
MASTER TABLE OF CONTENTS

TABLE OF CONTENTS	i
LIST OF TABLES	v
LIST OF FIGURES	xii
LIST OF APPENDICES	xvii
LIST OF ACRONYMS	xviii

DETAILED TABLE OF CONTENTS

1.0 Purpose and Need*	1-1
1.1 Introduction*	1-2
1.1.1 Background*	1-2
1.2 Proposed Action*	1-4
1.3 Purpose*	1-8
1.4 Need*	1-8
1.5 Scope of Analysis and Decisions to be Made*	1-9
1.6 Project Relationship to Laws, Regulations, Policies, and Required Permits*	1-11
1.6.1 Federal Laws, Regulations, and Policies*	1-12
1.6.2 Federal Management Plans	1-21
1.6.3 State and Local Laws, Regulations, and Management Plans.....	1-24
1.6.4 Responsibility for Obtaining Permits*	1-28
1.7 Related Studies*	1-29
1.7.1 King Cove-Cold Bay: Assessment of Non-Road Alternatives*	1-29
1.7.2 King Cove Access Project. Environmental Impact Statement. 2003. U.S. Army Corps of Engineers, Alaska District.	1-30
1.8 Indian Trust Responsibility and Government to Government Relationships*	1-31
1.9 Summary of Scoping*	1-32
1.9.1 Issues Selected for Analysis.....	1-37
1.9.2 Issues Dismissed	1-42
2.0 Alternatives*	2-1
2.1 Introduction*	2-1
2.2 2013 EIS Alternative Development Process*	2-2
2.2.1 Step 1: Development of Range of Alternatives	2-3
2.2.2 Step 2: Development of Screening Criteria	2-4

2.2.3	Step 3: Mode of Transit Screening	2-6
2.2.4	Step 4: Identification of Alternative Routes by Mode of Transit	2-6
2.3	2024 SEIS Alternative Development Process*.....	2-15
2.4	Alternatives Considered but Dismissed from Further Analysis*	2-15
2.4.1	Road Alternatives*.....	2-15
2.4.2	Hovercraft Alternatives*.....	2-17
2.4.3	Air Alternatives*.....	2-18
2.4.4	Marine Alternatives	2-19
2.4.5	Other Alternatives*	2-20
2.5	Alternatives Considered for Detailed Evaluation in the EIS*	2-22
2.5.1	Alternative 1 – No Action*	2-22
2.5.2	Alternative 2 – Land Exchange and Southern Road Alignment*	2-28
2.5.3	Alternative 3 – Land Exchange and Central Road Alignment*	2-44
2.5.4	Alternative 4 – Hovercraft Operations from the Northeast Terminal to Cross Wind Cove (Six days per week)*	2-51
2.5.5	Alternative 5 – Lenard Harbor Ferry with Cold Bay Dock Improvements* 2-55	
2.5.6	Alternative 6 – 2024 Land Exchange and Road Alignment*	2-61
2.5.7	Lands Involved in Proposed Action and Alternatives*	2-68
2.6	Selection of the Preferred Alternative*	2-69
2.7	Environmentally Preferable Alternative*	2-69
2.8	Mitigation and Monitoring*	2-71
2.9	Comparison of Alternatives*	2-73
2.10	Incomplete and Unavailable Information	2-83
3.0	Affected Environment*	3-1
3.1	Physical Environment	3-2
3.1.1	Air Quality	3-2
3.1.2	Climate	3-6
3.1.3	Geology and Soils	3-17
3.1.4	Hydrology/Hydrologic Processes	3-31
3.1.5	Hazardous Materials*	3-38
3.1.6	Noise	3-47
3.1.7	Marine Characteristics	3-52
3.2	Biological Environment	3-56
3.2.1	Vegetation	3-56

3.2.2	Wetlands	3-78
3.2.3	Fish, Aquatic Invertebrates and Essential Fish Habitat*	3-122
3.2.4	Birds*	3-160
3.2.5	Land Mammals	3-205
3.2.6	Marine Mammals	3-231
3.2.7	Threatened and Endangered Species	3-240
3.3	Social Environment.....	3-263
3.3.1	Land Ownership and Management	3-263
3.3.2	Socioeconomics*	3-283
3.3.3	Transportation	3-320
3.3.4	Public Health and Safety.....	3-346
3.3.5	Environmental Justice*	3-367
3.3.6	Public Use	3-374
3.3.7	Subsistence*.....	3-382
3.3.8	Cultural Resources	3-429
3.3.9	Visual Resources.....	3-442
3.3.10	Wilderness.....	3-452
4.0	Environmental Consequences	4-1
4.1	Analysis Methods and Impact Criteria	4-3
4.1.1	EIS Project Area and Scope for Analysis*	4-4
4.1.2	Incomplete and Unavailable Information*	4-4
4.1.3	Methods for Determining Level of Impact	4-5
4.1.4	Cumulative Effects*.....	4-12
4.1.5	Climate Change and the Social Costs of Greenhouse Gas Emissions*	4-15
4.1.6	Resources Not Carried Forward for Analysis.....	4-15
4.1.7	Irreversible and Irretrievable Commitment of Resources*	4-17
4.2	Alternative 1 – No Action*	4-19
4.2.1	Physical Environment	4-21
4.2.2	Biological Environment.....	4-34
4.2.3	Social Environment.....	4-54
4.3	Alternative 2 – Land Exchange and Southern Road Alignment.....	4-100
4.3.1	Physical Environment	4-100
4.3.2	Biological Environment.....	4-124
4.3.3	Social Environment.....	4-205

4.4	Alternative 3 – Land Exchange and Central Road Alignment	4-280
4.4.1	Physical Environment	4-280
4.4.2	Biological Environment.....	4-298
4.4.3	Social Environment.....	4-338
4.5	Alternative 4 – Hovercraft Operations from the Northeast Terminal to Cross Wind Cove (Six days per Week)	4-370
4.5.1	Physical Environment	4-370
4.5.2	Biological Environment.....	4-383
4.5.3	Social Environment.....	4-407
4.6	Alternative 5 – Lenard Harbor Ferry with Cold Bay Dock Improvement....	4-430
4.6.1	Physical Environment	4-430
4.6.2	Biological Environment.....	4-447
4.6.3	Social Environment.....	4-471
4.7	Alternative 6 – 2024 Land Exchange and Road Alignment*	4-497
4.7.1	Physical Environment*	4-497
4.7.2	Biological Environment.....	4-516
4.7.3	Social Environment*	4-564
5.0	Consultation and Coordination*	5-1
5.1	Introduction.....	5-1
5.2	Summary of Scoping.....	5-2
5.2.1	2013 EIS Scoping	5-2
5.2.2	SEIS Scoping*	5-2
5.3	Government to Government Consultation	5-2
5.3.1	2013 EIS Government to Government Consultation*	5-2
5.3.2	SEIS Government to Government Consultation.....	5-3
5.4	Interagency Consultation	5-5
5.4.1	2013 EIS Interagency Consultation	5-5
5.4.2	Public and Agency Comments on the DEIS	5-5
5.5	List of Preparers	5-6
5.5.1	2013 EIS List of Preparers	5-6
5.5.2	SEIS List of Preparers*.....	5-8

LIST OF TABLES

Table 1-1 Summary of Costs and Operating Factors*.....	1-30
Table 1-2a Summary of Statements of Concern*	1-33
Table 1-2b Summary of Statements of Concern*	1-35
Table 2.4-1 Summary of Alternatives Dismissed in 2003 EIS	2-16
Table 2.4-2 Summary of Additional Road Alternatives Dismissed	2-17
Table 2.4-3 Summary of Additional Marine Alternatives Dismissed*	2-20
Table 2.5-1 Comparative Summary of Alternatives*	2-26
Table 2.5-2 Comparative Summary of Road Alternatives*.....	2-31
Table 2.5-3 Stream Crossings-Alternative 2 Southern Road Alignment.....	2-41
Table 2.5-4 Stream Crossings-Alternative 3 Central Road Alignment	2-48
Table 2.5-5 Summary of Alternative 5: Lenard Harbor Ferry with Cold Bay Dock Improvements	2-58
Table 2.5-6 Stream Crossings - Alternative 6 Southern Road Alignment*	2-66
Table 2.5-7 Land Exchange Parcels and Lands Potentially Affected under Alternatives 2, 3, and 6*.....	2-70
Table 2.5-8 Lands Potentially Affected under Alternatives 1, 4 or 5	2-71
Table 2.9-1 Impact Summary by Alternative*	2-75
Table 3.1-1 Ambient Air Quality Standards for Carbon Monoxide and PM10.....	3-3
Table 3.1-2a Average Temperature and Precipitation at the Cold Bay Airport, Alaska	3-9
Table 3.1-2b Average Temperature and Precipitation at the Cold Bay Airport, Alaska, 1991–2020.....	3-9
Table 3.1-3a Average Cloud and Wind Conditions at the Cold Bay Airport, Alaska.....	3-10
Table 3.1-3b Average Cloud and Wind Conditions at the Cold Bay Airport, Alaska, 1991–2020*.....	3-11
Table 3.1-4a Average Temperature and Precipitation in Kodiak, AK	3-13
Table 3.1-4b Average Temperature and Precipitation at Kodiak Airport, AK 1991–2020*....	3-13
Table 3.1-5a Average Cloud and Wind Conditions for Kodiak, AK.....	3-14
Table 3.1-5b Average Cloud and Wind Conditions for Kodiak Airport, AK, 1991–2020*.....	3-14
Table 3.1-6a Tidal Ranges for Cold Bay Region.....	3-31
Table 3.1-6b Tidal Ranges for King Cove and Cold Bay*	3-31
Table 3.1-7a Known Contaminated Sites Cold Bay and Sitkinak Island	3-44
Table 3.1-7b Known Contaminated Sites Cold Bay Region and Sitkinak Island*	3-44
Table 3.1-8 Typical A-Weighted Noise Levels	3-48
Table 3.2-1 Vegetation and Land Cover Type Cross Reference	3-60
Table 3.2-2 National Land Cover Database Land Cover Types (Approximate Acres).....	3-61
Table 3.2-3 2003 EIS Land Cover Type (Approximate Acres).....	3-61
Table 3.2-4 National Land Cover Database Land Cover Types for the Proposed Road Corridors (Approximate Acres)*	3-62
Table 3.2-5 National Land Cover Database Land Cover Types for the proposed exchange parcels under Alternative 6 (Approximate Acres)*	3-62

Table 3.2-6 Area of National Land Cover map classes in Izembek National Wildlife Refuge*	3-66
Table 3.2-7. Non-Native Species Observations for the Alternatives, Exchange Parcels, and the Izembek Area ¹ *	3-72
Table 3.2-8 Wetland Laws, Regulations, and Executive Orders*	3-80
Table 3.2-9 Estimated Acres of Wetland by Parcel*	3-87
Table 3.2-10 Estimated Acres of Wetlands for the proposed exchange parcels under Alternative 6 (Approximate Acres)*	3-87
Table 3.2-11 Acres of National Wetland Inventory classes for Izembek National Wildlife Refuge*	3-98
Table 3.2-12 Acres ¹ of National Wetland Inventory classes in the Proposed Road Alternatives, Izembek National Wildlife Refuge*	3-100
Table 3.2-13 Acres of National Wetland Inventory Classes in the Kinzarof Lagoon Parcels under Alternative 6*	3-101
Table 3.2-14 Acres of National Wetland Inventory Classes in the East Wilderness Parcel*..	3-102
Table 3.2-15 Wetland Areas along the Proposed Izembek Road Corridors (400 feet)	3-112
Table 3.2-16 Wetland Areas along the Proposed Izembek Alternative 6 Road Corridor (400 feet)*	3-112
Table 3.2-17 Wetland Functions Associated with Alternatives 2,3, and 6.....	3-118
Table 3.2-18 Cold Bay Area Marine Fish and Invertebrate Species List.....	3-122
Table 3.2-19 Fish Species Documented in the Freshwater Habitats of Izembek National Wildlife Refuge and Alaska Peninsula National Wildlife Refuge, near Cold Bay, AK	3-124
Table 3.2-20 Designated Essential Fish Habitat for Federally Managed Species in Cold Bay, Kinzarof Lagoon, and Izembek Lagoon*	3-136
Table 3.2-21 Anadromous Streams and Associated Salmonid Species Documented within or in the Vicinity of the Project Area*	3-141
Table 3.2-22 South Alaska Peninsula Salmon Escapement Goals by Region*	3-156
Table 3.2-23 Annual Escapement Goals (2021) for the North Alaska Peninsula by Species and Location*	3-157
Table 3.2-24 Bird List for Izembek National Wildlife Refuge*	3-160
Table 3.2-25 Accidental Species: One-Time or Very Rare Appearances*	3-164
Table 3.2-26 Duck Breeding Population Estimates in the Alaska-Yukon Territory Region*.3-190	
Table 3.2-27 Population Estimate, Population Trend, and Conservation Status of Shorebirds in Izembek National Wildlife Refuge (Alaska Shorebird Group 2019)*	3-199
Table 3.2-28 Breeding Population Estimates and Foraging Guilds in the Eastern Bering Sea and Gulf of Alaska.....	3-202
Table 3.2-29 Terrestrial Mammal Species with Potential to Occur in or near the Project Area	3-205
Table 3.2-30 Unit 9D Brown Bear Harvest (1988-2016) (Service 2017)*.....	3-208
Table 3.2-31 Marine Mammal Species with Potential to Occur in the Vicinity of the Project Area	3-231

Table 3.2-32 Counts of Steller's Eiders from Spring Migration Surveys in Southwestern Alaska	3-241
Table 3.2-33 Mean Number of Northern Sea Otters Recorded During Aerial Waterfowl Surveys at Izembek National Wildlife Refuge.....	3-247
Table 3.3-1 Population and Average Annual Growth Rates by Decade, 1980–2020*	3-284
Table 3.3-2 Directly Affected Communities Populations, 1940–2020*.....	3-287
Table 3.3-3 Population by Housing Type in the City of King Cove, 1990–2020*	3-288
Table 3.3-4 Characteristics of Standard Housing Units in the City of King Cove, 1990–2020*....	3-288
Table 3.3-5 Group Quarters in the City of Cold Bay, 1990–2020*	3-289
Table 3.3-6 Characteristics of Standard Housing Units in the City of Cold Bay, 1990–2020*	3-289
Table 3.3-7 Racial/Ethnic Composition of Population in the City of King Cove, 1990–2020*	3-290
Table 3.3-8 Racial/Ethnic Composition of Population in the City of Cold Bay, 1990–2020*	3-290
Table 3.3-9 Comparison of Age Composition in the Cities of King Cove and Cold Bay, 2020*....	3-291
Table 3.3-10 School Enrollment Characteristics by Grade, 2022–2023 School Year*.....	3-292
Table 3.3-11 School Enrollment Characteristics, 2022*	3-292
Table 3.3-12 Educational Attainment, 2023*	3-293
Table 3.3-13 Wage and Salary Employment and Wages by Place of Work in Aleutians East Borough, 2012-2022*	3-295
Table 3.3-14 Average Employment by Industry in Aleutians East Borough, 2000-2010 and 2022*	3-295
Table 3.3-15 Resident Wage and Salary Employment in the Aleutians East Borough, 2010–2022*.....	3-297
Table 3.3-16 Aleutians East Borough Resident Claimants of Unemployment Insurance, 2011–2022*.....	3-300
Table 3.3-17 Resident Non-Federal Wage and Salary Employment in the City of King Cove, 2000-2010	3-300
Table 3.3-18 City of King Cove Resident Claimants of Unemployment Insurance, 2012–2022* ..	3-301
Table 3.3-19 Resident Non-Federal Wage and Salary Employment in the City of Cold Bay, 2000-2010	3-301
Table 3.3-20 City of Cold Bay Resident Claimants of Unemployment Insurance, 2012–2022*....	3-302
Table 3.3-21 Processing Employment and Wages and Salaries in Aleutians East Borough and City of King Cove, 2007	3-305
Table 3.3-22 Fish Harvesting Revenues and Participation for Major Fisheries by City of King Cove and City of Cold Bay Residents, 2000-2011	3-306
Table 3.3-23 Estimates of City of King Cove and City of Cold Bay Residents Participating in Fish Harvesting, 2002 – 2009	3-307

Table 3.3-24 Permits and Estimated Crew Positions by Fishery in the City of King Cove and the City of Cold Bay, 2002 – 2011	3-308
Table 3.3-25 Number of Persons Issued Permits and Crew Licenses in Cities of King Cove and Cold Bay, 2002 – 2010	3-309
Table 3.3-26 Estimated Ex-Vessel Revenue and Payments to Labor from Fish Harvesting – Cities of King Cove and Cold Bay, 2002 – 2011	3-310
Table 3.3-27 Estimated Number of Non-Local Fishing Crews that Deliver to Peter Pan at King Cove, 2006 – 2011	3-311
Table 3.3-28 Fiscal Summary for the Aleutians East Borough, Fiscal Years 2004–2011	3-312
Table 3.3-29 Taxation in the Aleutians East Borough and Cities of King Cove and Cold Bay, 2022–2023*	3-314
Table 3.3-30 City of King Cove Revenues and Expenditures, Fiscal Year 2021*	3-315
Table 3.3-31 City of Cold Bay Revenues and Expenditures, Calendar Year 2021*	3-316
Table 3.3-32 Bulk Diesel Fuel and Electricity Costs, Fiscal Year 2010	3-317
Table 3.3-33 Project Area Roads and Trails.....	3-322
Table 3.3-34a Public Health Indicators Related to Deaths – State and Borough Level ¹	3-352
Table 3.3-34b Public Health Indicators Related to Deaths – State Level, Updated ^{1*}	3-353
Table 3.3-35 Top 15 Purposes of Visits to the King Cove Clinic, 2010	3-353
Table 3.3-36 Top 15 Diagnoses Categories in the King Cove Clinic, 2010.....	3-354
Table 3.3-37 Top 15 Purposes of Visits to the Anna Livingston Memorial Clinic, 2010.....	3-354
Table 3.3-38 Top 11 Diagnoses Categories in the Anna Livingston Memorial Clinic, 2010 ..	3-355
Table 3.3-39a Public Health Indicators for Adults Related to Behavior – State Level	3-355
Table 3.3-39b Public Health Indicators for Adults Related to Behavior – State Level (2022)*	3-356
Table 3.3-40a Public Health Indicators for High School Students Related to Behavior – State Level (2009).....	3-356
Table 3.3-40b Public Health Indicators for High School Students Related to Behavior – State Level (2019)*	3-357
Table 3.3-41a Public Safety Indicators Related to Deaths – State and Borough Level (2006-2008)	3-358
Table 3.3-41b Public Safety Indicators Related to Deaths – State Level (2022)*	3-358
Table 3.3-42 Traffic Accidents – State and Borough Level, 2001-2002, 2004-2007	3-360
Table 3.3-43 2000 US Census, 2009 American Community Survey, and 2022 American Community Survey Income Estimates*.....	3-369
Table 3.3-44a Median Income and Poverty Rates, 2000	3-371
Table 3.3-44b Poverty Rates, Estimate 2022*	3-371
Table 3.3-45 Median Income and Poverty Rates, Estimated 2009	3-372
Table 3.3-46 Total Number of Visitors ¹ to Izembek National Wildlife Refuge, 2006-2010 ..	3-375
Table 3.3-47 Special Use Permits for Izembek National Wildlife Refuge, 2007-2010	3-377
Table 3.3-48 Subsistence Resources Harvested throughout the Aleutians East Borough.....	3-386
Table 3.3-49 Resource Composition in Percentage of Wild Resource Harvests by Community and Study Year*	3-388

Table 3.3-50 Resource Composition in Pounds Per Person of Wild Resources Harvests by Community*	3-388
Table 3.3-51 Estimated Subsistence Salmon Harvest for City of King Cove in Number of Fish*	3-390
Table 3.3-52 Estimated Subsistence Salmon Harvest for City of Cold Bay in Number of Fish*.3-400	3-400
Table 3.3-53 Estimated Subsistence Salmon Harvest for False Pass in Number of Fish*.....	3-408
Table 3.3-54 Estimated Subsistence Salmon Harvest for Nelson Lagoon in Number of Fish*	3-416
Table 3.3-55 Estimated Subsistence Salmon Harvest for Sand Point in Number of Fish*	3-421
Table 3.3-56 Cultural Resources Within the Study Area*	3-439
Table 4.1-1 Impact Criteria for Effects on Physical Resources.....	4-7
Table 4.1-2 Impact Criteria for Effects on Biological Resources*	4-8
Table 4.1-3 Impact Criteria for Effects on Socioeconomic Resources.....	4-10
Table 4.1-4 Past Present and Reasonably Foreseeable Future Actions Considered in the Cumulative Effects Analysis for Alternative 6*	4-14
Table 4.2-1 Land Use and Management Comparison for Alternatives 1, 4, and 5	4-64
Table 4.2-2 Population Baseline Forecasts, 2010-2020.....	4-67
Table 4.2-3 Forecast Year-Over-Year Population Change as a Percent of the Previous Year, 2010 – 2020	4-68
Table 4.2-4 Estimated Baseline Passenger Trips for all Alternatives and Induced Trips under Alternatives 2 and 3, 2013 – 2020 and 2025	4-72
Table 4.2-5 One-Way Distances and Travel Times from the City of King Cove to Key Destinations	4-73
Table 4.2-6 Estimated One Way Ground Travel Cost ¹ per Passenger from the City of King Cove, by Alternative and Vehicle Type	4-75
Table 4.2-7 Estimated Trips and Travel Cost by Air Travel under Alternative 1, 2013 – 2020 and 2025.....	4-77
Table 4.2-8 Estimated Travel Times, by Modes of Transit, Alternatives 1-6*	4-79
Table 4.2-9 Summary of Consumer Costs, Reliability, and Travel Time Estimates for Alternatives 1-6*	4-80
Table 4.2-10 Estimated Annual Average Daily Passengers 2013 – 2025, Alternative 1	4-81
Table 4.3-1 Estimated Emission Rates for Alternative 2 Construction Activities*	4-102
Table 4.3-2 Estimated Air Pollutant Emission Rates for Alternative 2 Operations and Maintenance Activities*	4-106
Table 4.3-3 Summary of Greenhouse Gas Emissions for Alternative 2*	4-108
Table 4.3-4 Noise Emission Reference Levels for Construction Equipment	4-120
Table 4.3-5a Land Cover Type Impact for Alternative 2 (Approximate Acres)	4-125
Table 4.3-5b Land Cover Type Impact for Alternative 2 (Approximate Acres) using the National Land Cover Dataset ^{1*}	4-125
Table 4.3-6 Wetland Acres to be Exchanged.....	4-131
Table 4.3-7 Estimated Acres of Direct Impacts to Wetlands within the Alternative 2 Road Footprint*	4-135

Table 4.3-8 Land Use, Land Management, and Resource Values Comparison for Alternatives 2, 3, and 6*	4-228
Table 4.3-9 Estimated Baseline Trips and Travel Cost by Travel Mode and Group under Alternative 2, 2013 – 2020 and 2025.....	4-233
Table 4.3-10 Induced and Total Trips and Travel Cost under Alternative 2, 2013 – 2020 and 2025	4-234
Table 4.3-11 Processing Crew Transportation by Shared Rides in Alternative 2 - 2016.....	4-235
Table 4.3-12 Resident and Other Non-Fishery Transportation in Alternative 2 - 2016.....	4-236
Table 4.3-13 Estimated Annual Average Daily Passengers 2013 – 2025, Alternative 2	4-240
Table 4.3-14 Potentially Impacted Cultural Resources by Road Based Alternatives*.....	4-263
Table 4.3-15 Cultural Resources by Land Exchange Parcel*.....	4-264
Table 4.4-1 Estimated Emission Rates for Alternative 3 Construction Activities*	4-281
Table 4.4-2 Estimated Air Pollutant Emission Rates for Alternative 3 Operations and Maintenance Activities*	4-285
Table 4.4-3 Summary of Annual Greenhouse Gas Emissions for Alternative 3*	4-286
Table 4.4-4a Land Cover Type Impact for Alternative 3 (Approximate Acres)	4-299
Table 4.4-4b Land Cover Type Impact for Alternative 3 (Approximate Acres) using the National Land Cover Dataset ^{1*}	4-299
Table 4.4-5 Wetland Acres to be Exchanged.....	4-303
Table 4.4-6 Estimated Acres of Direct Impacts to Wetlands within the Alternative 3 Road Footprint*	4-305
Table 4.4-7 Estimated Baseline Trips and Travel Cost by Travel Mode and Group under Alternative 3, 2013 – 2020 and 2025.....	4-346
Table 4.4-8 Induced and Total Trips and Travel Cost under Alternative 3, 2013 – 2020 and 2025	4-347
Table 4.4-9 Processing Crew Transportation in Alternative 3 - 2016	4-348
Table 4.4-10 Resident and Other Non-Fishery Transportation in Alternative 3 - 2016	4-348
Table 4.4-11 Estimated Annual Average Daily Passengers 2013 – 2025, Alternative 3	4-352
Table 4.5-1 Estimated Air Pollutant Emission Rates for Alternative 4 Operations and Maintenance Activities*	4-372
Table 4.5-2 Summary of Greenhouse Gas Emissions for Alternative 4*	4-373
Table 4.5-3 Estimated Baseline Trips and Travel Cost by Travel Mode and Group under Alternative 4, 2013 – 2020 and 2025.....	4-410
Table 4.5-4 Processing Crew Transportation in Alternative 4	4-411
Table 4.5-5 Resident and Other Non-Fishery Transportation in Alternative 4	4-411
Table 4.5-6 Estimated Annual Average Daily Passengers 2013 – 2025, Alternative 4	4-415
Table 4.6-1 Estimated Emission Rates for Alternative 5 Construction Activities*	4-431
Table 4.6-2 Estimated Air Pollutant Emission Rates for Alternative 5 Operations and Maintenance Activities*	4-434
Table 4.6-3 Summary of Greenhouse Gas Emissions for Alternative 5*	4-436
Table 4.6-4 Estimated Baseline Trips and Travel Cost by Travel Mode and Group under Alternative 5, 2013 – 2020 and 2025.....	4-474
Table 4.6-5 Processing Crew Transportation in Alternative 5 - 2016	4-475

Table 4.6-6 Resident and Other Non-Fishery Transportation in Alternative 5 - 2016	4-475
Table 4.6-7 Estimated Annual Average Daily Passengers 2013 – 2025, Alternative 5	4-479
Table 4.7-1 Summary of Greenhouse Gas Emissions for Alternative 6*	4-500
Table 4.7-2 Land Cover Type Impact for Alternative 6 (Approximate Acres) using the National Land Cover Dataset*.....	4-517
Table 4.7-3 Estimated Acres of Direct Impacts to Wetlands within the Alternative 6 Road and Gravel Material Sites Footprint*	4-522
Table 4.7-4 Past, Present, and Reasonably Foreseeable Future Actions for Fish and Essential Fish Habitat*.....	4-534
Table 4.7-5 Estimated Annual Average Daily Passengers 2013–2025, Alternative 6*	4-579
Table 5-1 Government-to-Government Consultation meetings requested by Native Village of Hooper Bay, including invited guests on behalf of the Tribe*	5-3
Table 5-2 Government-to-Government Consultation meetings requested by Agdaagux Tribe of King Cove and Native Village of Belkofski (Belkofski), including invited guests on behalf of the Tribe*	5-4
Table 5-3 Section 106 Meetings*	5-5
Table 5-4 List of Preparers of the 2013 EIS, Contracted Staff.....	5-6
Table 5-5 List of Preparers of the 2013 EIS, Service Staff	5-8
Table 5-6 List of Preparers of the SEIS, Contracted Staff*	5-9
Table 5-7 List of Preparers of the SEIS, Service Staff*	5-11

LIST OF FIGURES

Figure 1-1 Project Area Map*	1-7
Figure 1-2 Izembek State Game Refuge Boundary*	1-27
Figure 2-1 Road Alternatives Considered But Dismissed*	2-9
Figure 2-2 Alternative 2 – Southern Road Alignment*	2-10
Figure 2-3 Alternative 3 – Central Road Alignment*	2-11
Figure 2-4 Hovercraft Alternatives Considered*	2-12
Figure 2-5 Marine Alternatives Considered*	2-14
Figure 2-6 Proposed National Wildlife Refuge Boundary Administrative Adjustment*	2-30
Figure 2-7 Typical Bollard With Sign and Chain Details.....	2-36
Figure 2-8 Typical Roadway Section and Turnout Details	2-39
Figure 2-9 Typical Bridge and Box Culvert Details	2-40
Figure 2-10 Alternative 4 (Hovercraft from Northeast Terminal)*	2-52
Figure 2-11 Alternative 5 (Lenard Harbor Ferry with Cold Bay Dock Improvements)*	2-57
Figure 2-12 Alternative 6 (2024 Land Exchange and Road Alignment)*	2-62
Figure 3.1-1 Exploration Oil and Gas Wells within Alaska Peninsula and Bristol Bay Basin*	3-22
Figure 3.1-2 Mineral and Geothermal Resources*	3-25
Figure 3.1-3 Tsunami Inundation Estimates*	3-27
Figure 3.1-4 Approximate Hydrologic Boundary between Izembek Lagoon and Kinzarof Lagoon*	3-34
Figure 3.1-5 Contaminated Sites Cold Bay Area*	3-43
Figure 3.2-1 Landcover of Izembek NWR*	3-64
Figure 3.2-2 Rare Plants of Izembek National Wildlife Refuge*	3-69
Figure 3.2-3 Non-Native Plant Species Observations*	3-73
Figure 3.2-4 Wetlands of Izembek NWR and Sitkinak Parcel*	3-79
Figure 3.2-5 Wetlands of International Importance*	3-82
Figure 3.2-6 Landcover of the State Parcel*	3-83
Figure 3.2-7 Landcover of the Kinzarof Parcel and King Cove Corporation Selected Lands*	3-84
Figure 3.2-8 Landcover of the Mortensens Lagoon Parcel*	3-85
Figure 3.2-9 Wetlands in Proposed Route, page 1*	3-89
Figure 3.2-9 Wetlands in Proposed Route, page 2*	3-90
Figure 3.2-9 Wetlands in Proposed Route, page 3*	3-91
Figure 3.2-9 Wetlands in Proposed Route, page 4*	3-92
Figure 3.2-9 Wetlands in Proposed Route, page 5*	3-93
Figure 3.2-9 Wetlands in Proposed Route, page 6*	3-94
Figure 3.2-9 Wetlands in Proposed Route, page 7*	3-95
Figure 3.2-9 Wetlands in Proposed Route, page 8*	3-96
Figure 3.2-10 Wetlands Land Cover in Proposed Route, page 1*	3-103
Figure 3.2-10 Wetlands Land Cover in Proposed Route, page 2*	3-104
Figure 3.2-10 Wetlands Land Cover in Proposed Route, page 3*	3-105
Figure 3.2-10 Wetlands Land Cover in Proposed Route, page 4*	3-106
Figure 3.2-10 Wetlands Land Cover in Proposed Route, page 5*	3-107

Figure 3.2-10 Wetlands Land Cover in Proposed Route, page 6*	3-108
Figure 3.2-10 Wetlands Land Cover in Proposed Route, page 7*	3-109
Figure 3.2-10 Wetlands Land Cover in Proposed Route, page 8*	3-110
Figure 3.2-11 Eelgrass Area (in hectares) by Waterbody within the Project Area*	3-126
Figure 3.2-12 Anadromous Streams*	3-145
Figure 3.2-13 Community of King Cove Subsistence Use Areas, All Resources	3-150
Figure 3.2-14 Estimated Annual Subsistence Salmon Harvest by Alaska Peninsula Community Residents (2004-2023)*	3-151
Figure 3.2-15 Annual Subsistence Harvest Catch of Coho and Sockeye in Mortensens Lagoon, Thinpoint Cove, and North Cold Bay (inclusive of Kinzarof Lagoon) from 1982-2022*	3-152
Figure 3.2-16 Number of Annual Subsistence Permits Executed from 1982-2021 in Mortensens Lagoon (Mortensens), North Cold Bay (NorthCB, inclusive of Kinzarof Lagoon), and Thinpoint Cove (Thinpoint)*	3-153
Figure 3.2-17 Annual Pacific Salmon Escapement to Mortensens Lagoon (1978-2022)*	3-154
Figure 3.2-18 Annual Sport Fishery Landings in the Cold Bay Area from 2002 to 2022*	3-155
Figure 3.2-19 Catch Per Unit Effort for Recreational Harvest of Coho and Sockeye	3-156
Figure 3.2-20 Summary of Alaska Peninsula Commercial Salmon Harvest (top) and Catch per Unit Effort (bottom)*	3-158
Figure 3.2-21 Inshore Black Rockfish and Pacific Cod Harvest (in pounds) from 2009- 2024*	3-159
Figure 3.2-22 Distribution of Emperor Geese*	3-168
Figure 3.2-23 Population Trend of Emperor Goose based on Spring Aerial Surveys in Southwest Alaska (from Dau and Mallek 2009)	3-169
Figure 3.2-24 Emperor Goose Breeding Population Surveys (1985-2022) on the Yukon- Kuskokwim Delta. Dashed lines depict harvest strategy thresholds described in text*	3-170
Figure 3.2-25 Distribution of Pacific Black Brant*	3-174
Figure 3.2-26 Brant Population Fall Staging Survey at Izembek Lagoon*	3-176
Figure 3.2-27 Distribution and Relative Abundance of Tundra Swans*	3-181
Figure 3.2-28 Tundra Swan Densities within the Izembek Survey Unit from 1978 through 2021*	3-183
Figure 3.2-29 Tundra Swan Breeding Pair Densities within the Izembek Survey Unit from 1978 through 2021*	3-184
Figure 3.2-30 Breeding Population Estimate for Northern Pintail in the Alaska Yukon Territory Survey Area*	3-186
Figure 3.2-31 Bald Eagle Nest Locations*	3-192
Figure 3.2-32 Brown Bear Relative Abundance*	3-209
Figure 3.2-33 Brown Bear Observations*	3-210
Figure 3.2-34 Izembek Controlled Use Area*	3-211

Figure 3.2-35 Izembek Caribou Observations*	3-214
Figure 3.2-36 Caribou Relative Abundance*	3-215
Figure 3.2-37 Caribou Calving and Winter Use Area*	3-216
Figure 3.2-38 Winter Counts of the Southern Alaska Peninsula Caribou Herd (1986-2023)*	3-219
Figure 3.2-39 Harbor Seal Haul Outs	3-234
Figure 3.2-40 Steller's Eiders Habitat and Distribution*	3-244
Figure 3.2-41 Steller Sea Lion and Northern Sea Otter Habitat*	3-250
Figure 3.3-1 King Cove Corporation ANILCA 1410 Agreement*	3-272
Figure 3.3-2 National Wildlife Refuge Boundary*	3-273
Figure 3.3-3 Kodiak Area Plan Boundary Including Sitkinak Island*	3-278
Figure 3.3-4 Bristol Bay Area Plan Boundary*	3-280
Figure 3.3-5 Population, 2012–2023*	3-284
Figure 3.3-6 Fish Harvesting Revenues and Participation by City of King Cove and City of Cold Bay Residents, 1990-2011	3-307
Figure 3.3-7 Existing Transportation Routes*	3-321
Figure 3.3-8a All-terrain vehicle tracks on Izembek National Wildlife Refuge lands east of Kinzarof Lagoon. Photo by Kristine Sowl, 2006.	3-326
Figure 3.3-8b All-terrain vehicle tracks along the edge of Kinzarof Lagoon providing access to uplands in Izembek National Wildlife Refuge. Photo by Kristine Sowl, 2006.	3-327
Figure 3.3-8c Flight path for October 30, 2006 aerial survey. The black box identifies the area of the all-terrain vehicle tracks photographed. Photo by Kristine Sowl, 2006.	3-328
Figure 3.3-8d All-terrain vehicle track crossing the chain barrier installed along the King Cove Access Road. Photo by Maria Fosado, 2023.*	3-329
Figure 3.3-8e All-terrain vehicle tracks from photo point 162 (see Figure 3.3-8f) originating at the Northeast Terminal site and extending northeast onto Izembek National Wildlife Refuge. Photo by Kristine Sowl, 2008.	3-330
Figure 3.3-8f New all-terrain vehicle routes were identified during an aerial wildlife survey in 2007 and are indicated by yellow GPS markers. Photo by Kristine Sowl, 2007.	3-331
Figure 3.3-8g An aerial survey to monitor wildlife populations conducted in 2008 showed an increase in all-terrain vehicle use since 2007. Green markers indicate where the fixed flight path (same flight path as 2007, depicted in Figure 3.3-8f) intersected all-terrain vehicle tracks. Photo by Kristine Sowl, 2008.	3-332
Figure 3.3-8h. All-terrain vehicle tracks in the Joshua Green Valley of Izembek National Wildlife Refuge. (Refer to photo point on Figure 3.3-8g.) Photo by Kristine Sowl, 2008.	3-333
Figure 3.3-8i 2004 Imagery Mapped ATV Tracks (Williams 2023e)*	3-334
Figure 3.3-8j All-terrain vehicle trails documented in the May 2022 aerial imagery survey (Williams 2023e)*	3-335
Figure 3.3-9 Hunting and Trapping in State Unit 9D	3-380
Figure 3.3-10 Statewide Game Management Units*	3-385
Figure 3.3-11 Historic Sites of Subsistence Use and Occupancy*	3-394
Figure 3.3-12 King Cove Subsistence Use Areas, All Resources*	3-395

Figure 3.3-13 King Cove Subsistence Use Areas, Terrestrial Resources and Marine Invertebrates, 1960-1982*	3-396
Figure 3.3-14 King Cove Subsistence Use Areas, Aquatic Resources, 1960-1982*	3-397
Figure 3.3-15 King Cove Subsistence Use Areas, Terrestrial Resources, 2016-2017*	3-398
Figure 3.3-16 King Cove Subsistence Use Areas, Aquatic Resources, 2016-2017*	3-399
Figure 3.3-17 Cold Bay Subsistence Use Areas, All Resources*	3-403
Figure 3.3-18 Cold Bay Subsistence Use Areas, Terrestrial Resources and Marine Invertebrates, 1960-1982*	3-404
Figure 3.3-19 Cold Bay Subsistence Use Areas, Aquatic Resources, 1960-1982*	3-405
Figure 3.3-20 Cold Bay Subsistence Use Areas, Terrestrial Resources, 2016-2017*	3-406
Figure 3.3-21 Cold Bay Subsistence Use Areas, Aquatic Resources, 2016-2017*	3-407
Figure 3.3-22 False Pass Subsistence Use Areas, All Resources*	3-411
Figure 3.3-23 False Pass Subsistence Use Areas, Terrestrial Resources and Marine Invertebrates, 1960-1982*	3-412
Figure 3.3-24 False Pass Subsistence Use Areas, Aquatic Resources, 1960-1982*	3-413
Figure 3.3-25 Community of False Pass Subsistence Use Areas, Circa 2012	3-414
Figure 3.3-26 Nelson Lagoon Subsistence Use Areas, All Resources Prior to 1987*	3-418
Figure 3.3-27 Nelson Lagoon Subsistence Use Areas, Circa 2012	3-419
Figure 3.3-28 Sand Point Subsistence Use Areas, All Resources*	3-422
Figure 3.3-29 Sand Point Subsistence Use Areas, Terrestrial Resources*	3-423
Figure 3.3-30 Sand Point Subsistence Use Areas, Aquatic Resources*	3-424
Figure 3.3-31a Typical Upland Vegetation and Wetlands of the Izembek National Wildlife Refuge and Izembek Wilderness	3-443
Figure 3.3-31b Typical View within the Coastal Plain of the Izembek National Wildlife Refuge and Izembek Wilderness (views to the northeast)	3-444
Figure 3.3-31c Example of Existing All-terrain Vehicle Tracks located in the Izembek National Wildlife Refuge and Izembek Wilderness (aerial view)	3-445
Figure 3.3-32 Typical View to the Southeast from the Izembek National Wildlife Refuge and Izembek Wilderness. Note Cold Bay, Lenard Harbor, and foothills of Mount Dutton in the distance	3-446
Figure 3.3-33 The Kinzarof Lagoon Parcels, looking west (aerial view)	3-448
Figure 3.3-34 View of the Suna X from the Shore	3-449
Figure 3.3-35 Views to the East from the City of Cold Bay: Pavlov Volcano and Aghileen Pinnacles	3-450
Figure 4.1-1 Frosty Mountain Parcel RFFA*	4-16
Figure 4.2-1 Three Forecasting Approaches, Population in Aleutians East Borough, 1988-2020	4-66
Figure 4.2-2 Baseline Forecasts of Employment by Place of Residence, Aleutians East Borough, 2000-2020	4-69
Figure 4.2-3 Baseline Forecasts of Employment by Place of Residence, City of King Cove, 2000-2020	4-70
Figure 4.2-4 Baseline Forecasts of Employment by Place of Residence, City of Cold Bay, 2000-2020	4-71

Figure 4.3-1 Tundra Swan Nests with Flush Zones and Projected All-Terrain Vehicle Trails*	4-148
Figure 4.3-2 Pacific Black Brant Use and Projected All-Terrain Vehicle Trails*	4-149
Figure 4.3-3 Distribution of Tundra Swans within Proposed Road Alignment Buffers*	4-155
Figure 4.3-4 Existing Roads and Trails*	4-216
Figure 4.3-5 Evidence of Unauthorized All-Terrain Vehicle Use Between 2005 and 2008*	4-217
Figure 4.3-6 Alternative 2 and Projected All-terrain Vehicle Trails*	4-218
Figure 4.3-7 Alternative 3 and Projected All-terrain Vehicle Trails*	4-340

LIST OF APPENDICES

- | | |
|------------|--|
| Appendix A | Public Law 111-11, Title VI, Subtitle E |
| Appendix B | Parcels Proposed for Exchange and Boundary Adjustment |
| Appendix C | Scoping Report |
| Appendix D | ANILCA Section 810 Analysis of Subsistence Impacts |
| Appendix E | Road Design |
| Appendix F | Mitigation Measures |
| Appendix G | Comment Analysis and Response Report |
| Appendix H | Cultural Resource Report |
| Appendix I | Correspondence Concerning the No Action Alternative |
| Appendix J | Cooperating Agency Correspondence Related to the Preferred Alternative |

LIST OF ACRONYMS

2003 EIS	King Cove Access Project Environmental Impact Statement (USACE 2003)
2013 EIS	<i>Izembek National Wildlife Refuge Land Exchange/Road Corridor Final Environmental Impact Statement</i>
AAC	Alaska Administrative Code
ABR	Alaska Biological Research
Act	Omnibus Public Land Management Act of 2009; Public Law 111-11, Title VI, Subtitle E
ADOT&PF	Alaska Department of Transportation and Public Facilities
AHRS	Alaska Heritage Resources Survey
ANCSA	Alaska Native Claims Settlement Act
ANILCA	Alaska National Interest Lands Conservation Act
AWC	Anadromous Waters Catalog
BSAI	Bering Sea Aleutian Islands
CFR	Code of Federal Regulations
CO ₂ e	Carbon dioxide equivalent
Corps	U.S. Army Corps of Engineers
dB	Decibel; standard unit of sound pressure measurement (amplitude)
dBA	A-weighted decibel
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FHWA	Federal Highway Administration
FMP	Fisheries Management Plan
FY	Fiscal Year
GHG	greenhouse gas
GIS	geographic information system
GOA	Gulf of Alaska
GPS	Global Positioning System
ID	Identification
L _{eq}	equivalent sound level
mi ²	square miles
MM	mitigation measure
mph	miles per hour

NEPA	National Environmental Policy Act
NLCD	National Land Cover Database
NWI	National Wetland Inventory
NWR	National Wildlife Refuge
°F	degrees Fahrenheit
PFAS	per- and polyfluoroalkyl substances
PM ₁₀	particulate matter less than 10 microns in diameter
ppm	parts per million
ROW	Right-of-Way
SC-GHG	social cost of greenhouse gases
Section 404	Section 404 of the Clean Water Act
SEIS	Supplemental Environmental Impact Statement
Selected Lands	King Cove Corporation lands selected under rights under ANCSA
Service	U.S. Fish and & Wildlife Service
SO ₂	sulfur dioxide
U.S.	United States
Unit (#)	State of Alaska Game Management Unit
U.S.C.	United States Code