

Applicant Proposed Mitigation Statements

Background:

The U.S. Army Corps of Engineers (Corps) and the Environmental Protection Agency issued regulations that govern national compensatory mitigation policy for activities in waters of the U.S., including wetlands, authorized by Corps permits. The final mitigation rule was published in the federal register on April 10, 2008, and became effective on June 9, 2008. The final rule establishes standards and criteria for the use of appropriate and practicable compensatory mitigation for unavoidable functional losses of aquatic resources authorized by Corps permits (33 CFR Part 332). Additionally, the rule requires new information to be included in Corps permit applications and public notices to enable meaningful comments on applicant proposed mitigation. In accordance with 33 CFR Part 325.1(d)(7), "For activities involving discharges of dredged or fill material into waters of the U.S., the application must include a statement describing how impacts to waters of the United States are to be avoided and minimized. The application must also include either a statement describing how impacts to waters of the United States are to be compensated for or a statement explaining why compensatory mitigation should not be required for the proposed impacts." For additional information, the final mitigation rule can be viewed at: http://www.usace.army.mil/cw/cecwo/reg/news/final_mitig_rule.pdf

Mitigation is a sequential process of avoidance, minimization, and compensation. Compensatory mitigation is not considered until after all appropriate and practicable steps have been taken to first avoid and then minimize adverse impacts to the aquatic ecosystem. Please provide your proposed avoidance, minimization, and compensatory mitigation below:

Applicant's Proposed Mitigation (attach additional sheets as necessary):

1. Avoidance of impacts to waters of the U.S., including wetlands:

Please describe how, in your project planning process, you avoided impacts to waters of the U.S., including wetlands, to the maximum extent practicable. Examples of avoidance measures include site selection, routes, design configurations, etc...

Avoidance/minimization background

Project wetlands were delineated in 2005 over a study area of about 900 acres (DOWL HKM, 2006b). The study area was 150 feet on either side of the existing road centerline and wider where the proposed highway was to be realigned.

It is important to note the size of wetland study area was selected to show:

- the drainage patterns that might be affected by the project, and
- an area big enough to evaluate impacts as the design was refined.

Also important to note is the size of the wetland study area was not chosen to represent the total wetland area within the approximately 1,602 square mile or 1,025,280 acre Chilkat River Watershed boundary.

Wetlands and riverine habitat comprise approximately 248 acres (28 percent) of the study area. Wetlands were grouped into six habitat types as shown in table below.

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Table CM 1: Study Area Wetland Habitat Types

Wetland Habitat Type (Viereck)	National Wetlands Inventory (Cowardin) Designation	Acres	Percentage of Study Area
Riverine	Riverine-Chilkat River, Upper Perennial Open Water Scrub Shrub-Saturated (R30W)	99.2	11.0%
Shrub Swamp	Scrub Shrub-Seasonally Flooded Scrub Shrub Permanently Flooded (PSS1B, PSS1E, PSS1H)	72.5	8.1%
Herbaceous Swamp	Emergent-Permanently Flooded (PEM1H)	40.6	4.5%
Seasonally Flooded Black Cottonwood	Forested-Seasonally Flooded (PFO1C)	11.8	1.3%
Fresh Sedge Meadow	Emergent-Saturated (PEM1B)	8.9	1.0%
Bluejoint Meadow	Emergent-Saturated (PEM1B)	15.4	1.7%
All Wetlands and Waters of the U.S.	Not Applicable	248.4	27.7%

On February 9, 2010, the USACE issued a Preliminary Jurisdictional Determination based on wetland data submitted on April 17, 2009. The USACE determined that these 248.4 acres are regulatory wetlands or Waters of the U.S.

A project interdisciplinary team (IDT¹) expressed the opinion that the highest value of wetlands in the project area is to support fish habitat. Since the affected wetlands comprise a small area in comparison to the total wetland area within the context of the eastern Chilkat River Watershed² the effect to the other functions of the project wetlands would be relatively low³.

Avoidance of wetlands and riverine areas other than fill in the Chilkat River

It is not practicable to completely avoid impacts to wetlands and riverine habitat if the highway is to be improved. The project design has focused on avoiding and minimizing wetland impacts through the measures described below.

¹ The IDT was formed early in the project and consists of representatives of the US Fish and Wildlife Service (FWS), The National Marine Fisheries Service (NMFS), the USACE, the Alaska Department of Fish and Game (ADF&G), the Alaska Department of Natural Resources Parks Division (DNR), the Haines Borough, Takshunak Watershed Council

² Discussions with NMFS and USFWS have led DOT&PF to view the affected wetlands within the context of the Chilkat River watershed previously affected by road corridors. The east side of the Chilkat River watershed is approximately 67,594 acres and, from the National Wetlands Inventory (NWI), that area contains approximately 18,437 wetland acres. The proposed project impacts 22.2 acres which is 0.12 percent of the total wetlands on the east side of the Chilkat River Watershed.

³ Within the project area, the functional groups evaluated are: Human Use, Terrestrial Support, and Aquatic Support. The Aquatic Support category is the group that is primarily affected since Salmonid Habitat is one of the functions evaluated as a part of the group. See wetland and stream function and values report at http://dot.alaska.gov/sereg/projects/haines_hwy/documents.shtml

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Wetlands would be avoided by:

- following the existing highway alignment, to the extent feasible,
- widening and/or realigning into uplands, rather than wetlands, to the extent practicable,
- maintaining natural flow patterns through use of culverts and cross-drainage structures, and
- improving sight distance to remove the need for passing lanes thereby reducing the proposed highway footprint.

A revised highway alignment was developed to address comments received from the public and agencies after release of the July 2013 Environmental Assessment (EA). Compared with the July 2013 EA the August 2016 Final Revised Environmental Assessment (FREA) provides additional wetlands avoidance. The following totals are **additional avoidance** compared to the July 2013 EA:

- 1.6 acres of impacts to wetland areas (Table CM2),
- 4.1 acres of impacts to riverine areas (Table CM3),

Chilkat River

- Passing zones rather than passing lanes are proposed to reduce the roadway footprint to avoid and minimize fill and impacts to the Chilkat River.
- Guardrail avoids the fill in the Chilkat River (See Table A-1 in Appendix F, Essential Fish Habitat available at http://dot.alaska.gov/sereg/projects/haines_hwy/documents.shtml)

Compared with the July 2013 EA the August 2016 Final Revised Environmental Assessment (FREA) provides additional Chilkat River avoidance (see Table 2 below). Compared to the July 2013 EA:

- 3,038 linear feet of fill in the Chilkat River was avoided.

Table CM 2: Impacts for Entire Project to Wetlands (Acres)

Type	Value	Total 2013 EA Proposed	Total Current Proposed	Additional Avoidance Achieved (Difference)
Emergent-Permanently Flooded (PEM1H)	High	9.1	8.4	0.7
Emergent-Saturated (PEM1B)	High	3.4	3.1	0.3
Forested-Seasonally Flooded (PFO1C)	Low	1.4	1.3	0.1
Scrub Shrub-Saturated (PSS1B)	Medium	<.1	0.01	0.0
Scrub Shrub-Seasonally Flooded (PSS1E)	Medium	1.7	1.7	0.0
Scrub Shrub-Permanently Flooded (PSS1H)	Medium	8.0	7.5	0.5
Total		23.6	22.0	1.6

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Table CM 3: Fill in the Chilkat River (in linear feet)

Type	Value	Total 2013 EA Proposed	Total Current Proposed	Additional Avoidance Achieved (Difference)
Riverine - Chilkat River, Upper Perennial Open Water (R30W) for Entire Project	High	7.7 acres	4.0 acres	4.1 acres
		15,550	12,612	3,038
Riverine - Chilkat River, Upper Perennial Open Water (R30W) Linear Feet of fill on top of Previously Riprapped Slopes (Total Current Proposed calculation is off slightly because MP 3.5 to 12 was surveyed and, for remainder of project, Interfluve data was used.)		10,258	7,490	2,768
Riverine - Chilkat River, Upper Perennial Open Water (R30W) and other receiving waters (permanently flooded wetlands) Linear Feet of fill on top of Original Ground (Banks)		5,292	4,692	600

2. Minimization of unavoidable impacts to waters of the U.S., including wetlands:

Please describe how your project design incorporates measures that minimize the unavoidable impacts to waters of the U.S., including wetlands, by limiting fill discharges to the minimum amount/size necessary to achieve the project purpose.

Wetland fills would be minimized by:

- adjusting the elevation of the highway,
- adding guardrails, and
- constructing a road embankment slope that is as steep as practicable.
- Along the Chilkat River, the design minimized fill in the river by incorporating passing zones instead of expanding the roadway section for passing lanes.
- At the Chilkat River Bridge,
 - the design minimizes the in-water construction period by selecting driven piles rather than placement of concrete bridge foundations, and
 - minimized fill by reducing the total number of in-water piers to three compared with the existing nine piers.
- Along the Chilkat River, DOT&PF has minimized fill in the river by adding guardrails, shifting and revising the alignment, and lowering the profile of the road at several locations.
- To minimize adverse impacts resulting from fill in the Chilkat River, DOT&PF proposes to use rough angular rock to
 - stabilize the fill and prevent erosion

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- provide interstitial voids for cover of juvenile fish and may increase macroinvertebrate biomass and density (USACE, 2003).
- For areas directly adjacent to the Chilkat River stream bank fill will be vegetated reducing sediment loads and maintaining water quality.

3. Compensation for unavoidable impacts to waters of the U.S., including wetlands:

Please describe your proposed compensatory mitigation to offset unavoidable impacts to waters of the U.S., or, alternatively, why compensatory mitigation is not appropriate or practicable for your project. Compensatory mitigation involves actions taken to offset unavoidable adverse impacts to waters of the U.S., including wetlands, streams and other aquatic resources (aquatic sites) authorized by Corps permits. Compensatory mitigation may involve the restoration, enhancement, establishment (creation), and/or the preservation of aquatic sites. The three mechanisms for providing compensatory mitigation are mitigation banks, in-lieu fee of mitigation, and permittee-responsible mitigation. Please see the attached definitions for additional information.

Mitigation for unavoidable impacts would, primarily, enhance the highest values of impacted wetlands, by creating and enhancing fish tributaries and creating and enhancing fish habitat in the Chilkat River. The goal is to replace and maintain, at least, the highest values of the impacted wetlands⁴; in this case the highest values of the project wetlands are from Aquatic Support functions.

Functions and values were initially assessed in 2006 using the USACE freshwater wetland assessment method. The results were contrary to the Interdisciplinary Team's (IDT's) opinion that the project wetlands are of high value to support fish habitat. Wetland functions and values were reevaluated in 2012 (DOWL HKM, 2012) to more appropriately assess wetlands and assist in mitigation planning. Although the functional assessment used accurately describes the values of the project palustrine wetlands, either method (or any other USACE approved method) does not adequately assess the functions and values of the project riverine areas. Since the improved function of riverine areas, including stream creation and/or enhancement cannot be appropriately assessed so permittee responsible compensatory mitigation is proposed in terms of stream length or acres. Also, 70.7 acres of wetlands would benefit from the construction of Fish Passage Culverts, tributary or pond enhancement/creation (see permit Table ?, Wetland Areas Benefited).

DOT&PF proposes both activities that benefit aquatic resources (installation of culverts to fish passage standards and associated benefits to adjacent wetland areas) and mitigation measures for unavoidable impacts. As per USACE,

*We acknowledge that not all impacts authorized by DA permits are adverse, but the focus of this rule is on providing compensatory mitigation for losses of waters of the United States. Activities authorized by DA permits that benefit aquatic resources do not generally require compensatory mitigation. When determining the compensatory mitigation requirements for a particular permit, district engineers should consider environmentally beneficial activities that are provided by components of the overall project. In cases where environmentally beneficial activities or mitigation measures related to the aquatic environment are incorporated into the overall project, a smaller amount of compensatory mitigation may be required to offset the authorized adverse impacts to waters of the United States. **Compensatory Mitigation for Losses of Aquatic Resources; Final Rule**, Page 19622 Federal Register, Vol. 73, No. 70, Thursday, April 10, 2008*

Generally activities that benefit aquatic resources do not require compensatory mitigation. However, discussions with the IDT and recognition that the project will have unavoidable impacts, permittee-

⁴ DOWL HKM. (2010). *Wetland and Stream Functions and Values Assessment*. August 2010, Document available at http://dot.alaska.gov/sereg/projects/haines_hwy_documents.shtml

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responsible compensatory mitigation is proposed.

The Revised Proposed Action would benefit aquatic resources by, replacing 26 existing culverts with culverts constructed to fish passage standards⁵ and consequently improve the value of 70.7 acres of saturated, seasonally or permanently flooded wetlands by installation of fish passage culverts (Table ?).

The Revised Proposed Action would unavoidably impact

- 22.0 acres of wetlands (table CM2, pg.3 and permit tables 2 and 3, sheet 35 of 41),
- 4.0 acres of impacts to Other Waters of the U.S. excluding impacts to the Chilkat River (table CM 3, pg. 4 and tables 4a and 5a, sheet 35 of 41)
 - the impact to the Chilkat River includes approximately 7,490 linear feet (LF) of fill on top of previously riprapped slopes and 4,692 LF on top of original ground (Table CM 3, pg.4, and permit Table ?)

The Revised Proposed Action would have a neutral effect on 3,155 LF of fill in highway ditches⁶ and tributaries in realignment sections because the streams will be replaced in-kind in, at least, a 1 to 1 ratio. Similarly, the Revised Proposed Action would also have a neutral effect on 7,490 LF of the Chilkat River stream bank because the stream banks will be replaced in-kind in, at least, a 1 to 1 ratio.

Although the functional assessment accurately describes the values of the project wetlands it cannot adequately assesses the functions of riverine areas. The improved functions and values of aquatic resources of riverine areas, including stream creation and/or enhancement, cannot be appropriately assessed so permittee responsible compensatory mitigation is proposed in terms of stream length or acres.

DOT&PF is proposing the following mitigation measures,

1. For impacts to 22.2 acres of wetlands, 70.7 acres would be benefited in a 3 to 1 ratio.
 - a. As a commitment to, and in coordination with, the IDT, tributaries 6,818 LF would be enhanced/created as close to the 1,195 LF of impacted tributaries as possible. The wetlands would be benefited by the enhanced/created tributaries that improve the wetlands aquatic functions. Locations are shown on the permit drawings, listed in permit Table 7, and also shown on *Conceptual Mitigation Opportunities*, attached, and available at http://dot.alaska.gov/sereg/projects/haines_hwy/assets/8.15.2016/Apx-F_EFH_8-9-2016.pdf
2. For impacts to 12,612 LF of Chilkat River (Table CM 3, above), new fish habitat enhancements would be installed.
 - a. 7,490 LF (Table CM 3, pg.4) or 3.0 acres (mitigation table 4, sheet 37 of 46) of existing vegetated rip rap would be replaced in-kind with vegetated rip rap at least a 1 to 1 ratio,
 - b. 4,692 LF or 0.9 acre of original ground (table CM 3, pg. 4) would be mitigated by the creation of 5,945 LF of in-water, river protrusion, ballasted log clusters, and fish wheel sites

⁵ DOT&PF and ADF&G. (2001). *Memorandum of Agreement between Alaska Department of Fish and Game and Alaska Department of Transportation and Public Facilities for the Design, Permitting, and Construction of Culverts for Fish Passage*. August 2001. <http://www.dot.state.ak.us/stwddes/desenviron/resources/memos.shtml>.

⁶ Rearing coho have been observed along the entire roadway even though the highway ditches are not cataloged. Kate Kanouse, personal communication, ADF&G, Dec. 12, 2016

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(mitigation table 2-1) These measures are sited as close to the impact sites as possible. Also, offsite mitigation would enhance fish habitat (improve fish passage) of a highway culvert at Milepost 7.1 of the Mud Bay Road in Haines. A 60 LF series of step pools would be created immediately downstream of the Highway cross culvert currently perched and blocking fish passage (see mitigation sheets 41 and 42 of 46).

- i. 6,005 LF of stream enhancements (5,945 LF, table 2-1 plus 60 LF, Mud Bay stream improvement) are offered as mitigation for 4,692 LF of impacts in a 1.3 to 1 ratio.

References

ADF&G. (2012). *Haines Highway Mile 25 to the Border: 10-Year Mitigation Monitoring*, Technical Report No. 11-10, available at https://www.adfg.alaska.gov/static/home/library/pdfs/habitat/12_08.pdf

DOWL HKM. (2012). *Wetland and Stream Functions and Values Assessment, Haines Highway MP 3.5 to MP 25.3*. January 2012, Document submitted with the USACE Section 404 permit application and available at http://dot.alaska.gov/sereg/projects/haines_hwy/documents.shtml

USACE. (2003). *Effects of Riprap on Riverine and Riparian Ecosystems*. USACE, Engineer Research and Development Center, Wetlands Regulatory Assistance Program. ERDC/EL TR-0304.