	93			389
Step 2	Prepare TS&L for 1 alt. per permanent bridge + 3 temp + 3 detour bridges	27%	8					20	10	186		224
Step 3	Prepare bridge preliminary cost estimate	11%	24					48	16			88
Step 4	Prepare TS&L for 1 alt. per permanent bridge + 3 detour bridges	13%						44	8	54		106
Step 5	Prepare bridge preliminary cost estimate	3%	6					14	2			22
Step 6												
Step 7												
Step 8												
Step 9												
B3	**Structural Design and Check**											
Step 1	Prepare structure design criteria document for permanent bridges	1%	12	12	12							36
Step 2	Prepare structure design criteria document for 6 temporary bridges	0%	2					4	4			10
Step 3	Provide calculations for structural design of 3 permanent bridge superstructures	11%	16	120	380							516
Step 4	Provide calculations for the substructure design for 3 temporary bridges	2%							90			90
Step 5	Prepare bridge plan sheets for the 3 permanent bridge superstructure	13%	24	40	56					480		600
Step 6	Prepare plan sheets for the 3 temporary bridges	2%							16		60	76
Step 7	Prepare independent design calculations for the 3 permanent bridge superstructure	10%		300	160							460
Step 8	Prepare independent design calculations for 3 temporary bridge substructures	2%						75				75
Step 9	Check 70% drawings	5%	24	40	80			10		60		214
Step 10	Prepare bridge plan item quantitiy calculations	1%		32	16							48
Step 11	Prepare temporary bridge item quantity calculations	1%							24			24
Step 12	Check 70% Structure quantities	1%	8	16	20			14				58
Step 13	Prepare bridge SCR's	0%	16									16

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

K. Bridge			Bonnie Klamerus	Ryan Owen	Steve Belcher			Leo Depaula	Dana Christensen	Ryan Wehner	Burnnie Robinson	Totals
WORK ACTIVITY												
Step 14	Prepare temporary bridge SCR's	0%	4					16				20
Step 15	Check 70% SCR's	1%	6		16			4				26
Step 16	Provide calculations for design of 3 permanent bridge substructure	13%		360	250							610
Step 17	Perform bridge load rating 3 permanent bridges	1%		40	30							70
Step 18	Provide calculations for revisions to 3 temporary bridge substructures	0%							12			12
Step 19	Prepare complete set of bridge plan sheets - permanent structures	16%	32	100	40					600		772
Step 20	Prepare complete set of plan sheets for 3 temporary structures	1%							12		24	36
Step 21	Prepare independent design calculations for 3 permanent bridge substructures	10%		200	280							480
Step 22	Prepare independent load rating for bridge	1%		30	32							62
Step 23	Prepare independent design calculations for 3 temporary bridge substructure revision	0%						9				9
Step 24	Check 95% structure drawings	5%	32	40	80			20		38	18	228
Step 25	Revise 70% bridge plan item quantity calculations	1%		24	20							44
Step 26	Revise 70% temporary bridges plan item quantity calculations	0%							9			9
Step 27	Check revised structure quantities	2%	16	20	32			5				73
Step 28	Revise 70% bridge SCR's	0%	8									8
Step 29	Revise 70% temporary bridge SCR's	0%	4									4
Step 30	Check revised SCR's	0%			8			5				13
B4	**Structural PS&E Revisions**											
Step 1	Complete revisions to 95% structure design											
Step 2	Revise 95% structural drawings	75%	10	24	24			10	10	32	15	125
Step 3	Revise 95% structural SCR's	10%	12					4				16
Step 4	Revise 95% structure quantities and itemized cost estimate	16%	4	8	8				2		4	26
	Subtotal of hours for	B2	74					386	129	240		829
	Subtotal of hours for	B3	204	1,374	1,512			162	167	1,178	102	4,699

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

K. Bridge WORK ACTIVITY		Bonnie Klamerus	Ryan Owen	Steve Belcher			Leo Depaula	Dana Christensen	Ryan Wehner	Burnnie Robinson	Totals
Subtotal of hours for	B4	26	32	32			14	12	32	19	167
Subtotal of hours		304	1,406	1,544			562	308	1,450	121	5,695
Salary Rate, per hour		$166.84	$89.00	$126.00			$159.00	$126.00	$101.00	$116.00	
Subtotal Labor Costs for	B2	$12,346.16					$61,374.00	$16,254.00	$24,240.00		$114,214.16
Subtotal Labor Costs for	B3	$34,035.36	$122,286.00	$190,512.00			$25,758.00	$21,042.00	$118,978.00	$11,832.00	$524,443.36
Subtotal Labor Costs for	B4	$4,337.84	$2,848.00	$4,032.00			$2,226.00	$1,512.00	$3,232.00	$2,204.00	$20,391.84
Subtotal Labor Costs		$50,719.36	$125,134.00	$194,544.00			$89,358.00	$38,808.00	$146,450.00	$14,036.00	
TOTAL LABOR COST, (this sheet)		**$659,049.36**							Formula Check		OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

M. Meetings and Reviews WORK ACTIVITY	Jill Mathewson	Ryan Olson	Khamis Haramy	Nicole Winterton	Ed Hammontree	Mike Will	Bart Bergendahl	Bonnie Klamerus	Barbara Burke	Opal Forbes											Total Hours
CFT Support																					
CFT	12	4	24	12			24	12	6												94
Plan Reviews, Meetings and Site Visits																					
D2PRI	12	4	6	4		8	4	12	6	2											58
D2SV																					
D3PRI	12	4	4	4		8	4	12	4	4											56
D3SV																					
D4PRI	12	4	4	4		8	4	12	4	4											56
E4SV (2 trips)																					
RLMSV																					
Subtotal of hours	48	16	38	24		24	36	48	20	10											264
Salary Rate, per hour	$114.00		$156.12	$120.91		$139.68	$189.33	$166.84	$140.00	$115.00											
Subtotal Labor Costs	$5,472.00		$5,932.56	$2,901.84		$3,352.32	$6,815.88	$8,008.32	$2,800.00	$1,150.00											

TOTAL LABOR COST, (this sheet) **$36,432.92**

Formula Check OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)** BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

O. Procurement and Acquisitions (Q1, Q2, Q3)			Aaron Sanford									Totals
WORK ACTIVITY												
Q1	**Pre-Advertisement**	**Step Weight**										
Step 1	Pre-advertisement	100%	25									25
Q2	**P&A Advertisement**											
Step 1	P&A Advertisement	100%	40									40
Q3	**P&A Closeout**											
Step 1	P&A closeout	100%	30									30
	Subtotal of hours for	Q1	25									25
	Subtotal of hours for	Q2	40									40
	Subtotal of hours for	Q3	30									30
	Subtotal of hours for											
	Subtotal of hours		95									95
	Salary Rate, per hour		$120.00									
	Subtotal Labor Costs for	Q1	$3,000.00									$3,000.00
	Subtotal Labor Costs for	Q2	$4,800.00									$4,800.00
	Subtotal Labor Costs for	Q3	$3,600.00									$3,600.00
	Subtotal Labor Costs for											
	Subtotal Labor Costs		$11,400.00									
TOTAL LABOR COST, (this sheet)			**$11,400.00**							Formula Check		OK

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)**

BUDGET DATE: **21-Mar-2014**

PROJECT: **Wainiha Bridges**

Equipment and Materials						
	P3 Activity Code	**Total Cost**				
Project Management						
Utilities						
Project Development						
Environment						
Surveys						
Right of Way						
Geotech		$120,000	drilling	Traffic Control	Laboratory Testing	Water Turck
Pavements			90,000	15,000	15,000	
Hydraulics						
Highway Design						
Bridge						
$		$500	NPDES permit $500			
Meetings and Reviews						
TOTAL EQUIPMENT AND MATERIALS COST		**$120,500.00**				

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)**

PROJECT: **Wainiha Bridges**

BUDGET DATE: **21-Mar-2014**

Travel			Burden Rate	100%

For Per Diem rates, go to gsa.gov	P6 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)

TOTAL TRAVEL COSTS

FEDERAL HIGHWAY ADMINISTRATION

CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CFL INTERNAL BASELINE BUDGET

PROJECT #: **HI STP SR560(1)**

BUDGET DATE: **21-Mar-2014**

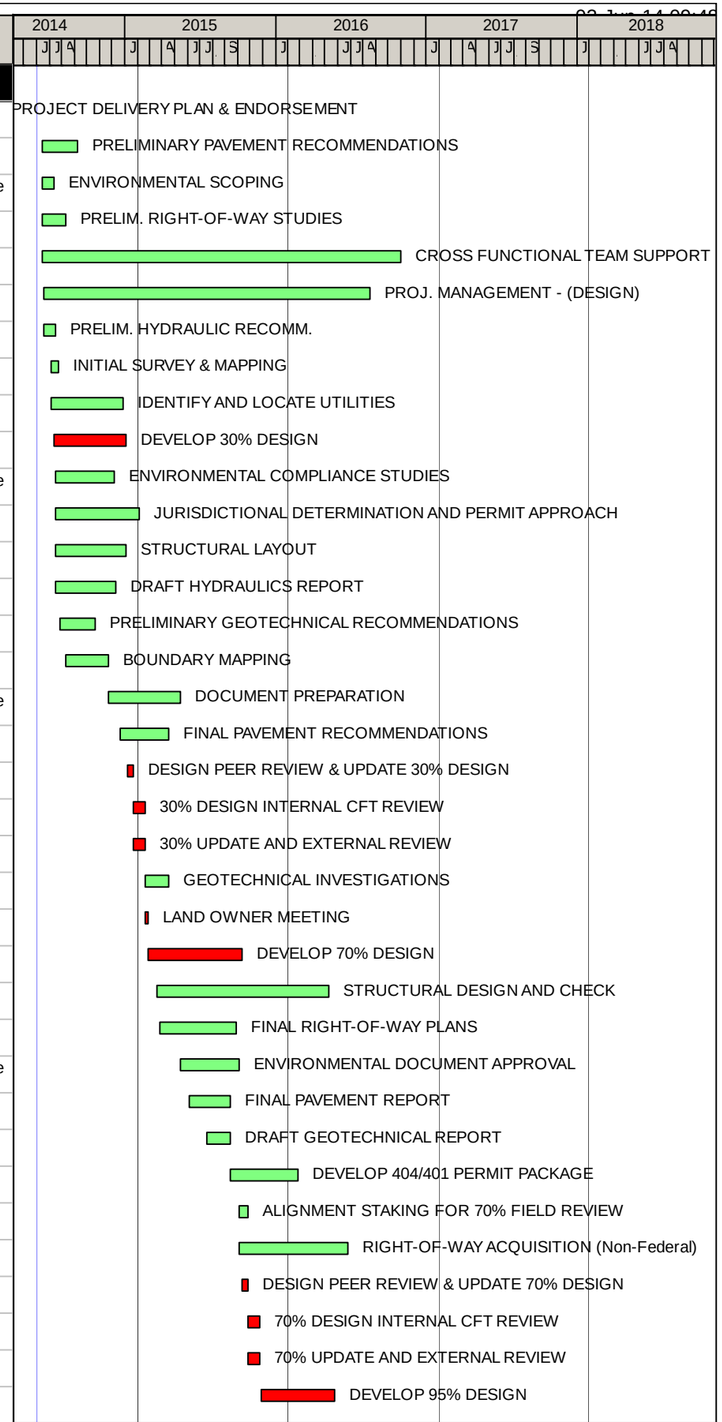
PROJECT: **Wainiha Bridges**

Task Order Summary	P6 Activity Code (What Activity will it be budgeted to)	P6 Activity Codes (What Activities will it Cover)	Total Estimated Task Order Cost	
Title Search	R2		$3,500	
Geotechnical G2	G2		$120,000	
Right of way acquisition	R4		$80,000	
Public Facilitator Placeholder	E0		$15,000	
Technical Environmental Studies	E1	E1 and E2	$250,000	
Total Task Order Cost	**$468,500.00**			

Agreement Summary	P6 Activity Code (What Activity will it be budgeted to)	P6 Activity Codes (What Activities will it Cover)	Total Estimated Agreement Cost	
Agency				
Agency				
Agency				
Agency				
Agency				
Agency				
Total Task Order Cost				

Schedule

Activity ID	Activity Name	Original Duration	Remaining Duration	% Compl.	Start	Finish	Tot Flt	BQ hrs	AQ hrs	RQ hrs	At Cmplt hrs	Units % Complete	Primary Resource
HI STP SR 560(1) WAINIHA STREAM BRIDGES NOS 1		914	835	0%	24-Feb-14 A	11-Oct-17	0	12832	0	12832	12832	0%	
9MP1	PROJECT DELIVERY PLAN & ENDORSEMENT	1	0	100%	24-Feb-14 A	25-Feb-14 A		0	0	0	0	0%	W-WILL.Will, Jon Michael
9MV1	PRELIMINARY PAVEMENT RECOMMENDATIONS	60	60	0%	16-Jun-14*	09-Sep-14	332	6	0	6	6	0%	M-VOTH.Voth, Michael D
9ME0	ENVIRONMENTAL SCOPING	20	20	0%	16-Jun-14*	14-Jul-14	32	132	0	132	132	0%	E-WINTERTON.Winterton, Nicole
9MR1	PRELIM. RIGHT-OF-WAY STUDIES	40	40	0%	16-Jun-14*	11-Aug-14	9	82	0	82	82	0%	R-BLAIR.Blair, Alan D
9MCFT	CROSS FUNCTIONAL TEAM SUPPORT	599	599	0%	16-Jun-14*	01-Nov-16	5	98	0	98	98	0%	W-WILL.Will, Jon Michael
9MPM	PROJ. MANAGEMENT - (DESIGN)	546	546	0%	17-Jun-14*	17-Aug-16	5	300	0	300	300	0%	W-WILL.Will, Jon Michael
9MH1	PRELIM. HYDRAULIC RECOMM.	20	20	0%	17-Jun-14*	15-Jul-14	10	130	0	130	130	0%	H-BERG.Bergendahl, Bart
9MS1	INITIAL SURVEY & MAPPING	15	15	0%	07-Jul-14*	25-Jul-14	30	544	0	544	544	0%	S-BELL.Bell Jr., Robert L
9MU1	IDENTIFY AND LOCATE UTILITIES	120	120	0%	07-Jul-14	29-Dec-14	256	38	0	38	38	0%	R-BELLEN.Bellen, Jeffrey H.
9MD2	DEVELOP 30% DESIGN	120	120	0%	14-Jul-14*	05-Jan-15	0	330	0	330	330	0%	D-MATHEWSON.Mathewson, Jill N
9ME1	ENVIRONMENTAL COMPLIANCE STUDIES	100	100	0%	15-Jul-14*	05-Dec-14	32	212	0	212	212	0%	E-WINTERTON.Winterton, Nicole
9MEP1.0	JURISDICTIONAL DETERMINATION AND PERMIT APPROACH	140	140	0%	15-Jul-14	04-Feb-15	92	32	0	32	32	0%	E-DAVIS.Davis, Brooke
9MB2	STRUCTURAL LAYOUT	118	118	0%	16-Jul-14	05-Jan-15	10	829	0	829	829	0%	B-KLAMERUS.Klamerus, Bonnie
9MH2	DRAFT HYDRAULICS REPORT	100	100	0%	16-Jul-14	08-Dec-14	53	130	0	130	130	0%	H-BERG.Bergendahl, Bart
9MG1	PRELIMINARY GEOTECHNICAL RECOMMENDATIONS	60	60	0%	28-Jul-14	21-Oct-14	30	34	0	34	34	0%	G-HARAM.Haramy, Khamis
9MR2	BOUNDARY MAPPING	70	70	0%	12-Aug-14	20-Nov-14	9	122	0	122	122	0%	R-BLAIR.Blair, Alan D
9ME2	DOCUMENT PREPARATION	120	120	0%	21-Nov-14	14-May-15	32	340	0	340	340	0%	E-WINTERTON.Winterton, Nicole
9MV2	FINAL PAVEMENT RECOMMENDATIONS	80	80	0%	19-Dec-14	15-Apr-15	263	9	0	9	9	0%	M-VOTH.Voth, Michael D
9MD2PRE	DESIGN PEER REVIEW & UPDATE 30% DESIGN	10	10	0%	06-Jan-15	20-Jan-15	0	66	0	66	66	0%	D-MATHEWSON.Mathewson, Jill N
9MD2PRI	30% DESIGN INTERNAL CFT REVIEW	20	20	0%	21-Jan-15	18-Feb-15	0	60	0	60	60	0%	W-WILL.Will, Jon Michael
9MD2PR	30% UPDATE AND EXTERNAL REVIEW	20	20	0%	21-Jan-15	18-Feb-15	0	40	0	40	40	0%	D-MATHEWSON.Mathewson, Jill N
9MG2	GEOTECHNICAL INVESTIGATIONS	40	40	0%	19-Feb-15	15-Apr-15	115	192	0	192	192	0%	G-HARAM.Haramy, Khamis
9MR2LM	LAND OWNER MEETING	5	5	0%	19-Feb-15	25-Feb-15	0	24	0	24	24	0%	R-BLAIR.Blair, Alan D
9MD3	DEVELOP 70% DESIGN	160	160	0%	26-Feb-15	13-Oct-15	0	358	0	358	358	0%	D-MATHEWSON.Mathewson, Jill N
9MB3	STRUCTURAL DESIGN AND CHECK	288	288	0%	19-Mar-15	10-May-16	5	4699	0	4699	4699	0%	B-KLAMERUS.Klamerus, Bonnie
9MR3	FINAL RIGHT-OF-WAY PLANS	130	130	0%	26-Mar-15	28-Sep-15	38	108	0	108	108	0%	R-BLAIR.Blair, Alan D
9ME3	ENVIRONMENTAL DOCUMENT APPROVAL	100	100	0%	15-May-15	06-Oct-15	32	181	0	181	181	0%	E-WINTERTON.Winterton, Nicole
9MV3	FINAL PAVEMENT REPORT	70	70	0%	05-Jun-15	15-Sep-15	228	3	0	3	3	0%	M-VOTH.Voth, Michael D
9MG3	DRAFT GEOTECHNICAL REPORT	40	40	0%	20-Jul-15	15-Sep-15	50	176	0	176	176	0%	G-HARAM.Haramy, Khamis
9MEP1.1	DEVELOP 404/401 PERMIT PACKAGE	110	110	0%	15-Sep-15	24-Feb-16	58	171	0	171	171	0%	E-DAVIS.Davis, Brooke
9MSC70	ALIGNMENT STAKING FOR 70% FIELD REVIEW	15	15	0%	06-Oct-15	27-Oct-15	20	104	0	104	104	0%	S-BELL.Bell Jr., Robert L
9MR4	RIGHT-OF-WAY ACQUISITION (Non-Federal)	180	180	0%	07-Oct-15	24-Jun-16	32	148	0	148	148	0%	R-BLAIR.Blair, Alan D
9MD3PRE	DESIGN PEER REVIEW & UPDATE 70% DESIGN	10	10	0%	14-Oct-15	27-Oct-15	0	42	0	42	42	0%	D-MATHEWSON.Mathewson, Jill N
9MD3PRI	70% DESIGN INTERNAL CFT REVIEW	20	20	0%	28-Oct-15	25-Nov-15	0	58	0	58	58	0%	W-WILL.Will, Jon Michael
9MD3PR	70% UPDATE AND EXTERNAL REVIEW	20	20	0%	28-Oct-15	25-Nov-15	0	44	0	44	44	0%	D-MATHEWSON.Mathewson, Jill N
9MD4	DEVELOP 95% DESIGN	123	123	0%	27-Nov-15	23-May-16	0	213	0	213	213	0%	D-MATHEWSON.Mathewson, Jill N



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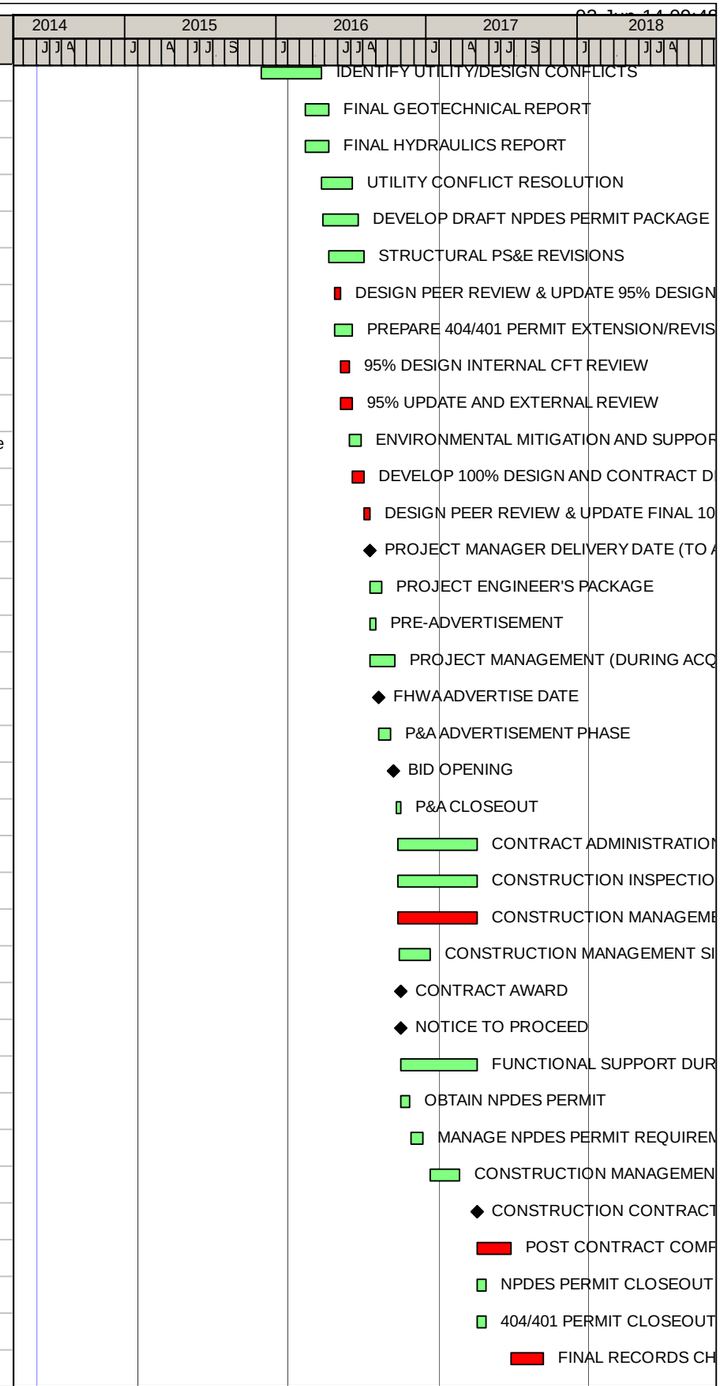
◆ Milestone ◆ Milestone | Remaining Work | Neg Float Bar | Actual Work | Critical Remaining Work

CPM Schedule 02-Jun-14

Activity ID	Activity Name	Original Duration	Remaining Duration	% Compl.	Start	Finish	Tot Flt	BQ hrs	AQ hrs	RQ hrs	At Cmplt hrs	Units % Complete	Primary Resource
9MU2	IDENTIFY UTILITY/DESIGN CONFLICTS	100	100	0%	27-Nov-15	20-Apr-16	26	18	0	18	18	0%	R-BELLEN.Bellen, Jeffrey H.
9MG4	FINAL GEOTECHNICAL REPORT	40	40	0%	15-Mar-16	10-May-16	5	46	0	46	46	0%	G-HARAM.Haramy, Khamis
9MH3	FINAL HYDRAULICS REPORT	40	40	0%	15-Mar-16	10-May-16	5	34	0	34	34	0%	H-BERG.Bergendahl, Bart
9MU3	UTILITY CONFLICT RESOLUTION	52	52	0%	21-Apr-16	05-Jul-16	26	26	0	26	26	0%	R-BELLEN.Bellen, Jeffrey H.
9MEP2.0	DEVELOP DRAFT NPDES PERMIT PACKAGE	60	60	0%	26-Apr-16	20-Jul-16	15	60	0	60	60	0%	E-FORBES.Forbes, Opal M
9MB4	STRUCTURAL PS&E REVISIONS	60	60	0%	10-May-16	03-Aug-16	5	167	0	167	167	0%	B-KLAMERUS.Klamerus, Bonnie
9MD4PRE	DESIGN PEER REVIEW & UPDATE 95% DESIGN	10	10	0%	24-May-16	07-Jun-16	0	48	0	48	48	0%	D-MATHEWSON.Mathewson, Jill N
9MEP1.2	PREPARE 404/401 PERMIT EXTENSION/REVISIONS	30	30	0%	24-May-16	07-Jul-16	82	0	0	0	0	0%	E-DAVIS.Davis, Brooke
9MD4PRI	95% DESIGN INTERNAL CFT REVIEW	15	15	0%	08-Jun-16	28-Jun-16	0	58	0	58	58	0%	W-WILL.Will, Jon Michael
9MD4PR	95% UPDATE AND EXTERNAL REVIEW	20	20	0%	08-Jun-16	06-Jul-16	0	36	0	36	36	0%	D-MATHEWSON.Mathewson, Jill N
9ME4	ENVIRONMENTAL MITIGATION AND SUPPORT	20	20	0%	27-Jun-16	25-Jul-16	200	104	0	104	104	0%	E-WINTERTON.Winterton, Nicole
9MP2	DEVELOP 100% DESIGN AND CONTRACT DEVELOPMENT	20	20	0%	07-Jul-16	03-Aug-16	0	30	0	30	30	0%	D-MATHEWSON.Mathewson, Jill N
9MP2PRE	DESIGN PEER REVIEW & UPDATE FINAL 100% DESIGN	10	10	0%	04-Aug-16	17-Aug-16	0	36	0	36	36	0%	D-MATHEWSON.Mathewson, Jill N
9MA1	PROJECT MANAGER DELIVERY DATE (TO ACQUISITIONS)	0	0	0%		17-Aug-16	0	0	0	0	0	0%	W-WILL.Will, Jon Michael
9MD5	PROJECT ENGINEER'S PACKAGE	20	20	0%	18-Aug-16	15-Sep-16	37	50	0	50	50	0%	D-MATHEWSON.Mathewson, Jill N
9MQ1	PRE-ADVERTISEMENT	10	10	0%	18-Aug-16	31-Aug-16	5	25	0	25	25	0%	Q-Sanford.Sanford, Aaron
9MPMA	PROJECT MANAGEMENT (DURING ACQUISITIONS)	42	42	0%	18-Aug-16	18-Oct-16	15	8	0	8	8	0%	W-WILL.Will, Jon Michael
9MA3	FHWA ADVERTISE DATE	0	0	0%		08-Sep-16	0	0	0	0	0	0%	Q-Sanford.Sanford, Aaron
9MQ2	P&A ADVERTISEMENT PHASE	20	20	0%	09-Sep-16	06-Oct-16	17	40	0	40	40	0%	Q-Sanford.Sanford, Aaron
9MC1	BID OPENING	0	0	0%	12-Oct-16		0	0	0	0	0	0%	Q-Sanford.Sanford, Aaron
9MQ3	P&A CLOSEOUT	10	10	0%	19-Oct-16	01-Nov-16	40	30	0	30	30	0%	Q-Sanford.Sanford, Aaron
9MCA	CONTRACT ADMINISTRATION	131	131	0%	26-Oct-16	04-May-17	5	320	0	320	320	0%	C-GenericPE.Generic PE
9MCI	CONSTRUCTION INSPECTION	131	131	0%	26-Oct-16	04-May-17	5	1500	0	1500	1500	0%	C-Generic.Generic Construction
9MCM	CONSTRUCTION MANAGEMENT	131	131	0%	26-Oct-16	04-May-17	0	0	0	0	0	0%	W-WILL.Will, Jon Michael
9MCMSV1	CONSTRUCTION MANAGEMENT SITE VISIT #1	50	50	0%	27-Oct-16	10-Jan-17	35	0	0	0	0	0%	W-WILL.Will, Jon Michael
9MC2	CONTRACT AWARD	0	0	0%		01-Nov-16	0	0	0	0	0	0%	Q-Sanford.Sanford, Aaron
9MC5	NOTICE TO PROCEED	0	0	0%	02-Nov-16		0	0	0	0	0	0%	W-WILL.Will, Jon Michael
9MC7	FUNCTIONAL SUPPORT DURING CONSTRUCTION	126	126	0%	02-Nov-16	04-May-17	5	41	0	41	41	0%	D-MATHEWSON.Mathewson, Jill N
9MEP2.1	OBTAIN NPDES PERMIT	15	15	0%	02-Nov-16	23-Nov-16	96	16	0	16	16	0%	E-FORBES.Forbes, Opal M
9MEP2.2	MANAGE NPDES PERMIT REQUIREMENTS	20	20	0%	25-Nov-16	22-Dec-16	96	16	0	16	16	0%	E-FORBES.Forbes, Opal M
9MCMSV2	CONSTRUCTION MANAGEMENT SITE VISIT #2	50	50	0%	11-Jan-17	23-Mar-17	35	0	0	0	0	0%	W-WILL.Will, Jon Michael
9MC6	CONSTRUCTION CONTRACT COMPLETE	0	0	0%		04-May-17	0	0	0	0	0	0%	W-WILL.Will, Jon Michael
9MC8	POST CONTRACT COMPLETION/PROJECT WRAP UP	55	55	0%	05-May-17	24-Jul-17	0	24	0	24	24	0%	W-WILL.Will, Jon Michael
9MEP2.3	NPDES PERMIT CLOSEOUT OR TRANSFER	15	15	0%	05-May-17	25-May-17	40	11	0	11	11	0%	E-FORBES.Forbes, Opal M
9MEP1.3	404/401 PERMIT CLOSEOUT/TRANSFER	15	15	0%	05-May-17	25-May-17	40	2	0	2	2	0%	E-DAVIS.Davis, Brooke
9MC9	FINAL RECORDS CHECK	55	55	0%	25-Jul-17	11-Oct-17	0	30	0	30	30	0%	W-WILL.Will, Jon Michael



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Milestone | Remaining Work | Neg Float Bar | Actual Work | Critical Remaining Work

CPM Schedule 02-Jun-14

Draft Project Communications Plan

DRAFT PROJECT COMMUNICATIONS PLAN

Wainiha Bridges Replacement Project, State Route 560 (Kuhio Highway)
Island of Kauai, Hawaii

Federal Highway Administration
Central Federal Lands Highway Division
12300 W. Dakota Avenue St. 280
Lakewood, CO 80228

In Cooperation with
Hawaii Department of Transportation
Federal Highway Administration, Hawaii Division

June 2014

Contents

Section 1. Introduction

1.1 Purpose of the Communications Plan

This Communications Plan defines the process by which the Federal Highway Administration, Central Federal Lands Highway Division (CFLHD) will coordinate and communicate information about the Wainiha Bridges Replacement Project located along State Highway 560/Kuhio Highway on the island of Kauai, Hawaii. The plan also identifies when input from agencies and the public will be solicited and considered.

The purpose of the Communications Plan is to facilitate and document CFLHD's structured interaction with the public and other agencies. It is meant to promote an efficient and streamlined process and good project management through coordination, scheduling, early resolution of issues, and effective public engagement.

This Communications Plan:

- Describes the project.
- Identifies the coordination points.
- Identifies the agencies to be involved in agency coordination.
- Establishes the timing and type of agency involvement in defining the project's purpose and need and study area, the alternatives or design options to be investigated, and methods and data reports, as well as reviewing the draft environmental document and the selection of the action alternative and mitigation strategies.
- Establishes the timeframes required for agencies to provide comments that will be incorporated in defining the project's purpose and need and study area, the alternatives to be investigated, providing input on issues of concern and environmental features, and commenting on the findings presented in the draft environmental document.
- Describes the communication methods that will inform the public about the project and provide project contact information.

1.2 Project Background and Description

In 2013, the Hawaii Department of Transportation (HDOT) entered into a Memorandum of Agreement (MOA) with FHWA, Central Federal Lands Highway Division and FHWA, Hawaii Division. Through this MOA, HDOT requested engineering program delivery support for a program of projects. The Wainiha Bridges Replacement Project is included in the program of projects for which CFLHD will be providing engineering delivery services.

The proposed project includes the reconstruction of three bridges on Kuhio Highway (Route 560) on the north side of the island of Kauai. The bridges are located between mile post 6.5 and 6.7 near the mouth of Wainiha Stream before it feeds into Wainiha Bay. The original bridges at these three locations were replaced with temporary ACROW bridges after Bridge #2 suffered permanent damage and Bridges #1 (the southern-most bridge) and #3 (the northern-most bridge) were determined to be structurally deficient. The ACROW bridges were installed

as a temporary measure to keep the roadway open to residents and public traffic until environmental clearance and funding for the permanent structures could be secured. The three bridges are owned and maintained by HDOT. The purpose of the project is to replace three temporary bridges with permanent structures.

A federal environmental approval compliant with the National Environmental Policy Act will be necessary for the project, for which FHWA, Central Federal Lands Highway Division will be the lead agency. HDOT also has responsibilities for compliance with the Hawaii Environmental Policy Act and Chapter 343 of Hawaii Revised Statutes. It has been determined best to prepare a joint environmental document to satisfy compliance responsibilities for both laws. In addition to a combined environmental document, CFLHD anticipates that the following federal approvals, consultation, and permits will be required for the project: [INCLUDE AS APPLICABLE].

Section 2. Coordination Points and Responsibilities

Over the course of the project, CFLHD (the lead agency) will coordinate with partner and participating agencies for data collection, document review, and other information. Agency roles for this project are defined below and identified in Section 2.1.

- Lead Agency – the agency or agencies preparing or having taken primary responsibility for preparing the environmental document.
- Partner Agency – the agency or agencies that own and maintain the project transportation facility and/or manage the federal lands to which the project transportation facility provides access.
- Participating Agency – an agency with jurisdiction by law, special expertise with respect to environmental issues involved in the project, and/or interest in the project.

2.1 List of Agencies, Contacts, and Roles

The agencies listed below (except for the lead agency) will be solicit input on the project. Agency contact information and anticipated roles and responsibilities in the project are also identified. [COMPLETE IN COORDINATION WITH HDOT]

Agency Name	Contact Person	Roles/Responsibilities
Lead and Partner Agencies		
Federal Highway Administration Central Federal Lands Highway Division (FHWA)	Ed Hammontree Program Manager 12300 West Dakota Ave., Ste. 280 Lakewood, CO 80228 (720) 963-3668 Ed.Hammontree@dot.gov	Lead Agency ▪ Act as primary point of contact responsible for public involvement (or delegated) ▪
Hawaii Department of Transportation (HDOT)		

Agency Name	Contact Person	Roles/Responsibilities
Participating Federal Agencies		
		▪
		▪
Participating State Agencies		
		▪
		▪
		▪
Other Participating Organizations		
Hanalei Roads Committee		▪
		▪
		▪

2.2 Coordination Points and Responsibilities

Key coordination points, including which agency is responsible for activities during that coordination point, are identified below, as well as the information required at each coordination point and who is responsible for transmitting that information.

Communication between the agencies and CFLHD will be by means of electronic mail (e-mail). Electronic versions of all meeting agendas and backup material will be provided to the agencies at least one week prior to the meeting when practicable. The FHWA-CFLHD FTP site can be used as needed to transmit large documents for agency review and other information related to the project. [UPDATE WITH RELEVANT SHAREPOINT INFORMATION] CFLHD will print and distribute hard copies of published environmental documents and decision documents in a quantity jointly decided between the partner agencies. INCLUDE IN TABLE BELOW AGENCY, INDIVIDUALS, AND RESPONSIBLILITY, INCLUDING SPECIFIC PUBLIC AND ORGANIZATION OUTREACH RESPONSIBILITIES.

Project Milestones/ Materials	FHWA Responsibility	Partner and Participating Agency Responsibility	Comment Period

Project Milestones/ Materials	FHWA Responsibility	Partner and Participating Agency Responsibility	Comment Period
	▪	▪	
	▪	▪	
	▪	▪	
	▪	▪	
	▪	▪	
	▪	▪	

Section 3. Project Schedule

The Project Schedule includes the key milestones and estimated completion dates for each.

Project Milestones	Anticipated Timeframe for Completion

Section 4. Public Outreach

4.1 Types of Outreach

Types of outreach to the public include the following:

Public Involvement Newsletter
This two-page newsletter will announce the project and the date and time of the Public Scoping Meeting. It will be sent to identified stakeholders (local organizations, landowners, elected officials etc.) and participating federal, state, and local agencies. The newsletter will include an overview of the project, the project's Purpose and Need, a study area map, and a preliminary project timeline. It will also provide the project's primary point(s) of contact, ways to provide comments, and the type of comments and input that the project team is seeking from the public.

Community Review Committee
Identification of key stakeholders such as the Hanalei Roads Committee will be engaged through separate Community Review Committee meetings and involved in review of project milestone materials. The following meetings and milestone reviews are anticipated:

DESCRIBE HERE

Public Meetings
The initial Public Meeting is the first opportunity for the public to view information about the project in person. The meeting also will be an opportunity for participating federal, state, and local agencies to provide initial input on their issues and concerns about environmental resources.

Members of the project team will make a brief presentation about the project, the process, and the primary opportunities and constraints in the study area. The project team will record comments from the public that are received at the meeting. The public will also be able submit

written comments via comment forms that can be submitted at the meeting or mailed to FHWA within 30 days of the meeting.

Public Hearing
The Public Hearing will be held during the review period of the draft environmental document.

Media Notifications
All communication with the media and notifications will be managed through Ed Hammontree, CFLHD Program Manager. Notifications about project meetings and updated project information, as needed, will be communicated through press releases and meeting notices to the following and additional media outlets as identified:

Print/Web Publications	Radio	Television

Website Management
A website will be maintained by CFLHD at the following html: [INSERT HERE]. All project materials will be reviewed by the CFLHD Program Manager prior to release.

Key Milestone Events and Communication

INSERT HERE COMMUNICATION MILESTONES FOR THE PROJECT

Communication Event	Type of Outreach	Anticipated Timeframe

4.2 Public Outreach Materials Management

All materials provided to the public through mailings, website, newspaper postings, etc. will be filed on a centralized internal project site to ensure all partner agencies have access to when and what materials are provided to the public. [INSERT HERE THE FTP OR SHAREPOINT SITE INFORMATION]. Examples of public outreach materials to be retained for all agencies include press releases, public notices, newsletters, technical documents, project figures, public review documents, and other materials provided to the public.

4.3 Project Contacts

Contacts for the Wainiha Bridges Replacement Project are: [COMPLETE IN COORDINATION WITH HDOT]

Federal Highway Administration (FHWA)

ADD HERE

Hawaii Department of Transportation (HDOT)

ADD HERE