APPENDIX 2:

ENVIRONMENTAL SETTING

ENVIRONMENTAL SETTING APPENDIX 2

Air Quality

Neither the City of Cordova nor the CRH study area is located in an air quality nonattainment or maintenance area. Therefore, projects receiving federal funds or approvals do not require a conformity analysis under the Transportation Conformity regulations. However, temporary impacts to air quality may occur if any of the project elements advance to construction, resulting from fugitive dust produced from ground disturbance activities, trucks hauling materials to the respective project site, and from increased vehicle exhaust. As such, particular attention will be given during any construction activity to take reasonable precautions, per 18 AAC 50.045(d), to reduce air quality impacts. Abatement measures such as applying water, as needed, to the exposed ground disturbed by the project activities and on roads that the equipment is traveling on would mitigate fugitive dust issues. No permanent impacts to air quality are anticipated.

Under the No Build Alternative, no effects on air quality would occur.

Biological Resources

The Copper River Delta ecosystem has been designated as a Western Hemisphere Shorebird Reserve Network Site of Hemispheric Importance. The Copper River Delta is also one of the most important fisheries in the state. The salmon migrating into the Copper River are a significant resource for subsistence, commercial, and sport fisheries. Subsistence-caught fish provide an important food staple for rural residents and are an integral part of the Alaska Native cultural. In addition to the fishery in the delta area, one of the state's most popular subsistence fishery occurs approximately 80 miles upstream from the Million Dollar Bridge near the community of Chitina. Sport fishing is also very popular along the river's numerous clear water tributaries, as well as in marine waters at its mouth.

Additionally, the commercial salmon fisheries, established in this region during the late 1800s, have developed into a major economic industry in Prince William Sound, harvesting annually upwards of 74 million fish. Furthermore, the Copper River's Chinook and sockeye salmon runs are among the earliest in Alaska, coupled with the fact that these are extremely high-quality fish making it one of the most prized fisheries.

Terrestrial mammals present in the Copper River Delta include brown bears, black bears, weasels, mink, wolverines, river otters, muskrats, wolves, marten, beaver, and porcupines. Moose were first introduced to the Copper River Delta in 1949 and have thrived in the expanding shrub habitats. Harbor seals are also present in the Copper River and some of its tributaries during the summer. Harbor seals are opportunistic predators that take advantage of the abundance of salmon and eulachon that are migrating up the river. Harbor seals are protected under the authority of the Marine Mammal Protection Act of 1972, as amended.

The vegetation within the active floodplain of the study area consists mainly of shrubs, the primary species being Barclay willow, Sitka alder, and sweetgale. Black cottonwood and Sitka spruce trees are often intermixed within the stands of shrubs. Devil's club is ubiquitous throughout the study area. Outside the active floodplain, predominantly in upland areas, are mature forest of western hemlock, Sitka spruce, western red cedar, yellow cedar, and intermittent black spruce.

Climate

The study area is within the productive interface between the marine environment and the coastal rain forest of the North Gulf Coast, characterized by moderate temperatures and abundant precipitation. The mean annual temperature for the area (measured at the airport) is about 38 .3° F (3 .5° C). The mean minimum temperature for January is around 15 .08° F (-9 .4° C) and the mean maximum temperature for August is 61 .34° F (16 .3° C). The area receives a mean annual rainfall of about 90 .94 inches (7 .58 feet or 2 ,310 mm) and the mean annual snowfall is around 121 .65 inches (10 .14 feet or 2 .31 meters). The effects of long-term shifts in temperatures and weather patterns, e. g. climate change, on the Copper River watershed, its delta, and the marine environment of the Gulf of Alaska where the river empties into is hard to predict. Short term predictions could be that snowpack melting begins earlier in the season, which would result in changes to streamflow and the irrespective temperatures should the snowpack dissipate earlier than in the past.

Glaciers in Alaska are melting twice as fast now as they did from 1960 through 2004. In the short term, receding glaciers would produce higher flow rates as they rapidly lose mass, but once the glaciers have melted, the water flowing through their valleys will be greatly reduced since glacier melt water would no longer be contributing to their flow. A significant amount of the water flowing into the Copper River is from glacier melt water. In this regard, climate models predict up to a 40% increase in glacier river runoff from Alaska rivers by 2050. This predicted increase in glacier melt water entering into rivers of Alaska is indicative of how fast these glaciers are melting.

Long term effects to the region from climate change are far more difficult to predict, in part due to the numerous variables that need to be included in the analysis such as, the linkages between changing glaciers, shifting vegetation patterns, sediment transport, associated changes in biogeochemical cycles, and the linkages between land-aquatic and marine components. The Prince William Sound Science Center, in partnership with the National Aeronautics and Space Administration (NASA) and the USGS have initiated a research study to link remotely sensed data to ocean and ground-based process measurements to quantify the nature of these linkages, so that future changes can be detected and referenced to contemporary conditions.

Coastal Resources

The marine waters of the Gulf of Alaska are approximately 16 miles downstream from the CRH at Flag Point (MP 27). The waters overlying the continental shelf and slope of the Gulf of Alaska are some of the most productive in the world, and they are home to some of the United States' most important commercial and recreational fisheries. The Copper River Delta creates barrier islands as it enters the Gulf of Alaska. However, these barrier islands are not a unit of the Coastal Barrier Resource System; thus, the proposed elements in this study would not have any actions subject to the Coastal Barrier Resources Act.

Department of Transportation Act, Section 4(f)

Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 U.S.C. § 303) is a federal policy that requires in part, that special efforts be made to preserve the natural beauty of the countryside and public parks and recreational lands, wildlife and waterfowl refuges, and historical sites.

There are three Section 4(f) resources within the study are: the Million Dollar Bridge, the USFS' Childs Glacier Campground and Recreational Site, and the Copper River Delta Critical Habitat Area.

"Use" of a Section 4(f) property occurs when land is permanently incorporated into a transportation facility, when there is a temporary occupancy that is adverse, or when there is a constructive use. The

process of evaluating and determining whether there is use of a Section 4(f) property cannot occur until after a preferred alternative for the respective element has been selected and its associated potential impacts have been assessed.

Farmlands

There are neither agricultural farms nor aquatic farms within the study area. However, because the CRH study area is further inland than the City of Cordova it receives warmer temperatures and more sunny days during the summer than the coastal area around the City of Cordova. As such, TEC has stated to the DOT&PF that they have an interest in establishing community garden plots on their land for their shareholders if access was reestablished to this area.

Hazardous Materials, Solid Waste, and Pollution Prevention

An October 25, 2023, review of the ADEC 's Contaminated Sites database indicated there were no known contaminated sites for the area within the CRH study area. On September 4, 2019, DOT&PF personnel collected three composite samples of paint chips from the Million Dollar Bridge to determine the presence or absence of lead in the bridge's paint. These samples were submitted to SGS North America, Inc. laboratory for analysis of lead in paint. The sampling area consisted of dividing the bridge into approximately three equal segments, the north end, the middle, and the south end. Paint chips were scraped off the bridge structure along their respective sample segments with the sampler being conscious that the composite sample is to be representative of the entire segment length, i.e., not over or under sampling a particular area.

Historical, Architectural, Archaeological, and Cultural Resources

The historic context evaluated within the CRH route study area are: Prehistory; European contact, circa 1700s; Copper River and Northwestern Railroad; and the Copper River Highway.

There are four previous identified sites along the current CRH alignment within the route study area (MP 27 through MP 51), they are: the Million Dollar Bridge (COR-00005); the CR&NWR's railbed (COR-00398), CR&NWR concrete markers (COR-00562), and: the Copper River Highway (COR-00576). These historic resources all associated with 20th century, Euro-American transportation activities. One site, COR-00398, has a partial DOE for the 1.75-mile segment adjacent to the Merle K. "Mudhole" Smith Airport. Two other sites have received complete DOEs. The Copper River Highway (COR-00576) was determined not eligible for the NRHP in 2015, and the Million Dollar Bridge (COR-00005) was determined eligible for the NRHP under Criterion A and Criterion C in 1996 and listed on the NRHP in 2000.

As part of the CRH route studies, reconnaissance level cultural resource surveys were completed within the area proposed for the new highway alignment around the MP 43.5 washout and at three potential materials sites: MS 851-015-5, which is one the two preferred material sites (Figure 6), MS 851-048-5, which has been eliminated from further discussion at this time, and; the second preferred material site (potential new hardrock quarry) located about ½ mile due east of MP 43 (Figure 7) .

The above referenced surveys were completed during June 2021 and again during September 2022 by DOT&PF staff that met the Secretary of the Interior qualified (SOI-qualified) Cultural Resource Specialist-Archaeologists. The cultural resource surveys were completed entirely within land owned by TEC. The DOT&PF received authorization from TEC to complete these cultural resource surveys prior to the DOT&PF entering their land.

The survey results concluded that no new historic or prehistoric cultural resource sites were identified in any of the surveyed areas and that there was a low potential for uncovering previously undiscovered cultural and/or paleontological resources within the areas surveyed.

Land Use

There is both private and public land within the route study area. The private land is owned by the TEC (surface estate) and Chugach Native Corporation (subsurface). Entering and use of their land requires a permit from TEC. The public land is a mixture of federal and state ownership. The USFS manages the federal land within the study area. Within the CRH route study area, the State of Alaska owns the land below OHW, managed by the DNR with shared responsibilities with the ADF&G.

The route study area is used by the tribal members of the Native Village of Eyak, tourist, and residence for hunting, fishing, snowmachining, boating, ATV use, bird and wildlife viewing, glacier viewing, and photography to name a few. Important ecological research is also conducted within the study area.

Natural Resources and Energy Supply

Southeast of the route study area and northeast from Katalla, Alaska is the Bering River coal fields. The Bering River coal fields are comprised of two low to medium grade bituminous coal deposits, one is located at Kushtaka Mountain and the other at Cunningham Ridge. Kushtaka Mountain is about 23 miles east-southeast of MP 39 of the CRH and approximately 20 miles northeast from Katalla. Cunningham Ridge is approximately 28 miles east-southeast from MP 39 and about 25 miles northeast from Katalla. There is also an anthracite coal deposit at Carbon Mountain, located approximately 34 miles east from MP 39 and about 30.5 miles northeast from Katalla.

The Bering River coal fields have a long history. In 1971, pursuant to the ANCSA, Chugach Alaska Corporation selected 73 ,000 acres for ownership in the Bering River region, which included the Bering River coal fields. A portion of the Bering River coal patent was later transferred to the Korean Alaska Development Corporation (KADCO) when the Chugach Alaska Corporation restructured their finances. The patent retained by KADCO is the anthracite coal deposit at Carbon Mountain, which equates to about 11,000 acres.

The Katalla area is also the location of Alaska's first commercial oilfield. British oil expert Sir Thomas Boverton Redwood first noted the oil potential of Katalla in 1900 and by 1901 the British were drilling in Katalla Meadows, from a depth of 365 feet, pumping at least 50 barrels of oil a day. When the oilfields did not live up to expectations, they sold their interests to a Washington state firm Amalgamated Development; other entities, including Chevon, have also expressed interest in the area. On April 23, 2015 the Cassandra Energy Corporation, based in Nikiski, Alaska submitted an application to the DNR's Division of Oil and Gas (DO&G) for a license to explore for oil and gas in the Gulf of Alaska; their exploration license application covers approximately 65,773 acres located onshore and offshore surrounding Kanak Island from Point Martin south to the Okalee Spit in Controller Bay, including the areas of Katalla. On August 2, 2019, DO&G's Director issued the preliminary finding that the potential benefits of issuing the exploration license outweighs the potential negative effects, and that the Gulf of Alaska Oil and Gas Exploration License issuance will best serve the interests of the state of Alaska. The License Area consists of state-owned, unencumbered land within Township 19-21 S., Range 5-8 E., Copper River Meridian. Only free and unencumbered state-owned subsurface mineral estates are included in the oil and gas exploration license. The exploration license grants the licensee the exclusive right to explore for oil and gas and could subsequently be converted to an oil and gas lease or leases.

Noise and Compatible Land Use

The construction of a new highway alignment around segments of the CRH that was lost to erosion between approximate MP 43.5-MP 45 would be considered a Type I project, as defined in 23 CFR 772. However, the closest receptor in this area is the USFS' Childs Glacier Campground and Recreational Area, located approximately 3 miles away.

The use of a vibratory hammer and/or impact hammer is needed to check the load capacity of the steel piles set for the installation of a new bridge at the NBI # 339 washout. This action would produce loud noise and high underwater sound pressures that could potentially be lethal to fish and have potential to cause Level B harassment to the harbor seals in this area. The loud noise could also cause Level B harassment to bald eagles. To minimize the effects on fish and harbor seals, an air bubble curtain system could be installed to reduce underwater sound pressures from the pile driving activities, as air provides an effective barrier to sound propagating through water due to the difference in density between air and water. Underwater sound tests completed for air bubble curtain systems determined that the sound propagating through deep water was reduced by 20 to 30 decibels close to the pile, and in shallower waters, measurement reductions were 10 to 20 decibels. In consideration of Level B harassment to nesting eagles from the noise produced activities, the ADF&G completed an eagle nest survey, on behalf of the DOT&PF, on July 30, 2021, throughout the CRH's segment. ADF&G established a ½ mile radius around sites that would produce extremely loud noise, such as pile driving activities associated with bridge work and detonation of explosives for quarry site development. ADF&G's eagle survey and results are summarized under the Bald and Golden Eagle Protection Act, below, and their report is provided as at the end of this document.

Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

The Native Village of Eyak is a federally recognized tribe, and their traditional lands extend into the boundaries area of the CRH route study area. The loss of the highway infrastructure within the route study area has essentially curtailed access to prime subsistence areas and areas of cultural significance to the Native Village of Eyak's Tribal Members that had been accessible via the CRH prior to 2011.

Additionally, the Executive Director of the Cordova Chamber of Commerce has stated that "We have also received feedback from locals that access to this area greatly improved their quality of life. Living in a remote community where it is costly and complicated to leave town, Childs Glacier and the Million Dollar Bridge acted as an oasis of fairer weather and slightly varied landscape, an accessible "out of town" destination for much-needed respites and recreational outings. Were road access to be restored to Childs Glacier and the Million Dollar Bridge, it would be of great interest to visitors and locals alike, and add not only economic stimulus through tourism but also quality of life for residents and access for important local agencies to do their work in that region." Since highway access to areas within the CRH study area was lost in 2011, access beyond NBI #339 is only accessible by boat or aircraft. Unless you own a boat or aircraft the only other option to access this area is by chartering these services. Because these charter services are very expensive this option is out of reach for most people's personnel finances, especially the economically disadvantaged. Additionally, Alaska Native populations' close cultural and spiritual relationships with land and marine resources are reflected to a large degree in the entire culture; in part, through their customs and traditions in obtaining, processing, and distributing wild resources. Subsistence harvesting is typically characterized by Alaska Natives as being synonymous with culture, identity, and self-determination.

Therefore, the loss of highway access to prime subsistence areas and areas of cultural significance to the Native Village of Eyak, which existed prior to 2011, has negatively impacted the socioeconomics of minority populations and low-income populations, both of which are protected under Executive Order 12898 (Environmental Justice).

Visual Effects

The Potential Elements and their respective preferred alternatives proposed in the CRH route are not anticipated to have any direct or indirect visual effects within the study area.

Water Resources

The Copper River Delta is a vast 35-mile-wide wetland complex and is the largest continuous wetland along the Pacific coast of North America. A review of the U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory map identifies two wetland types within the Study area; one wetland type is Freshwater Forested/Shrub Wetland, its habitat classification code is PF01C, the other is Riverine, its habitat classification code is R3UBH. Additionally, the Copper River is classified as Waters of the U.S.

Therefore, authorization, under a Section 404 permit, from the USACE will be required to place fill onto wetlands. Additionally, authorization, under Section 10 of the Rivers and Harbors Act, will be required for the construction of any structure in or over any navigable Waters of the United States, including its tributaries. Furthermore, a USCG Bridge Permit will be required if a bridge is to be constructed over the NBI #339 washout.

The Copper River is not a regulated floodway. However, the vast majority of the CRH route study area is within the active floodplain of the Copper River and as such, all Potential Elements and their associated alternatives will be designed to be in compliance with Executive Order 11988, Floodplain Management, so as not to have any adverse impacts or significant encroachment to the floodplain from the associated occupancy and modifications of the floodplain. The Potential Elements of the CRH route would not have any significant long-term impacts to the water quality of the Copper River or its tributaries. Short term impacts could occur from increased turbidity during construction. However, best management practices will be implemented to control and prevent sediment runoff into the streams and wetlands. The DOT&PF will require the awarded contractor to have an approved Storm Water Pollution Prevention Plan (SWPPP) prior to any ground disturbance activities, and installations of silt curtains around the parameters of the work area within the tributaries of the Copper River will occur in order to control turbidity and to prevent the potential burial of fish eggs or alevin.

The area within the Copper River floodplain has a shallow groundwater table and the USFS's Childs Glacier Campground and Recreational Area has three groundwater wells that supply potable water at this site. Therefore, protection of groundwater will be a priority during all construction activities. No fueling or storage of petroleum, oils, or lubricants will be allowed within 200 feet of a surface waterbody.

The Copper River is not one of the rivers designated to be included in the National Wild and Scenic Rivers System.

Bald and Golden Eagle Protection Act

According to The Bald and Golden Eagle Protection Act, Identifying and documenting bald and golden eagle nests is necessary when planning bridge and road repair, blasting quarry sites, or redirecting roadways. As such, the DOT&PF contracted ADF&G to complete an eagle nest survey of the potential action areas within the CRH route study area. ADF&G completed this referenced survey on July 30, 2021.

ADF&G's survey identified three (3) bald eagle nests, two of which had eaglets. No golden eagle nests were observed within the study area.

Cumulative Effects

An analysis of cumulative effects is required as part of NEPA. Cumulative effects are potential impacts on the environment that could result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. In this regard, the narrative below addresses potential future actions, whether they are reasonably foreseeable is certainly debatable. Katalla, AK is located approximately 24.5 air-miles southeast from MP 39 of the CRH. The area of Katalla has large tracts of timber, oil field(s) and coal deposits. Currently, Katalla is only accessible by small plane or boat. As previously stated, Chugach Alaska Corporation sold its patented subsurface coal title to the Bering River coal field to New Forests. New Forests then retired those rights by transferring them to The Nature Conservancy and the local Native Conservancy land trust. As such, these coal field will not be developed. KADCO still retains ownership of the anthracite coal deposit at Carbon Mountain. However, because of the lack of access or loading facilities needed to extract and deliver the coal to international market, and because of the depressed coal prices, which in part is due to nations shifting away from using coal power plants to produce electricity, development of this coal deposit is not economically feasible at this time. Additionally, because of the lack of access to the large tracts of timber around Katalla and the lack of any timber mills being close by, it is not economically feasible to harvest these trees at this time. Regarding Cassandra Energy Corporation's oil and gas exploration license, which includes the Katalla area, if Cassandra Energy Corporation determines through their exploration program testing that developing the Katalla oilfield(s) is economically feasible then it's assumed that having road access to this resource would be advantageous. However, even though Katalla is only 24 .5 air-miles from CRH, the landscape that the road would need to be constructed over is extremely steep mountainous terrain with numerous fast-moving streams that would need to be crossed.

THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

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August 12, 2021

MEMORANDUM

To: William Kulash
Jeff Stutzke
Alaska Department of Transportation and Public Facilities
Fairbanks

From: Charlotte Westing
Wildlife Conservation Division
Alaska Department of Fish and Game
Cordova

Subject: Completion of eagle nest survey on Copper River Highway repair/reconstruction study area.

INTRODUCTION

Identifying and documenting bald eagle (*Haliaeetus leucocephalus)* nests is necessary when planning road repair, blasting quarry sites, or redirecting roadways. Alaska Department of Fish and Game (ADF&G) staff conducted these surveys on behalf of Alaska Department of Transportation and Public Facilities (DOT&PF.) The area of interest follows the existing road corridor of the Copper River Highway starting at the first washout near milepost (MP) 36. An icebreaker supporting the Million Dollar Bridge is in disrepair. Both areas would also require a near-site materials quarry. The road redirect would also require a diversion east of the existing corridor and a corresponding materials site.

Much of the area is dominated by shrub willow and alder complexes (Figure 1). Trees are predominately cottonwood with some spruce and hemlock with increasing elevation. With distance from the river, the terrain becomes increasingly rugged and roosting trees are completely absent (Figure 2 and 3).

METHODS

Areas of interest were delineated by DOT&PF staff using GIS shapefiles (Figure 4). A survey grid of 1 km^2 units was superimposed over polygon features outside of the existing road corridor to standardize search intensity (Figure 5). Each unit of the survey grid was assigned a number for data recording purposes. Forty-three units were assigned but six were eliminated because they did not overlap with any polygon features. Therefore, 37 units were identified for survey.

The survey was conducted using a helicopter (Robinson 44) with one observer in addition to the pilot. Observations of eagles and nests and their corresponding GPS coordinates were recorded. Nests were circled to determine occupancy. Pictures were taken of all active nests observed.

RESULTS AND DISCUSSION

The survey was conducted July 30 starting at approximately 12:00 and finishing at about 17:00 with 4.2 hours of total flying time. Search intensity was approximately 5 min/km^2 and was deemed appropriate for sparse forest cover. Eight bald eagles were observed through the course of the survey (Figure 6). Three nests were observed two of which were active (Figures 7 and 8), one was inactive. The two active nests contained eaglets (Table 1). No golden eagle (*Aquila chrysaetos*) nests were observed in the survey area.

Table 1: Observations of birds and nest in CRH area of interest during July 30, 2021 survey.

SU	Birds	Nests	Eaglet Count	Lat/Long[a]
3	1	0	0	N60.51892 W144.84524
Corridor East	1	0	0	N60.57135 W144.77197
5	1	0	0	N60.58433 W144.74743
17	1	0	0	N60.61200 W144.75735
22	2	1	1	N60.66861 W144.76167
Corridor West	1	1	2	N60.55905 W144.79375
32	0	1	0	N60.53831 W144.79923
31	1	0	0	N60.70816 W144.71463

[a] Lat/Long collected in geographic coordinate system WGS84

ADF&G will continue to provide support on biological data collection for this and other potential projects whenever possible.

Figure 1: Area of road washout near MP 43 demonstrating predominant habitat and roosting trees.

Figure 2: Area near redirect quarry in survey units 6 and 9. Dominated by shrubs with no roosting trees.

Figure 3: Area near redirect quarry in survey units 7 and 9. Dominated by shrubs with few roosting trees.

Figure 4: Copper River Highway with areas of interest identified.

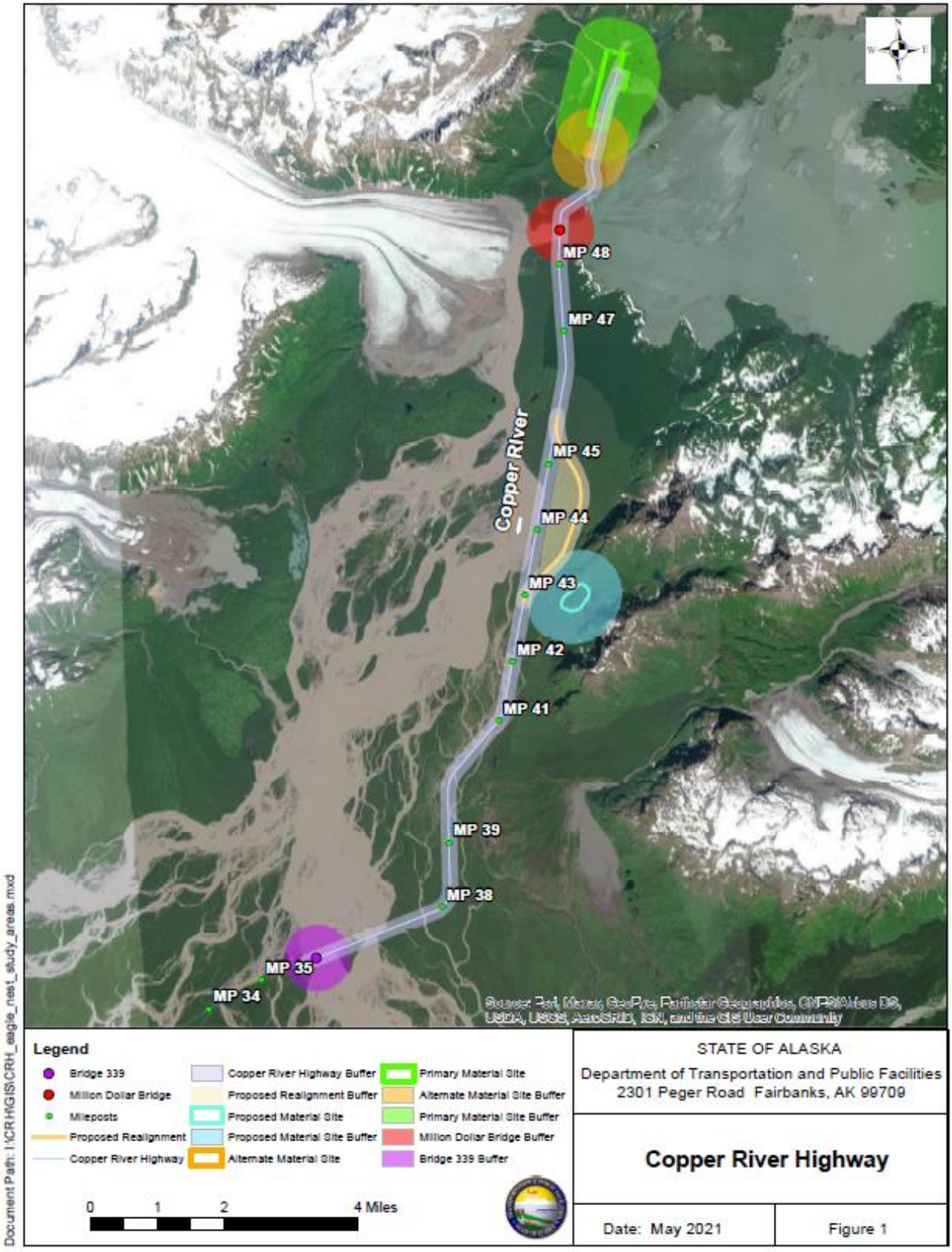

Figure 5: Copper River Highway with areas of interest identified and survey grid superimposed.

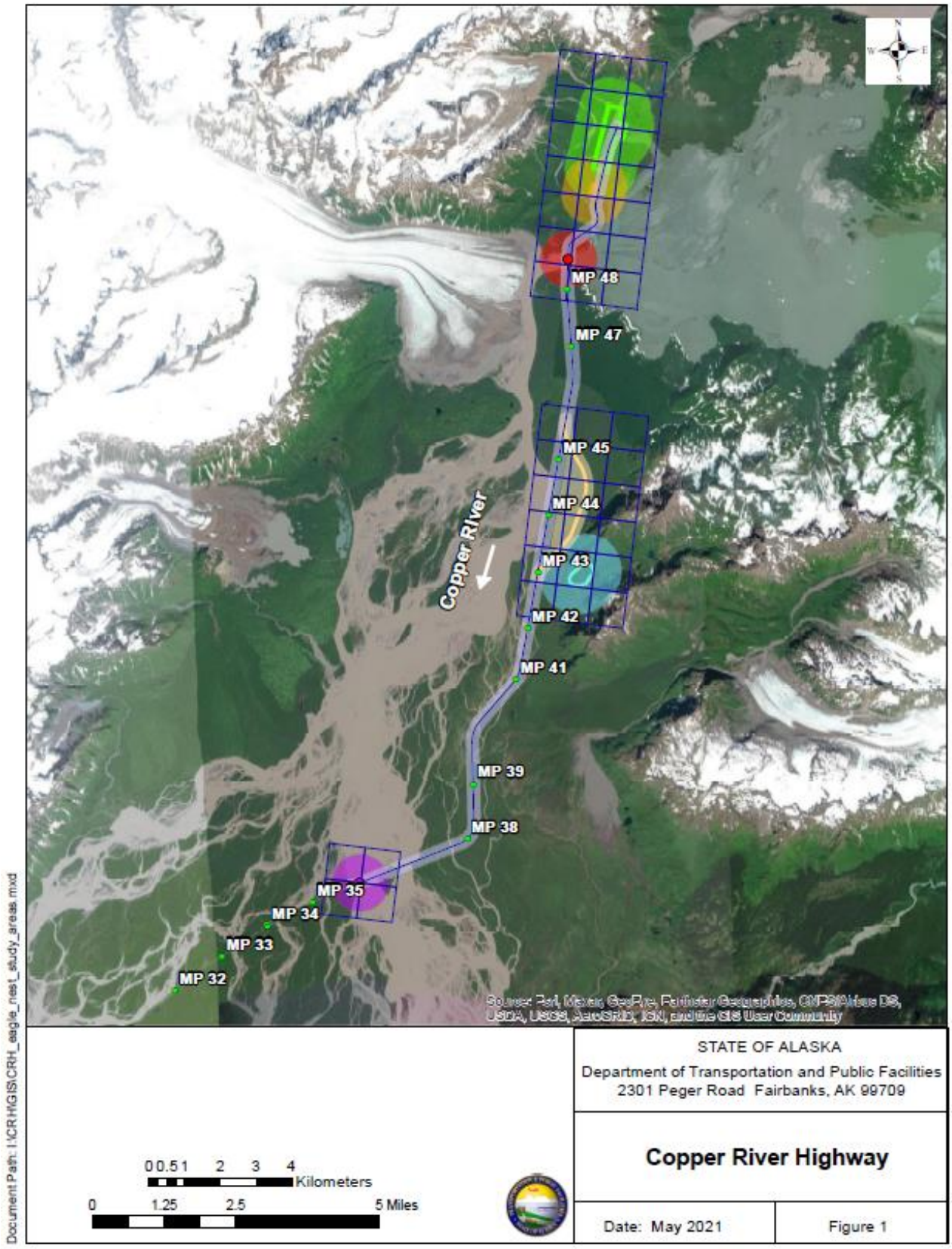

Figure 6: Bald Eagles and Bald Eagle nests observed.

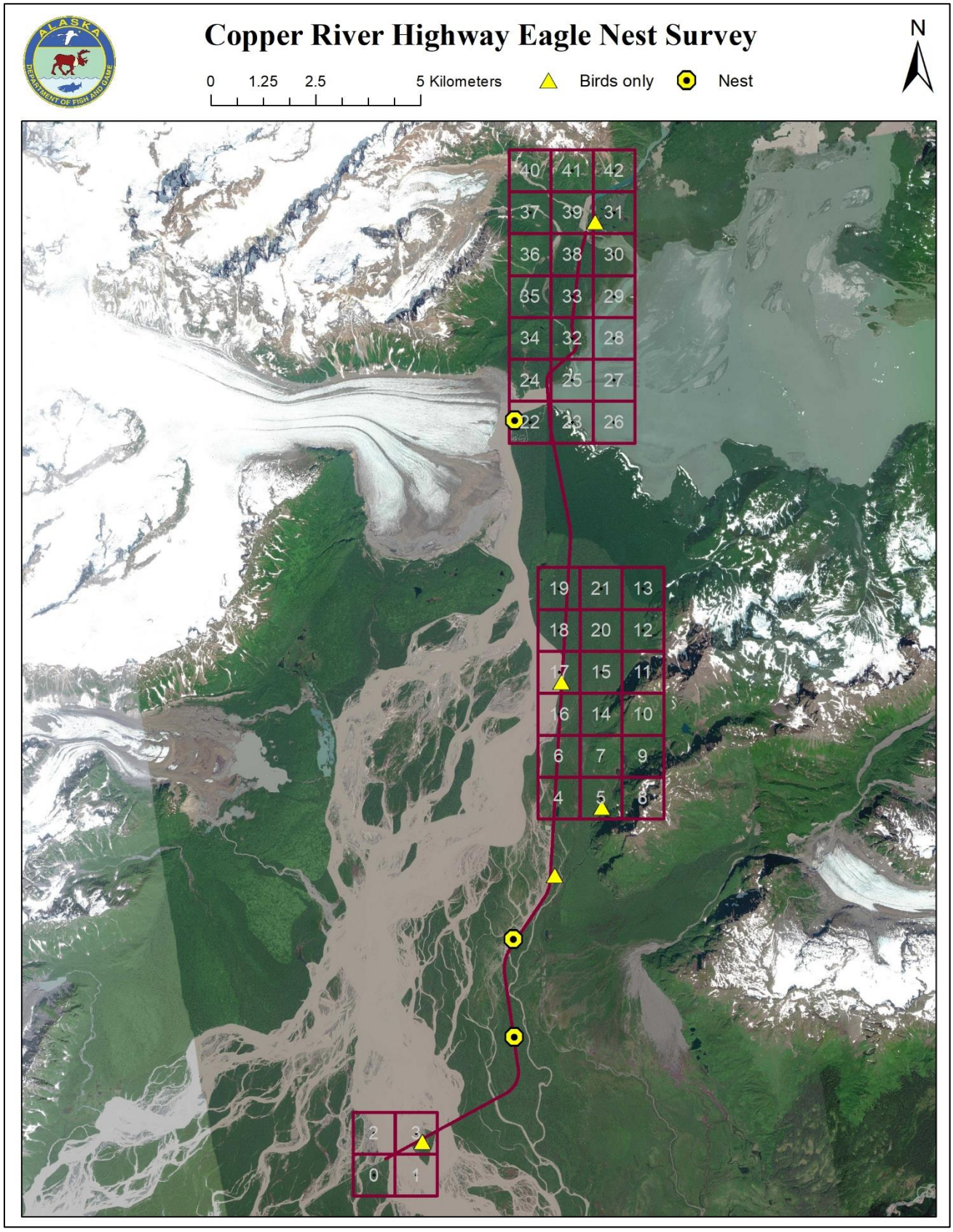

Figure 7: Active eagle nest in survey unit 22. One eaglet present.

Figure 8: Active eagle nest in road corridor. Two eaglets present.