

9.6.4 Yandukin Drive Area Crossing

Yandukin Drive is the easterly access to the *Juneau International Airport* and to the *Fred Meyer* shopping area. A newly proposed interchange at this location presents a logical terminus for the JSCC project and replaces the 1984 proposed intersection at the Egan Drive MP 8 location. Both of the 1984 Alternatives at this location should be combined to concentrate on the Yandukin Drive/Egan Drive intersection and Eaglecrest Road/North Douglas Highway intersection. Updated crossing concepts could include option A to curve around JIA Part 77 airspace or option B, which considers a potential tunnel under the JIA runway in combination with a bridge over the Gastineau Channel, providing a direct connection to Eaglecrest Road. Option A would extend the Yandukin Drive cross street south to the southern side of the existing dredge pond adjacent to *Era Aviation*. Once past *Era Aviation*, the new roadway would loop around the eastern end of the airport runway, just outside the Part 77 obstruction clear zone, and then come back to the southerly alignment over the Gastineau Channel and tie into the North Douglas Highway at the Eaglecrest Road intersection. Option B would cross under the runway with a cut-and-cover tunnel or superspan arch pipe, daylight on the southern end of the JIA property and then cross the Gastineau Channel on structure to connect with Eaglecrest Road. Constructability issues may limit the viability of this option.

Yandukin Drive Area crossings could employ either a fixed bridge or a movable-span bridge and options include an all structure crossing or an embankment/fill crossing with a fixed or movable span structure over the navigational channel. Fixed bridge concepts would employ a standard Bulb-T structure with a 51-foot vertical and a 75-foot horizontal navigational opening, and a movable bascule bridge would utilize a 21-foot vertical (in the closed position) by 75-foot horizontal navigational opening. In order to optimize all the bascule bridge's effectiveness, the alignments have to be as close to 90 degrees as possible to the navigation channel.

The primary advantages of the Yandukin Drive Area Crossing concepts are:

- Optimizes utilization of the new interchange proposed at Yandukin Drive and the existing intersection at Eaglecrest Road.
- Provides a direct connection to Eaglecrest Ski Area, a popular recreational destination
- Crosses the MWSGR at a disturbed area of the Refuge near the JIA
- Under the Option A alternative, represents a lower range cost fixed –bridge embankment or movable span embankment potential.
- Similar growth to the Vanderbilt Hill Road/Sunny Drive case, except that North and West Douglas is expected to grow more strongly and Douglas Bridge to Fish Creek less strongly.
- Of all the crossing scenarios, the Yandukin Drive Area Crossing would attract the greatest traffic volumes to the New Growth Areas on North and West Douglas Island
- Although this concept would impact the MWSGR, impacts are less significant because the crossing is further removed from the more productive areas to the west near the mouth of the Mendenhall River or in the vicinity of the Salmon Creek estuary.

The primary disadvantages of the Yandukin Drive Area Crossing concepts are:

- Impacts to the MWSGR and eagle nests in the vicinity of the Eaglecrest Road connection
- The bridge terminus on Douglas Island would likely impact residential land uses due to the developed nature of this area.
- The Option A alternative concept would involve a circuitous routing around JIA and require utilization of JIA right-of-way.

- Under the Option B alternative concept, represents one of the highest costs compared to other crossing scenarios for both initial construction costs and long term operation and maintenance costs.
- Construction and Life-Cycle Costs (in Millions) and annualized operation and maintenance costs (in thousands) of the Yandukin Drive Area Crossing are estimated at:

Option A				
FIXED SPAN				
	Embankment/Structure	All Structure	MOVABLE SPAN	
			Embankment/Structure	All Structure
Construction Cost:	\$ 83 M-91 M	\$ 209 M-230 M	\$ 96 M-106 m	\$ 258 M-284 M
Life-Cycle Cost:	\$ 94 M-103 M	\$ 225 M-248 M	\$ 107 M-118 M	\$ 274 M-301 M
Annualized Operation and Maintenance Cost:	\$312,000-343,000	\$290,000-319,000	\$354,000-389,000	\$337,000-371,000

Option B				
FIXED SPAN				
	Embankment/Structure	All Structure	MOVABLE SPAN	
			Embankment/Structure	All Structure
Construction Cost:	\$ 144 M-158 M	\$ 155 M-171 M	\$ 155 M-171 M	\$ 242 M-266 M
Life-Cycle Cost:	\$ 153 M-168 M	\$ 164 M-180 M	\$ 163 M-179 M	\$ 252 M-277 M
Annualized Operation and Maintenance Cost:	\$230,000-253,000	\$225,000-248,000	\$272,000-299,000	\$268,000-295,000

9.6.5 Industrial Boulevard Area Crossing

The updated Industrial Boulevard Area Crossing concept is recommended to remain similar to the original 1984 Alternative 8 concept. The CBJ has indicated that Industrial Boulevard would represent a logical terminus due to existing commercial/industrial land development and proposed intersection improvements at Industrial Boulevard/Glacier Highway. Updated concepts at this location would have to be developed to avoid intrusion into JIA Part 77 airspace and connections in the 9-mile Creek area could be problematic due to the designated Conservation Area.

Gastineau Channel crossings could employ either a fixed bridge or a movable-span bridge and options include an all structure crossing or an embankment/fill crossing with a fixed or movable span structure over the navigational channel. Fixed bridge concepts would employ a standard Bulb-T structure with a 51-foot vertical and a 75-foot horizontal navigational opening, and a movable bascule bridge would utilize a 21-foot vertical (in the closed position) by 75-foot horizontal navigational opening. In order to optimize all the bascule bridge's effectiveness, the alignments have to be as close to 90 degrees as possible to the navigation channel.

The primary advantages of the Industrial Boulevard Area Crossing concepts are:

- Optimizes utilization of the intersection improvements proposed at Industrial Boulevard and the Glacier Highway and existing commercial/industrial land development.
- Connects into Douglas Island west of the majority of development on North Douglas Island
- Provides convenient access to the Mendenhall Valley

The primary disadvantages of the Industrial Boulevard Area Crossing concepts are:

- Impacts to the MWSGR and low tide bird concentration hotspots
- Involves the longest crossing of the MWSGR

- Involves an additional structural crossing(s) of the Mendenhall River
- Could impact 9-mile Creek area and the designated Conservation Area
- Less growth is expected in the North and West Douglas area with this crossing area due to lengthier and less convenient access.
- The traffic model predicts that this generalized crossing area would attract nearly the smallest number of vehicles per day of all the crossing options (similar to the Mendenhall Peninsula Area crossings). Located farthest from the Douglas Bridge, it would divert fewest trips from the existing facility.
- Compared to the other general crossings assessed, fewer trips from North Douglas would use the new crossing to access Downtown. This in turn would serve to double trips on the North Douglas road from the Douglas Bridge to about Bonnie Brae.
- Fixed and movable span all-structure crossing concepts would be the highest of all concepts within the MWSGR.

➤ Construction and Life-Cycle Costs (in Millions) and annualized operation and maintenance costs (in thousands) of the Industrial Boulevard Area Crossing are estimated at:

	FIXED SPAN		MOVABLE SPAN	
	Embankment/Structure	All Structure	Embankment/Structure	All Structure
Construction Cost:	\$ 87 M-96 M	\$ 224 M-268 M	\$ 108 M-119 M	\$ 265 M-292 M
Life-Cycle Cost:	\$ 101 M-111 M	\$ 244 M-268 M	\$ 123 M-135 M	\$ 285 M-314 M
Annualized Operation and Maintenance Cost:	\$426,000-469,000	\$412,000- 453,000	\$475,000-523,000	\$459,000- 505,000

9.6.6 Mendenhall Peninsula Area Crossing to Entrance Point Area

The updated Mendenhall Peninsula Area Crossing to the Entrance Point Area is representative of five 1984 Alternatives that all originated along the east side of the Mendenhall Peninsula, Engineer’s Cutoff Road, or the west side of the Mendenhall Peninsula, Fritz Cove Road. They all terminated on North Douglas Island in the vicinity of Hut Point/Entrance Point. Updated crossing concepts in this vicinity could be expanded upon these previous concepts, although residential impacts along the existing Mendenhall Peninsula roads would not be desirable. An additional concept would be to consider an alignment down the center of the Mendenhall Peninsula, away from established residential land uses, that could open new lands for development, possibly improve JIA Part 77 airspace, and provide a source of gravel materials for construction. Connections on North Douglas Island would need to be sensitive to Fish Creek Park at Hut Point, Fish Creek, and the surrounding environment.

Crossing concepts in this area could employ either a fixed bridge or a movable-span bridge and options include an all structure crossing or an embankment/fill crossing with a fixed or movable span structure over the navigational channel. Fixed bridge concepts would employ a standard Bulb-T structure with a 51 foot vertical and a 75 foot horizontal navigational opening, and a movable bascule bridge would utilize a 21 foot vertical (in the closed position) by 75 foot horizontal navigational opening. In order to optimize all the bascule bridge’s effectiveness, the alignments have to be as close to 90-degrees as possible to the navigation channel.

The primary advantages of the Mendenhall Peninsula Area Crossing to Entrance Point concepts are:

- Connects into Douglas Island west of the majority of development on North Douglas Island
- An alignment concept down the center of the Mendenhall Peninsula, away from established residential land uses, could open new lands for development, possibly improve JIA Part 77 airspace, and provide a source of gravel materials for construction.

The primary disadvantages of the Mendenhall Peninsula Area Crossing to Entrance Point concepts are:

- Impacts to the MWSGR, low tide bird concentration hotspots, several eagle nests on both the Mendenhall Peninsula and Douglas Island sides, and sensitive estuarine habitats near the mouth of the Mendenhall River
- Involves an additional structural crossing of the Mendenhall River
- Could impact sensitive environmental habitats around Hut Point/Entrance Point, Fish Creek, and Fish Creek Park
- Less growth is expected in the North and West Douglas area with this crossing area due lengthier and less convenient access.
- The traffic model predicts that this generalized crossing area would attract the smallest number of vehicles per day of all the crossing options. Located farthest from the Douglas Bridge, it would divert fewest trips from the existing facility.
- Compared to the other general crossings assessed, fewer trips from North Douglas would use the new crossing to access Downtown. This in turn would serve to double trips on the North Douglas road from the Douglas Bridge to about Bonnie Brae.
- Would impact Natural Area Park lands and the Mendenhall Peninsula Trail on the tip of the Mendenhall Peninsula.
- Costs are among the highest of all crossing scenarios within the MWSGR.

➤ Construction and Life-Cycle Costs (in Millions) and annualized operation and maintenance costs (in thousands) of the Mendenhall Peninsula Area Crossing to Entrance Point Area are estimated at:

	FIXED SPAN		MOVABLE SPAN	
	Embankment/Structure	All Structure	Embankment/Structure	All Structure
Construction Cost:	\$ 111 M-122 M	\$ 212 M-233 M	\$ 155 M-171 M	\$ 260 M-286 M
Life-Cycle Cost:	\$ 134 M-147 M	\$ 283 M-311 M	\$ 178 M-196 M	\$ 286 M-315 M
Annualized Operation and Maintenance Cost:	\$684,000-752,000	\$675,000- 743,000	\$734,000-807,000	\$723,000- 795,000

9.6.7 Mendenhall Peninsula Area Crossing via Spuhn Island to 11-mile Creek Area

This original 1984 Alternative should remain viable for comparison purposes in updated crossing concept evaluations since it represents an avoidance alternative to impacting the MWSGR. An additional concept could be to traverse directly from the Mendenhall Peninsula to Douglas Island; however, crossing the Mendenhall River would need to be considered.

Crossing concepts in this area across Fritz Cove would be limited to fixed bridges, involving cable-stayed or suspension bridge concepts, due to extreme water depths (200-300 feet). Fixed bridge concepts would provide for a minimum 51-foot vertical clearance.

The primary advantages of the Mendenhall Peninsula Area Crossing to Entrance Point concepts are:

- This is the only alignment, other than the Channel Drive Area Crossing that fully avoids the *Mendenhall Wetlands State Game Refuge*.
- Connects into Douglas Island west of the majority of development on North Douglas Island
- An alignment concept down the center of the Mendenhall Peninsula, away from established residential land uses, could open new lands for development, possibly improve JIA Part 77 airspace, and provide a source of gravel materials for construction.

The primary disadvantages of the Mendenhall Peninsula Area Crossing to Entrance Point concepts are:

- Could adversely impact sensitive marine habitats and marine mammals in Fritz Cove, and numerous eagle nests on both the Mendenhall Peninsula and Spuhn Island.
- Would adversely affect residences near the tip of the Mendenhall Peninsula and on Spuhn Island.
- Less growth is expected in the North and West Douglas area with this crossing area due to lengthier and less convenient access.
- The traffic model predicts that this generalized crossing area would attract the smallest number of vehicles per day of all the crossing options. Located farthest from the Douglas Bridge, it would divert fewest trips from the existing facility.
- Compared to the other general crossings assessed, fewer trips from North Douglas would use the new crossing to access Downtown. This in turn would serve to double trips on the North Douglas road from the Douglas Bridge to about Bonnie Brae.
- Could impact Natural Area Park lands and the Mendenhall Peninsula Trail on the tip of the Mendenhall Peninsula.
- This is the most expensive crossing concept and has the highest life-cycle cost by a factor of three compared to other representative crossing areas.

➤ Construction and Life-Cycle Costs (in Millions) and annualized operation and maintenance costs (in thousands) of the Mendenhall Peninsula Area Crossing via Spuhn Island to 11-mile Creek Area are estimated at:

Construction Cost:	\$776 M-854 M
Life-Cycle Cost:	\$807 M-888 M
Annualized Operation and Maintenance Cost:	\$785,000-864,000

9.6.8 No-Build Alternative

The No-Build Alternative must remain a viable alternative throughout the DEIS process.

9.7 Summary

Table 9-3 presents a total project cost summary of the updated range of representative crossing area concepts previously discussed:

**Table 9-3: Total Project Cost Summary of Updated Representative Crossing Area Concepts*
(in Millions)**

Updated Representative Crossing Area Concept	FIXED SPAN		MOVABLE SPAN	
	Embankment/ Structure	All Structure	Embankment/ Structure	All Structure
Channel Drive/Salmon Creek Area Crossing	N/A	\$75M- 83M	N/A	N/A
Vanderbilt Hill Road Area Crossing	\$66M-73M	\$103M-113M	\$103M-113M	\$148M-163M
Sunny Drive Area Crossing	\$66M-73M	\$128M-141M	\$84M-92M	\$168M-185M
Yandukin Drive Area Crossing-Option A	\$83M-91M	\$209M-230M	\$96M-106M	\$258M-284M
Yandukin Drive Area Crossing-Option B	\$144M-158M	\$155M-171M	\$155M-171M	\$242M-266M

**Table 9-3 (continued)
Total Project Cost Summary of Updated Representative Crossing Area Concepts*
(in Millions)**

Updated Representative Crossing Area Concept	FIXED SPAN		MOVABLE SPAN	
	Embankment/ Structure	All Structure	Embankment/ Structure	All Structure
Industrial Boulevard Area Crossing	\$87M-96M	\$224M-268M	\$108M-119M	\$265M-292M
Mendenhall Peninsula Area Crossing to Entrance Point Area	\$111M-122M	\$212M-233M	\$155M-171M	\$260M-286M
Mendenhall Peninsula Area Crossing via Spuhn Island to 11-mile Creek Area	N/A	\$776M-854M	N/A	N/A

*Costs represent total crossing concept costs, including administration, design, construction, construction management, assumed \$5 M Right-of-Way cost place-holder for all concepts, and contingencies for construction and environmental mitigation, based on conceptual design quantities and materials unit costs. In this analysis, a contingency of 35 percent was applied to all options. The amount of contingency will likely change with additional detailed engineering.

Table 9-4 presents a life-cycle cost summary of the updated range of representative crossing area concepts previously discussed:

**Table 9-4: Life-Cycle Cost Summary of Updated Representative Crossing Area Concepts
(in Millions)**

Updated Representative Crossing Area Concept	FIXED SPAN		MOVABLE SPAN	
	Embankment/ Structure	All Structure	Embankment/ Structure	All Structure
Channel Drive/Salmon Creek Area Crossing	N/A	\$81M-89M	N/A	N/A
Vanderbilt Hill Road Area Crossing	\$71M-78M	\$110M-121M	\$109M-120M	\$155M-171M
Sunny Drive Area Crossing	\$74M-81M	\$138M-152M	\$92 M-101M	\$179M-197M
Yandukin Drive Area Crossing-Option A	\$94M-103M	\$225M-248M	\$107M-118M	\$274M-301M
Yandukin Drive Area Crossing-Option B	\$153M-168M	\$164M-180M	\$163M-179M	\$252M-277M
Industrial Boulevard Area Crossing	\$101M-111M	\$244M-268M	\$123M-135M	\$285M-314M
Mendenhall Peninsula Area Crossing to Entrance Point Area	\$134M-147M	\$283M-311M	\$178M-196M	\$286M-315M
Mendenhall Peninsula Area Crossing via Spuhn Island to 11-mile Creek Area	N/A	\$807M-888M	N/A	N/A

Table 9-5 presents approximate annualized operation and maintenance cost summary of the updated range of representative crossing area concepts previously discussed:

Table 9-5: Annualized Operation and Maintenance Cost Summary of Updated Representative Crossing Area Concepts

Updated Representative Crossing Area Concept	FIXED SPAN		MOVABLE SPAN	
	Embankment/ Structure	All Structure	Embankment/ Structure	All Structure
Channel Drive/Salmon Creek Area Crossing	N/A	\$85,000-94,000	N/A	N/A
Vanderbilt Hill Road Area Crossing	\$131,000-144,000	\$120,000-132,000	\$172,000-189,000	\$167,000-184,000
Sunny Drive Area Crossing	\$234,000-257,000	\$221,000-243,000	\$277,000-305,000	\$269,000-296,000
Yandukin Drive Area Crossing-Option A	\$312,000-343,000	\$290,000-319,000	\$354,000-389,000	\$337,000-371,000
Yandukin Drive Area Crossing-Option B	\$230,000-253,000	\$225,000-248,000	\$272,000-299,000	\$268,000-295,000
Industrial Boulevard Area Crossing	\$426,000-469,000	\$412,000-453,000	\$475,000-523,000	\$459,000-505,000
Mendenhall Peninsula Area Crossing to Entrance Point Area	\$684,000-752,000	\$675,000-743,000	\$734,000-807,000	\$723,000-795,000
Mendenhall Peninsula Area Crossing via Spuhn Island to 11-mile Creek Area	N/A	\$785,000-864,000	N/A	N/A

9.8 Conclusions

Following are the preliminary conclusions of the current conditions assessment of the six generalized crossing areas for the JSCC project. Table 9-6 provides a general summary of some of the more key comparative factors. The six general Crossing areas include:

- 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 Boulevard Area Crossing
- Mendenhall Peninsula Area Crossing (to Entrance Point

Table 9-6: General Summary of Six Generalized Crossing Areas

Alternative	Best Meets Comprehensive Purpose & Need Objectives	Avoids the MWSGR	Overall has Least Costly Crossing Potential (<\$100M)	Best Avoids Highest Value Environmental Areas within the MWSGR
Channel Dr./Salmon Creek Area Crossing		X	X	
Vanderbilt Hill Road Area Crossing	X		X	X
Sunny Dr. Area Crossing	X		X	X
Yandukin Dr. Area Crossing	X		X	X
Industrial Boulevard Area Crossing				
Mendenhall Peninsula Area Crossing		X		

In consideration of comprehensive evaluations of physical conditions, transportation planning, existing and future land uses, environmental constraints and regulations, engineering criteria/constraints/feasibility, navigational considerations, development plans, approximate ranges of costs, consistency with purpose and need objectives, and agency and public comments received during the preliminary scoping phase for the EIS, the following preliminary conclusions can be assumed:

- A crossing in the vicinity of the Vanderbilt Hill Road Area to Yandukin Drive Area provides the greatest potential for meeting the comprehensive Purpose and Need objectives of the project.
- The least costly crossing potentials (with embankment) are in the Vanderbilt Hill Road 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.

In addition, based on the preliminary scoping process and engineering/environmental data collection activities conducted to date, there are warrants for not further advancing alternatives development west of the JIA. Primary features west of the JIA include the Mendenhall River, western end of the MWSGR, Mendenhall Peninsula, Fritz Cove, and North Douglas Island in the vicinity of Fish Creek. The reasons for eliminating further consideration of this area are based on a comprehensive set of factors, including environmental “hot spot” areas and potential impacts to protected species; comments from regulatory agencies; results of preliminary travel demand analysis; geometric constraints with crossing the Mendenhall River in the vicinity of Industrial Boulevard and potential conflicts with JIA Part 77 airspace; potential conflicts with future expansion plans at JIA; potential Section 4(f) resources on the Mendenhall Peninsula and North Douglas Island; and crossing types/costs.

Environmental Hot Spot Areas

Through literature searches and interviews with environmental regulatory agencies and local ecologists, several environmental “hot spot” areas have been identified west of the JIA, including:

- Fritz Cove
- Mendenhall River; particularly the mouth of the river
- Fish Creek
- Mendenhall Wetlands State Game Refuge

Fritz Cove:

- Provides important wintering area for herring and is used extensively throughout the year by marine mammals and commercially important fish and shellfish species, particularly Dungeness, King, and Tanner crabs.
- Prime recreational fishery for King salmon
- Humpback whales, which are federally listed as endangered, routinely feed on herring in Fritz Cove (Gastineau Channel is too shallow for whale passage)
- Trawl surveys by NMFS found 30 species of marine fish in Fritz Cove, only 9 in Gastineau Channel

Mendenhall River:

- The mouth of the Mendenhall River provides important waterfowl foraging habitat, anadromous fish habitat, and shorebird, eagle and harbor seal (State of Alaska Species of Special Concern) foraging habitat.
- Intertidal areas at the end of the Mendenhall Peninsula, near the mouth of the Mendenhall River, are a highly productive area, evidenced by high catches of marine and anadromous fish in NMFS EFH wetland surveys
- Steller Sea lions, federally listed as threatened, frequent the mouth of Mendenhall River; they have been observed from Fritz Cove to the airport.
- The Mendenhall River provides important juvenile habitat for all five species of salmon.

Fish Creek:

- The mouth of Fish Creek supports an important recreational fishery for trout and salmon that use these habitats as a migratory corridor, and provides high quality wildlife and waterfowl habitat.

Mendenhall Wetlands State Game Refuge

Some of the highest quality habitat within the MWSGR is located within the Mendenhall Peninsula Area. While crossing opportunities exist off the tip of the Mendenhall Peninsula to avoid the MWSGR, the CBJ designated Natural Area Park would be impacted. Crossings in the vicinity of Industrial Boulevard within the Mendenhall Area would represent the longest Refuge crossing by a factor of 2 to 3 times in length, as compared to other crossing areas within the project study area, significantly increasing impacts to the MWSGR.

In addition, water quality issues are a primary concern within this area as evidenced by the listing of three streams on the State of Alaska's 303(d) list for impaired water bodies that drain near or west of the JIA (Jordan Creek, Duck Creek, and Peterson Hill Creek).

Agency Scoping Comments

Agency scoping comments regarding the area west of the JIA were highlighted by two regulatory agencies as principal areas of concern for fish and wildlife habitat [U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS)].

USFWS

- *Wetland Impacts:* Concern with further encroachment upon, or degradation of wetlands associate with the MWSGR and the Mendenhall River delta;
- *Disturbance to Fish and Wildlife:* Evaluate measures to minimize disturbance to waterfowl foraging habitat, shorebird, eagle, anadromous fish habitat, and seal and sea lion foraging areas at the mouth of the Mendenhall River

NMFS

- *Known Hot Spots for Fish/Invertebrates:* The mouth and intertidal area of all streams and tidal sloughs encompassed by the study area; Fritz Cove; mouth of Fish Creek and Gastineau Channel; 9-mile Creek to the 1st navigational marker in Fritz Cove; the intertidal area at the end of the Mendenhall Peninsula near the mouth of the Mendenhall River is a highly productive area; Picnic Cove near Outer Point; emergent vegetation in the wetlands and Refuge due to carbon and nutrient production and secondary and tertiary treatment of regulated pollutants.

Preliminary Travel Demand Analysis

Based on preliminary travel demand analysis, a transportation link in the area west of JIA would not provide an efficient transportation facility, primarily due to trip length, travel time, and area-wide traffic circulation patterns. Volumes on a Second Crossing west of the JIA in the design year of 2035 were modeled at only 5,500 vehicles per day (vpd) compared to 12,500 to 15,000 vpd in other crossing areas in the project study area.

Geometric Complexities (JIA Part 77 Airspace/Mendenhall River Bridge) and expansion plans at JIA

Crossing options west of the airport would need to accommodate navigational clearances for the Mendenhall River. In the vicinity of Industrial Boulevard, providing for adequate navigational clearances at the Mendenhall River may cause a conflict with JIA airspace (FAR Part 77– Objects Affecting Navigable Airspace). Additional navigational studies would need to be conducted to determine an adequate bridge height, but it is likely that a crossing coming off the vicinity of Industrial Boulevard would compromise navigational clearances to achieve acceptable geometrics for JIA operations. In addition, JIA plans call for future development alternatives to address long term demand-capacity issues, including locating an additional 4,100 ft. General Aviation (GA) runway adjacent to JIA to the south of the existing runway. Airport officials have requested that no impacts occur to existing or future airport operations as a result of implementation of the Second Channel Crossing Project. A crossing in the vicinity of Industrial Boulevard could further conflict with this proposed expansion plan.

Potential Section 4(f) Resources

Crossing alternatives traversing the Mendenhall Peninsula would need to cross the tip of the Mendenhall Peninsula, which is a CBJ designated Natural Area Park and a potential Section 4(f) resource. In addition, connection points on Douglas Island are limited in this vicinity by Fish Creek Park and adjacent CBJ designated Natural Area Park and Conservation Area; and the North Douglas Boat Launch Ramp and adjacent CBJ designated Natural Area Park.

Crossing Type/Costs

Structural crossings west of the JIA would need to account for navigational requirements for both the Mendenhall River and the Gastineau Channel. Crossing alternatives across the Mendenhall Peninsula are significantly greater in cost than any of the alternatives to the east and range from three times to ten times as high in construction cost compared to other crossing locations. A large component of this cost is due to the fact that bridge options traversing Fritz Cove would require suspension or cable-stayed bridge types due to water depths in excess of 175 feet. Bridge types in other parts of the study area to the east could be constructed by means of a low-level, short-span bridge type. Crossing alternatives in the vicinity of Industrial Boulevard would represent the longest length crossing by a factor of 2-3 times as long, as compared to other crossing areas with the project study area, significantly escalating construction costs and impacts to the environment.

9.9 The Next Steps

The next steps for the Juneau Second Channel Crossing project should include:

- Confirm the status of the *1997 CBJ and Goldbelt West Douglas Conceptual Plan*. This Plan was never officially adopted by the CBJ Assembly for the West Douglas New Growth Area. Indirect and cumulative impact assessments on Douglas Island are heavily dependent on the update, adoption, and further definition of this development and the resources that may be

- adversely affected. Key questions for advancement of the JSCC project is to determine when this Plan will be updated and adopted by the CBJ and the schedule for the Plan completion;
- Complete scoping activities with the State Historic Preservation Office and tribal organizations;
 - Meet with the Federal Highway Administration (FHWA), local governmental officials, agencies, and the public to address outstanding scoping issues, comments, and requests for special studies;
 - Work with local governmental officials, agencies, tribal organizations, and the public to develop the range of alternatives to be evaluated in future project development studies and jointly develop screening criteria for the evaluation of alternatives;
 - Determine, based on information contained in this document, if portions of the project study area should be omitted in the development of updated crossing concepts due to costs, transportation efficiency, purpose and need objectives and environmental impacts;
 - Determine if the updated ranges of representative costs contained in this document constitute a cost-affordable transportation project in light of current conditions;
 - Conduct additional engineering, environmental, and scoping activities, as required, to advance project development; and
 - Complete the scoping phase of the EIS, then continue on with completion of the DEIS, as appropriate.