



APPENDIX 5:

Previous Studies, Reports and Other Findings
Summary Report



JUNEAU DOUGLAS SECOND CROSSING PLANNING AND ENVIRONMENTAL LINKAGES (PEL) STUDY

Summary of Previous Studies, Reports, and Findings

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ACRONYMS

ADEC.....	Alaska Department of Environmental Conservation
ADT	Average Daily Traffic
AHRS.....	Alaska Heritage Resources Survey
AMHS	Alaska Marine Highway System
ANILCA.....	Alaska Native Interests Conservation Act
AWTP	Area Wide Transportation Plan
CBJ.....	City and Borough of Juneau
CZM.....	Coastal Zone Management
DEIS	Draft Environmental Impact Statement
DHV	Design Hourly Rate
DOL	Department of Labor
DOT&PF	Department of Transportation and Public Facilities
EDP	Economic Development Plan
EFH	Essential Fish Habitat
EIS.....	Environmental Impact Statement
FAA.....	Federal Aviation Administration
FEMA.....	Federal Emergency Management Administration
FHWA	Federal Highway Administration
GAM	Geotechnical Asset Management
HPCM.....	Highway Preconstruction Manual
LOS	Level of Service
LRTP	Long Range Transportation Plan
M&O	Maintenance and Operations
MHW.....	Mean High Water
MLLW	Mean Lower Low Water
MWSGR.....	Mendenhall Wetlands State Game Refuge
NAC	Noise Abatement Criteria
NOAA	National Oceanic and Atmospheric Administration
NWI.....	National Wetlands Institute
NEPA.....	National Environmental Policy Act
PEL.....	Planning and Environmental Linkages
SATP	Southeast Alaska Transportation Plan
TDM.....	Transportation Demand Management
TSM.....	Transportation System Management
USCG	United States Coast Guard
USFWS.....	United States Fish and Wildlife Service
VPD	Vehicles per Day
WDCP.....	West Douglas Concept Plan

1.0 INTRODUCTION

This summary of previous studies, reports, and findings documents work previously completed for a second channel crossing between Juneau and Douglas Island. Documents summarized have been divided into the following categories:

- Background Studies and Reports:
 - o Second Gastineau Channel Crossing Feasibility Study (February 1984)
 - o A Proposed Roadway Corridor of Douglas Island Bench Road Kowee Creek to Fish Creek Road (January 1984)
 - o The North Channel Crossing – The Time to Begin is Now: Research and Analysis of Historical Information in the Context of Current Planning (October 1997)
 - o Preliminary Scoping Report, November 2004, Project No. 68540/HP-0954(18) (November 2004)
 - o Draft Environmental Impact Statement: Project Development Summary Report, Juneau Second Crossing (May 2005)
 - o North Douglas Crossing Public Involvement Project to Identify Juneau's Preferred Route for a Crossing of Gastineau Channel (April 2007)
- Other Department of Transportation and Public Facilities (DOT&PF) Plans and Documents:
 - o Alaska Long Range Transportation Plan Update: Let's Keep Moving 2036
 - o Draft Southeast Alaska Transportation Plan
- City and Borough of Juneau (CBJ) Plans and Studies
 - o West Douglas Conceptual Plan (May 1997)
 - o Comprehensive Plan Update (2013)
 - o CBJ Area Wide Transportation Plan Volume I (2001)
 - o Douglas Highway Corridor Traffic Study (1996)
 - o Juneau Economic Development Plan (2015)

The team evaluated the prior studies to assess the validity of the baseline data for inclusion in the PEL Study and to make recommendations about what data should be updated for an effective and useful Planning and Environmental Linkages (PEL) Study that may be incorporated into a future National Environmental Policy Act (NEPA) process. This background

information is included to inform and provide perspective for the current study and should not be interpreted as a continuation of prior work efforts.

2.0 BACKGROUND STUDIES AND REPORTS

2.1 Second Gastineau Channel Crossing Feasibility Study (February 1984)

The Second Gastineau Channel Crossing Feasibility Study was conducted during 1983 and concluded in February 1984. The Study spanned several phases and produced eight separate deliverables:

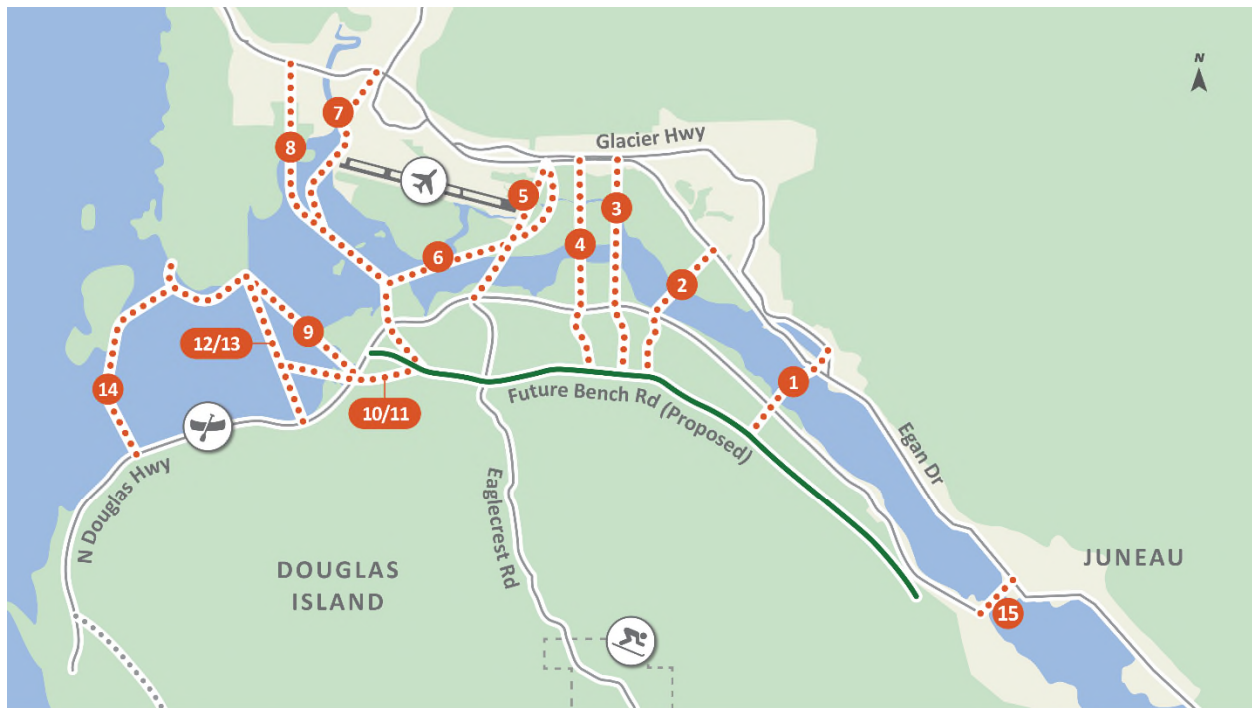
- Phase 1 Report
- Resident Survey Analysis
- Population Projections
- Formation of a Project Policy Committee
- Preliminary Alternatives Report
- Transcript of Public Hearings (three total)
- Phase 2 Report
- Final Project Report

The Feasibility Study considered the need for a second crossing from Juneau to Douglas Island between Salmon Creek to the Outer Mendenhall Peninsula. The study was based on analyses and studies of data including population growth, land uses, environmental conditions, traffic projections, existing and planned transportation facilities, preliminary engineering considerations and costs, potential development opportunities and impacts, and public policy (funding, regulatory requirements, policy constraints). A total of 15 different alternative routes were considered, which included a no-crossing alternative and other facilities to support routes such as a proposed Bench Road. The study then established a range of evaluation criteria for considering each of the alternatives, which were ranked from preferred to least preferred. The study made the following assumptions:

- Population growth of three percent annually
- Significant growth on north Douglas Island
- Growth of north Douglas population would increase traffic and need for public and private services and facilities
- Planning on north Douglas should not repeat the problems experienced in Mendenhall Valley growth. Note that these problems were not expounded on in the summary report.
- Emphasize the most economic and least damaging methods for moving to/from north Douglas

- Two-thirds of CBJ residents were in favor of a second crossing
- Planning for population growth on north Douglas should protect the existing population in the area as many north Douglas residents believed it was possible to prevent further development on north Douglas
- Majority of CBJ residents considered the Mendenhall Wetlands State Game Refuge (MWSGR) one of the most valuable resources in the area
- All alternatives include widening North Douglas Highway and/or constructing a new Bench Road on Douglas Island

The study identified 15 alternatives that were grouped into three categories: no-crossing alternative, alternatives as far away from the wetlands as practicable, and crossing the wetlands using the shortest route possible (refer to Figure below). The 2005 Draft Environmental Impact Statement (DEIS) (Section 2.6) briefly summarized the alternatives, and the summary has been carried forward into this report. The DEIS noted the analyses of potential land use and environmental impacts, transportation benefits, engineering costs and requirements, regulatory implications for each alternative came directly from the Feasibility Study (i.e., none of the 1984 conclusions were verified or updated for the DEIS), and all cost figures are in 1984 dollars.



ALTERNATIVES

- | | | |
|-----------------------|--|--------------------------------------|
| 1 Salmon Creek | 6 9 Mile Creek Bluff – 8 mile | 10-11 Engineers "B" / Fritz Cove "A" |
| 2 Vanderbilt Hill | 7 9 Mile Creek Bluff – Mendenhall Loop | 12-13 Engineers "C" / Fritz Cove "B" |
| 3 East Sunny Point | 8 9 Mile Creek Bluff – Industrial Blvd | 14 Spuhn Island |
| 4 West Sunny Point | 9 Engineers "A" | 15 No-Crossing |
| 5 Eaglecrest – 8 mile | | |

2.1.1 Alternative 1 – Salmon Creek

The Salmon Creek alternative extended from Egan Drive at Salmon Creek to the North Douglas Highway (or possibly to a new Bench Road). It would be located two and one-half miles northwest from the existing Douglas Island Bridge, serving almost the same purpose as would a new bridge at the existing site. New development in North Douglas would access the bridge via North Douglas Highway (or the new Bench Road). The benefit of this route to north Douglas development was determined to be minimal due to lengthy travel times from the Mendenhall Valley.

Effects of the Salmon Creek alternative on the MWSGR could be kept to a minimum if hydraulic flows were taken into consideration during design. Potential impacts to Salmon Creek, an anadromous fish stream, could be avoided by routing the alternative to avoid the stream. This route would require approximately 1,600 feet of fill, which would likely affect wetlands productivity.

Some congestion on the existing bridge would probably be relieved following construction of this alternative; however, a significant amount of congestion relief would occur only if a Bench Road were also constructed on Douglas Island. Travel times between the valley and north Douglas would not be significantly reduced because of the Salmon Creek alternative.

This alternative was estimated to cost approximately \$10 million to construct, not including the Bench Road or major intersection improvements. It would require construction of a medium span bridge approximately 990 feet long.

Construction of the Salmon Creek route would result in permanent disruption of the existing neighborhood on the North Douglas side of the crossing. This alternative could avoid crossing MWSGR; therefore, a Section 4(f) statement would not be necessary, although the need for an Environmental Impact Statement (EIS) was identified. No political or regulatory problems or delays were anticipated. Table 1 sets out the advantages and disadvantages of the Salmon Creek Alternative:

Table 1: Alternative 1 – Salmon Creek Advantages and Disadvantages

Advantages	Disadvantages
• Minimal land acquisition required • Low impact in MWSGR • Relatively low likelihood of regulatory issues • Low cost/narrow crossing location	• Minimal benefit to north Douglas development • Minimal traffic congestion benefits unless Bench Road is also constructed • No reduction in travel times • Disruption of neighborhood on Douglas Island

2.1.2 Alternative 2 – Vanderbilt Hill Road

The Vanderbilt Hill alternative extended from the Lemon Creek intersection at Egan Drive to the North Douglas Highway, approximately four miles northwest from the existing Douglas Island Bridge. It would require the acquisition of private lands on the Douglas Island side of the channel but would connect directly with the Vanderbilt Hill Road intersection on the mainland side, requiring only public lands there.

This route crossed the mouth of Vanderbilt Creek, an anadromous fish stream, necessitating special design and construction considerations. The route would span the MWSGR with approximately 3,000 feet of fill and 1,000 feet of bridge. It was estimated that much of the area at this crossing location was inundated during a large portion of the tidal cycle and likely had a lower productivity value than areas that were exposed for longer periods. Several culverts would be required to maintain hydraulic flow. This crossing would be highly visible from Egan Drive, but primarily against a backdrop of existing structures (e.g., the present Douglas Island Bridge, large buildings, two radio towers), not interfering with the natural vista.

The Vanderbilt Hill alternative would share many of the same transportation aspects as the Salmon Creek alternative. Some relief of North Douglas congestion on the existing bridge would probably occur, particularly if the route were constructed in conjunction with a Bench Road. As with the Salmon Creek route, travel times between the Mendenhall Valley and North Douglas would not be significantly reduced with this alternative.

This crossing was estimated to cost approximately \$10 million, and the length of the bridge span would be approximately 990 feet. This alternative would require at least a four-way intersection at the site of the Vanderbilt Hill Road intersection.

Construction of the Vanderbilt Hill alternative would result in permanent disruption of existing neighborhoods on the north Douglas side of the crossing. Unlike the Salmon Creek route, this alternative would cross directly over MWSGR lands, which would require the preparation of a Section 4(f) Statement in conjunction with the EIS. Aside from concerns related to MWSGR and Section 4(f) implications, the study concluded that this alternative would likely not present significant regulatory problems and that no political problems or delays were anticipated. Table 2 sets out the advantages and disadvantages of the Vanderbilt Hill Road Alternative:

Table 2: Alternative 2 – Vanderbilt Hill Road Advantages and Disadvantages

Advantages	Disadvantages
• Minimal land acquisition required • Relatively low likelihood of regulatory issues • Low cost	• Minimal traffic congestion benefits unless Bench Road is also constructed • Impact on MWSGR and an anadromous fish stream • High visibility • Minimal reduction in travel times • Disruption of a neighborhood on Douglas Island

2.1.3 Alternative 3 – East Sunny Point

The East Sunny Point alternative extended from the east side of Sunny Point to the North Douglas Highway via Hendrickson Point on Douglas Island, a location approximately five miles northwest from the existing Douglas Island Bridge. Most of the property needed for this alternative on Douglas Island was owned by CBJ, but it would require acquisition of some private lands on Douglas Island. Depending on design it could possibly be limited to a single private lot (as of 1984). The intersection with Egan Drive would be at an existing intersection and require no acquisition of private lands.

The East Sunny Point route would require approximately 4,200 feet of fill in the MWSGR. This area is near a popular turnout for access and viewing, as well as a small interpretive site. This crossing would be highly visible from the turnout, from Egan Drive, and from the east side of Sunny Point, a developing residential area. The construction of this alternative would not likely impact any anadromous streams. Mallards used this area along the southwest side of Egan Drive for nesting, and placement of fill in this area could eliminate nesting sites and/or change the hydrology of the area enough to render nesting habitat unsuitable, particularly on the upstream side of the channel crossing.

The East Sunny Point route would create a larger diversion of North Douglas- and Valley-generated traffic away from the North Douglas Highway than would the Salmon Creek or Vanderbilt Hill routes. This route would have a meaningful (beneficial) impact on traffic loads on the existing bridge and would begin to shorten travel times between the Valley and North Douglas substantially, as the distance would be reduced by over 50 percent.

This crossing was estimated to cost slightly more than \$11 million and would include a bridge span of approximately 990 feet. A four-way intersection at the site of the present Switzer Creek intersection would be required and would likely need substantial additional upgrading in the future due to increased congestion.

Construction of the East Sunny Point alternative would create a permanent disruption of an existing neighborhood through increased traffic on the North Douglas Highway, but the number of households would decrease from the two previously discussed alternatives. This alternative would cross the MWSGR in an area with observed waterfowl nesting and high plant productivity. In addition, the high visibility of this alternative makes it subject to a significant amount of public objection. Because of its relatively low cost, this route would not likely involve political problems or delays. Table 3 sets out the advantages and disadvantages of the East Sunny Point Alternative:

Table 3: Alternative 3 – East Sunny Point Advantages and Disadvantages

Advantages	Disadvantages
• Substantial benefit to north Douglas development • Traffic congestion benefits • Reduced travel times • Minimal land acquisition required • Low cost	• Impact on MWSGR • High visibility • Disruption of neighborhood on Douglas Island through increased traffic • Relatively high likelihood of regulatory issues

2.1.4 Alternative 4 – West Sunny Point

The West Sunny Point alternative extended from the west side of Sunny Point to a point located at about mile six on the North Douglas Highway, or about six miles northwest from the existing Douglas Island Bridge. Like the East Sunny Point route, this alternative would require limited acquisition of private lands on Douglas Island, consisting of a strip of privately owned land one lot deep along the highway and one private dwelling. It would also require CBJ-owned land. At the time of the 1984 study, land ownership on the mainland side of the crossing (at Egan Drive) had not been determined; however, there were no structures or improvements on the land needed for the crossing.

The mainland side of the crossing would intersect Egan Drive at a highly productive spring feeding site for the Vancouver Canada Goose and other waterfowl, likely permanently eliminating this important foraging habitat. It would transect a popular hunting area and would likely result in the closure of substantial portions of the MWSGR to hunting. This crossing would be highly visible from Egan Drive to both eastbound and westbound drivers, creating an undesirable visual impact. This crossing would also substantially impact the view of residents of the west side of Sunny Point.

The West Sunny Point alternative would provide substantial travel time reductions between the Mendenhall Valley and north Douglas. This route could also divert traffic from the North Douglas Highway headed to downtown Juneau, as an alternative to using the existing Douglas Island Bridge.

This crossing was estimated to cost slightly less than \$11 million. It would include a bridge span of approximately 990 feet. A new intersection at Egan Drive would be required and located in an area where a complex of roads and intersections currently exist. Consolidation of the existing intersections would likely need to be considered. Construction of the West Sunny Point alternative would result in permanent disruption of the Sunny Point neighborhood and would substantially impact the MWSGR. It was expected that significant public objection would occur with this crossing alternative. Because of its relatively low cost, delays or tradeoffs from competing projects were considered unlikely. Table 4 sets out the advantages and disadvantages of the West Sunny Point Alternative:

Table 4: Alternative 4 – West Sunny Point Advantages and Disadvantages

Advantages	Disadvantages
• Substantial benefit to north Douglas development • Traffic congestion benefits • Substantially reduced travel times • Low cost	• Substantial impacts on MWSGR and an anadromous fish stream • Fairly complex land acquisition required • High visibility • Disruption of neighborhood on mainland • Relatively high likelihood of regulatory issues

2.1.5 Alternative 5 – Eaglecrest to 8 Mile Egan

This alternative extended from the Eaglecrest Road intersection with North Douglas Highway to Egan Drive (8 mile) on the mainland. The Douglas Island side of the crossing would be located approximately six miles from the existing bridge. At the time of the 1984 study, land ownership on the mainland side of the crossing (at Egan Drive) had not been determined; however, there were no structures or improvements on the land needed for the crossing. The Eaglecrest Road area, which was identified in the Comprehensive Plan as potential new development area, would benefit from this alternative.

The route would span the MWSGR with approximately 7,000 feet of fill, and would impact highly productive wetlands, which provide good waterfowl habitat. Like the East and West Sunny Point alternatives, the mainland side of the crossing would intersect Egan Drive in an area used by mallards for nesting and by the Vancouver Canada Goose and other waterfowl for foraging. The Eaglecrest-8 Mile Egan alternative would impact a popular hunting area and would likely result in the closure of substantial portions of the MWSGR to hunting. This crossing would be highly

visible from Egan Drive and from the west side of Sunny Point; however, it would be located close to the airport and viewed against a backdrop of the airport runway and other structures already present in the vicinity.

The Eaglecrest-8 Mile Egan alternative would divert most of the north Douglas traffic away from the North Douglas Highway between the existing bridge and Eaglecrest Road. This would have a pronounced effect on the transportation in the entire area, particularly if built in connection with a Bench Road, and would provide substantial travel time reductions to and from most destinations in the Juneau area. A “loop concept” comprised of Egan Drive, a Bench Road, the existing bridge, and this alternative (serving as a minor arterial) would channel traffic from collector routes such as Mendenhall Loop Road and those connecting the North Douglas Highway to the Bench Road to other arterials and on to various destinations. The four legs of the loop would therefore work together to divert congestion from each other.

This crossing was estimated to cost between \$12 and \$18 million, with fill or trestles, and a bridge span of 1,000 feet. A three-way, controlled intersection at Egan Drive would be required. This alternative would require fill at its approach to Douglas Island to assure adequate clearance height over the channel, and construction on fill as the crossing approaches Egan Drive in the vicinity of the airport runway.

Construction of the Eaglecrest to 8 Mile Egan alternative would result in some permanent disruption of an existing neighborhood on Douglas Island, although construction of the Bench Road would mitigate those effects. This alternative could produce strong public opposition due to impacts on the MWSGR and waterfowl habitat. Because of its relatively low cost, this route would not likely involve political problems or delays. Table 5 sets out the advantages and disadvantages of the Eaglecrest-8 Mile Egan Alternative

Table 5: Alternative 5 – Eaglecrest to 8 Mile Advantages and Disadvantages

Advantages	Disadvantages
• Substantial benefit to north Douglas development • Substantial traffic congestion benefits • Substantially reduced travel times • Low cost • Benefits to Eaglecrest development area	• Substantial impacts on MWSGR • Fairly complex land acquisition required • High visibility • Disruption of neighborhood on Douglas Island • Relatively high likelihood of regulatory issues

2.1.6 Alternative 6 – Nine Mile Creek Bluff to 8 Mile Egan

This alternative extended from the vicinity of Nine Mile Creek on Douglas Island to Egan Drive on the mainland. The Douglas Island side of the crossing would be located about seven miles from the existing Douglas Island Bridge, while the mainland side would be located approximately six miles from the existing bridge. This route would require construction across the Eaglecrest Rock Quarry to an intersection with Eaglecrest Road about a mile inland from the Eaglecrest Road-North Douglas Highway intersection. It would make use of CBJ-owned right-of-way on uplands near Nine Mile Creek Bluff on Douglas Island. At the time of the 1984 study land ownership on the mainland side of the crossing (at Egan Drive) had not been determined; however, there were no structures or improvements on the land needed for the crossing.

Development areas in the vicinity of Eaglecrest Road on Douglas Island would be well-served by this alternative.

The Nine Mile Creek Bluff-8 Mile Egan route would remove upland spruce/hemlock forest area on Douglas Island. It would span the MWSGR with approximately 11,000 feet of fill and would impact highly productive wetlands that provide good waterfowl habitat. The mainland side of the crossing would intersect Egan Drive in the area used by mallards for nesting, by the Vancouver Canada Goose and other waterfowl for foraging, and impact a popular hunting area. Construction of this route would have additional impacts on the MWSGR, with a longer fill area parallel to the airport runway and a crossing of Jordan Creek that would also require additional fill. Jordan Creek was a designated anadromous fish stream requiring special consideration if this alternative were chosen. Due to the length and location of this route, special modeling to ensure proper maintenance of hydraulic flow in impacted wetland areas would likely be required. Visibility of this alternative would be like that of the Eaglecrest-8 Mile Egan alternative.

This route shared nearly all the transportation aspects of the Eaglecrest-8 Mile Egan route, including the applicability of the loop concept. The Douglas Island terminus of this alternative extended further towards potential new development areas than did the previous alternative, which strengthened the loop concept slightly. New north Douglas traffic would be diverted about a mile to the west of Eaglecrest Road, creating a neutral or positive impact on residential settings located on the downtown side of the proposed alignment.

This crossing was estimated to cost approximately \$12 million, with a bridge span of 770 feet across the channel, plus a 110-foot bridge across Jordan Creek parallel to the airport runway. A controlled intersection would be required where this route would cross the North Douglas Highway, and another intersection may be required where it meets Eaglecrest Road. Like the Eaglecrest-8 Mile Egan route, this alternative would require construction on fill where the alternative parallels the runway and then around the runway to Egan Drive. This alternative would substantially impact the MWSGR and was expected to produce even stronger public support for protection of the MWSGR than the Eaglecrest-8 Mile Egan route since it also crosses Jordan Creek. Regulatory delays and complexities would be likely. Because of its relatively low cost, this route would not involve political problems or delays. Table 6 sets out the advantages and disadvantages of the Nine Mile Creek Bluff-8 Mile Egan Alternative.

Table 6: Alternative 6 – Nine Mile Creek Bluff to 8 Mile Egan Advantages and Disadvantages

Advantages	Disadvantages
• Substantial benefit to north Douglas development • Substantial traffic congestion benefits • Substantially reduced travel times • Low costs • Benefits to Eaglecrest development area	• Substantial impacts on MWSGR and an anadromous fish stream • Fairly complex land acquisition required • High visibility • Disruption of neighborhood on Douglas Island • Relatively high likelihood of regulatory issues

2.1.7 Alternative 7 – Nine Mile Creek Bluff to Mendenhall Loop/Egan Drive Intersection

This alternative initiated at the same point on Douglas Island as the Nine Mile Bluff-8 Mile Egan alternative, requiring construction across the Eaglecrest Rock Quarry from an intersection with Eaglecrest Road about a mile from the Eaglecrest Road-North Douglas Highway intersection. It would follow an alignment across the channel to the west of the airport (east of the Mendenhall River) and would then extend to the Old Glacier Highway intersection with Mendenhall Loop Road at the existing traffic light on Egan Drive. On the mainland side of the crossing, this route would require right-of-way acquisition through the commercial area from the intersection of Alex Holden Way along the Glacier Highway and Mendenhall Loop Road to Egan Drive. Land acquisition costs for this alternative was projected to be the most expensive of all the alternatives proposed, based on increasing property values in the commercial area and the need to acquire airport land.

The Nine Mile Creek Bluff-Mendenhall Loop route would span the MWSGR with approximately 2,500 feet of fill and would closely parallel Duck Creek along the border of the airport property. This route would also impact waterfowl habitat along the edge of the float plane pond, and the presence of the crossing would substantially decrease the recreational experience (hiking, bird watching) of the area.

This route would form the most direct leg of the loop concept of all the proposed alternatives and would provide a direct link between north Douglas and the Mendenhall Valley. Of all the alternatives proposed in the 1984 study, this alternative would provide the greatest reduction in travel time between the Valley and north Douglas. Construction of this route would require the abandonment of 300 feet of existing airport runway to conform to Federal Aviation Administration (FAA) clearance requirements.

The Nine Mile Creek-Mendenhall Loop route was estimated to cost approximately \$11 million. It would require a single bridge span of about 770 feet across the channel. A controlled intersection would be required where this route would cross the north Douglas Highway, and another intersection may be required where it meets Eaglecrest Road. On the mainland, this route would require the eventual construction of a grade-separated interchange at the intersection of Mendenhall Loop Road and Egan Drive, an intersection that had been programmed by DOT&PF independent of a new crossing. Construction of this crossing would require a 300-foot extension to the east end of the airport runway, widening of Mendenhall Loop Road between the traffic light and Glacier Highway, and additional upgrades to Glacier Highway beyond those planned in the 1984 DOT&PF appropriations.

This route would have similar impacts on Douglas Island neighborhoods as the Nine Mile Creek Bluff-8 Mile Egan alternative but would also significantly impact existing neighborhoods and commercial areas near the airport on the mainland. Construction of a four-lane minor arterial through this area would disrupt adjacent residences, although commercial interests could benefit. The Nine Mile Creek Bluff-Mendenhall Loop Road alternative would impact the MWSGR to a lesser extent than other routes near the airport. However, it would impact popular public recreational areas, and objections might also be raised over potential environmental impacts to Duck Creek. Because of its relatively low cost, this route would not likely involve political problems or delays. Table 7 sets out the advantages and disadvantages of the Nine Mile Creek Bluff-Mendenhall Loop/Egan Drive Alternative

Table 7: Alternative 7 – Nine Mile Creek Bluff to Mendenhall Loop/Egan Drive Intersection Advantages and Disadvantages

Advantages	Disadvantages
• Substantial benefit to North Douglas development • Substantial traffic congestion benefits • Substantially reduced travel times • Low cost • Potential benefits to commercial interests on mainland	• Substantial impacts on MWSGR and a stream of concern • Costly land acquisition required • High visibility • Disruption of neighborhoods on Douglas Island and mainland • Impacts to the Juneau International Airport • Relatively high likelihood of regulatory issues

2.1.8 Alternative 8 – Nine Mile Creek to Industrial Boulevard

This alternative initiated at the same point on Douglas Island as the other Nine Mile Creek Bluff alternatives and would follow the same alignment across the channel until it reached the Mendenhall River at the southwest corner of the airport runway. This route would cross the Mendenhall River, follow the river until it intersected with the southern tip of Industrial Boulevard, and then follow Industrial Boulevard to its intersection with the Glacier Highway. On the mainland side of the crossing, land acquisition for right-of-way would be complex. The commercial and industrial nature of the zoning in this area created high land values for at least part of the right-of-way and any additional lands required for the route.

The Nine Mile Creek Bluff-Industrial Boulevard alternative would span the MWSGR with approximately 5,600 feet of fill. In addition, this route would require construction of a bridge across the Mendenhall River, a designated anadromous fish stream. Construction of this alternative would probably not affect hunting in this area, although it is likely that hunting would be curtailed to protect private property. All other environmental concerns involved with the Nine Mile Creek Bluff-Mendenhall Loop Road would also apply to the alternative.

This route would be an effective leg in the loop concept but would not have the direct loop benefits of the Nine Mile Creek Bluff-Mendenhall Loop Road alternative. This alternative would require that traffic from Mendenhall Loop Road and other Egan Drive collector roads be split between that headed towards Douglas Island and that headed towards downtown. A substantial amount of north Douglas traffic would be diverted from new growth areas and some existing areas of development by this crossing alignment. This route would eventually result in congestion on the Glacier Highway between the Industrial Boulevard and Mendenhall Loop Road intersections.

The Nine Mile Creek Bluff-Industrial Boulevard route was estimated to cost approximately \$13 million. It would have a bridge span of about 770 feet across the channel and a bridge span of about 330 feet across the Mendenhall River. A controlled intersection would be required where this route would cross the north Douglas Highway, and another intersection may be required where it meets Eaglecrest Road. On the mainland, this route would require the eventual widening of the Glacier Highway between Industrial Boulevard and the Mendenhall Loop Road intersection, a cost included in the overall cost stated above.

Construction of this crossing would have similar impacts on Douglas Island neighborhoods as the Nine Mile Creek Bluff-Mendenhall Loop Road alternative. On the mainland, only commercial and industrial interests would be impacted by this route (potentially in a positive manner) as there were no neighborhoods in the Industrial Boulevard area. The Nine Mile Creek Bluff-Industrial Boulevard alternative would impact the MWSGR to a similar extent as other routes near the airport. However, the longer length of this route and the presence of a bridge over the Mendenhall River would likely result in more objections and regulatory delays than those for the Nine Mile Creek Bluff-Mendenhall Loop Road alternative. Table 8 sets out the advantages and disadvantages of the Nine Mile Creek to Industrial Boulevard Alternative:

Table 8: Alternative 8 – Nine Mile Creek to Industrial Boulevard Advantages and Disadvantages

Advantages	Disadvantages
• Substantial benefit to north Douglas development • Substantial traffic congestion benefits • Substantially reduced travel times • Low cost	• Substantial impacts to MWSGR • River crossing required • Fairly complex and costly land acquisition required • High visibility • Relatively high likelihood of regulatory issues

2.1.9 Alternative 9 – Engineer’s Cutoff “A”

This alternative initiated at Hut Point on north Douglas Island and joined Engineer’s Cutoff Road at its terminus on Mendenhall Peninsula. It consisted of two bridges, one to cross Gastineau Channel and one to cross Mendenhall River. This alternative would traverse a section of CBJ-owned land on North Douglas and would either border along or require condemnation of several lots within the Bayview subdivision. The alignment would pass through tracts of land designated for Fish Creek Park. This route would serve the potential new growth areas on north Douglas Island, including CBJ-owned lands around Eaglecrest Road and Goldbelt-owned lands on north/west Douglas Island.

The Engineer’s Cutoff “A” alternative would span the MWSGR with approximately 2,300 feet of fill. It would affect areas of waterfowl low tide foraging activities, wetland productivity, recreation, and hunting. Its proximity to the mouth of Fish Creek, a heavily used anadromous fish stream located on Douglas Island, would require careful design considerations. On the mainland, this route would cross the mouth of the Mendenhall River with a large bridge. The general area of this route is a popular waterfowl foraging area, which could be adversely impacted by the presence of the crossing. In addition, this route could impact bottom habitat in the area, including crab habitat.

The route would divert new development traffic from the North Douglas Highway; however, if a Bench Road were also constructed, this route would likely do little to divert downtown-bound traffic from the existing bridge. This route would primarily offer a valuable alternative to the existing bridge for travel between north/west Douglas Island and the mainland (Mendenhall Valley) for commercial and recreational needs.

The Engineer's Cutoff "A" route would cost slightly more than \$38 million, with a total bridge span of about 2,500 feet across the channel and Mendenhall River. This cost included \$2.5 million for required highway widening on the Mendenhall Peninsula and Douglas Island.

This alternative would not provide for the extension of Engineer's Cutoff Road, but it would impact the Engineer's Cutoff neighborhood on the mainland's Mendenhall Peninsula, as well as a portion of the Bayview Subdivision on north Douglas Island. The crossing could virtually block the view of the Chilkat mountains for many of the subdivision residents, and the increased traffic and noise would raise objections. Substantial objections to this route from residents of the Bayview subdivision and Engineer's Cutoff Road area and supporters of the MWSGR could be expected. With its high costs, this route would likely be subject to delays. Table 9 sets out the advantages and disadvantages of the Engineer's Cutoff "A" Alternative:

Table 9: Alternative 9 – Engineer's Cutoff "A" Advantages and Disadvantages

Advantages	Disadvantages
• Traffic congestion benefits (uncertain amount) • Reduced travel times	• Relatively high impact on MWSGR and an anadromous fish stream • River crossing required • Fairly complex land acquisition • High visibility • Relatively high likelihood of regulatory issues • High cost

2.1.10 Alternative 10 – Engineer's Cutoff "B"

This alternative was like Engineer's Cutoff "A" with a shift to the west in the alignment as it crossed Gastineau Channel. This route would then extend up the eastern side of the peninsula and intersect with Engineer's Cutoff Road.

The land use, environmental, traffic, and engineering impacts of the Engineer's Cutoff "B" alternative would be similar to those described for Engineer's Cutoff "A". Engineer's Cutoff "B" would, however, include an extension of Engineer's Cutoff Road and could encourage new development in that area. This alternative was estimated to cost approximately \$38 million, which includes \$2.5 million for required highway widening on the Mendenhall Peninsula and Douglas Island. Environmental impacts, public opposition, and high costs associated with

Engineer's Cutoff "B" would be the same as those for Engineer's Cutoff "A". Table 10 sets out the advantages and disadvantages of the Engineer's Cutoff "B" Alternative:

Table 10: Alternative 10 – Engineer's Cutoff "B" Advantages and Disadvantages

Advantages	Disadvantages
• Traffic congestion benefits (uncertain amount) • Reduced travel times	• Relatively high impact on MWSGR and an anadromous fish stream • River crossing required • Fairly complex land acquisition • High visibility • Relatively high likelihood of regulatory issues • High cost

2.1.11 Alternative 11 – Fritz Cove "A"

This alternative would be identical to the Engineer's Cutoff "B" route, except it would proceed up the Fritz Cove Road on the Mendenhall Peninsula. Right-of-way would be required through CBJ-owned lands to connect to Fritz Cove Road. Right-of-way would also likely be required for the additional improvements needed to Fritz Cove Road, particularly at its intersection with the Glacier Highway. Acquisition of lands for the right-of-way could be costly, as this area was developed and zoned as Rural Residential and Low Density Residential.

The Fritz Cove "A" route would impact the MWSGR in the same manner as the Engineer's Cutoff "A" and "B" alternatives but would also require construction of a section of roadway from the Mendenhall Peninsula end of the crossing to the terminus of Fritz Cove Road. Heavy sedimentation could be expected during the construction phases of this route.

Transportation and traffic advantages and disadvantages for this alternative would be like those for the Engineer's Cutoff "A" and "B" routes, except that even longer travel distances required by this route present an additional disadvantage. The Fritz Cove "A" route was estimated to cost slightly less than \$40 million. Public objections to the construction of this alternative would be like those of the Engineer's Cutoff "A" and "B" routes, and with its high costs, this route would likely be subject to delays. Table 11 sets out the advantages and disadvantages of the Fritz Cove "A" Alternative:

Table 11: Alternative 11 – Fritz Cove "A" Advantages and Disadvantages

Advantages	Disadvantages
• Reduced travel times	• Relatively high impact on MWSGR and an anadromous fish stream • River crossing required • Fairly complex and costly land acquisition • High visibility • Relatively high likelihood of regulatory issues • High cost

2.1.12 Alternative 12 – Engineer’s Cutoff “C”

This route was the same as Engineer’s Cutoff “B” except that its connection with North Douglas Highway would be located west of Entrance Point. Fill requirements for Entrance Point would likely increase costs and environmental impacts. In addition, the impact of this route on Fish Creek Park would be cause for concern. This alternative would cost over \$41 million. **Error! Reference source not found.** sets out the advantages and disadvantages of the Engineer’s Cutoff “C” Alternative:

Table 12: Alternative 12 – Engineer’s Cutoff “C” Advantages and Disadvantages

Advantages	Disadvantages
• Traffic congestion benefits (uncertain amount) • Reduced travel times	• Relatively high impact on MWSGR and an anadromous fish stream • River crossing required • Fairly complex land acquisition • High visibility • Relatively high likelihood of regulatory issues • High cost

2.1.13 Alternative 13 – Fritz Cove “B”

This route was the same as Fritz Cove “A” except that its connection with North Douglas Highway would be located west of Entrance Point. Fill requirements for Entrance Point would likely increase costs and environmental impacts. In addition, the impact of this route on Fish Creek Park would be cause for concern. This alternative was estimated to cost approximately \$43 million. Table 13 sets out the advantages and disadvantages of the Fritz Cove “B” Alternative:

Table 13: Alternative 13 – Fritz Cove “B” Advantages and Disadvantages

Advantages	Disadvantages
• Reduced travel times	• Relatively high impact on MWSGR and an anadromous fish stream • River crossing required • Fairly complex and costly land acquisition • High visibility • Relatively high likelihood of regulatory issues • High cost

2.1.14 Alternative 14 – Douglas Island to Spuhn Island to Mendenhall Peninsula

This route initiated on Douglas Island at the approximate location of Eleven Mile Creek, crossed to Spuhn Island and traversed it, and then crossed to the Mendenhall Peninsula at Smuggler’s Cove. Of all the alternatives, the Spuhn Island alternative would be the furthest distance away from areas of new development in the vicinity of Eaglecrest Road to the Mendenhall Valley. This route would be the same distance from new development areas on the north/west side of Douglas Island to the Valley as the Eaglecrest Road-8 Mile alternative and about one mile closer than the Nine Mile Creek Bluff-8 Mile Egan route. Land acquisitions would include private land on Spuhn Island and in the Smuggler’s Cove area, as well as the additional right-of-way required to improve Fritz Cove Road to handle the additional traffic.

This alternative would require constructing either a high-level bridge or a floating bridge with an opening section from north Douglas to Spuhn Island to not block boat traffic. The bridge from Spuhn Island to Mendenhall Peninsula would also likely be a high-level bridge and would have a substantial impact on the views for residents of Smuggler’s Cove.

The Spuhn Island alternative would have similar transportation advantages and disadvantages to the Fritz Cove routes and would do little to divert traffic from the existing Douglas Island Bridge. This route would, however, serve north/west Douglas shopping needs and Mendenhall Valley recreation needs.

This route was estimated to cost over \$200 million, with a single arch span of just over a mile in length extending from Douglas Island to Spuhn Island and another span of 2,000 feet in length extending from Spuhn Island to the Mendenhall Peninsula. The environmental impacts of this route would be like those of the Fritz Cove alternatives already described. Due to the high cost of this route, it would be subject to extreme political trade-offs, and the project schedule could be expected to extend over a decade or more. Table 14 sets out the advantages and disadvantages of the Douglas Island to Spuhn Island to Mendenhall Peninsula Alternative:

**Table 14: Alternative 14 – Douglas Island to Spuhn Island to Mendenhall Peninsula
Advantages and Disadvantages**

Advantages	Disadvantages
• Reduced travel times	• Relatively high impact on MWSGR and an anadromous fish stream • Fairly complex and costly land acquisition • High visibility • Relatively high likelihood of regulatory issues • Extremely high cost

2.1.15 Alternative 15 – No-Crossing (No-Build) Alternative

The No-Crossing alternative would entail improvements to the Douglas Island road system and the existing bridge. Improvements could include reconfiguring the existing bridge, widening the North Douglas Highway, and/or constructing a Bench Road parallel to the North Douglas Highway at an elevation of approximately 500 feet. This alternative would require land acquisition for sufficient right-of-way to allow widening the North Douglas Highway to handle new traffic that would result from north Douglas Island development. If the No-Crossing (No-Build) alternative were chosen, it is likely that commercial development would occur to serve new residential development on north Douglas, as access to commercial areas in the Valley would not be made more convenient to residents on the island. This could result in duplication of commercial services. Fire, police, and ambulance services would be required to meet the needs of new growth on north Douglas, an expenditure which could be delayed if a channel crossing were constructed that provided convenient access to the Mendenhall Fire Station and State Trooper office.

The No-Crossing (No-Build) would have little or no impact on MWSGR or Fritz Cove. The additional right-of-way required would remove some timber land from production. Construction of the proposed Bench Road could cause substantial impacts on fish streams, downhill property owners, and the safe hydrology of the area.

Growth on north/west Douglas Island could create new capacity and congestion problems on the North Douglas Highway and existing bridge, with limited options available to alleviate these issues. Without the construction of a Bench Road, the North Douglas Highway would have to be widened, which would result in the condemnation of several dwellings and the reduction of a very large number of lots. Congestion on the bridge would increase because of growth on north/west Douglas Island. While bridge reconfiguration would be required, the construction of a Bench Road could preclude the widening of the North Douglas Highway for some time, as it would alleviate congestion on the North Douglas Highway immediately.

Construction of a Bench Road was estimated to cost about \$2 million per mile, or \$14 million for a seven-mile segment. Widening the North Douglas Highway would cost about \$1 million per mile, or \$7 million for seven miles. The costs of bridge reconfiguration and potential reconstruction of the Douglas Island intersection were not thoroughly examined. The No-Crossing (No-Build) alternative would disrupt traffic and travel time because of congestion on the existing Douglas Island Bridge. Construction of a Bench Road would help ease congestion up to the bridge and could assist in preserving the rural nature of existing neighborhoods on the North Douglas Highway, while widening of the North Douglas Highway would ease congestion

at the expense of substantial neighborhood disruption. Public objection to the increase in traffic on the North Douglas Highway was expected. The improvements involved in the No-Crossing (No-Build) alternative could range from \$7 to \$22 million, making it a low-to-medium cost alternative that would likely be subject to some political trade-offs and delays. Table 15 sets out the advantages and disadvantages of the No-Crossing (No-Build) Alternative:

Table 15: Alternative 15 – No-Crossing (No-Build) Advantages and Disadvantages

Advantages	Disadvantages
• No impact on MWSGR • No effect on aesthetics • Relatively low likelihood of regulatory issues • Low to medium cost	• No reduction in travel times • Disruption of traffic during construction (except Bench Road) • Extensive disruption of residences along Douglas Highway, if widened.

2.1.16 Summary and Conclusion of the 1984 Study of Alternatives

The study provided a comparative evaluation of the alternatives using criteria based on the five factors considered during alternatives development:

- Land use
- Environmental issues
- Transportation
- Engineering
- Public policy

Alternatives were scored relative to one another, and the results of the scoring are shown in Table 16.

Table 16: Ranking of the 1984 Alternatives

Rank	Score	Alternative
1	218	Alternative 5: Eaglecrest Road – 8 Mile Egan
2	214	Alternative 6: Nine Mile Creek Bluff – 8 Mile Egan
3	204	Alternative 7: Nine Mile Creek Bluff – Mendenhall Loop Road
4	202	Alternative 4: West Sunny Point
5	194	Alternative 3: East Sunny Point
6	193	Alternative 8: Nine Mile Creek Bluff – Industrial Boulevard
7	177	Alternative 2: Vanderbilt Hill
8	172	Alternative 1: Salmon Creek
9	147	Alternative 9: Engineer's Cutoff "A"
10	141	Alternative 10: Engineer's Cutoff "B"
11	133	Alternative 12: Engineer's Cutoff "C"
12	126	Alternative 15: No-Crossing Alternative
13	101	Alternative 11: Fritz Cove "A"
14	100	Alternative 13: Fritz Cove "B"
15	78	Alternative 14: Douglas Island – Spuhn Island – Mendenhall Peninsula

The 1984 study recognized three general types of alternatives in this evaluation:

1. A No-Crossing alternative
2. A crossing as far away from the center of the wetlands as practical
3. A crossing that uses the shortest route across the wetlands.

The No-Crossing alternative (Alternative 15), the Engineer's Cutoff "C" alternative (Alternative 12), and the Eaglecrest Road-8 Mile Egan alternative (Alternative 5) were the highest ranked alternatives of each of these types. The study ultimately recommended that if Eaglecrest Road-8 Mile Egan (Alternative 5) was unable to be pursued, Engineer's Cutoff "A" (Alternative 9) should be pursued.

2.2 A Proposed Roadway Corridor of Douglas Island Bench Road Kowee Creek to Fish Creek Road (January 1984)

This study considered the location of alternative routes to north Douglas away from the existing highway between west Juneau and Fish Creek Roads (known as the Bench Road). The Bench Road was explored as the existing Douglas Highway was a limited use highway, constructed to provide access to homestead and cabin sites on north Douglas Island. Douglas Island was characterized as having very low-density development with large parcels. The study report noted that future widening of the existing roadway would be challenging due to the need to acquire right-of-way from neighboring properties.

Traffic trends summarized from 1970 and projected to 1992 indicated that traffic would continue to grow in response to population growth. Forecasts predicted that as early as 1992, a portion of North Douglas Highway would reach capacity during peak periods. The traffic growth was forecast to materialize from providing access to 2,380 acres of reasonably developable land,

which was considered necessary to support a rapidly growing population. Therefore, an alternative solution for the costly improvements to North Douglas Highway was considered necessary.

The study provided a summary of environmental conditions, resource material development sites available to support the Bench Road construction, socio-economic conditions, existing and future land uses, area geology, traffic projections, and provided details of design criteria and typical sections for the proposed Bench Road. Key environmental challenges involved the road alignment crossing eight major watersheds including four anadromous streams, impacts to old growth forest including trees measuring up to 200-feet tall and 14-feet in diameter, abundant wildlife of all types, and steep approaches with grades between 6-12 percent. The study also set out a planning-level cost estimate (in 1984 dollars) and development methods to advance construction of the road.

Another topic of interest, the study observed that cruise ship tourism was occurring in Juneau but was not anticipated to increase significantly. Additionally, traffic volumes today are significantly less than the study projected for 1992 (refer to Table 17). These are based on population growth data from the Second Gastineau Channel Crossing Feasibility Study.

Table 17: Annual Average Daily Traffic Forecast as Compared to Existing

Segment	Without Bench Road		With Bench Road		Existing ¹
	1992 Low Forecast (AADT)	1992 High Forecast (AADT)	1992 North Douglas (AADT)	1992 Bench Road (AADT)	
Glacier/Douglas Highway Intersection	4,400	7,050	4,830	4,710	7,300
Fish Creek Road Intersection (7.38 Mile)	1,725	2,760	1,360	2,640	1,150

2.3 West Douglas/Channel Crossing Estimate (R&M Engineering, June 1992)

The West Douglas/Channel Crossing Estimate provided a cost estimate for two different options for a Gastineau Channel crossing. The parameters for each alternative were detailed in the estimate, including the width of the roadway, number of lanes, turnout features, and based on the construction of a bridge that begins “at-grade” north of Sunny Point on Egan Drive and ends “at-grade” near the Eaglecrest intersection on North Douglas Highway. No alignments or figures were provided for these options. The estimate was based on a typical section comprising two 12-foot-wide travel lanes with 8-foot-wide shoulders for non-motorized travel and safety features. The typical section would likely be wider to accommodate standards specified in the Alaska Highway Preconstruction Manual (HPCM). The options considered were:

¹ <https://alaskatraficdata.drakewell.com/publicmultinodemap.asp> accessed 12/10/2021.

- **Option 1:** provided for 7,700 linear feet of elevated bridge structure including a movable span of less than 100 feet in length to allow for small vessels under 15 feet in height to pass without moving the span. This option was estimated at approximately \$48 million in 1992 dollars.
- **Option 2:** consisted of a series of roadway fills, elevated structure, and large culverts. The channel crossing was a 100-foot or shorter section that would move to allow larger vessels (greater than 15 feet in height) to pass. This option would have cost approximately \$18.2 million in 1992 dollars.

Based on inflation, at an average of 2.37 percent per year, the estimates in 2021 dollars for Option 1 would be \$96 million and for Option 2 \$36 million. Option 2 used mostly culverts, rather than bridge structures, while worth consideration it is unlikely to be the first choice of agencies today.

2.4 The North Channel Crossing – The Time to Begin is Now: Research and Analysis of Historical Information in the Context of Current Planning (October 1997)

This document proposed initiating the planning process for constructing a North Gastineau Channel Crossing to connect Egan Drive and Douglas Island. It did this in recognition that careful planning with sufficient lead time was needed to assist with realizing this major capital improvement to the overall quality of life within CBJ. It proposed that an all-season, all-weather “transportation link” between the mainland north of the Juneau Downtown Core and the north Douglas Island area road system would help resolve concerns for traffic congestion and safety, as well as efficient vehicular access.

The analysis set out the history of north channel crossing proposals, a purpose and need for the project, case for proceeding with construction in the near term, and preliminary capital investments for the project. It noted since its inception in 1995, the DOT&PF Needs List and Priorities Program identified a “Second Channel Crossing” as a local priority.

The report noted the population of CBJ continued to expand, and as population increased, there had been a measurable, significant increase in vehicular transportation. In addition, several traffic accidents as well as commercial and/or residential fires indicated that safety issues (in terms of both accidents and access to the scene of various accidents, fires, etc.) were further complicated with only one access to and from North Douglas. The report stated the current crossing of the Gastineau Channel was barely meeting the general traffic needs of CBJ, failing to meet vehicular requirements in the p.m. rush hour, and overloading intersections.

The report evaluated previous studies and alternatives presented in those studies, including a 1973 Reconnaissance Study, Gastineau Channel Crossing, 1983-84 Feasibility Analysis, and the 1992 West Douglas/Channel Crossing Estimates. This report expressed the purpose and need for a crossing was to create an efficient transportation link between North Douglas and Egan Drive on the CBJ road system to improve the safety, social, and economic benefits to residents.

The alternatives presented were:

- West Douglas/Channel crossing east of the airport property line
- Egan Drive north of Sunny Point, crossing the MWSGR and commencing onto Douglas Island immediately west of the entrance to Eaglecrest Ski Area, both with and without a turnout for wetlands viewing and access
- Thirteen alternatives, ranging from Salmon Creek area to Spuhn Island area, from the 1984 Feasibility Study were mentioned

The report based many assumptions on a projected population for the year 2049 of between 60,000 to 150,000 residents. The population in 1997 was given as 30,200.

The report went into detail on acreage ownership of Douglas Island, particularly ownership by Goldbelt, Inc., and it used the CBJ West Douglas Conceptual Plan as a basis for recommending a second crossing. The report summarized the public concerns expressed at the meetings from the 1984 Feasibility Study as:

- North Douglas property owners
- Fritz Cove area recreation and access
- Mendenhall Wetlands State Game Refuge environmental and social impacts
- New industrial activity proposed on west Douglas

Other considerations included the Eaglecrest Ski Area, a proposed golf course on Douglas Island, and the planned North Douglas Highway extensions to Point Hilda.

2.5 Preliminary Scoping Report, November 2004, Project No. 68540/HP-0954(18) (HDR, Inc., November 2004)

The Preliminary Scoping Report was developed in readiness for an EIS to determine the location and conceptual design of a proposed second Gastineau Channel crossing connecting mainland Juneau with Douglas Island for motor vehicles, pedestrians, and bicyclists. The core study area encompassed an approximately 9-mile segment of the Gastineau Channel extending from the vicinity of Salmon Creek to Mendenhall Peninsula/north Douglas Island. The purpose of the project was to improve access between the Mendenhall Valley on mainland Juneau and north Douglas Island with a transportation facility for vehicles, pedestrians, and bicyclists that was cost reasonable and met the existing and future transportation needs of the Juneau community. Primary needs identified for the project included improving network connectivity for shorter travel times, recreational access, non-motorized trips, improving access for public safety and emergency response, and locating the second channel crossing to efficiently serve planned new growth areas on Douglas Island. The Preliminary Scoping Report then detailed tasks to be accomplished for environmental scoping.

2.6 Draft Environmental Impact Statement: Project Development Summary Report, Juneau Second Crossing (HDR Alaska, Inc., May 2005)

The Project Development Summary Report documented the preliminary results of the scoping activities conducted for Juneau Second Channel Crossing EIS, in combination with preliminary engineering and environmental baseline conditions/studies. It did this to assess then-current conditions in the project study area and document baseline findings. It also evaluated the 1984 Feasibility Study to consider the potential feasibility of various crossing concepts.

The DOT&PF partnered with CBJ and the Federal Highway Administration (FHWA) to prepare an EIS, determining the location, conceptual design, and impacts of a proposed second Gastineau Channel crossing to connect mainland Juneau with north Douglas Island. The purpose of the Preliminary Development Summary Report was to:

- Set out a purpose and need for the project
- Present project alternatives
- Comprehensively review the preliminary results of the EIS scoping activities in combination with preliminary engineering and environmental baseline conditions/studies
- Assess conditions within the project study area and document preliminary findings

2.6.1 Purpose and Need

A purpose and need statement was documented as part of the project development summary report, reproduced below:

The purpose of the Juneau Second Channel Crossing project is to improve access between the Mendenhall Valley on mainland Juneau and North Douglas Island with a transportation facility across Gastineau Channel for vehicles, pedestrians, and bicyclists that is cost reasonable and efficiently meets the existing and future transportation needs of the Juneau community. Primary needs identified for the projects include:

- *Improved Access and Travel Efficiency*
 - *Improve network connectivity for shorter travel times, recreational access, and non-motorized trips*
- *Redundant Access for Public Safety and Emergency Response*
 - *Improve access for public safety and emergency response*
- *Planned Growth Areas*
 - *Locate the Second Channel Crossing to efficiently serve the CBJ planned “New Growth Areas” on Douglas Island.*

2.6.2 Project Alternatives

The 1984 Feasibility Study presented 14 crossing alternatives and a “No Crossing” or “No Build” alternative. These alternatives were based on analyses and studies of data including population growth, land use, environmental conditions, traffic projections, existing and planned transportation facilities, preliminary engineering considerations and costs, potential development opportunities and impacts, and public policy (funding, regulatory requirements, policy constraints). The alternatives are summarized in Section 2.1 of this report.

2.6.3 Baseline Conditions

2.6.3.1 Engineering Conditions/Studies

Baseline engineering studies were conducted during 2003 and 2004 as part of the Juneau Second Channel Crossing (JSCC) project to update and characterize conditions in the project area that could affect the design of a crossing structure. The studies developed preliminary design criteria, identified navigation issues in Gastineau Channel, characterized vessels transiting Gastineau Channel, and preliminarily assessed vertical and horizontal clearances for a new bridge crossing. Preliminary design criteria addressed roadways, bridges, and tunnels.

A Preliminary Navigation Issues Technical Memo (November 2003) described the navigational characteristics of the Gastineau Channel within the study area and other aspects of navigation that should be considered during the development of bridge crossing options. Gastineau Channel was a navigable water body that provided access from Juneau to Fritz Cove, approximately 5.5 miles long and with a depth of 0.0 feet Mean Lower Low Water (MLLW). Water depths throughout the study area were variable. The report study provided an overview of mariners’ routes and frequency of use in the area.

The existing Douglas Island Bridge was the only bridge that crossed the Gastineau Channel near downtown Juneau. It had a 490-foot horizontal clearance and a 51-foot vertical clearance at Mean High Water (MHW) for the middle 250 feet. The report noted that the channel shifts and a dredging program was deferred pending an evaluation of the economic feasibility of the maintenance dredging program. It also noted that the project area was experiencing land uplift that may make the Mendenhall Bar impassable for all vessels.

To determine preliminary Gastineau Channel navigational clearance requirements, a Bridge Clearance Technical Memorandum (February 2005) was prepared, which considered the horizontal and vertical clearance requirements for both fixed and movable span options for a second channel crossing. The defined navigable channel width was recognized to be 75 feet, and the minimum horizontal clearance recommended was 100 feet: 75 feet for channel width plus an additional 25 feet. On this basis, the Summary Report recommended a vertical clearance above MHW of 21 feet for a movable span, and 51 feet for a fixed bridge to meet the “reasonable needs of navigation.” The minimum horizontal clearance for the proposed channel crossing was 100 feet, which was the minimum distance to any face of bridge, pier, or fendering system. The span length over the navigation channel for any bridge alternative was recommended to be at least 150 feet.

2.6.3.2 *Environmental Conditions/Studies*

The preliminary baseline environmental conditions within the project study area that could affect the location and conceptual design of the second crossing project were detailed in the Summary Report. Conditions summarized included:

- **Land Use:** Land use patterns in CBJ, current development trends, and adopted land use plans and policies that guide development and change within the community. Key land use features within the study area included MWSGR and the Juneau International Airport.
- **Farmlands:** There were no prime and unique farmland in the State of Alaska and no farmland of state or local importance in the study area.
- **Social Environment:** Population and settlement trends, demographics, neighborhoods and community cohesion, travel patterns and accessibility, community services (schools, medical facilities, law enforcement, first and emergency medical services), recreation opportunities and amenities.
- **Section 4(f) and 6(f) Resources:** Identification of potential Section 4(f) and 6(f) resources within the study area.
- **Utilities:** An overview of utilities was presented in a Preliminary Utility Systems Inventory and Opportunities Technical Memorandum (February 2004), which addressed water, sewer system, electric, telephone and cable television.
- **Economic Development:** Employment rates for the year 2002, key employment categories, and earnings.
- **Transportation:** Transportation facilities including Juneau International Airport, North Douglas Heliport, marine navigation, harbor facilities, vehicular travel, non-motorized travel, and transit.
- **Geology, Topography and Soils:** A Phase 1 Geotechnical Report (October 2003) provided detailed information on geology and topography, soils, and seismic hazards.
- **Air Quality:** Overview of air quality issues in the study area, including air pollutants of concern.
- **Noise:** Characterization of existing noise sources in the study area, potentially sensitive receptors, and the Noise Abatement Criteria (NAC) to help determine noise impacts associated with highway development projects.
- **Water Quality:** Overview of factors affecting water quality and impaired water bodies within the study area.
- **Permits:** Authorizations that could be required for the Juneau Second Channel Crossing project.
- **Wetlands and Upland Habitats:** Overview of habitat types in and around the study area, including intertidal habitats, wetland habitats and unvegetated intertidal flats,

streams, and other open waters. Representative plant species of the different habitats were also described.

- **Waterbodies, Wildlife and Essential Fish Habitat:** The principal water body in the project Area was Gastineau Channel. Fritz Cove was located at the north end of the channel and Stephens Passage at the south end. There were approximately 20 streams within the project area that flow into the Gastineau Channel. Water resources in the project area were influenced by the moist marine climate, orographic effects of coast mountains, and wide tidal fluctuations. Three types of water bodies were present in the study area: freshwater, brackish water, and saltwater. Aquatic species including anadromous fish and marine fish were summarized, and Essential Fish Habitat (EFH) within the project area was identified. An overview of marine mammals, amphibians, macroinvertebrates, birds, and land mammals.
- **Floodplains:** Identification of coastal and riverine floodplains within the study area, and flood hazard elevations based on a one percent chance that flooding would occur in a given year (100-year flood zone).
- **Wild and Scenic Rivers:** There were no designated Wild and Scenic Rivers within the study area.
- **Coastal Barriers:** There were no coastal barriers, as defined in the Coastal Barriers Act, within the State of Alaska.
- **Coastal Zone:** Nearly all the developable land within CBJ was within the coastal zone as defined by the Alaska Coastal Management Program.
- **Threatened and Endangered Species, and Other Species of Concern:** There were no species under the jurisdiction of the United States Fish and Wildlife Service (USFWS) that were listed as threatened or endangered in the project area. However National Oceanic and Atmospheric Administration (NOAA) Fisheries listed two species within the project area as endangered or threatened: the Steller sea lion and the humpback whale. The USFWS also listed birds of concern, which were species considered to need conservation action. Other species designated as “species of special concern” by the State of Alaska that may occur within the project area were the harbor seal, Queen Charlotte goshawk, American and arctic peregrine falcons, olive-sided flycatcher, and Townsend’s warbler.
- **Contamination:** An overview of known and potentially hazardous waste sites in the project area were identified.
- **Visual Environment:** No visual impact assessment had been performed.
- **Energy:** A brief overview of energy use related to the project; namely fossil fuels used for transportation was summarized.

2.6.4 Preliminary Scoping Activities

Preliminary scoping for the Juneau Douglas Second Crossing project began in May 2003, and the methods and results of the scoping activities are summarized in the Preliminary Scoping Report, November 2004. A household survey was also conducted to measure support or

opposition to a second channel crossing, preferred crossing location, and concerns about impacts. Key findings were:

- About two-thirds of Juneau residents supported a second channel crossing (63 percent).
- A minority of residents (16 percent) were opposed.
- A significant number of residents (22 percent) were neutral.
- Yandukin Drive was the preferred location, although opinions were mixed.
- About 70 percent of Juneau residents agreed that “some development of the MWSGR is acceptable for bridge construction purposes”
- Two-thirds of Juneau residents believed improved access to the west Douglas area was important for Juneau’s future development
- A majority (71 percent) of Juneau residents supported mixed use development of west Douglas, including residents, commercial, and recreational development.

An agency scoping meeting was held with 19 federal, state and local agencies. Comments reflected a wide range of issues about the proposed project. Commonly cited issues were:

- Alternatives/location of a second crossing
- MWSGR regional significance/ wetlands value/ avoidance evaluations
- Essential fish habitat (EFH), fisheries, waterfowl, and wildlife habitat impacts
- Impacts related to the development of west Douglas land and marine based status of West Douglas Concept Plan
- Indirect and cumulative impacts
- Sensitive marine environments/ aquatic resources
- Areas of additional research needed
- Avoidance and minimization of impacts – maximize bridging
- Purpose and Need statement/ objectives
- No impacts on existing Juneau International Airport, nor future expansions
- Project is important for public safety and police/emergency response
- Consider future potential Gastineau Channel dredging.

Two public scoping meetings yielded 29 comments reflecting a wide variety of issues. Most frequently cited issues were:

- Alternatives/location of a second crossing
- Effects on MWSGR/ wildlife habitat/ hunting impacts
- Purpose and Need
- Social/ land use impacts
- Recreational issues/ access
- Utilities
- Funding questions
- Aesthetics/ visual resources
- Environmental impacts
- Roadway access/ safety/ traffic (i.e., impacts to North Douglas Highway)/ status of Bench Road
- Emergency service response time
- Effects on neighborhoods

2.6.5 Planned Transportation Improvements in the Project Study Area

The project development summary report provided a summary of planned transportation improvements within the study area.

2.6.5.1 Planned Surface Transportation Improvements

Planned surface transportation improvements identified were:

- **10th Street/Egan Drive Intersection Improvements:** Phase 1, including the construction of a roundabout at Douglas Highway/North Douglas Highway and paving of the bridge commenced construction in 2005, and Phase 2, consisting of adding one lane to the bridge (to have a reversible lane) and upgrades to 10th Street/Egan Drive intersection would begin in 2008 or 2009.
- **Channel Drive/Egan Drive (Salmon Creek):** In the preliminary planning stage, evaluating potential intersection/grade separation improvements at the intersection of Egan Drive and the Old Glacier Highway/Channel Drive in the vicinity of Salmon Creek. This signalized intersection and potential future improvements was identified as creating a potential logical terminus on the Juneau mainland for the second crossing.
- **Vanderbilt Hill/Egan Drive:** No major improvements were planned, but this signalized intersection was identified as a potential logical terminus on the Juneau mainland side for the second crossing.

- **Sunny Point Intersection Improvements:** Addressing the existing and anticipated safety deficiencies at the Egan Drive/Sunny Drive and Glacier Highway/Sunny Drive intersections, known collectively as the Sunny Point intersection. The preferred solution was the construction of a diamond interchange that would raise the grade of Egan Drive over an access road that would connect the interchange to the Glacier Highway. Construction was scheduled to begin in 2006. The proposed Sunny Point interchange project provided a logical terminus on the Juneau mainland side for the second crossing.
- **West Egan Drive Corridor Study:** Identified current and possible future transportation problems along and across the Egan Drive corridor between Industrial Boulevard and Yandukin Drive, and evaluation solutions that safely and efficiently accommodate existing and future travel demands. Several improvement recommendations were made, with planned actions to be implemented in phases over 20 years. A proposed interchange at Yandukin Drive and intersections improvements at Industrial Boulevard were identified as providing logical termini on the Juneau mainland side for a second crossing.
- **Auke Bay Corridor Study:** Identified current and potential future transportation problems along and across the Glacier Highway between the Fritz Cove Road intersection and the Ferry Terminal. Several projects were identified. Potential second crossing alternatives/termini in the vicinity of the Mendenhall Peninsula were noted as potentially affected by improvements to the Fritz Cove Road/Glacier Highway intersection, as well as an Auke Bay bypass slated to initiate at Industrial Boulevard.
- **Douglas Island Bench Road/Eaglecrest Road:** The Douglas Island termini for the second crossing could be affected by the presence of a Bench Road.

2.6.5.2 Juneau International Airport

The Project Development Summary Report details a range of airport improvements set out in the 1999 Airport Master Plan update. Several concerns were raised about the environmental impacts that could result from actions in the Master Plan, particularly associated with:

- Runway safety area requirements (extensions)
- Navigational lighting
- Providing sufficient facilities to effectively meet current and future airfield operational requirements
- Implementing a Wildlife Hazard Management Plan

2.6.6 Preliminary Transportation Planning Assessment

A preliminary transportation planning assessment was conducted for the second channel crossing to estimate future traffic levels on the new crossing and on the connecting elements of the Juneau roadway network. Variables were dependent on future land uses, projected levels of population and employment, and estimates of varying population and employment growth given four generalized crossing areas:

- Crossing Area A: in the vicinity of Channel Drive (Salmon Creek)
- Crossing Area B: in the area of Vanderbilt Hill Road and Sunny Drive

- Crossing Area C: in the general vicinity of Yandukin Drive east of the airport
- Crossing Area D: in the vicinity of the Mendenhall Peninsula west of the airport

The methodology for the traffic estimate is detailed in section 8 of the Summary Report and in a Technical Memorandum and were summarized in terms of changes in traffic on primary Juneau roads for a No-Build scenario and for each of the generalized crossing areas. Forecasts of future population were made for low, medium, and high scenarios. The summaries were based on the medium growth scenario.

2.6.6.1 No-Build

Primary growth in traffic would be along Egan Drive between Channel Drive and Mendenhall Loop Road and on Glacier Highway out to Auke Bay.

- Growth of dwelling units and traffic on Douglas Island was limited by capacity of the existing Douglas Island Bridge
- The greatest rate of growth in traffic (35-40 percent more than present) would take place on Glacier Highway in the vicinity of Brotherhood Bridge as a significant portion of growth would occur along the highway.
- Traffic growth on the northern part of Egan Drive beyond Channel Bridge would be in the range of 20 to 30 percent
- The existing Douglas Island Bridge would experience about 25 percent increase in traffic.

2.6.6.2 Area A: Salmon Creek/Channel Drive Area Crossing

A crossing in this general area would prompt growth on Douglas Island, and in particular more growth on the southern part of North Douglas Road than other options

- Would likely decrease traffic on the Douglas Island bridge by 15 to 20 percent
- Traffic on Egan Drive between Channel Drive and Mendenhall Loop Road would increase by 20 to 30 percent, as would traffic on Glacier Highway
- Traffic on North Douglas Road between the existing bridge and the new crossing would double and traffic on the outer parts of the road would increase significantly from 1,000 trips per day to 8,000 trips per day as a product of significant population growth on north and west Douglas.
- The new crossing was forecast to carry about 14,000 vehicles per day.

2.6.6.3 Area B: Vanderbilt Hill Road/Sunny Drive Area Crossing

A crossing in this area would support more growth in the mid to outer segments of the North Douglas Road, which would in turn cause traffic there and on the northern part of Egan Drive to grow. The model predicts that a crossing in this area and in the Yandukin area would attract more traffic to the crossing itself than to the other two generalized crossing areas.

- Would decrease traffic on both Egan Drive south of Channel ridge, and on the Douglas Island Bridge
- On Egan Drive between Channel Drive and Mendenhall Loop Road and on Glacier Highway south of Auke Bay, traffic would increase 20 to 30 percent.
- Significant increases in traffic would be seen on the North Douglas Road north of the new crossing – to roughly 10,000 vehicles per day – in response to equally significant population growth in the area.
- A new crossing in the Vanderbilt-Sunny area is expected to carry about 15,000 vehicles per day.

2.6.6.4 Area C: Yandukin Drive Area Crossing

Traffic impacts of this crossing option were similar to the Area b, but due to its location further north, it was forecast to divert fewer trips from the southern parts of Egan Drive and North Douglas Road.

- Traffic levels on Egan Drive south of Channel Drive and on North Douglas Road from the Douglas Island Bridge to the Bonnie Brae subdivision were anticipated to be the same as present.
- Traffic on the existing Douglas Island Bridge was predicted to decrease by 15 percent.
- On the outer part of North Douglas Road beyond the new crossing, volumes were forecast to increase from 1,000 to 14,000 vehicles per day.
- Egan Drive from Channel Drive to Mendenhall Loop traffic would increase from 20 to 25 percent.
- Traffic volumes on the new crossing were forecast to be approximately 12,500 vehicles per day.

2.6.6.5 Area D: Mendenhall Peninsula Area Crossing

The model predicts this generalized crossing area would attract the smallest number of vehicles per day (5,500). Located farthest from the Douglas Island Bridge, it would divert the fewest trips from the existing facility.

- Volume on the Douglas Island Bridge would be expected to increase by 3,000 per day, or by about 20 percent.
- Traffic between Downtown and Channel Drive on Egan Drive would remain about the same as at present.
- Traffic on Egan Drive between Channel Drive and Glacier Highway would increase by 15 to 20 percent, while volumes on Glacier Highway between Egan Drive and Auke Bay would increase by 40 to 50 percent.

- Compared to the other general crossings assessed, fewer trips from north Douglas would use the new crossing to downtown. This would double the trips on the North Douglas Highway from the Douglas Island Bridge to about Bonnie Brae.
- Traffic on the outer section of North Douglas Highway would be expected to increase to 12,000 vehicles per day in the vicinity of the new crossing.

2.6.6.6 Comparative Summary

A second crossing in Area B would attract the highest volume of traffic because of its central location. Table 18 summarizes the projected daily traffic volumes for the design year of the project, 2035 under the baseline or medium growth scenario.

Table 18: Future Daily Traffic Volumes on the Second Crossing

Second Crossing Modeling Scenario	Daily 2035 Volumes (Medium Growth Scenario) Vehicles per Day (vpd)
Existing Conditions	N/A
No-Build	N/A
Area A – Channel Drive/Salmon Creek Area Crossing	14,000 vpd
Area B – Vanderbilt Hill Road/Sunny Drive Area Crossing	15,000 vpd
Area C – Yandukin Drive Area Crossing	12,500 vpd
Area D – Mendenhall Peninsula Area Crossing	5,500 vpd

2.6.7 Updated Cost Considerations

The Project Development Summary Report updated cost considerations to 2005 dollars and included total project costs, annual operation and maintenance costs, and life-cycle costs. The 14 alternatives and the no-build alternative detailed in the 1984 Feasibility Study were also reviewed to identify an updated range of potential crossing area concepts and costs for alternatives to be considered for study in greater detail in an EIS. Costs varied widely dependent on location and whether the bridge structure would include a fixed or moveable span. Construction costs were estimated between \$75 million and \$854 million; life cycle costs were estimated between \$81 million and \$888 million, and annual operation and maintenance costs were estimated between \$85,000 and \$864,000.

2.6.8 Conclusions

The six general crossing areas included:

- Channel Drive/Salmon Creek area crossing
- Vanderbilt Hill Road area crossing
- Sunny Drive area crossing
- Yandukin Drive area crossing (Option A and Option B)
- Industrial Drive area crossing

- Mendenhall Peninsula area crossing (to Entrance Point)

The following preliminary conclusions were assumed:

- A crossing in the vicinity of the Vanderbilt Hill Road area to Egan Drive area provided the greatest potential for meeting the comprehensive Purpose and Need objectives
- The least costly crossing potentials (with embankment) were in the Vanderbilt Hill area to Sunny Drive area
- For an “all-structure” crossing of the Gastineau Channel, the Channel Drive/Salmon Creek area crossing represents the least costly option
- The Channel Drive/Salmon Creek area and Mendenhall Peninsula area provide the only opportunities to avoid directly impacting the MWSGR
- Crossings in the Vanderbilt Hill Road area to Yandukin Drive area best avoid the highest value environmental areas within the MWSGR

The summary report recommended not further advancing alternatives west of the airport, based on the likelihood for potential environmental impacts, comments from regulatory agencies, results of preliminary travel demand analysis, geometric constraints with crossing the Mendenhall River in the vicinity of Industrial Boulevard, potential conflicts with airspace needs for the Juneau Airport, potential Section 4(f) resources on the Mendenhall Peninsula and north Douglas Island, and crossing types/costs.

2.7 North Douglas Crossing Public Involvement Project to Identify Juneau’s Preferred Route for a Crossing of Gastineau Channel (City & Borough of Juneau, April 2007)

This report documented the results of a public involvement process initiated by CBJ to determine the community preferred crossing location. It affirmed that a North Douglas Crossing of Gastineau Channel was one of CBJ’s top transportation priorities, and project objectives were to improve transportation access and efficiency between the Juneau mainland and Douglas Island, provide a second access route for emergency response, and enhance access to the designated New Growth Area on west Douglas Island.

The report built on previous analyses summarized above and a CBJ Assembly Resolution 2330(b) in October 2005, which focused the city’s consideration on three general crossing locations that would best meet project objectives: Vanderbilt Hill Road area, Sunny Point area, and Yandukin Drive area. In addition, the CBJ Resolution supported a “Bench Road on North Douglas as a necessary transportation improvement in the future to reduce traffic on North Douglas Highway and enhance access to West Douglas.” However, the Resolution specifically did not link progress on a future Bench Road with progress on the North Douglas Crossing project.

It recommended that a crossing area at Vanderbilt Hill Road be identified as the community’s preferred location for the North Douglas Crossing. The public involvement process presented five conceptual alignments for public response, one at Vanderbilt Hill Road, two at Sunny Point, and three at Yandukin Drive:

- Vanderbilt Hill Road to approximately 5-mile North Douglas Highway
- Sunny Point (east side) to approximately 5.5-mile North Douglas Highway
- Yandukin A: Yandukin Drive to approximately 6-mile North Douglas Highway
- Yandukin B: Yandukin Drive to the Fish Creek Road (Eaglecrest intersection), just before 7-mile North Douglas Highway, with a tunnel under the Airport runway
- Yandukin C: Yandukin Drive to Fish Creek Road (without tunnel)

The project team met with 14 stakeholder groups, hosted two public meetings attended by 156 people at which 34 people testified, constructed a random telephone survey of 501 Juneau households, and received 79 written comments. Stakeholder groups and individuals were asked:

1. Which of the alternative crossings they preferred and why
2. What factors they believed were most important to use in designating a community-preferred alternative
3. To provide any other comments regarding the crossing project

The project team also met with state and federal agencies to discuss issues related to navigation, the Juneau International Airport, transportation issues, and environmental permit requirements.

The public involvement process noted that three-quarters of Juneau residents supported or strongly supported the construction of a North Douglas crossing, but there was an even split between those who thought it should be a high priority project and those who did not.

The project team recommended that a crossing area at Vanderbilt Hill Road be identified as Juneau's preferred alternative as this alignment:

- Had the least impact on the MWSGR environment, uses and users, including areas used most intensively by hunters
- Was more likely to be permitted by environmental agencies because it had the shortest crossing length and the least fill footprint on wetlands
- Had the lowest estimated project construction costs
- Was the farthest east, so had the least impact on the airport
- Was preferred in the community opinion survey and in public comments, over a crossing at Sunny Point or Yandukin Drive.

The study further recommended that there were several feasible locations for an intersection within the Vanderbilt Hill crossing area. This location was closest to the existing bridge and

farthest from the west Douglas New Growth Area. However, transportation analysis conducted in 2004 showed that it would improve transportation between the mainland and Douglas Island, and enhance access to west Douglas, as well as a crossing located at Sunny Point or Yandukin Drive. The report particularly noted concerns about effects on the north Douglas neighborhood, and it recommended undertaking additional work to address concerns on the area through either a sub-area plan or the environmental decision document for the project.

The report noted that CBJ's identification of a community-preferred alternative for the North Douglas Crossing would give focus and impetus to future work on the project, but many steps remained to make the project a reality. Next steps identified included:

- Obtaining state and federal support and funding for project planning, permitting, design and construction
- Environmental analysis under NEPA, a State of Alaska best interest funding, and/or other decision document
- Permitting
- Obtaining corridor right-of-way
- Detailed design
- Construction

3.0 OTHER DOT&PF PLANS AND DOCUMENTS

3.1 Long-Range Transportation Plan Update: Let's Keep Moving 2036

The Alaska Statewide Long-Range Transportation Plan (LRTP), *Let's Keep Moving 2036: Policy Plan* sets out a 20-year vision to provide a network that enables a robust and growing economy to meet the mobility needs of the nation and the State's residents, consistent with DOT&PF's mission to keep Alaska moving through service and infrastructure. The LRTP sets overall policy and investment priorities, but it does not list specific projects or identify local transportation priorities. The LRTP is augmented by corridor and area plans, which include specific details on project recommendations within a geographic location. The relevant area plan for Juneau is the Southeast Alaska Transportation Plan.

3.2 Draft Southeast Alaska Transportation Plan (2014)

The draft Southeast Alaska Transportation (SATP) is a component of the Long-Range Transportation Plan. It describes the changes expected in the region's transportation needs over 20 years and proposes methods to meet them, including recommended projects. It serves as a guide to capital development of the transportation assets in the area for the 20-year period. The SATP recommends some large projects in the mid- to long-term, including projects that may not be constructed in the 20-year horizon of the plan. However, most of the plan proposes actions to maintain and improve the existing transportation system. The plans recommendations include:

- Maintenance of the existing Alaska Marine Highway System (AMHS) routes
- Retirement of up the three mainline ferries, depending on available funding and travel demand
- Replacement of other ferries as they reach the end of their useful life
- Completion of the highway to Katzehein and initiation of a shuttle ferry service in upper Lynn Canal
- Construction of a road from Kake to Petersburg
- Construction of a road from Sitka to Warm Spring Bay and a ferry terminal
- Construction of an airport in Angoon

The plan does not refer to or provide any recommendations on a Second Channel Crossing between mainland Juneau and Douglas Island.

4.0 CITY & BOROUGH OF JUNEAU PLANS AND STUDIES

4.1 West Douglas Conceptual Plan (City & Borough of Juneau and Goldbelt, Inc., May 1997)

CBJ and Goldbelt, Inc., jointly began conceptual planning of their adjoining properties along approximately 8 miles of west Douglas Island. The area includes 1,740 acres of Goldbelt, Inc. property along the coastal margin and 3,434 acres of CBJ land located immediately interior of the Goldbelt, Inc. property. The area was considered the largest developable block of land accessible to CBJ. The West Douglas Conceptual Plan (WDCP) acknowledged the two parties had different development goals that would need balancing, and that any future development options would require participation from both parties.

The conceptual plan identified five development areas (Areas 1A, 1B, 2, 3 and 4) providing land uses including commercial and institutional development, residential housing at a range of densities (approximately 2,050 units), a golf course, marine industrial area, and marine and water access with camping and RV accommodations. At its full build the conceptual development provided for a residential population of approximately 7,500 people. The plan considered the implications of the development on infrastructure and utilities, including increased traffic on the North Douglas Highway. The WDCP noted the CBJ Comprehensive Plan identified the entire area as a New Growth Area, which obligated any development to satisfy detailed planning requirements listed in CBJ Title 49. It noted the WDCP was a generalized concept plan that did not try to address specific New Growth Area requirements, but characterized the nature of each development area, including appropriate developable areas, densities, and mix of uses, which was intended to be useful for future detailed planning for each area.

4.1.1 Development Area 1A

Total development would not exceed approximately 120 acres. The community would be located on beach frontage, with a concentric organization around an open public space. The densest commercial and housing uses would be located adjacent to the open center, with lesser densities at the perimeter. Acreage and use were assumed as:

- Open park and public space: 15 acres
- Commercial: 15 acres
- Mixed use (150 residential units): 15 acres
- High density housing (250 units): 15 acres
- Medium density housing (300 units): 30 acres
- Special uses (lodge, office complex, institutional): 30 acres

Anticipated uses in this development consisted of significant housing and a supporting commercial core. Development was expected to include a major anchor tenant, such as a guest lodge, or office/research facility that would be appropriate in this setting. The anchor development would help provide a base for local housing and commercial development. Full housing development was estimated at 700 units. The approximate population, including housing and commercial uses, was estimated at 2,500. Related development, as the community reached maturity, would probably include public or institutional facilities such as an elementary school, fire station, and library.

4.1.2 Development Area 1B

- Golf course and facilities, including clubhouse: Approximately 200 acres
- Dispersed housing adjacent to golf course: Unknown acreage

Anticipated golf course development slated for CBJ property near Development Area 1A was designated Development Area 1B because of proximity. It was assumed that future residential development adjoining portions of the golf course would use the commercial support of nearby Development Area 1A.

4.1.3 Development Area 2

Total development of this parcel was expected to total 50-70 acres. The primary function of this area was for water-dependent industrial, commercial, and possibly recreational uses. The location had good marine potential, with sufficient water depth and reasonably good storm protection, allowing for year-round deep draft and smaller vessel use.

The primary development feature was anticipated to be a large dock(s) with adjacent filled staging portions. Most development was expected to be below the highway, with the complex served by a secondary access road. Anticipated development uses were expected to fall under Waterfront Industrial or Waterfront Commercial uses.

Development potential included a terminus for marine shipment of resources industries such as mining, commercial fishery operations, use as a bulk fuel depot, support of water-related agencies such as the USCG or NOAA research vessels, and a general-use boat launch and breakwater.

Uses affecting infrastructure could potentially include a commercial ice plant, fish processing facilities, limited office space supporting commercial operations, bulk freight, fueling, and fuel storage facilities.

4.1.4 Development Area 3

Development of this area was anticipated to be approximately 80 acres, excluding nearby recreational uses. Anticipated to be primarily residential with less commercial activity than in Development Area 1A, the area would include a marine, public water access, and access to adjacent inland recreational uses. The topography would create a linear layout, with denser uses adjacent to a central open area. The southern perimeter would include significant areas for public recreation, with access to undeveloped areas in the Hilda Creek drainage that would be separated from the compact residential development portions. Recreational development may include public camping, beach access, and RV accommodations. Acreage and use were assumed to be:

- Open and public areas: 10 acres
- Mixed use (commercial, housing) (100 residential units): 15 acres
- High density housing (200 units): 15 acres
- Medium density housing (200 units): 20 acres
- Low density housing (100 units): 20 acres
- Special uses (RV, camping): 20 acres

Total housing was anticipated to total 600 units, with a significant additional transient population associated with recreational uses. The total assumed population was 2,000.

4.1.5 Development Area 4

This area was significantly separated from other West Douglas development by the Hilda Creek drainage. Its development was likely far into the future because of the extensive road and utility development costs, and the need to cross sensitive lands at Hilda Creek.

The area was separated enough from other commercial centers, including Development Area 1A to expect that it would support commercial and institutional activity, in addition to a major housing component. It would easily support additional marine development, from commercial to recreational uses. Acreage and use were assumed to be:

- Open and public areas: 15 acres
- Mixed use (commercial, housing) (150 housing units): 15 acres

- High density housing (250 units): 15 acres
- Medium density housing (250 units): 25 acres
- Low density housing (100 units): 20 acres
- Special uses (marine uses): 10 acres

The anticipated development totaled approximately 100 acres, with an assumed housing component of 750 units and a population of 3,000. Related development was expected to include a school, fire station, library, and light commercial development consistent with a satellite community.

4.1.6 Traffic Projections

Traffic projections were developed from the proposed development plan for each development area. The analysis considered each area and proposed an adjusted average daily traffic (ADT) when all areas are developed. Combined areas 1A, 1B and 2 were considered together and had an estimated adjusted ADT of 6,704; and combined areas 3 and 4 were considered together with an adjusted ADT of 3,513. The total adjusted ADT for the full build-out was estimated at 10,217 vehicles.

Improvements were proposed to North Douglas Highway to accommodate this estimated traffic volume, and the analysis noted that improvements could be made to the North Douglas Highway to service Development Areas 1A, 1B and 2 without a second channel crossing, but major improvements would still be required at the existing Douglas Island Bridge. The second channel crossing would be necessary to accommodate the full build-out, as well as substantial improvements to North Douglas Highway.

The WDCP estimated that 70 percent of the traffic generated by the development would use a second channel crossing instead of traveling the North Douglas Highway, which was based on the assumption that most trips, after allowing for work trips, would be generally shopping or recreation related. The WDCP proposed a design hourly volume (DHV) for the second channel crossing of 961 vehicles.

4.2 Comprehensive Plan (2013)

The CBJ Comprehensive Plan was intended to provide a logical, consistent, and purposeful approach to managing community growth and development. It was a road map that guided residents and public officials to identify areas suitable for specific types of development and assist with more efficient use of areas that have already been developed. The most recent Comprehensive Plan update was in 2013, and it provided a forecast of housing need, outlook for economic development, mechanisms to plan for energy use and efficiency, an overview of natural resources and hazards, and features associated with growth and built development (transportation, parks and recreation, land use, community features, and services).

4.2.1 North Douglas Transportation

The Comprehensive Plan Update noted that over the years, North Douglas Highway has experienced increased traffic from recreational users of North Douglas lands, shorelines, and waters, in addition to increased resident traffic. It noted that increased traffic is dangerous for pedestrians, joggers, bicyclists, and students awaiting school bus service.

Activities and facilities noted include:

- The boat launch on the north shore of Douglas Island
- Eaglecrest outdoor recreation area
- North Douglas Bridge connecting the West Douglas New Growth Area to the mainland

The Plan noted that for over 20 years, a North Douglas crossing of Gastineau Channel had been identified as the CBJ's top transportation priority, due to the role this additional access would play in facilitating development of west Douglas Island as well as in providing emergency access in the event the Douglas Island Bridge or another single route travel corridor in the area (North Douglas Highway or Egan Drive) is inaccessible or out-of-service. The plan noted that if or when this project moved forward, the North Douglas neighborhood, the West Douglas Development Working Group, relevant CBJ staff, other interested stakeholder groups, and representatives of the community should participate in a study of the associated transportation elements needed to accommodate the crossing at its landing on Douglas Island. These elements included the location, design, and capacity of the crossing landing structure; the roads or right-of-way accommodating the new traffic to and from west Douglas to the mainland via both the new crossing and the existing bridge; and separated pedestrian and bicycle pathways. The Plan further noted this study should be accompanied by a neighborhood plan. Identified Implementing Actions included:

- **8.8-IA21:** *Encourage DOT&PF to upgrade North Douglas Highway, with or without a North Douglas Bridge and associated arterial roadways, to reduce safety hazards related to the increased traffic on North Douglas Highway due to continuing residential development and increased recreational infrastructure on North Douglas. These improvements may include reduced and consistent speed limits throughout the roadway; installation of better warning signage at curves, bus stops at points with large numbers of residents and/or major destinations; separated pedestrian and bicycle pathways; and pull-off areas for school and public transit buses, if suitable for a minor arterial roadway with over 500 driveway access points.*
- **8.8-IA22:** *Work with DOT&PF to make improvements to roads, intersections, and bridges on Douglas Island to accommodate new affordable housing development. Transportation infrastructure deficiencies that should be addressed in the near future including the capacity of the Tenth Street and Egan Drive intersection, particularly turning movements at the Cordova Street and Douglas Highway intersection, and the reliance on a single road connection between Douglas Island and the mainland.*
- **8.8-IA23:** *Maintain strong municipal support for construction of a North Douglas crossing of Gastineau Channel to accommodate new, compact development of North Douglas and the New Growth Area on west Douglas Island. On the north Douglas landing, the*

bridge should connect to a roadway that provides sufficient right-of-way to accommodate a future fixed guideway transportation system to west Douglas.

In the near term, the CBJ Community Development Department should conduct a neighborhood planning effort for the North Douglas neighborhood, which would include:

- A. Analysis of potential impacts and improvements needed to maintain and enhance the existing character of the north Douglas community. All improvements should be designed to provide adequate capacity to take residents, workers, and visitors of Douglas Island to their destinations on the mainland. This may require improvements to the intersection of Tenth Street and Egan Drive as well as providing a new northern Gastineau Channel crossing route.*
 - B. Evaluation of the engineering design and costs and the environmental impacts of a North Douglas crossing landing intersection, including the options of the landing intersecting with North Douglas Highway or upland of the Highway at a Bench Road alignment; and*
 - C. Analysis of the location and configuration of separated pedestrian/bicycle paths, bus pull-offs and any access road(s) carrying traffic from Douglas Island to the mainland.*
- **8.8-IA24:** *Designate potential road and non-motorized trail linkages between residential neighborhoods throughout the Island, where terrain permits and avoiding high-value wetlands whenever possible.*
 - **8.8-IA25:** *Require sidewalks and bicycle paths or lanes along newly constructed arterial and collector streets where appropriate and provide or work with DOT&PF to provide such amenities along existing roads to provide safe and efficient access and recreation and to reduce pedestrian/automobile conflicts.*
 - **8.8-IA26:** *Implement the subarea improvements for Douglas Island called for in the Area Wide Transportation Plan as funding becomes available. Where there is a public need for those improvements in the immediate future, actively pursue the funding needed to complete those improvements.*
 - **8.8-IA27:** *Investigate providing improved transit service to North Douglas.*

4.2.2 North and West Douglas Land Use and Maps

Chapter 3 detailed community form and identified the West Douglas New Growth Area as a location designated for new development. The area would be a self-contained urban area providing a full complement of public services and facilities. The exact location, size, nature, timing, and public/private involvement in the development of these areas would be determined via a master plan for each specific New Growth Area. The Plan referenced the West Douglas Conceptual Plan 1997 and noted that planning for a pioneer road accessing Goldbelt, Inc. and CBJ-owned properties on northwest Douglas Island was underway at the time of the 2013 update.

Chapter 11 set out Land Use Maps and included subarea maps showing locations of vacant, potentially buildable land in subarea and physical development constraints, such as steep slopes and wetlands. Subarea 8 was North & West Douglas Island. Natural resources and hazards included eagle nests, stream corridors, wetlands and tidelands, gravel and mineral resources, flooding, landscape and avalanche hazards, watershed areas, cultural and historic resources, scenic corridors, and viewsheds, as well as the need to consider the West Douglas Concept Plan. West Douglas New Growth Area could accommodate over 2,000 residential units along with commercial, industrial, and recreational facilities. All utilities and services would need to be provided and self-contained within the New Growth Areas once road access was assured. The new growth area was intended for phased development in accordance with the WDCP. The guidelines and considerations set out would support the development of a future neighborhood plan for west Douglas.

4.3 CBJ Area Wide Transportation Plan Volume I (2001)

The CBJ Area Wide Transportation Plan (AWTP) defined the framework for transportation projects in the CBJ for the next 20 years. It included recommended solutions to transportation problems and concerns throughout the borough. The AWTP noted the collective implementation of these projects would affect the character of the entire transportation system in ways that were not only complimentary to one another but also consistent with the overall goals set by the transportation steering committee. The AWTP included recommendations for corridor preservation, Transportation Demand Management (TDM), Egan Drive improvements, the Second Crossing, and land use zoning and development requirements.

The AWTP set out a summary of transportation deficiencies, solutions, and project rankings. The Second Crossing was identified as a state-led areawide priority, with its delivery programmed for the near term. The AWTP noted the crossing would provide improved connectivity for all modes of travel and secondary emergency access. It would divert some of the existing vehicle trips from the Douglas Island Bridge but would not eliminate the need for identified capacity and safety improvements to that facility. It noted the Assembly had taken several actions in support of the second crossing, including ranking it as a top transportation priority. It further noted the Assembly also supported a related improvement – extending the North Douglas Highway.

4.4 Douglas Highway Corridor Traffic Study (1996)

The Douglas Highway Corridor Traffic Study provided an analysis of existing and future traffic needs along Douglas Highway. Its purpose was to identify improvements to address the current and future needs of the corridor serving Douglas and west Juneau and acknowledge the growth potential for areas served by the North Douglas Highway (west Douglas community). The study analyzed vehicle, pedestrian, bicycle, commercial traffic, and public transit modes, primarily focusing on the Douglas Highway south of the Douglas Island Bridge.

4.4.1 Existing Conditions

As part of the Douglas Highway existing traffic conditions evaluation, the study noted that between 1992 to 1995, there were a total of 78 reported accidents on Douglas Highway, with most accidents occurring on the northern part of the corridor where North Douglas Highway and Douglas Highway meet. It explained that this was likely because of the higher volumes that were observed in this area, and that most accidents were either rear end or angle-type collisions that are usually caused by vehicles slowing down or stopping at intersections. The worst peak

hour operation was at the North Douglas Highway intersection with Douglas Highway, which had a level of service (LOS) of F with the 20–30-minute morning peak, long delays for side-street traffic, and some congestion for through traffic. Traffic conditions outside of peak periods operated relatively freely.

4.4.2 Future Conditions

Vehicular traffic volume forecasts were developed for three horizons based on land use and an overall growth in housing of approximately two percent per year. A combination of field observations and expected population growth from the 1995 CBJ Comprehensive Plan yielded the following planning horizons:

1. Short or near-term future – five years out to 2000
2. Mid-range future – ten years out to 2005
3. Long-range future – 20 years out to 2015

Also included was a view of the potential development outlined in the West Douglas Conceptual Plan, as it had a direct impact on traffic operations along Douglas Highway. The additional development was expected to yield an increase of 18.2 percent in daily vehicle trips in the short term on North Douglas Highway, 34.7 - 84.2 percent in the mid-range (dependent on if the west Douglas development proceeded), and 67.7-169.5 percent in the long-range to 2015.

For the 20-year planning horizon of the study, approximately 700-1,250 additional housing units were expected, with most of the growth occurring at west Douglas. This was expected to generate failures at the intersection of North Douglas Highway and Douglas Highway, with the 20-30-minute peak extending to a 45–60-minute peak.

4.4.3 Traffic Improvement Treatments

The study classified transportation problems along Douglas Highway into three general areas of need: safety, operation, and network. Possible treatments to address these needs were identified, ranging from restriping to construction of new roadway segments. Three categories of treatment were proposed: Transportation System Management (TSM), TDM, and capital improvements ranging from low to high cost. A second channel crossing in the vicinity of the airport was identified as the most expensive of the capital improvements recommended, with a planning-level cost estimate of \$18 million in 1995 dollars. The study noted the second crossing could provide significant relief to the anticipated traffic load on the Douglas Island Bridge but would provide little benefit to the current and anticipated traffic issues on Douglas Highway south of the bridge. It would most likely be associated with the level of development identified for west Douglas.

Reconfiguration of the Douglas Island Bridge to three lanes was also identified, with a reversible center lane dependent on peak flows (AM or PM peak). To be effective, the study noted that roadway improvements at either end of the bridge would likely be needed. In addition, the report recommended constructing an uphill collector roadway parallel to the Douglas Highway (Bench Road).

The study ultimately recommended focusing on TSM and TSM improvements for the corridor and installing an actuated traffic signal system at the intersection of North Douglas Highway and Douglas Highway. It recommended that further improvements should include a stakeholder and community involvement process to identify a joint CBJ, DOT&PF, and stakeholder vision for the corridor.

4.5 Juneau Economic Development Plan (2015)

The Juneau Economic Development Plan (EDP) is a 10-year economic development roadmap for Juneau, to position the community on a path of increasing economic resiliency and prosperity. Eight high-potential economic development initiatives are identified, including enhancing essential infrastructure and promoting housing affordability and availability.

4.5.1 Enhance Essential Infrastructure

This initiative has two primary areas of focus, including west Douglas access and development and freight shipping affordability. The EDP notes that west Douglas Island is formally recognized as a future growth area, with 1,740 acres of land owned by Goldbelt, Inc. including the coastal frontage between Outer Point and Point Hilda, and 3,400 acres owned by CBJ. A Memorandum of Agreement with a five-year term was signed on July 1, 2010 between CBJ and Goldbelt, Inc. to extend North Douglas Highway to Point Hilda providing access to their respective properties and supporting the goal of future community expansion including port facilities, a cultural center, and other developments. Infrastructure development opportunities identified in the EDP are:

- **Extend North Douglas Highway:** Construct a 2.5-mile pioneer road (one-lane gravel road) with periodic pullouts from the end of North Douglas Highway to support engineering, environmental studies, and planning needed for west Douglas access improvement and development.
- **Select Development of a Bench Road:** Use a phased approach to develop a Bench Road as a secondary road to North Douglas Highway.
- **North Douglas/Gastineau Channel Bridge:** A critical access need to fully realize the residential, commercial, industrial, and recreational potential of west Douglas Island. Other important community benefits include providing emergency access in the event the Douglas Island Bridge is inaccessible, improved access for public safety needs, improved travel efficiency between the Juneau mainland and Douglas Island, and diverting some traffic from the Douglas Island Bridge thereby freeing up some capacity to handle the travel demands of denser development and more people living on west Douglas Island and Douglas.

The EDP notes that North Douglas Crossing, coupled with a west Douglas road extension would have a range of important economic benefits for Juneau, as 60 percent of the property of CBJ's long-term land disposal list is on Douglas Island in areas that would benefit from a northern bridge crossing. Supporting this land for development would generate property tax benefits. The Plan further notes that an opportunity exists to develop deep-water port facilities and protected moorage at west Douglas. The current freight docks are limited by the inability of some container-laden barges to pass beneath the Douglas Island Bridge and by the extra time required to transit Douglas Island to reach the rock dump facility. This facility could also improve intermodal transportation links to neighboring southeast Alaska, improve freight movement in

Juneau in general, potentially relocate federal government waterfront facilities (USCG, NOAA) freeing up valuable downtown waterfront property for other development, and increase land available for waterfront and non-waterfront light and other industrial development.

The EDP outlines that survey research has measured strong community support for a North Douglas/Gastineau Channel bridge and refers to the results of a 2007 McDowell Group telephone survey of 500 households which found that 76 percent of Juneau's residents supported the crossing. However, funding remains a key issue, and in 2010 Juneau voters rejected a plan to use Juneau's temporary one percent sales tax for 10 years to fund construction of a second crossing. The EDP further points to changing conditions that have impacted work previously completed to identify a preferred route for the crossing.

5.0 RECOMMENDED DATA FOR PEL STUDY

5.1 Validity of Baseline Data

All baseline environmental conditions and studies are over 17 years old. Typically, the shelf life of a DEIS is three-to-five years, after which re-evaluation is required. As stated in the NEPA Re-Evaluation Joint Guidance for the FHWA, Federal Railroad Administration, and Federal Transit Administration (August 14, 2019):

"A re-evaluation is a review conducted by the Agency of any proposed change in action, affected environment, anticipated impact, applicable requirements, or mitigation measure as they relate to the environmental document or decision. The purpose of a re-evaluation is to determine whether an environmental document or decision remains valid for Agency decision-making. A re-evaluation is a continuation of the project development process, though it does not necessarily re-open the NEPA decision. However, it does serve as the supplemental analysis or supplemental documentation under 23 CFR 771.130."

It would be difficult to make a case for reusing the baseline environmental condition information in the PEL Study if the DOT&PF intends to incorporate it into a future NEPA process. Each resource section could be used as a starting point for outlining the same resource in the PEL Study, which would create efficiencies for data analysis, but the specific data and other existing condition information would need to be verified and updated to reflect current conditions. However, if for example, a document such as a Comprehensive Plan for CBJ has not been updated since 2005, the information could be directly cited and used.

The following list provides a general summary of potentially viable information for each resource section:

- **Land use and transportation plans, studies, policy documents, maps, etc.,** that are cited would need to be checked for updated versions and new information.
- All data in **social, economic, and environmental justice** sections of studies and documents is outdated. However, categories and general information could be used.

- General and historic information on **geology, topography, and soils** remains viable and could be used. **Seismic activity** will need to be updated.
- **Air quality, noise, and water quality** will need to be updated with current data, new standards, and policies.
- **Wetlands, upland habitats, flood plains, water bodies, and coastal zones** will need to be updated for current conditions. General information on wetland types and functions, the major water bodies, general information, and descriptions of habitat areas will be able to be used.
- **Aquatic species, essential fish habitat, marine mammals, amphibians, macroinvertebrates, land mammals, and birds** will need to have data updated. General information can be used.
- **Threatened and endangered species** and **species of concern** would need updating.
- There are no **wild and scenic rivers** or **coastal barriers**, and these are not addressed.
- There were no properties in the **National Register of Historic Properties**. This may have changed and would need to be reviewed and updated. No Alaska Heritage Resources Survey, State Historic Preservation Office, tribal or public outreach/coordination was performed and will be needed.
- **Contamination** studies need to be updated.
- **Climate change** was not addressed.
- **Energy** was addressed, but this was limited and will need to be updated.

5.2 Recommended Data Updates

The following data updates are recommended to support purpose and need development and identification of alternatives for the Juneau Douglas North Crossing PEL Study:

- **Land Use and Ownership:** Identify and create maps showing all existing land uses, Comprehensive Plan designations, zoning, and land ownership for the land within the study area. Describe each zoning category, applicable comprehensive plan land use policies, applicable CBJ Administrative Code sections, applicable policies in area plans and land management plans, relevant land use plans and studies, and identify the owners of mapped properties.
- **Transportation Network:** Identify and create maps showing the existing transportation network including class of roadway, pedestrian and bicycle routes, and transit routes. Describe the existing transportation system, proposed local and regional transportation improvements, transit facilities and routes, applicable comprehensive transportation plan policies, the AWTP, and other applicable code sections for transportation facilities.

- **Parks and Recreation:** Identify and create maps showing the existing parks and recreation sites in the study area including parks, campgrounds and RV parks, hiking trailheads and trails, marinas and boat launches, other private and public recreational facilities and access points, subsistence hunting and fishing areas, and wilderness and refuge areas.
- **Aviation and Navigation:** Identify and create maps showing all existing aviation facilities including object free zones and navigation facilities and routes.
- **Section 4(f) and Section 6(f) Resources:** Identify and create a map showing all Section 4(f) and 6(f) resources within the study area. Identify the owner of the property and the use or function that makes the existing or planned property a 4(f) or 6(f) resource.
- **Cultural Resources:** Identify and create a map showing cultural resources within the study area and its owner. Information should come from the Alaska Heritage Resources Survey (AHRS) data repository.
- **Contaminated Sites:** Create a map showing all contaminated waste sites regulated by the Resource Conservation and Recovery Act and the Comprehensive Environmental Response, Compensation, and Liability Act, any non-regulated waste sites, and identified groundwater plumes. Identify the owner of the properties and type of contamination located at the property. Information is available at the ADEC Contaminated Sites website.
- **Native Allotments:** Create a map identifying all lands acquired under the Alaska Native Allotment Map of 1906 and still owned by the recipients or their descendants within the study area.
- **Wetlands and Waterbodies:** Create a map identifying all wetlands and waterbodies (lakes and rivers) located in the study area. The data can be drawn from existing CBJ and National Wetlands Inventory (NWI) mapping and expert judgement from aerial photos. Include a breakdown of major wetland classifications, acreage, and brief descriptions of waterbodies within the study area.
- **Floodplains:** Create a map identifying the 100-year floodplain for all water bodies in the study area, extracted from existing Federal Emergency Management Agency (FEMA) flood hazard mapping.
- **Wildlife and Fish Resources:** Create maps identifying habitat areas for upland species, fish habitat species, EFH locations, and anadromous streams. Describe aquatic species, EFH, marine mammals, amphibians, macroinvertebrates, land mammals, birds, threatened and endangered species and species of concern, and known fish passage issues within the study area.
- **Hydrology and Water Quality:** Create maps identifying community water systems and protected drinking water areas, drainage basins and recharge areas, and Alaska DEC impaired waters within the study area and within 1,000 feet of the study area boundary.

- **Geological and Geotechnical Maps:** Create maps identifying topography, soils, seismic areas, geological and geotechnical hazard areas (including erosion, landslide, rockfall, liquefaction, and permafrost), historic areas of concerns within the study area using databases including DOT&PF Maintenance and Operations (M&O), and the DOT&PF Geotechnical Asset Management (GAM) database.
- **Major Utilities:** Identify utility facilities and components that will be difficult and/or expensive to relocate. Examples include large high pressure natural gas mains, sewer interceptors, electrical substations, telecom switching stations, electrical transmission lines, etc. Local utility distribution systems will typically not be included on the map. Meet with each of the affected utilities to obtain system as-built plans and identify critical facilities within the study area.
- **Social Groups:** Prepare maps showing the social groups that could be especially benefitted or harmed (i.e., environmental justice areas of concern) by a proposed north channel crossing. Identify locations where low income, elderly, disabled, non-drivers, transit dependent, minority, or ethnic populations are over-represented. Visual inspections, census data, interviews with community leaders, and interviews with affected housing authorities will be used to obtain data.
- **Crash Data:** Identify and create a map showing locations of fatal and major injury crashes for that last 10 years that crash data is available and evaluate intersection and segment crash rates against comparison rates for similar facilities.
- **Coastal Zone Management Areas and Resources:** Prepare maps showing the location of coastal zone management (CZM) areas and coastal resources. Identify the key policies of the CZM program applicable to projects in the study area and key characteristics of each CZM area.
- **Navigable Waterways:** Prepare a map showing the location of navigable waterways within the study area.
- **Potential Permits:** Identify potential permits that would be required for a north channel crossing and associated improvements. Permits may include Endangered Species Act Section 7 Consultation, Marine Mammal Protection Act, Magnusson-Stevens Fisher Conservation Management Act, Migratory Bird Treaty Act, Alaska National Interest Lands Conservation Act (ANILCA), and potential land use actions and permits.
- **Population Projection:** Develop a population growth forecast to 2050 using the State of Alaska, Department of Labor (DOL) low, base, and high scenario projections.
- **Economic Projection:** Use the population projection to estimate how population totals and distributions might change under existing conditions and development scenarios reflecting potential/anticipated growth envisioned on Douglas Island.
- **Traffic Forecast:** Create a traffic forecast to extrapolate future traffic based on the population growth and economic projection scenarios.

6.0 NEXT STEPS

The information included in this summary report will assist in developing the work plan for the Juneau Douglas North Crossing PEL Study. In particular, the recommended data can leverage information captured in the 2005 Project Development Summary Report, but much of the information will need to be updated to reflect current conditions given the 17-year time gap. Recommended data is summarized in Section 5.2 of this report, and this has been carried through to the work plan.

Data can also be drawn from this summary for inclusion in the PEL Study. Key elements that can be supported by information included in the previous plans and studies include:

- **Purpose and need:** Material contained in the summary report can be used as background materials for the purpose and need. Information will need to be updated for reliability.
- **Alternatives development:** Previous alternatives provide useful information and ideas that can be evaluated and considered as part of the alternatives development process.
- **Public feedback:** Much of the material summarized in this report has been reviewed by the public, who have provided feedback on their concerns and issues that require further consideration. Given the time elapsed since the material was produced, the public will need to be involved in a new process, but previous feedback provides good baseline information on matters that may require more detailed consideration.