Addendum to Appendix R

Bald Eagle Technical Report

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OCTOBER 2005

TABLE OF CONTENTS

TABLES

FIGURES

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1.0 STUDIES AND COORDINATION

This technical report addendum includes supplemental survey data collected by the U.S. Fish and Wildlife Service (USFWS) in fall of 2004 and summer of 2005. The results of these surveys were included in the preparation of the new August 2005 highway alignment for Alternative 2B. This information is an update to that presented in the *Appendix R Bald Eagle Technical Report* included with the Supplemental Draft EIS.

In the summer of 2004, USFWS conducted a bald eagle survey on the east and west sides of Lynn Canal (USFWS, 2005). Ninety-two nest sites were surveyed on the east side of Lynn Canal, of which 35 were considered active and 17 were considered successful nests (49 percent of active nests were successful). On the west side of Lynn Canal, 50 nest sites were surveyed, of which 26 were considered active and 16 were considered successful nests (62 percent of active nests were successful). This survey revealed 5 new nests on the west side of Lynn Canal, all outside the 330-foot buffer area of Alternative 3. One of the nests detected within the 300-foot buffer area during the 2003 survey is now gone. Three nests are within 125 feet of the centerline of the Alternative 3 alignment (refer to Table 1).

In summer of 2005, USFWS conducted a bald eagle survey along the east side of Lynn Canal. Ninety-eight nests were surveyed during this time, of which 45 were considered active and 22 were considered successful nests (49 percent of active nests were successful). The survey identified 8 new nests within the project area. Three are outside the 330-foot buffer area for Alternative 2B, including 1 north of the alignment in Taiya Inlet. Five are within 125 feet of the centerline of the Alternative 2B alignment (USFWS, 2005). None of the nests are within the 300-foot buffer for Alternatives 4B and 4D (refer to Table 1).

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2.0 ENVIRONMENTAL CONSEQUENCES

This addendum updates Sections 4.2, 4.6, and 4.8 of the *Bald Eagle Technical Report* (Appendix R).

2.1 Alternative 2B – East Lynn Canal Highway to Katzehin, Shuttles to Haines and Skagway

Proximity of construction activities to eagle nests – For Alternative 2B, 49 out of 92 nests (53 percent) could not be reasonably avoided by more than 330 feet. Of these 49 nests, 3 are within 31 to 90 feet of the proposed slope limits, 20 are within 91 to 180 feet, and 8 are within 181 to 300 feet (Table 1). Figures 1 through 5 include bald eagle nest tree locations from the 2004 and 2005 surveys on the east side of Lynn Canal.

2.2 Alternative 3 – West Lynn Canal Highway

Proximity of construction activities to eagle nests – Fifty bald eagle nest sites were recorded within 0.5 mile of the highway alignment for this alternative during USFWS surveys in 2004. This total includes 10 nests on the east side of Lynn Canal between Echo Cove and Sawmill Cove. Of the total nests surveyed in 2004, 52 percent were found to be active (Table 1). After adjusting the highway alignment and ferry terminal locations to avoid nest sites to the extent feasible, a total of 24 nests (48 percent) remained within 330 feet of the slope limits, all of which are on the west side of Lynn Canal. Of these 24 nests, none are within 31 to 90 feet of the slope limits, 8 are within 91 to 180 feet, and 8 are within 181 to 300 feet (Table 1). Figures 1 and 6 through 8 include bald eagle nest tree locations for west Lynn Canal.

2.3 Alternatives 4B and 4D – FVF/Conventional Hull shuttle from Berners Bay

Proximity of construction activities to eagle nests – Construction of the highway between Echo Cove and Sawmill Cove would pass 10 bald eagle nests, none of which are within 330 feet of the construction limits for the highway (Table 1). The ferry terminal and associated facilities at Sawmill Cove would be at least 1,000 feet away from the nearest nest, (FWS#31), located to the northeast of the facility.

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3.0 MITIGATION MEASURES

The Department of Transportation and Public Facilities (DOT&PF) has committed to implementing the following revised bald eagle mitigation measures as part of the Juneau Access Improvements Project.

1. On-the-ground nest surveys would be conducted before clearing takes place to confirm the location of trees with eagle nests. Construction activities in the vicinity of bald eagle nests would be coordinated with the USFWS to determine the need for alignment changes, blasting plan changes, or other measures to avoid impacts to eagles.
2. No construction would occur within 330 feet of an eagle nest, and no blasting would occur within 0.5 mile of an eagle nest unless the USFWS approves a plan to ensure nest selection is not affected, during the March 1 to May 31 nest selection period. If a nest were active, no construction or blasting would occur within these distances until after August 31, unless the USFWS approves a plan to avoid impacts while operations continue.
3. In areas where clearing occurs to within 100 feet of a nest tree, DOT&PF and USFWS would jointly assess the potential for windthrow and stabilize the tree or adjacent trees with cables and or log bracing, if determined necessary.
4. During construction, DOT&PF and USFWS would assess the sufficiency of natural screening between the highway and any eagle nests below the elevation of the road within the 330-foot zone. Additional screening would be developed if necessary.
5. DOT&PF would continue to fund USFWS aerial surveys for a period of five years to assess the impact, if any, of the project on the Lynn Canal bald eagle population.

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4.0 REFERENCES

United States Fish and Wildlife Service (USFWS). 2005. Lynn Canal Bald Eagle Survey data collected by Mike Jacobson for 2004 and 2005, personal communication, August 18, 2005.

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TABLES

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Table 1
Bald Eagle Productivity,
Lynn Canal Juneau Access Improvements Project

East Lynn Canal

	1994	1997	1998	1999	2000	2001	2002	2003	2004	2005	Mean
Nest sites surveyed	(78)	76[a] (71)[b]	76[a] (71)[b]	82	88	83	82	94	92	98	85.7
Active nests	(38)	20[a] (18)[b] (25%)	26[a] (24)[b] (34%)	28 (34%)	38 (43%)	35 (42%)	46 (56%)	37 (39%)	35 (38%)	45 (46%)	34.4 (40%)
Successful nests		4[a] (3)[b] (4%)	8[a] (7)[b] (10%)	14 (17%)	17 (19%)	22 (26%)	18 (22%)	20 (21%)	17 (19%)	22 (22%)	15.8 (18%)
Active nests successful		17%	29%	50%	45%	63%	39%	54%	49%	49%	44%
Young/active nest		0.22	0.29	0.57	0.53	0.91	0.54	0.78	0.60	0.64	0.56
Young/successful nest		1.33	1.00	1.14	1.18	1.45	1.39	1.40	1.24	1.32	1.27

Notes: [a]Adjusted for 15 kilometers of shoreline, which was not surveyed that year
[b]Actual count of area

West Lynn Canal

	1994	2003	2004
Nest sites surveyed	43	53	50
Active nests	NA	22 (42%)	26 (52%)
Successful nests	18 (42%)	10 (19%)	16 (32%)
Active nests successful	NA	45%	62%
Young/active nest	NA	0.64	0.69
Young/successful nest	1.39-1.72	1.40	1.13

Note: NA = Data not available

Table 2
Number of Bald Eagle Nests Within 0.5 Mile and Distance to Proposed Alignments, Juneau Access Improvements Project

Distance from Highway Limits[2]	No Action	East Lynn Canal (05)	West Lynn Canal (04)	Alaska Marine Highway System Improvements			
	Alt. 1	Alt. 2B	Alt. 3	Alt. 4A	Alt. 4B	Alt. 4C	Alt. 4D
330 ft - 0.5 mile	-	43	26	-	10	-	10
301 - 330 ft	-	1	3	-	0	-	0
271 - 300 ft	-	1	2	-	0	-	0
241 - 270 ft	-	3	3	-	0	-	0
211 - 240 ft	-	2	1	-	0	-	0
181 - 210 ft	-	2	2	-	0	-	0
151 - 180 ft	-	5	5	-	0	-	0
121 - 150 ft	-	14	2	-	0	-	0
91 - 120 ft	-	1	1	-	0	-	0
61 - 90 ft	-	3	0	-	0	-	0
31 - 60 ft	-	0	0	-	0	-	0
1 - 30 ft	-	0	0	-	0	-	0
Total nests < 330 ft	-	49	24	-	0	-	0
Total Nests	-	92	50	-	10	-	10

Notes: [1] Alignments as of 24 August 2005 for east side, 31 December 2003 west side
[2] Clearing and cut/fill limits are considered the extent of construction activity
Dash (-) indicates not applicable
Nest location data from Mike Jacobson, USFWS, Raptor Management, Juneau, AK

FIGURES

Figures 1 through 8 of Appendix R, the *Bald Eagle Technical Report*, have been updated with the results of the 2004 and 2005 USFWS survey, and in consideration of the new Alternative 2B alignment. The updated versions of these figures, listed below, are provided herein.

Figure 1 Bald Eagle Nests, Alternatives and Figures Index

Figure 2 Bald Eagle Nests, Skagway Vicinity, East Lynn Canal

Figure 3 Bald Eagle Nests, Katzehin River Vicinity, East Lynn Canal

Figure 4 Bald Eagle Nests, Eldred Rock Vicinity, East Lynn Canal

Figure 5 Bald Eagle Nests, Berners Bay Vicinity, East Lynn Canal

Figure 6 Bald Eagle Nests, William Henry Bay Vicinity, West Lynn Canal

Figure 7 Bald Eagle Nests, Sullivan River Vicinity, West Lynn Canal

Figure 8 Bald Eagle Nests, Haines Vicinity, West Lynn Canal

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LEGEND

Alternative 1 No Action (Existing Mainline. Dayboat Shuttle, and FVF Ferry System not shown)

Alternative 2B Highway Segment (2B) / Ferry Segment (2B)

Alternative 3 Highway Segment (3) / Ferry Segment (3)

New Multi-span Bridge

Existing Highway

0 1 2 3 4 Miles

1 inch equals 3.5 miles

Alternative 4A
Alternative 4C New double stern berth at existing Auke Bay terminal with ferry service from Auke Bay to Haines and Skagway

Alternative 4B
Alternative 4D New ferry terminal at Sawmill Cove with ferry service to Haines and Skagway

Ferry routes not shown for Alternatives 1, 4A, 4B, 4C, and 4D

Bald Eagle Nests

Within 330' of Cut and Fill Limits*

Over 330' from Cut and Fill Limits*

Source: USFWS GPS Locations 2005
*USFWS Primary Buffer

Figure Index

Figure 2
Figure 3
Figure 4
Figure 5
Figure 6
Figure 7
Figure 8

Skagway
Klondike Highway
Klondike Gold Rush National Historical Park
Skagway River
Kasidaya Creek
Devils Punch Bowl
Twin Dewey Peaks
Upper Dewey Reservoir
SCHUBEE GLACIER
Taiya Inlet
Burro Creek
Face Mountain
Mount Harding
Halutu Ridge
Ferebee River
Deyabas Creek
Mount Villard
Katzehin River
Tanani
Haines
Port Chilkoot
Chilkoot
Lily Lake
DESHU ISTHMUS
Chilkat Peninsula
Glacier Point
Pyramid Island
Mud Bay Road
Lutak Road
Lutak Inlet
Mount Ripinski
Haines Airport
Chilkoot Lake
Chilkoot River
Cathedral Peak
Mount Kashagnak
Tukgahgo Mountain
Haines Highway
Chilkat River
GARRISON GLACIER
Mount Emmerich
Tsirku River
Gran Point
Chilkat Islands
Eldred Rock
Lynn Canal
Sullivan Island
Sullivan River
Sullivan Mountain
DAVIDSON GLACIER
Mount Rice
Mount Young
Yang-Webster Peak
Chilkat Ra
Gilkey River
Antler Lake
Glacier Highway
Sawmill Creek
Antler River
Lace River
Berners River
Johnson Creek
Julalin Mine
Slate Creek
Berners Bay
Point Saint Mary
Echo Cove
Cowee Creek
Comet Mines
Kensington Mine
Horrible Mine
Ophir Mine
Ivanhoe Mine
Kakuhan Range
Sinclair Mountain
Sweeny Creek
Comet
Sherman Rock
Met Point
Teldagalga Creek
William Henry Bay
Beardslee River
Endicott River
William Henry Creek
Ludaseska Creek

Juneau Access Improvements

Bald Eagle Nests Alternatives and Figure Index

JOB NO: 26219660	DRAWN BY: TEK/PLB	**Addendum Figure 1**
DATE: September. 22, 2005	FILE: M:\Data\ADOT\Juneau_Access\Figures\Tech Report Figures\Eagles\Addendum Figure 1.mxd	

LEGEND

East Route

Existing Highway

Bald Eagle Nests

Within 330' of Cut and Fill Limits*

Over 330' from Cut and Fill Limits*

Source: USFWS GPS Locations 2005
*USFWS Primary Buffer

Contour Interval = 100 feet
Derived from USGS 45m DEM (above MSL)

0 0.25 0.5 0.75 1 Miles

1 inch equals 1 mile

in Dewey
Peaks
Upper Dewey Reservoir
Devils
Punch Bowl
SCHUBEE GLACIER
Upper Dewey Lake
Icy Lake
Klondike Gold Rush
National Historical Park
Klondike Highway
Skagway River
Skagway
Lower Dewey Lake
Kasidaya Creek
Dayebas Creek
003
002
004
600
005
006
090
008
009
010
091
601
012
013
Taiya Inlet
Burro Creek
Parsons Peak
Face
Mountain
Mount
Harding
Halutu Ridge
Ferebee River

TRANSPORTATION & PUBLIC FACILITIES
STATE OF ALASKA

Juneau Access Improvements

Bald Eagle Nests
Skagway Vicinity
East Lynn Canal

JOB NO: 26219660	DRAWN BY: TEK/PLB	**Addendum Figure 2**
DATE: September 22, 2005	FILE: M:Data/ADOT/Juneau Access /Figures/Tech Report Figures/Eagles /Figure 2.mxd	

LEGEND

East Route

- Current Alignment as of 8/24/05
- Alignment as of 6/12/2003
- New Multi-span Bridge

Bald Eagle Nests

- High Vulnerability
  (Within 330' of Cut and Fill Limits*)
- Low Vulnerability
  (Over 330' from Cut and Fill Limits*)

Source: USFWS GPS Locations 2005
*USFWS Primary Buffer

Contour Interval = 100 feet
Derived from USGS 45m DEM (above MSL)

0 0.25 0.5 0.75 1 Miles

1 inch equals 1 mile

Mount Villard

Katzehin River

Dayehas Creek

Chilkoot Inlet

Chilkat Peninsula

Lily Lake

DESHU ISTHMUS

Chilkat Inlet

Tanani

Haines

Port Chilkoot

Chilkat

Pyramid

003 009 010 091 012 601 013 092 014 015 016 017 018 019 020 021 093 023 024 025 127 126 025 027 028 029

Juneau Access Improvements

Bald Eagle Nests
Katzehin River Vicinity
East Lynn Canal

JOB NO: 26219660	DRAWN BY: TEK/PLB	**Addendum Figure 3**
DATE: September 22, 2005	FILE: M:Data/ADOT/Juneau Access/ Figures/Tech Report Figures/Eagles/ Figure 3.mxd	

LEGEND

East Route

Current Alignment as of 8/24/2005

Alignment as of 6/12/2003

Bald Eagle Nests

Within 330' of Cut and Fill Limits*

Over 330' from Cut and Fill Limits*

Source: USFWS GPS Locations 2005
*USFWS Primary Buffer

Contour Interval = 100 feet
Derived from USGS 45m DEM (above MSL)

0 0.25 0.5 0.75 1 Miles

1 inch equals 1 mile

Kakuhan Range

Sinclair Mountain

Yeldagalga Creek

Comet

Eldred Rock

Chilkat Islands

Lynn Canal

Juneau Access Improvements

Bald Eagle Nests
Eldred Rock Vicinity
East Lynn Canal

JOB NO: 26219660	DRAWN BY: TEK	**Addendum Figure 4**
DATE: September 22, 2005	FILE: M:Data/ADOT/Juneau Access/Figures/Tech Report Figures/Eagles/Figure 4.mxd	

LEGEND

East Route

- Current Alignment as of 8/24/2005
- Alignment as of 6/12/2003
- Existing Highway

Bald Eagle Nests

- Within 330' of Cut and Fill Limits*
- Over 330' from Cut and Fill Limits*

Source: USFWS GPS Locations 2005
*USFWS Primary Buffer

Contour Interval = 100 feet
Derived from USGS 45m DEM (above MSL)

0 0.25 0.5 0.75 1 Miles

1 inch equals 1 mile

Berners Bay

Lynn Canal

Point Saint Mary

Sawmill Cove

Sawmill Cre

Echo Cove

Cowee Creek

Glacier Highway

Antler River

Lace River

Johnson Creek

Slate Creek

Sweeny Creek

Jualin Mine

Comet Mines

Kensington Mine

Horrible Mine

Ophir Mine

Comet

Sherman Rock

118 625 074 119 076 120 077 078 079 080 081 082 083 084 121 085 117 073 116 072 071 593 070 069 067 068 064 066 065 063 062 061 060 059 058 057 056 055 054 053 052 051 050 049 048 047 115

Juneau Access Improvements

Bald Eagle Nests
Berners Bay Vicinity
East Lynn Canal

JOB NO: 26219660	DRAWN BY: TEK/PLB	**Addendum Figure 5**
DATE: September 20, 2005	FILE: M:\Data\ADOT\Juneau_Access\Figures\Tech Report Figures\Eagles\Addendum Figure 5.mxd	

Sherman Rock

LEGEND

West Route

Current Alignment as of 11/11/2003

1994 Lochner Alignment

Bald Eagle Nests

Within 330' of Cut and Fill Limits*

Over 330' from Cut and Fill Limits*

Source: USFWS GPS Locations 2005
*USFWS Primary Buffer

Contour Interval = 100 feet
Derived from USGS 45m DEM (above MSL)

0 0.25 0.5 0.75 1 Miles

1 inch equals 1 mile

Lynn Canal

William Henry Bay

Beardslee River

William Henry Creek

Endicott River

Sullivan River

301 305 306 307 360 361 362 363 364 365 308 309 310 313 314 315 366 317 318 319 320 321 322 323 324

Juneau Access Improvements

Bald Eagle Nests
William Henry Bay Vicinity
West Lynn Canal

JOB NO: 26219660	DRAWN BY: TEK	**Addendum Figure 6**
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LEGEND

West Route

Current Alignment as of 11/11/2003

1994 Lochner Alignment

Bald Eagle Nests

Within 330' of Cut and Fill Limits*

Over 330' from Cut and Fill Limits*

Source: USFWS GPS Locations 2005
*USFWS Primary Buffer

Contour Interval = 100 feet
Derived from USGS 45m DEM (above MSL)

0 0.25 0.5 0.75 1 Miles

1 inch equals 1 mile

Lynn Canal

Sullivan Island

Sullivan River

Glacier Point

336 337 338 339 340 335 372 711 710 371 334 333 370 331 330 709 369 367 327 326 324

Ludaseska Creek

Sullivan Mountain

DAVIDSON GLACIER

Juneau Access Improvements

Bald Eagle Nests
Sullivan River Vicinity
West Lynn Canal

JOB NO: 26219660	DRAWN BY: TEK/PLB	**Addendum Figure 7**
DATE: September 22, 2005	FILE: M:Data/ADOT/Juneau Access/Figures/Tech Report Figures/Eagles/Addendum Figure 7.mxd	

LEGEND

West Route

- Current Alignment as of 11/11/2003
- 1994 Lochner Alignment
- Existing Highway
- New Multi-span Bridge

Bald Eagle Nests

- Within 330' of Cut and Fill Limits*
- Over 330' from Cut and Fill Limits*

Source: USFWS GPS Locations 2005
*USFWS Primary Buffer

Contour Interval = 100 feet
Derived from USGS 45m DEM (above MSL)

0 0.25 0.5 0.75 1 Miles

1 inch equals 1 mile

Lake
DESHU ISTHMUS
Chilkat Inlet
Lutak Road
Mud Bay Road
Port Chilkoot
Haines
Chilkat
Tanani
Pyramid Island
Ludaseska Creek
Lutak Inlet
Haines Highway
Chilkat River

336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 373

Juneau Access Improvements

Bald Eagle Nests
Haines Vicinity
West Lynn Canal

JOB NO: 26219660	DRAWN BY: TEK/PLB	**Addendum Figure 8**
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