2.0 PROJECT ALTERNATIVES

This chapter describes the reasonable alternatives evaluated in this Supplemental Draft EIS and provides information on the screening process used to select these alternatives. The chapter is divided into five sections: Alternative Screening, Alternatives Determined Not Reasonable, Reasonable Alternatives, Selection of the Preferred Alternative, and Funding Considerations.

2.1 Alternative Screening

Alternatives were screened in fall 2003 after the Supplemental Draft EIS scoping process. The alternative screening process used specific criteria to evaluate alternatives and determine the range of reasonable alternatives. The list of alternatives to be screened was derived from the following Juneau Access Improvements Project documents:

- The 1994 Reconnaissance Engineering Report (Shannon and Wilson, 1994)
- The 1997 Draft EIS (DOT&PF, 1997)
- The 1999 DOT&PF Preferred Alternative Report (PAR)

Alternatives were screened using four criteria.

- Criterion I - Cost/Technical Feasibility and Common Sense. Using professional judgment and cost data from previous analyses, the alternatives were screened to determine if they would be economically and/or technically feasible or go against common sense.
- Criterion II - Appropriateness and Unnecessary Variations. Alternatives were screened to determine if certain variations were unnecessary to consider a full spectrum of alternatives.
- Criterion III - Purpose and Need. To be reasonable, an alternative must at least partially meet a majority (three or more) of the five Purpose and Need elements. Alternatives were screened with regard to the Purpose and Need elements as follows:
  - Element 1 – Meet Future Capacity Needs. An alternative should provide sufficient capacity to meet the projected traffic demand for that mode.
  - Element 2 – Provide Flexibility and Opportunity for Travel. An alternative should provide for more round-trips per day from Juneau to Haines and Skagway than the No Action Alternative.
  - Element 3 – Reduce Travel Time. An alternative should have a quicker one-way travel time from Juneau to Haines/Skagway than the travel time of the No Action Alternative.
  - Element 4 – Reduce State Annual Costs for Transportation in Lynn Canal. An alternative should have estimated annual maintenance and operations (M&O) costs that are less than the 1997 M&O estimated costs for the No Build Alternative. (The 2004 No Action Alternative M&O cost estimates were unknown at the time of this screening).
  - Element 5 – Reduce User Cost. An alternative should have a lower one-way travel cost from Juneau to Haines/Skagway than the current cost under the No Action Alternative. (The No Action Alternative costs were estimated from the Summer 2003 Alaska Marine Highway System [AMHS] ferry schedule).

- Criterion IV - Environmental Factors. This screening process used information regarding specific social environment, physical environment, and biological environment impacts to determine if an alternative has an impact so great that it should not be considered reasonable.

A detailed discussion of the screening process and figures depicting the screened alternatives can be found in the *Alternatives Screening Report* (Appendix A).

2.2 Alternatives Determined Not Reasonable

2.2.1 Taku River Valley Highway

This alternative would construct a 118-mile-long highway from the end of Thane Road in Juneau, northeast along the Taku Inlet, across the Alaska-Canada border, up the Taku River Valley, along the Sloko and Pike River Valleys, and connecting to Canadian Highway 7 south of Atlin, B.C. (Figure 2-1). Under this alternative, mainline ferry service would continue in Lynn Canal.

In 1993, the B.C. Minister of Transportation was contacted regarding Canada's interest in the Taku River Valley Highway. At that time, B.C. indicated it did not support pursuit of this alternative.

In 2003, the B.C. Minister of Transportation was once again contacted to determine if B.C. was still opposed to this alternative. The October 2, 2003, response indicated that B.C. is not interested in the Taku River Valley Highway. An alternative that involves construction in, and access to, a foreign country that does not have the support of the government of that country fails the common sense test and is not a reasonable alternative. This alternative also does not directly address the Purpose and Need Statement of improved transportation to and from Juneau in Lynn Canal. The alternative was dropped from further consideration.

2.2.2 Goldbelt – Ferry Shuttle Service from Cascade Point

The *Echo Cove Master Plan* (Goldbelt, 1996) identified a development opportunity to construct a highway from the end of Glacier Highway at Echo Cove to Cascade Point. A ferry terminal would be constructed at Cascade Point, and a private high-speed ferry would operate from Cascade Point to Haines/Skagway. This alternative would be a private-sector action that could not be compelled by the State of Alaska. Goldbelt, Inc. (Goldbelt) is no longer pursuing the development of a private vehicle ferry to Haines and Skagway. Potential development of private ferry service cannot be compelled by the state and is therefore not a reasonable alternative.

2.2.3 Haines/Skagway Intertie

This alternative would construct a highway from the end of Glacier Highway at Echo Cove around Berners Bay to Katz Point north of the Katzehin River delta. A ferry terminal would be constructed at Katzehin, and a shuttle ferry would operate between Katzehin and the Lutak Ferry Terminal in Haines. A new highway would be constructed between the end of the road in Lutak Inlet and Dyea Road in Skagway.

The purpose and need for the Juneau Access Improvements Project is to improve transportation to and from Juneau in Lynn Canal. An alternative that has a very costly road component connecting Haines and Skagway, while requiring all Juneau traffic to travel to Haines by ferry, is primarily a Haines/Skagway access project. DOT&PF has identified improved access between Haines and Skagway as an independent need and is pursuing this as

an independent action. In the *Haines/Skagway Access Reconnaissance Report* (2004), DOT&PF has determined that a shuttle ferry is the appropriate Haines/Skagway connection for the near future. The 2004 Southeast Alaska Transportation Plan (SATP) identifies the *M/V Aurora* as available for Haines/Skagway service as early as 2005. Therefore, Haines/Skagway service is included in the updated No Action Alternative and modified as necessary in each build alternative.

Note: The Haines/Skagway Intertie was not included in the 1997 Draft EIS range of reasonable alternatives based on cost and issues relating to Section 4(f) of the Transportation Act (49 USC Section 303) protecting certain public lands, including parks. Although these are important concerns, they affect the consideration of a potential Haines/Skagway Highway, which is independent of the Juneau Access Improvements Project.

2.2.4 East Lynn Canal Highway with Bridge to Haines

This alternative would construct a highway from the end of Glacier Highway at Echo Cove around Berners Bay to Skagway. An approximately 7,000-foot-long bridge would be constructed from the north end of the Katzehin River delta across Chilkat Inlet to Battery Point, south of Haines. (Because Battery Point is located in Chilkat State Park, Section 4(f) constraints could require an even longer length bridge.)

Water depths, bridge span lengths, and the need to accommodate large-vessel passage (including cruise ships) at this location dictate a high-clearance suspension bridge or a floating structure with an opening span. Construction costs associated with a structure of this magnitude were estimated in the Reconnaissance Engineering Report to be approximately $190 million. More detailed estimates for recent bridge projects, when applied to this distance (ignoring the much greater depth), indicate a cost of close to $250 million. This additional cost would be prohibitive, approximately doubling the cost of any East Lynn Canal Highway alternative. On the basis of cost, this alternative was dropped from further consideration.

2.2.5 East Lynn Canal Rail

This alternative would construct a railroad connection from the end of Glacier Highway at Echo Cove to Skagway. A ferry terminal would be constructed near Katz Point north of the Katzehin River delta, and a new shuttle ferry would run between Katzehin and the Lutak Ferry Terminal in Haines.

An East Lynn Canal Rail alternative was partially analyzed in the 1997 Draft EIS. At that time, DOT&PF compared a typical segment of road and the corresponding railroad construction costs and determined that the East Lynn Canal Rail alternative more than doubled the highway comparison costs and had limited ability to meet the Purpose and Need elements. Therefore, this alternative was considered to be unreasonable in the 1997 Draft EIS.

In 2003, the analysis for a railroad connection was updated to reflect 2003 costs and standards. The conclusion of the updated analysis was the same; construction costs were more than 2.5 times higher for a railroad than for a highway. Therefore, the East Lynn Canal Rail alternative was again considered unreasonable and dropped from further consideration.

2.2.6 East Lynn Canal Highway to Katzehin with Berners Bay Shuttle Ferry (PAR Proposal 5B)

This proposal would extend Glacier Highway from Echo Cove to Sawmill Cove, construct ferry terminals at Sawmill Cove and Slate Cove, and operate shuttle ferries between the two ferry terminals. A highway would be constructed between Slate Cove and Katz Point north of the Katzehin River delta. A ferry terminal would be constructed at the end of the highway, and shuttle ferries would operate between the Katzehin, Lutak, and Skagway Ferry Terminals. Mainline ferry service would end at Auke Bay in Juneau.

This proposal is essentially a combination of ferry components from two other 1999 PAR proposals:

- Proposal 5A (now designated as Alternative 2A), which proposed shuttle service across Berners Bay
- Proposal 5D (now designated as Alternative 2B) which proposed a terminal at Katzehin with shuttles to both Haines and Skagway

Proposal 5B was evaluated in the PAR in response to concerns raised about impacts of a road through Berners Bay and concerns about favoring Skagway at the perceived expense of Haines with a road link to Skagway. In any analysis of surface transportation modes there are many possible combinations of ferry and road links. The full spectrum of alternatives is covered without Proposal 5B. Also, an alternative that requires all traffic to travel two or more ferry links (while not significantly reducing the distance between ferry terminals) does not pass the common sense test. All impacts associated with this alternative (other than the combined delay and sequencing problems) will be evaluated in the analysis of the two basic alternatives. Therefore, this alternative was dropped from further consideration.

2.2.7 East Lynn Canal Highway from Katzehin to Skagway (PAR Proposal 5C)

This proposal would extend the Glacier Highway from Echo Cove to Sawmill Cove in Berners Bay. Ferry terminals would be constructed at Sawmill Cove and Katzehin, and the Motor Vessel (*M/V) Malaspina* would operate as a dayboat between the two ferry terminals. A second shuttle ferry would operate between the Katzehin and the Lutak Ferry Terminals. Mainline ferry service would end at Auke Bay. A new highway would then be constructed from Katzehin to Skagway.

This alternative was proposed in 1999 specifically as a way of improving service with the *M/V Malaspina*. The *M/V Malaspina* was costly to operate on this route because the length of the route necessitated two crews. AMHS planners were investigating ways to get two round-trips per day from this double crew. The PAR rated this alternative lower than the 1997 No Build Alternative because of its marginal service improvements relative to its high capital and operating costs. This proposal is no longer appropriate, as the *M/V Malaspina* is being replaced with a fast vehicle ferry (FVF) to serve Lynn Canal.

This proposal is also a combination of other alternatives, in this case combining the highway extension and ferry route of Alternative 4D with a highway link from Alternative 2. Conventional vessel operation, with and without a highway extension from Echo Cove, is now a part of the Marine Alternatives (4C and 4D) in the Supplemental Draft EIS. This alternative is an additional combination of ferry and highway links; therefore, it is an unnecessary variation on existing alternatives and was dropped from further consideration.

2.2.8 Original Marine Alternative 4, Options A through D

The original marine options in the 1997 Draft EIS were based on improving service in Lynn Canal with the marine technology prevalent in the mid-1990s. All four options utilized the same vessel, the high-speed Wavepiercer catamaran, capable of carrying 105 vehicles. The differences between options were summer starting points (Auke Bay versus Berners Bay) and additional versus supplemental service. The latter difference is primarily an operations issue. Typically, AMHS operational changes occur at the discretion of the AMHS from season to season and are not a federal action subject to the National Environmental Policy Act (NEPA). However, because the number of vessels required for Lynn Canal service is dependent on whether mainliners continue in the corridor, this potential change in operation is captured in two marine options in the Supplemental Draft EIS.

Based on 1997 Draft EIS comments, 2003 scoping comments, and AMHS experience and direction over the past seven years, the original marine options have been modified. The new marine alternatives retain the different potential summer supplemental service locations (Auke Bay versus Berners Bay), but drop the issue of mainline service level in favor of analyzing high-speed shuttle ferries versus conventional-speed shuttles. This approach reflects several recent developments:

- Both AMHS and the Inter-Island Ferry Authority (IFA) now have experience operating dayboats (vessels operating point to point and returning to the same port every night rather than 24-hour operation), and there is increased public interest in this type of operation.
- AMHS experimented with turning some mainliners around in Juneau in hopes of moving through-corridor traffic onto another vessel, with poor results. For this reason and due to scheduling concerns, it is likely that as long as there are mainline ferries there will always be some mainline service in Lynn Canal absent a highway connection.
- Another reason to modify the 1997 marine options is that AMHS has designed and is constructing two FVFs that are much different than the 105-vehicle ferry analyzed in the 1997 Draft EIS. AMHS planners believe smaller fast ferries, designed specifically for Southeast situations, are more appropriate.

The actual size of the vessel(s) for each new marine option, including those with high-speed ferry service, was determined by a new analysis in the *Marine Segments Technical Report* (Appendix B). Vessel selection was based on meeting marine traffic projections, providing reasonable frequency, and minimizing operational cost.

As with the highway alternative alignment adjustments that occur to reduce impacts or utilize new information, new Alternatives 4A through 4D replace the original marine options in the 1997 Draft EIS. The original marine options are variations that are no longer relevant, and therefore have been dropped from further consideration.

2.3 Reasonable Alternatives

All the remaining alternatives that were screened at least partially meet the Purpose and Need elements, pass the cost, common sense, and appropriateness tests, and have no known environmental impacts that would render them unreasonable alternatives. In compliance with NEPA requirements, a No Action Alternative is included in the range of alternatives to be evaluated.

All reasonable build alternatives, as defined, include at least one ferry link, because Haines and Skagway are on opposite sides of inland waters. The parameters of the marine segment(s) control the capacity and flexibility provided by the alternative, and have a large effect on travel time and costs. Capacity needs to be based on demand, but demand is affected by the type of service, and varies throughout the year. In order to meet the purpose and need elements, the marine segments have been designed to meet the projected average summer demand (not peak) for each alternative while providing greater trip frequency than the No Action Alternative. Larger vessels, more vessels, and longer operating schedules could provide greater capacity and flexibility, but at a greater cost. In order to address capacity and cost equitably, ferry service for each alternative is based on the projected 2038 average summer daily traffic for its marine segment(s). To provide reasonable frequency of service with the least cost to the state, summer ferry service is generally provided for 14 to 16 hours each day, with less frequent service in the winter. For the projected 2038 average summer daily traffic, see the *2004 Traffic Forecast* (Appendix C). See the *Marine Segments Technical Report* (Appendix B) for more details on potential crewing for ferry segments of alternatives.

Table 2-1 lists the reasonable alternatives and their Supplemental Draft EIS designations.

Table 2-1
Reasonable Alternatives Evaluated in the Supplemental Draft EIS

Alternative Title	Supplemental Draft EIS Alternative Designation
No Action Alternative	Alternative 1
East Lynn Canal Highway with Katzehin Terminal (Preferred)	Alternative 2
East Lynn Canal Highway with Berners Bay Shuttles	Alternative 2A
East Lynn Canal Highway to Katzehin with Shuttles to Haines and Skagway	Alternative 2B
East Lynn Canal Highway with Haines/Skagway Shuttle	Alternative 2C
West Lynn Canal Highway	Alternative 3
Fast Vehicle Ferry Shuttle Service from Auke Bay	Alternative 4A
Fast Vehicle Ferry Shuttle Service from Berners Bay	Alternative 4B
Conventional Monohull Shuttle Service from Auke Bay	Alternative 4C
Conventional Monohull Shuttle Service from Berners Bay	Alternative 4D

The following description of reasonable alternatives includes information on key parameters for the project purpose and need: capacity, travel time, travel frequency, and cost (design, construction, maintenance, operation, and life cycle[6]). Travel times for ferry segments are from terminal-to-terminal. All travel times from Juneau to Haines and Skagway presented in this discussion were calculated from Auke Bay in order to provide a consistent measure of travel time for each alternative.

The alternative descriptions and cost estimates include all construction required for implementation of the alternatives. No improvements to connecting facilities would be required, although construction and operation of a build alternative could accelerate the scheduling of improvements to adjacent facilities.

[6] Life-cycle costs are the total construction, refurbishment, and maintenance costs for a 5-year construction period (2004 to 2008) and a 30-year operation period (2008 to 2038) discounted to 2004 dollars. See Section 4.1.5 for an explanation of life-cycle cost analysis.

2.3.1 Alternative 1 – No Action

The No Action Alternative includes a continuation of mainline[7] service in Lynn Canal as well as the operation of the fast ferry *M/V Fairweather* between Auke Bay and Haines and Auke Bay and Skagway (Figure 2-2). The *M/V Aurora* would provide shuttle service between Haines and Skagway, beginning as early as 2005. The *M/V Fairweather* would travel at approximately 32 knots (37 miles per hour [mph]), and the *M/V Aurora* would travel at approximately 15 knots (17 mph), which is similar to the speed of the other AMHS conventional monohull vessels. This alternative is based on the most likely AMHS operations in the absence of any capital improvements specific to Lynn Canal other than possible terminal modifications for the Haines/Skagway shuttle, which DOT&PF would develop as an independent project. Ferry terminal modifications to accommodate the *M/V Fairweather* have already been made at Auke Bay.

The No Action Alternative is an updated version of the 1997 Draft EIS Alternative 1, titled No Build/Transportation System Management. Alternative 1 originally used the term No Build rather than No Action to help clarify that the AMHS has and would continue to implement new actions in the Lynn Canal corridor. An example of an expected AMHS addition to Lynn Canal is the use of the *M/V Aurora* as a shuttle ferry between Haines and Skagway.

Transportation System Management (TSM) refers to activities which maximize the efficiency of an existing system with little or no new construction. It is generally applicable to transportation systems in urban areas and typically involves options such as fringe parking, ride sharing, designating high-occupancy vehicle (HOV) lanes, and traffic signal timing optimization. Reassigning vessels to Lynn Canal could be reviewed as a form of TSM, but unlike more typical TSM measures, this would be at the expense of service elsewhere. For this reason there is no TSM alternative in the Supplemental Draft EIS range of alternatives and the term TSM is not included in the Alternative 1 title.

New actions that AMHS may implement in the Lynn Canal corridor include deploying different vessels (including new ones added to the system as a whole) and changing schedules, but do not include implementing a build alternative specific to the Juneau Access Improvements Project. Therefore, under the No Action Alternative the AMHS would continue to be the National Highway System (NHS) route from Juneau to Haines and Skagway. The No Action Alternative would not involve any of the actions described in the build alternatives (Alternatives 2 through 4D) evaluated in this Supplemental Draft EIS.

Capacity – Alternative 1 traffic capacity would be determined by the combination of mainline and FVF sailings. Mainline vessel capacity ranges from 80 to 134 vehicles one way, with an estimated three round-trips per week year-round traveling Juneau / Haines / Skagway / Haines / Juneau. The *M/V Fairweather* has a one-way capacity of 35 vehicles. In the summer, it would make five weekly trips to Haines and four to Skagway. In the winter, this would be reduced to two trips per week to each community. This configuration of AMHS ferries in Lynn Canal would accommodate the daily traffic volumes presented in Table 2-2, with mainliner capacity apportioned 60 percent to Haines and 40 percent to Skagway, based on historical usage.

[7] Mainline service consists of larger vessels that travel the length of the system from Bellingham or Prince Rupert in the south to Haines and Skagway in the north.

Table 2-2
Daily Traffic Capacity for Alternative 1

Alternative 1 –Daily Traffic Capacity	
Route	**Number of Vehicles**
To/From Haines	
Summer	96
Winter	66
To/From Skagway	
Summer	71
Winter	51

Travel Time – The one-way trip times for Alternative 1 are shown in Table 2-3. These times include check-in (including loading), transit, and unloading. Check-in time covers the time the AMHS requires for vehicles to be present at the dock prior to loading. No delay time is included.

Table 2-3
Travel Time for Alternative 1

Alternative 1 –Travel Time (hours)		
Route	**Mainliner**	**Fairweather**
Auke Bay – Haines	7.1	3.5
Auke Bay – Skagway	9.1	3.8

Travel Frequency – The opportunity to travel between Auke Bay and Haines or Skagway would depend on the frequency of both mainline and FVF *(M/V Fairweather)* service. The travel frequency for Alternative 1 in terms of round-trips is provided in Table 2-4.

Table 2-4
Travel Frequency for Alternative 1

Alternative 1 – Travel Frequency		
Auke Bay – Haines	**Average Round-Trips per Day**	**Round-Trips per Week**
Summer	1.1	8
Winter	0.7	5
Auke Bay – Skagway	-	-
Summer	1	7
Winter	0.7	5

Cost – The No Action Alternative has no initial construction costs. The annual maintenance and operation (M&O) costs would be $10.2 million: $4.9 million for mainline service, $3.4 million for FVF service, and $1.9 million for Haines/Skagway shuttle service provided by the *M/V Aurora*. The estimated 30-year life-cycle cost is $267 million.

2.3.2 Alternative 2 (Preferred) – East Lynn Canal Highway with Katzehin Ferry Terminal

This alternative would construct a 68.5-mile-long highway from the end of Glacier Highway at the Echo Cove boat launch area around Berners Bay to Skagway (Figure 2-3). The highway would have a 30-foot pavement width, with two 11-foot-wide vehicle lanes and 4-foot shoulders for cyclists and pedestrians, meeting NHS design standards (Figure 2-4). The minimum design speed would be 40 miles per hour.

A ferry terminal would be constructed north of the Katzehin River delta, and operation of the *M/V Aurora* would change to shuttle service between Katzehin and the Lutak Ferry Terminal in Haines (Figure 2-3). Mainline ferry service would end at Auke Bay in Juneau, and the existing Haines/Skagway shuttle service would be discontinued. The *M/V Fairweather* would be redeployed on other AMHS routes. The highway from Auke Bay to Skagway and the shuttle ferry service from Katzehin to Haines would become the NHS routes in Lynn Canal.

Capacity – A two-lane highway from Auke Bay to Skagway would provide for high volumes of traffic to Skagway. The traffic capacity to Haines would depend on the frequency and capacity of the shuttle ferry service between Katzehin and Haines. The *M/V Aurora* has a 34-vehicle capacity. Table 2-5 lists the Alternative daily traffic volumes that could be accommodated by Alternative 2.

Table 2-5
Daily Traffic Capacity for Alternative 2

Alternative 2 – Daily Traffic Capacity	
Route	**Number of Vehicles**
To/From Haines	
Summer	612
Winter	408
To/From Skagway	
Summer	30,000[1]
Winter	30,000[1]

Note: [1]Based on an estimate of 2,000 cars/hour for a 2-lane highway (Transportation Research Board, 2000).

The 30-year summer traffic projections to Haines under Alternatives 2, 2A, and 2B exceed the vehicle capacity of the *M/V Aurora* on a two-shift operating schedule. The *Marine Segments Technical Report* (Appendix B) includes the optimum vessel for the long-term projected traffic. As traffic demand approaches capacity, AMHS may choose to operate the *M/V Aurora*, replace it with the optimum vessel, or add a second smaller vessel. The alternative is analyzed in the Supplemental Draft EIS based on replacement with the optimum vessel in the year that the projected demand exceeds the capacity of the *M/V Aurora*. For more detail see the *Marine Segments Technical Report* (Appendix B).

Travel Time – The one-way trip times for Alternative 2 are provided in Table 2-6. These times include ferry loading, transit time, and unloading, but no delay time is included. The travel time for the shuttle ferry between Katzehin and Haines does not include check-in time because reservations would not be taken. Vehicles would be accommodated on a first-come, first-serve

basis. Travel times were calculated on an average speed of 45 mph for the highway segments of all alternatives. The current posted speed limit on Glacier Highway north of Auke Bay is 50 mph. The minimum design speed of the proposed highway segments of all alternatives is 40 mph. Many sections of the proposed highway would have a higher design speed and would be posted with a higher speed limit. For this reason, the average travel speed would be 45 mph.

Table 2-6
Travel Time for Alternative 2

Alternative 2 – Travel Time	
Route	**Travel Time (hours)**
Auke Bay – Haines	2.5
Auke Bay – Skagway	2.1

Travel Frequency – Under Alternative 2, flexibility and opportunity for travel to Skagway would be limited only by winter weather conditions, when road closures would be necessary for avalanche control. Travel to Haines would be constrained by the Katzehin/Haines shuttle ferry, which is anticipated to operate on a 15-hour daily schedule in summer, and a 10-hour daily schedule in winter (Table 2-7).

Table 2-7
Travel Frequency to Haines of Alternative 2

Alternative 2 – Travel Frequency		
Auke Bay – Haines	**Round-Trips per Day**	**Round-Trips per Week**
Summer	9	63
Winter	6	42

Cost – The estimated initial construction cost for this alternative is $281 million, including design. Highway construction costs would be $265 million, and the Katzehin Ferry Terminal would cost $16 million. The estimated annual M&O cost is $4.4 million, including $1.5 million for highway M&O and $2.9 million for the Katzehin to Haines shuttle M&O. The estimated 30-year life cycle cost is $323 million.

Alignment – Alternative 2 would begin at the end of Glacier Highway at north Echo Cove (Mile 40.5). The highway would generally follow the shoreline all the way to Skagway. Wherever possible, the highway would be positioned inland from the high tide line to avoid marine impacts and to reduce visual effects. At some locations, avoiding trees with eagle nests and/or avalanche hazards would force the highway below the high-tide line. At a few locations, the terrain allows the road to be located well inland from the shore.

2.3.2.1 Echo Cove to Antler River

Along the east shore of Berners Bay the highway would generally be located inland from the shore to avoid disturbing trees with eagle nests and filling beach areas. Up to Cascade Point the highway location would be similar to the Goldbelt alignment permitted by the United States Forest Service (USFS) and the United States Army Corps of Engineers (USACE). If a road were built on the Goldbelt alignment before the start of construction for the Juneau Access

Improvements Project, construction to Cascade Point would be limited to widening, grade improvements, and paving. The highway would avoid the USFS Berners Bay cabin by passing approximately 400 feet uphill of the cabin site. Beyond the cabin, highway construction would involve short stretches of exposed rock cuts, with some cuts up to 200 feet in height.

2.3.2.2 Head of Berners Bay

The Antler, Gilkey, Lace, and Berners rivers form the large delta at the head of Berners Bay. The bridge over the Antler River would be 2,150 feet in length, and the bridge over the Lace River would be 2,500 feet in length. Both bridges would be constructed with enough clearance to permit air boats, the largest craft currently navigating these rivers, to pass under them.

The highway through this part of Berners Bay would be set back from the shore to avoid the intertidal habitat at the head of the bay, minimize impacts on wetlands, and reduce the length of the river crossings. This portion of the alignment is a refinement of the 1997 Draft EIS alignment and was designed to further reduce impacts to wetland and upland habitats.

2.3.2.3 Lace River to Comet Landing

The highway from the west side of the Lace River to the beach near Independence Lake would cross a combination of heavily wooded uplands and forested wetlands interspersed with muskegs. From Slate Cove to Point Sherman the highway would move inland to cross Point Saint Mary peninsula and avoid trees containing eagle nests near the shore. This segment would require imported fill, as few rock cuts would be required. A combination maintenance station and rest stop would be located at Comet Landing near the existing Kensington mine facilities.

> Note: The highway west of the Lace River would intersect the existing unpaved road that runs from Slate Cove to the Jualin mine. This is a public road that may be upgraded as part of Coeur Alaska's proposal to build a deep water floating dock at Slate Cove with funds from the Alaska Industrial Development and Export Authority (AIDEA). Use of these funds would insure state access to the dock. If Coeur Alaska develops the Slate Cove dock with AIDEA funds, DOT&PF could use the dock in two ways: to provide interim ferry shuttle service during construction of a highway north of Slate Cove, and to provide temporary winter ferry service during extended road closures for avalanche control.

2.3.2.4 Independence Lake to Katzehin River

North of Comet Landing the highway would be located close to the shore to avoid the trees with eagle nests on the hillsides, to mitigate avalanche zones, and to pass under steep cliffs. At avalanche zones with relatively high hazard indices, including north of Independence Lake and south of Yeldagalga Creek, the highway would be constructed on intertidal area. At all locations where highway construction would be near or below the high-tide line, riprap slope protection would be constructed. Rock cut areas would generate excess material, some of which would be sidecast into Lynn Canal at steep drop-offs.

Near Met Point and Gran Point the highway would be located further uphill to avoid the sea lion haulouts at these areas. The highway would be notched below existing ground level to maintain a natural screen between the haulouts and the roadway. Where this is not possible, screening structures would be constructed.

2.3.2.5 Katzehin River Area

The highway approach to the Katzehin River would be located close to the shore to avoid the steep cliffs above the high-tide line. Riprap slope protection would be used to protect the highway from erosion. The bridge across the Katzehin River would be 2,300 feet long and set high enough to allow air boats to pass underneath. The highway would pass behind the intertidal flats north of the Katzehin River to the location of the proposed Katzehin Ferry Terminal. This location would provide some southern wave protection, have access to deep water, and offer upland area for construction. Rubble-mound breakwaters would be sited to the north and south of a dredged mooring basin to provide protection from the predominate northerly and southerly waves. Dredged material would be incorporated into the fill for terminal parking.

2.3.2.6 Katzehin to Sturgill's Landing

From Katzehin to Sturgill's Landing, steep rock slopes project into deep water. The highway would be benched into these slopes for its entire length. The highway would move uphill and downhill as it proceeds north to take advantage of natural benches, avoid trees with eagle nests, and mitigate avalanche hazards. Many of the rock cuts would generate excess material, which would be sidecast into Taiya Inlet.

Rockfall ditches to catch slide material and flattened downhill cuts to facilitate snow removal would help mitigate the avalanche zones on this segment. The highway would move uphill near the large talus slope south of Sturgill's Creek to provide a stable roadway and reduce slide hazard. The highway would also be located uphill of the proposed Otter Creek Hydroelectric Plant at Kasidaya Creek to avoid impacts to that project.

2.3.2.7 Dewey Lake Bench

Across from Sturgill's Landing the highway would turn northeast along the east side of Sturgill's Creek. About 3,000 feet up from the mouth of the creek, the highway would cross over the creek to the ridge between Dewey Lake and Skagway. The highway would be located to the west of the lake to minimize impacts to both the lake and the adjacent trail system. To maintain the continuity of the trail system, a pedestrian tunnel would be constructed for the trail to Sturgill's Landing, and a pedestrian bridge would be built for the trail to a lookout above the Skagway harbor.

2.3.2.8 Skagway Area

Opposite the north end of Dewey Lake, the highway would cross a 300-foot bridge over the power flume, tramline, and Dewey Lake trail, and descend toward the north end of Skagway. The highway would be benched into the slope above the town. At the base of the hill, the highway would cross a 400-foot bridge spanning the Whitepass & Yukon Route Railroad tracks and tie into a retaining-wall-supported roadway sloped to match 23rd Avenue at Main Street. Access to State Street would be via Main Street. Southbound traffic would use Main Street to 21st Avenue. Northbound traffic on State Street would use 22nd Avenue to Main Street. The intersection of Main Street and 23rd Avenue would be reconstructed with Main Street raised a few feet to match the grade of the new intersection.

> Note: The 1997 Draft EIS alignment into Skagway crossed Sturgill's Creek, traversed the shore above the high-tide line, and then crossed the White Pass dock. The exact connection with the Skagway street system was not established.

The owners of the White Pass dock have expanded operations, including extending train tracks onto the dock and are not interested in joint use. During 2003 fieldwork, additional historic resources in the area were documented. The estimated $30 million cost of replacing the dock and reconfiguring the railroad tracks, combined with potential impacts to historic resources, downtown Skagway traffic, planned City of Skagway harbor improvements, and contaminated sites, led to a new alignment through the Lower Dewey Lake area.

A more detailed description of the current alignment, the ferry terminal layout, and the design criteria for this alternative can be found in the *Technical Alignment Report* (Appendix D).

2.3.3 Alternative 2A – East Lynn Canal Highway with Berners Bay Shuttles

This alternative would construct a 5.2-mile highway from the end of Glacier Highway at Echo Cove to Sawmill Cove in Berners Bay. A ferry terminal would be constructed at both Sawmill Cove and Slate Cove, and shuttle ferries would operate between the two terminals. A 52.9-mile highway would be constructed between Slate Cove and Skagway. The design features of the highway segments of this alternative would be the same as those described for Alternative 2.

A ferry terminal would be constructed at Katzehin, and the *M/V Aurora* would operate between the Katzehin and the Lutak Ferry Terminals (Figure 2-5). Mainline ferry service would end at Auke Bay, and the Haines to Skagway shuttle service would be discontinued. The *M/V Fairweather* would be redeployed on other AMHS routes. The highway from Auke Bay to Skagway, the shuttle ferry service across Berners Bay, and the shuttle ferry service from Katzehin to Haines would become the NHS routes in Lynn Canal.

Note: This alternative was considered in the 1997 Draft EIS but not advanced as reasonable due to the high capital and M&O costs of the additional shuttle ferries and terminals. However, this alternative was ranked high in the PAR, partially meets four of the five 2003 Purpose and Need screening elements, and addresses a 2003 scoping concern regarding impacts to Berners Bay. Therefore, it has been added to the range of reasonable alternatives in the Supplemental Draft EIS.

Capacity – The capacity of Alternative 2A is determined by the capacity of the shuttle ferries at Berners Bay and the shuttle between Katzehin and Lutak Ferry Terminal in Haines. Two shuttles would operate across Berners Bay in the summer and one in the winter; the shuttles would each have an estimated capacity of 33 vehicles. The *M/V Aurora*, with a 34-vehicle capacity, would operate year-round to and from Haines, between the Katzehin and the Lutak Ferry Terminals. The daily traffic volumes that would be accommodated under Alternative 2A are listed in Table 2-8.

Table 2-8
Daily Traffic Capacity for Alternative 2A

Alternative 2A – Daily Traffic Capacity (vehicles)	
Route	**Number of Vehicles**
To/From Haines	
Summer	544
Winter	408
Across Berners Bay	
Summer Total	1,320[1]
Winter Total	528

Note: [1]The Skagway capacity is approximately 776 vehicles, assuming 544 of the 1,320 crossing Berners Bay travel to or from Haines.

Travel Time – The one-way trip times for Alternative 2A is provided in Table 2-9. These times include ferry loading, transit time, and unloading, but no delay time is included. The travel times for the shuttle ferries across Berners Bay and between Katzehin and Haines do not include check-in time because reservations would not be taken. Vehicles would be accommodated on a first-come, first-serve basis.

Table 2-9
Travel Time for Alternative 2A

Alternative 2A – Travel Time	
Route	**Travel Time (hours)**
Auke Bay – Haines	3.0
Auke Bay – Skagway	2.6

Travel Frequency – Under Alternative 2A, flexibility and opportunity for travel would be determined by the frequency of the shuttle ferries operating in Berners Bay and from Katzehin to Haines. Travel to Skagway would be limited by the Berners Bay shuttles, and travel to Haines would primarily be limited by the Katzehin/Haines shuttle. The Berners Bay shuttles would operate 17 hours a day in summer and 10 hours a day in winter. The Katzehin/Haines shuttle would operate 15 hours a day in summer and 10 hours a day in winter. Winter travel would also be limited by road closures for avalanche control. Table 2-10 provides travel frequencies for Alternative 2A.

Table 2-10
Travel Frequency for Alternative 2A

Alternative 2A – Travel Frequency		
Auke Bay – Haines	**Round-Trips per Day**	**Round-Trips per Week**
Summer	8	56
Winter	6	42
Auke Bay – Skagway	-	-
Summer	20	140
Winter	8	56

Cost – The initial design and construction costs for Alternative 2A would be $294 million, including $205 million for highway segments, $43 million for ferry terminals, and $46 million for vessel acquisition. The annual M&O cost is estimated at $8.4 million: $1.5 million for the highway and $6.9 million for the two shuttle ferry segments. The estimated 30-year life cycle cost is $380 million.

Alignment – Alternative 2A would begin at the end of Glacier Highway just north of the Echo Cove boat launch. The new highway would continue for 4.3 miles along the alignment described for Alternative 2 before traveling on a lower alignment for almost a mile to a ferry terminal at Sawmill Cove on Berners Bay. Sawmill Cove would provide protection from northerly wind and waves and would be relatively well protected from southeast winds. Ferries would be overnighted at Sawmill Cove. A double-berth ferry terminal would be built, consisting of two bridge support floats and a shared dolphin system with all-tide floating fenders. Access to the ferries would be via twin 143-foot steel transfer bridges founded on offshore fill. The area under the bridge floats would need to be dredged. Some intertidal fill would be required. Dredged material would be incorporated into upland fill.

Under Alternative 2A, no highway or bridge would be constructed across the rivers and floodplain at the head of Berners Bay. Instead, shuttle ferries would cross Berners Bay to a ferry terminal on the west side of Slate Cove. The Slate Cove Ferry Terminal would be a single-berth terminal consisting of a steel transfer bridge abutting offshore fill and supported at the seaward end by a steel bridge float. Fixed dolphin structures with all-tide floating fenders or fixed mooring faces would be used, depending on vessel needs. No dredging would be required at this site, but some intertidal fill would be required.

From the Slate Cove Ferry Terminal, the alignment would proceed north uphill for approximately 0.5 miles and would then turn east for 600 feet. Beyond this point, the alignment for Alternative 2A is the same as that for Alternative 2, including the layout of the Katzehin Ferry Terminal.

A more detailed description of the current alignment, the ferry terminal layout, and the design criteria for this alternative can be found in the *Technical Alignment Report* (Appendix D).

2.3.4 Alternative 2B – East Lynn Canal Highway to Katzehin with Shuttles to Haines and Skagway

This alternative would construct a 50.5-mile highway from the end of Glacier Highway at Echo Cove around Berners Bay to Katzehin, construct a ferry terminal at the end of the new highway, and run shuttle ferries to both Skagway and Haines from the Katzehin Ferry Terminal (Figure 2-6). The design features for the highway would be the same as those described for Alternative 2.

The Haines to Skagway shuttle service would continue to operate, two new shuttle ferries would be constructed, and the *M/V Aurora* would be part of the three-vessel shuttle system. Mainline ferry service would end at Auke Bay in Juneau. The *M/V Fairweather* would be redeployed on other AMHS routes. The highway from Auke Bay to Katzehin and the shuttle ferry service from Katzehin to Haines and Skagway would become the NHS routes in Lynn Canal.

Note: This alternative was originally proposed in the PAR as a way of reducing capital costs by avoiding construction in some of the most difficult terrain. The alternative has public interest in terms of improving service in Lynn Canal while not favoring Skagway over Haines with a direct road link. The alternative partially meets four of the five 2003 Purpose and Need screening elements and is therefore included in the range of reasonable alternatives in the Supplemental Draft EIS.

Capacity – The capacity of this alternative would depend on the shuttle system at Katzehin. Summer service would consist of three vessels and would include the *M/V Aurora* as a Katzehin/Haines shuttle ferry with a 34-vehicle capacity, a Katzehin/Skagway shuttle ferry with a 53-vehicle capacity, and a Haines/Skagway shuttle with a 16-vehicle capacity. During the winter, no direct Haines/Skagway shuttle would operate; this service would be provided via the Katzehin Ferry Terminal by the other two shuttle systems. The daily traffic volumes that would be accommodated by Alternative 2B are provided in Table 2-11.

Table 2-11
Daily Traffic Capacity for Alternative 2B

Alternative 2B – Daily Traffic Capacity	
Route	**Number of Vehicles**
To/From Haines	
Summer	544
Winter	408
To/From Skagway	
Summer	636
Winter	424

Travel Time – The one-way trip times for Alternative 2B are provided in Table 2-12. These times include ferry loading, transit time, and unloading, but no delay is included. The travel times for the shuttle ferries to and from Katzehin and between Haines and Skagway do not include check-in time because reservations would not be taken. Vehicles would be accommodated on a first-come, first-serve basis.

Table 2-12
Travel Time for Alternative 2B

Alternative 2B – Travel Time (hours)	
Route	**Travel Time (hours)**
Auke Bay – Haines	2.5
Auke Bay – Skagway	3.0

Travel Frequency – Under Alternative 2B, flexibility and opportunity for travel is a function of the frequency of shuttle ferry service from Katzehin Ferry Terminal. During the summer, all three shuttles would operate 15 hours per day. During the winter, the ferry to Haines would operate approximately 11 hours a day, and the Skagway ferry would operate about 10 hours per day. Winter travel would also be limited by road closures for avalanche control. Trip frequency for Alternative 2B is provided in Table 2-13.

Table 2-13
Travel Frequency for Alternative 2B

Alternative 2B – Travel Frequency		
Auke Bay – Haines	**Round-Trips per Day**	**Round-Trips per Week**
Summer	8	56
Winter	6	42
Auke Bay – Skagway	-	-
Summer	6	42
Winter	4	28

Cost – The initial design and construction costs for Alternative 2B would be $246 million. Highway construction costs would be $182 million, vessel acquisition costs would be $48 million, and the Katzehin Ferry Terminal would cost $16 million. Annual M&O costs are estimated to be $9 million: $1.3 million for the highway and $7.7 million for the shuttle ferries. The estimated 30-year life cycle cost is $352 million.

Alignment – Alternative 2B would begin at the end of Glacier Highway just north of the Echo Cove boat launch and would follow the same alignment described for Alternative 2 to the Katzehin Ferry Terminal, but the highway would not continue from this point. Instead, shuttle ferries would provide service to both Haines and Skagway from Katzehin.

A detailed description of the alignment, the ferry terminal layout, and the design criteria for this alternative can be found in the *Technical Alignment Report* (Appendix D).

2.3.5 Alternative 2C – East Lynn Canal Highway with Haines/Skagway Shuttle

This alternative would construct a 68.5-mile highway from the end of Glacier Highway at Echo Cove around Berners Bay to Skagway. The design features would be the same as those described for Alternative 2. The Haines/Skagway shuttle described in the No Action Alternative would continue to provide service to Haines (Figure 2-7). Mainline ferry service would end at Auke Bay, and no terminal would be constructed at Katzehin. The *M/V Fairweather* would be redeployed on other AMHS routes. The highway from Auke Bay to Skagway and the shuttle ferry service from Skagway to Haines would become the NHS routes in Lynn Canal.

Capacity – A two-lane highway from Auke Bay to Skagway would provide for high volumes of traffic between Juneau and Skagway. Capacity between Juneau and Haines would be determined by the shuttle ferry service from Skagway. The *M/V Aurora* has a capacity of 34 vehicles. The traffic volumes that would be accommodated by Alternative 2C are provided in Table 2-14.

Table 2-14
Daily Traffic Capacity for Alternative 2C

Alternative 2C – Daily Traffic Capacity	
Route	**Number of Vehicles**
To/From Haines	
Summer	408
Winter	272
To/From Skagway	30,000[1]

Note: [1]Based on estimate of 2,000 cars/hour for a 2-lane highway.

Travel Time – The one-way trip times for Alternative 2C are provided in Table 2-15. These times include ferry loading, transit time, and unloading, but no delay is included. The travel times for the shuttle ferries from Auke Bay to Haines and Haines do not include check-in time because reservations would not be taken. Vehicles would be accommodated on a first-come, first-serve basis.

Table 2-15
Travel Time for Alternative 2C

Alternative 2C – Travel Time	
Route	**Travel Time (hours)**
Auke Bay – Haines	3.4
Auke Bay – Skagway	2.1

Travel Frequency – Under Alternative 2C, flexibility and opportunity for travel from Auke Bay to Skagway would be unconstrained in the summer. During winter, travel would be limited by road closures for avalanche control. Frequency of travel to and from Haines would be determined by the frequency of the shuttle ferry system, which would operate approximately 15 hours a day in summer and 10 hours a day in winter. The trip frequency to Haines for Alternative 2C is provided in Table 2-16.

Table 2-16
Travel Frequency to Haines for Alternative 2C

Alternative 2C – Travel Frequency		
Auke Bay – Haines	**Round-Trips per Day**	**Round-Trips per Week**
Summer	6	42
Winter	4	28

Cost – The initial design and construction costs for Alternative 2C are $265 million. Annual M&O costs are estimated to be $4.4 million: $1.5 million for the highway and $2.9 million for the Haines/Skagway shuttle. The estimated 30-year life cycle cost is $304 million, including initial

capital costs, M&O costs, highway and vessel refurbishment costs, and vessel replacement costs.

Alignment – Alternative 2C would begin at the end of Glacier Highway just north of the Echo Cove boat launch access and follow the same alignment described for Alternative 2 north to Skagway, except that the Katzehin Ferry Terminal would not be constructed.

A detailed description of the alignment and the design criteria for this alternative can be found in the *Technical Alignment Report* (Appendix D).

2.3.6 Alternative 3 – West Lynn Canal Highway

This alternative would extend the Glacier Highway 5.2 miles from Echo Cove to Sawmill Cove in Berners Bay. Ferry terminals would be constructed at Sawmill Cove in Berners Bay and William Henry Bay on the west shore of Lynn Canal, and shuttle ferries would operate between the terminals. A new 38.9-mile highway would be constructed between William Henry Bay and Haines with a bridge across the Chilkat River/Inlet connecting into Mud Bay Road (Figure 2-8). The highway design features for this alternative would be the same as those described for Alternative 2.

The *M/V Aurora* would continue to operate as a shuttle between Haines and Skagway, but mainline ferry service would end at Auke Bay in Juneau. The *M/V Fairweather* would be redeployed on other AMHS routes. The highway from Auke Bay to Sawmill Cove, the shuttle ferry between Sawmill Cove and William Henry Bay, the highway from William Henry Bay to Haines, and the shuttle ferry from Haines to Skagway would become the NHS routes in Lynn Canal.

> Note: This alternative was originally considered reasonable after scoping in 1994, but after detailed study was determined to be unreasonable in 1996. A user benefit analysis indicated that this alternative would have only marginal benefits. Although there was little controversy associated with dropping this alternative in 1996 and little interest expressed in this alternative in the 1997 Draft EIS comments, both resource agencies and the public expressed interest in this alternative during 2003 scoping. This alternative met four of the five Purpose and Need elements as defined during screening, and is therefore included in the range of reasonable alternatives in the Supplemental Draft EIS.

Capacity – Under Alternative 3, traffic capacity would be determined by the parameters of the two shuttle ferry systems. The Sawmill Cove/William Henry Bay shuttle ferries would have a 42-vehicle capacity, with two vessels operating in the summer and one in the winter. The Haines/Skagway shuttle *(M/V Aurora)* would have a 34-vehicle capacity. The daily traffic volumes that would be accommodated by Alternative 3 are provided in Table 2-17.

Table 2-17
Daily Traffic Capacity for Alternative 3

Alternative 3 – Daily Traffic Capacity	
Route	**Number of Vehicles**
To/From Haines	
Summer	1,008
Winter	336
To/From Skagway	
Summer	408
Winter	272

Travel Time – The one-way trip times for Alternative 3 are provided in Table 2-18. These times include ferry loading, transit time, and unloading, but no delay is included. The travel times for the shuttle ferries between Sawmill Cove and William Henry Bay and Haines and Skagway do not include check-in time because reservations would not be taken. Vehicles would be accommodated on a first-come, first-serve basis.

Table 2-18
Travel Time for Alternative 3

Alternative 3 – Travel Time	
Route	**Travel Time (hours)**
Auke Bay – Haines	2.9
Auke Bay – Skagway	4.3

Travel Frequency – Under Alternative 3, flexibility and opportunity to travel would be determined by the shuttle ferry systems. The two Sawmill Cove/William Henry Bay shuttles would operate 17 hours per day in summer, and a single shuttle would operate 9 hours per day in winter. The Haines/Skagway shuttle would operate 15 hours per day in summer and 10 hours per day in winter. Winter travel would also be limited by road closures for avalanche control. The estimate trip frequency for Alternative 3 is provided in Table 2-19.

Table 2-19
Travel Frequency for Alternative 3

Alternative 3 – Travel Frequency		
Auke Bay – Haines	**Round-Trips per Day**	**Round-Trips per Week**
Summer	12	84
Winter	4	28
Auke Bay – Skagway	-	-
Summer	6	42
Winter	4	28

Cost – The initial design and construction cost for Alternative 3 is $269 million. Highway costs would be $179 million, vessel acquisition costs would be $59 million, and terminal costs would be $31 million. Annual M&O costs are estimated to be $9.2 million: $1.2 million for highways and $8 million for the shuttle ferry systems. The estimated 30-year life cycle cost is $375 million.

Alignment – The West Lynn Canal Highway would follow the west shoreline of Lynn Canal and the Chilkat Inlet, from William Henry Bay to Pyramid Harbor. Wherever possible, the highway would be located sufficiently inland to avoid impacts to the beach fringe and reduce visual effects. The terrain is generally conducive to this, but at some locations a combination of trees with eagle nests, avalanche zones, steep terrain, caves, and/or other geological features would force the highway to be located close to the beach, and in a few locations highway fill would be placed below the high-tide line.

2.3.6.1 Echo Cove to Sawmill Cove

Alternative 3 would begin at the end of Glacier Highway at Echo Cove and follow the same alignment described in Alternative 2A to the north for 5.2 miles to Sawmill Cove Ferry Terminal at Berners Bay. The ferry terminal would be a twin-berth facility used to overnight two shuttles. Dredging would be required in Sawmill Cove to provide adequate depth for shuttle mooring and turning, and some intertidal fill would be required.

2.3.6.2 William Henry Bay

A ferry terminal would be constructed at William Henry Bay for shuttle ferry service across Lynn Canal. The William Henry Bay Ferry Terminal would be somewhat protected from southeast winds but exposed to severe northerly storms; therefore, vessels would return to the Sawmill Cove Ferry Terminal to overnight. At William Henry Bay Ferry Terminal, a pile-supported access trestle would be required to reach adequate water depths for vessel berthing. A single berth is proposed with a transfer bridge accessed by a pile-supported dock structure. No dredging would be required, but fill would be placed in the intertidal area.

2.3.6.3 Endicott River Area

The highway from the William Henry Bay Ferry Terminal to the Endicott River area would be located on a wide bench above the beach for most of the segment. The highway would descend off the bench onto a 1,100-foot-long bridge across the Endicott River. The bridge elevation would be set to provide sufficient clearance for airboats. An elevated fill would be placed across the brush-covered gravels that form the Endicott River alluvial fan. From the Endicott River crossing to the Sullivan River crossing, wide, timber-covered benches are frequent, but at two locations the highway would drop onto the beach to avoid trees with eagle nests, important geological features, and stretches of steep terrain. Riprap armor would be placed at these locations to protect the highway fill from wave erosion.

2.3.6.4 Sullivan River Area

In the area of the Sullivan River, the highway would cross a wide plateau to the south of the river before dropping down to the river floodplain. A 600-foot-long bridge over the Sullivan River would be built on a gradual uphill grade to the north bank of the river. The bridge would be set high enough to allow airboats to pass underneath. From the Sullivan River north to the Glacier River the highway would be located several hundred feet inland from the shore, except at two locations where it would be located just inside the beach fringe to avoid steep cliffs. The high avalanche hazard zones opposite the middle of Sullivan Island would be mitigated by a combination of bridges and elevated fills with large culverts.

2.3.6.5 Glacier River Area

A 400-foot-long bridge would cross the Glacier River. The highway north of the Glacier River would be built on an elevated fill through brush and timber covering the Davidson Glacier alluvial fan. The highway would have a series of curves to miss most of the many small ponds and wetlands in this low-lying area. A 400-foot-long bridge would cross the unnamed outlet of Davidson Glacier Lake.

2.3.6.6 Davidson Glacier to Pyramid Harbor

The highway would continue north from the Davidson Glacier area on heavily timbered benches immediately above the beach cliffs. Construction on these benches would consist primarily of rock cuts with some downhill fills. A 428-foot-long bridge would cross Ludaseska Creek, and a 300-foot-long bridge would cross the glacial stream at Anchorage Point. At Anchorage Point, the construction would shift to fills placed on the alluvial fan of a glacial stream. Elevated fills would be used to mitigate the high avalanche hazard zone south of Pyramid Harbor, with large-diameter culverts providing the necessary drainage.

2.3.6.7 Chilkat River Area

The 2.0-mile Chilkat River crossing would extend from Green Point to Mud Bay Road. The bridge abutment on the west side would start approximately 500 feet from the shore of Chilkat River to avoid placing fill on the Dalton Trail, which starts at Pyramid Harbor and heads north along the Chilkat River. The highway in this area would consist of 5,800- and 3,000-foot long bridges separated by a 2,000-foot-long causeway in the middle of the inlet. The causeway would be placed to the northwest of Pyramid Island to avoid trees with eagle nests on the island. The causeway would be in the intertidal zone in an area of glacial silt deposition. Both bridges would be set at an elevation that would allow airboats and other small open boats, the only vessels currently navigating past Pyramid Island, to pass underneath.

The east abutment of the Chilkat River/Inlet crossing would be located above the high-tide line on the Chilkat Peninsula. From the bridge abutment the highway would continue on a short fill section to connect with Mud Bay Road in a standard tee-shaped intersection.

A more detailed description of the alignment, the ferry terminal layouts, and the design criteria for this alternative can be found in the *Technical Alignment Report* (Appendix D).

2.3.7 Alternatives 4A through 4D – Marine Options

The four marine alternatives would all include continued mainline ferry service in Lynn Canal, and the AMHS would continue to be the National Highway System (NHS) route from Juneau to Haines and Skagway. These alternatives are based on a minimum of two mainline vessel trips per week, year-round, and Haines/Skagway shuttle service provided by the *M/V Aurora.* The *M/V Fairweather* would no longer operate in Lynn Canal. It would be redeployed to other AMHS routes. All of these alternatives would require construction of a new double-stern berth at Auke Bay. Vessel sizes and a potential schedule for each alternative are identified in the *2004 Marine Segments Technical Report* (Appendix B) and are based in part on traffic volumes in the *2004 Traffic Forecast* (Appendix C).

All of the marine options provide faster and/or more frequent service with greater capacity than the No Action Alternative while minimizing operating costs. Various combinations of the following are proposed to reduce travel times: faster boats, shorter summer routes, and port-to-port operations (travel to one port then return to origin). Crew shifts with minimal overtime would reduce operating costs. Because these marine alternatives would partially meet three or

more of the five Purpose and Need elements, all four modified marine options are reasonable with regard to the Purpose and Need Statement and therefore are included in the range of reasonable alternatives in the Supplemental Draft EIS.

Note: Alternative 4 was originally identified as the AMHS Alternative in the 1994 Reconnaissance Engineering Report. It was designated as the All Marine Alternative in the 1997 Draft EIS even though it included two options with a 5-mile road extension. As described in Section 2.2.8, the original marine alternative options have been modified to reflect recent AMHS experience and planning.

2.3.8 Alternative 4A – FVF Shuttle Service from Auke Bay

This alternative would construct two fast aluminum catamaran ferries with a minimum speed of 30 knots (34 mph) to provide daily summer service from Auke Bay to Haines and to Skagway (Figure 2-9). Mainline service from Auke Bay to Haines/Skagway would continue, with two weekly trips estimated for both summer and winter service. The Haines/Skagway shuttle service would continue but the *M/V Fairweather* would no longer operate in Lynn Canal.

Capacity – Alternative 4A would have two high-speed ferries, each with a 50-vehicle capacity, providing service to Haines and Skagway. Mainline capacity in Lynn Canal would average 90 vehicles per vessel. Daily mainline capacity has been distributed as 55 percent to Haines and 45 percent to Skagway based on the projected traffic demand ratio in the *2004 Traffic Forecast* (Appendix C). The daily traffic volumes that would be accommodated by Alternative 4A are provided in Table 2-20.

Table 2-20
Daily Traffic Capacity for Alternative 4A

Alternative 4A – Daily Traffic Capacity	
Route	**Number of Vehicles**
To/From Haines	
Summer	229
Winter	129
To/From Skagway	
Summer	223
Winter	123

Travel Time – The one-way trip times for Alternative 4A are provided in Table 2-21. These times include check-in, transit time, and ferry loading and unloading, but no delay time is included.

Table 2-21
Travel Time for Alternative 4A

Alternative 4A – Travel Time (hours)		
Route	**Mainline**	**Fast Ferry**
Auke Bay – Haines	7.1	3.8
Auke Bay – Skagway	9.1	4.1

Travel Frequency – Under Alternative 4A, the opportunity to travel between Auke Bay and Haines or Auke Bay and Skagway would be determined by the combined frequency of mainliners and fast shuttles. The trip frequency based on two shuttles operating in summer and one in winter is provided in Table 2-22.

Table 2-22
Travel Frequency for Alternative 4A

Alternative 4A – Travel Frequency		
Auke Bay – Haines or Skagway	**Average Round-Trips per Day**	**Round-Trips per Week**
Summer	2.3	16
Winter	1.3	9

Cost – The initial design and construction costs for Alternative 4A are $124 million. Vessel acquisition cost would be $111 million, and terminal construction cost at Auke Bay would be $13 million. Estimated annual M&O costs would be $16.6 million: $3.5 million for mainline service, $11.2 million for Juneau shuttle service, and $1.9 million for the Haines/Skagway shuttle. The estimated 30-year life cycle cost is $495 million.

Design Details – The only construction for this alternative, other than for new vessels, would be the reconstruction of the west end of the Auke Bay Ferry Terminal to create a double-stern berth. Terminal layout details for the Auke Bay modifications can be found in the *Technical Alignment Report* (Appendix D).

2.3.9 Alternative 4B – FVF Shuttle Service from Berners Bay

This alternative would extend Glacier Highway 5.2 miles from Echo Cove to Sawmill Cove in Berners Bay using the same design standards described in Alternative 2 (Figures 2-10 and 2-11). A ferry terminal would be constructed at Sawmill Cove in Berners Bay. This alternative would utilize two high-speed aluminum catamaran ferries with a minimum speed of 30 knots (34 mph) to provide service from Sawmill Cove to Haines/Skagway in the summer and from Auke Bay to Haines and to Skagway in the winter. Mainline service from Auke Bay to Haines/Skagway would average two trips per week year-round. The Haines/Skagway shuttle service would continue but the *M/V Fairweather* would no longer operate in Lynn Canal.

Capacity – Mainline capacity would average 90 vehicles per vessel. The new ferry serving Haines in the summer would have a 32-vehicle capacity, and the new Skagway ferry would have a 51-vehicle capacity. In the winter, the 32-vehicle ferry would make two trips a day from Auke Bay: one to Haines and one to Skagway. This combination of vessels would be able to accommodate the daily traffic volumes listed in Table 2-23, with mainliner capacity split 55 percent and 45 percent between Haines and Skagway, respectively.

Table 2-23
Daily Traffic Capacity for Alternative 4B

Alternative 4B – Daily Traffic Capacity	
Route	**Number of Vehicles**
To/From Haines	
Summer	284
Winter	93
To/From Skagway	
Summer	227
Winter	87

Travel Time – Times shown in Table 2-24 are for a one-way trip in summer and include driving time from Auke Bay to Sawmill Cove, check in, ferry loading, transit, and unloading, but do not include delay time. Mainline travel time and winter FVF shuttle travel time from Auke Bay would be the same as in Alternative 4A.

Table 2-24
Travel Time for Alternative 4B

Alternative 4B – Travel Time (hours)		
Route	**Mainline**	**Shuttle**
Auke Bay – Haines	7.1	3.5
Auke Bay – Skagway	9.1	3.8

Travel Frequency – Under Alternative 4B, the opportunity to travel between Auke Bay and Haines or Skagway would be determined by the combined frequency of mainliners and dedicated shuttles, in both summer and winter. Two shuttles would operate in summer from Sawmill Cove Ferry Terminal; the shorter distance between terminals allows for more trips per day. The Haines-bound vessel would make four trips per day, and the Skagway-bound boat would make two trips per day. In winter a single shuttle vessel would make two trips a day from Auke Bay: one to Haines and one to Skagway. This schedule would result in the travel frequency provided in Table 2-25.

Table 2-25
Travel Frequency for Alternative 4B

Alternative 4B –Travel Frequency		
Auke Bay – Haines	**Average Round-Trips per Day**	**Round-Trips per Week**
Summer	4.3	30
Winter	1.3	9
Auke Bay – Skagway	-	-
Summer	2.3	16
Winter	1.3	9

Cost – The initial design and construction costs of Alternative 4B would be $137 million: $5 million for highway design and construction, $30 million for terminal design and construction at Auke Bay and Sawmill Cove, and $102 million for vessel acquisition. Annual M&O costs would be $15.5 million: $3.5 million for mainline service, $10.1 for Juneau shuttle service, $1.9 million for the Haines/Skagway shuttle, and $19,000 for highway maintenance. The estimated 30-year life cycle cost is $482 million.

Alignment – Alternative 4B would begin at the end of the existing Glacier Highway just north of the Echo Cove boat launch. It would follow the same alignment as described for Alternatives 2A and 3 from Echo Cove north to the Sawmill Cove Ferry Terminal. The terminal would be a double-berth facility with two support floats and twin steel transfer bridges. Dredging would be required to provide adequate depth.

A detailed description of the alignment, the ferry terminal layout, and the design criteria for this alternative can be found in the *Technical Alignment Report* (Appendix D).

2.3.10 Alternative 4C – Conventional Monohull Shuttle Service from Auke Bay

This alternative would construct two conventional monohull shuttle ferries to operate from Auke Bay to Haines/Skagway (Figure 2-9). These shuttles would operate at approximately the same speed as mainline vessels, with a minimum speed of 15 knots (17 mph) but would be dedicated dayboats that would run from Auke Bay to Haines or Skagway and then return. Mainline service from Auke Bay would continue at an average of two trips per week throughout the year. The Haines/Skagway shuttle service would continue but the *M/V Fairweather* would no longer operate in Lynn Canal.

Capacity – Each of the two shuttle ferries would have a capacity of 63 vehicles. In the summer they would make one trip per day, with one vessel making a round-trip to Haines and the other making a round-trip to Skagway. In winter a single vessel would operate, alternating between a round-trip to Haines one day and to Skagway the next. Alternative 4C would accommodate the traffic volumes provided in Table 2-26, including mainline capacity split of 55 percent to Haines and 45 percent to Skagway.

Table 2-26
Daily Traffic Capacity for Alternative 4C

Alternative 4C – Daily Traffic Capacity	
Route	**Number of Vehicles**
To/From Haines	
Summer	154
Winter	92
To/From Skagway	
Summer	149
Winter	86

Travel Time – The one-way trip times for Alternative 4C are provided in Table 2-27. These times include check-in, ferry loading and unloading, and transit time, but no delay time is included.

Table 2-27
Travel Time for Alternative 4C

Alternative 4C – Travel Time (hours)		
Route	**Mainline**	**Shuttle**
Auke Bay – Haines	7.1	6.0
Auke Bay – Skagway	9.1	6.3

Travel Frequency – Under Alternative 4C, the opportunity to travel between Auke Bay and Haines/Skagway would be determined by the frequency of both mainline vessels and dedicated dayboat shuttles. The two shuttles would each make one trip per day during the summer in addition to the twice per week mainline trips. In winter, a single shuttle would alternate daily trips to Haines and Skagway; mainline service would continue at two times per week. Trip frequency for Alternative 4C is provided in Table 2-28.

Table 2-28
Travel Frequency for Alternative 4C

Alternative 4C – Travel Frequency		
Auke Bay – Haines	**Average Round-Trips per Day**	**Round-Trips per Week**
Summer	1.3	9
Winter	0.8	5.5
Auke Bay – Skagway	-	-
Summer	1.3	9
Winter	0.8	5.5

Cost – The initial design and construction costs for this alternative are $102 million. Vessel acquisition would cost $89 million, and terminal construction cost at Auke Bay would be $13 million. Annual M&O costs would be $11.6 million: $3.5 million for mainline service, $6.2 million for Juneau Shuttle service, and $1.9 million for the Haines/Skagway shuttle. The estimated 30-year life cycle cost is $326 million.

Design Details – The only construction required for this alternative, other than new vessels, would be the reconstruction of the west end of the Auke Bay Ferry Terminal to create a double-stern berth. The terminal layout details for the Auke Bay modifications can be found in the *Technical Alignment Report* (Appendix D).

2.3.11 Alternative 4D – Conventional Monohull Shuttle Service from Berners Bay

This alternative would extend Glacier Highway 5.2 miles from Echo Cove to Sawmill Cove in Berners Bay using the same design standards described for Alternative 2 (Figures 2-10 and 2-11). A twin-berth ferry terminal would be constructed in Sawmill Cove. Two conventional monohull shuttle ferries with a minimum speed of 15 knots (17 mph) would run from Sawmill Cove Ferry Terminal in summer: one to Haines and one to Skagway. In winter, only one of these shuttle ferries would operate, departing from Auke Bay Ferry Terminal. Mainline service would continue at an average of two roundtrips per week in Lynn Canal year round. The

Haines/Skagway shuttle service would continue but the *M/V Fairweather* would no longer operate in Lynn Canal.

Capacity – Each of the shuttle ferries in this alternative would have a capacity of 45 vehicles. In the summer, each ferry would make two trips per day, with one dedicated to Haines and the other to Skagway. In winter, a single vessel would operate from Auke Bay, alternating between a round-trip to Haines one day and a round-trip to Skagway the next day. The daily traffic volumes that would be accommodated by Alternative 4D, including mainline capacity (mainline capacity split of 55 percent to Haines and 45 percent to Skagway) are provided in Table 2-29.

Table 2-29
Daily Traffic Capacity for Alternative 4D

Alternative 4D – Daily Traffic Capacity	
Route	**Number of Vehicles**
To/From Haines	
Summer	208
Winter	74
To/From Skagway	
Summer	203
Winter	68

Travel Time – The one-way travel times in summer are provided in Table 2-30. These times include driving time from Auke Bay to Sawmill Cove Ferry Terminal, check-in, loading, transit time, and unloading. No delay time is included. Mainliner travel time and winter shuttle travel time from Auke Bay would be the same as in Alternative 4C.

Table 2-30
Travel Time for Alternative 4D

Alternative 4D – Travel Time (hours)		
Route	**Mainline**	**Shuttle**
Auke Bay – Haines	7.1	5.0
Auke Bay – Skagway	9.1	5.3

Travel Frequency – Under Alternative 4D, the opportunity to travel between Auke Bay and Haines or Skagway would be determined by the frequency of both mainline vessels departing from Auke Bay and shuttles departing from Sawmill Cove Ferry Terminal. The two shuttles based in Sawmill Cove would each make two trips a day during the summer in addition to the twice per week mainline vessel trips from Auke Bay. In winter, a single shuttle would operate from Auke Bay, alternating daily trips to Haines and Skagway in addition to the twice-weekly mainline vessel trips to each destination. Trip frequency is provided in Table 2-31.

Table 2-31
Travel Frequency for Alternative 4D

Alternative 4D – Travel Frequency		
Auke Bay – Haines	**Average Round-Trips per Day**	**Round-Trips per Week**
Summer	2.3	16
Winter	0.8	5.5
Auke Bay – Skagway	-	-
Summer	2.3	16
Winter	0.8	5.5

Cost – The initial design and construction costs of Alternative 4D are $98 million. Road construction would cost $5 million, vessel acquisition would cost $63 million, and terminal construction at Auke Bay and Sawmill Cove would cost $30 million. Annual M&O costs would be $11.3 million: $3.5 million for mainline service, $5.9 million for Juneau shuttle service, $1.9 million for the Haines/Skagway shuttle, and $19,000 for highway maintenance. The estimated 30-year life cycle cost is $313 million.

Alignment – The alignment and terminal details for Alternative 4D are identical to those of Alternative 4B. Road construction would begin at the end of Glacier Highway just north of the Echo Cove boat launch. The alignment would follow the Alternative 2 alignment for 4.3 miles before descending to the Sawmill Cove Ferry Terminal. The terminal would be a double-berth facility with two support floats and twin steel transfer bridges. Dredging would be required to provide adequate depth.

A detailed description of the alignment, the ferry terminal layout, and the design criteria for this alternative can be found in the *Technical Alignment Report* (Appendix D).

Table 2-32 provides a summary of the key characteristics of each alternative.

2.4 Identification of the Preferred Alternative

The 1997 Draft EIS did not identify a preferred alternative for the State of Alaska. After the comment period ended in December 1997, DOT&PF analyzed the comments, developed a list of the substantive issues, and identified the additional information that was necessary to address the substantive comments. In March 1999, a report was prepared by an independent marine consultant to verify the costs and benefits of the marine option alternatives (Glosten, 1999). At the same time, a summary document was prepared with information on substantive issues, traffic capacity, travel time, trip frequency, capital costs, M&O costs, and user costs for the five build alternatives from the Draft EIS and four additional proposals based on Draft EIS comments.

In late March 1999, a review team composed of FHWA and non-Southeast Region DOT&PF engineers and planners evaluated the information in the summary document and rated the alternatives based on the Purpose and Need elements. Alternative 2, the East Lynn Canal Highway with Katzehin Ferry Terminal, was rated the highest of all alternatives and proposals.

In April 1999, the summary document and the results of the review team's rating were combined in a presentation entitled DOT&PF Preferred Alternative Report. The PAR was given to Governor Knowles and contained DOT&PF's recommendation that the state identify Alternative

2 as the preferred alternative. This recommendation was based on the assessment that Alternative 2 would meet corridor traffic demand, provide the greatest flexibility and opportunity to travel, result in the greatest reduction in travel time, have the lowest operating cost, and result in the lowest user cost for the traveler.

In January 2000, Governor Knowles declared Alternative 2, the East Lynn Canal Highway, the state's preferred alternative. At the same time, Governor Knowles stated that the alternative would not be actively pursued during his administration and that most work on the EIS would be discontinued. In February 2000, the DOT&PF Commissioner confirmed the state's selection of Alternative 2 as the preferred alternative to FHWA, along with a plan to continue obtaining specific data that would be crucial to completing the EIS at a later date.

Table 2-32
Alternatives Data Summary

	Alt 1	Alt 2	Alt 2A	Alt 2B	Alt 2C	Alt 3	Alt 4A	Alt 4B	Alt 4C	Alt 4D
PROJECTED SUMMER CAPACITY (vehicles per day)										
To Skagway	71	30,000	776	636	30,000	408	223	227	149	203
To Haines	96	612	544	544	408	1,008	229	284	154	208
SUMMER TRAVEL TIME (check-in/loading/unloading)										
Auke Bay to Skagway [2]	3.8 / 9.1	2.1	2.6	3.0	2.1	4.2	4.1 / 9.1	3.8 / 9.1	6.3 / 9.1	5.3 / 9.1
Auke Bay to Haines [2]	3.5 / 7.1	2.5	3.0	2.5	3.4	2.9	3.8 / 7.1	3.5 / 7.1	6.0 / 7.1	5.0 / 7.1
TRAVEL OPPORTUNITY (number of ferry round trips per week)										
Auke Bay to Skagway – Summer	7	NA	140	42	NA	42	16	16	9	16
Auke Bay to Haines - Summer	8	63	56	56	42	84	16	30	9	16
INITIAL CAPITAL COSTS ($Millions)										
Highway [3]	$0	$265	$205	$182	$265	$179	$0	$5	$0	$5
Total Marine Vessel Acquisition [3]	$0	$0	$46	$48	$0	$59	$111	$102	$89	$63
Ferry Terminal [3]	$0	$16	$43	$16	$0	$31	$13	$30	$13	$30
Total	**$0**	**$281**	**$294**	**$246**	**$265**	**$269**	**$124**	**$137**	**$102**	**$98**
ANNUAL MAINTENANCE AND OPERATIONS COSTS										
Highway M&O [3] ($Thousands)	$0	$1,526	$1,517	$1,296	$1,526	$1,244	$0	$19	$0	$19
Marine M&O [4] ($Thousands)	$10,185	$2,880	$6,886	$7,710	$2,938	$7,992	$16,655	$15,535	$11,658	$11,291
Total ($Thousands)	**$10,185**	**$4,406**	**$8,403**	**$9,006**	**$4,464**	**$9,236**	**$16,655**	**$15,554**	**$11,658**	**$11,310**
30 Year Life Cycle Costs[5] ($Millions)	**$267**	**$323**	**$380**	**$352**	**$304**	**$375**	**$495**	**$482**	**$326**	**$313**

Notes: [1]Based on estimate of 2,000 cars/hour for a 2-lane highway.
[2]Travel Time - Shuttle / Mainliner
[3]Technical Alignment Report (Appendix D)
[4]Marine Segments Report (Appendix B), Lynn Canal Revenues and Expenditures 2001-2002, and Projected Capital Cost 2001-2038 (DOT&PF, 2004)
[5]From User Benefit Analysis (Appendix E). See Supplemental Draft EIS Section 4.1.5 for further information.

In December 2002, newly elected Governor Murkowski directed DOT&PF to aggressively pursue completion of the Juneau Access Improvements Project EIS. In February 2003, the DOT&PF Commissioner, after reviewing the Draft EIS and the reevaluation that called for a supplemental Draft EIS, stated that Alternative 2, the East Lynn Canal Highway with Katzehin Ferry Terminal, continued to be the state's preferred alternative (see Section 6.8).

After careful scrutiny of all the studies prepared for the Supplemental Draft EIS, DOT&PF continues to prefer Alternative 2. This preference is based on ability to meet traffic demand, provide the greatest flexibility and opportunity to travel, provide the shortest travel times and the greatest reduction in user costs, while reducing state operating expense.

All reasonable alternatives evaluated in the Supplemental Draft EIS are under consideration and have been developed to a comparable level of detail. Final identification of a preferred alternative will not occur until the alternatives impacts, written comments on the Supplemental Draft EIS, and comments received at the public hearings have been fully evaluated and considered. The selected alternative will be provided in the Record of Decision.

2.5 Funding Considerations

The 1997 Draft EIS identified several potential funding sources for construction and operation of build alternatives, as this was an issue of concern raised during development of the Draft EIS. Capital funding sources included the state's excess apportionment funds, supplemental federal allocations (congressional earmarks), revenue bonds, programmed and reallocated federal highway funds (from the NHS section of the State Transportation Improvement Plan [STIP]), public lands highway funds, ferry boat discretionary funds, state matching funds, and private funds. M&O funds included ferry system fares, highway tolls, and the state general fund, including the state motor fuel tax and licensing/registration fees.

All of the funding sources mentioned in the Draft EIS are under consideration now as potential funding sources for a build alternative, if selected, with the exception of highway tolls. No tolls are proposed for the highway segments included in the Supplemental Draft EIS build alternatives. M&O for new highway segments would be funded out of the state general fund, as with all existing highways in Alaska. Fares on marine links, along with state general funds, would fund M&O for those links. No tolls are included in the economic analysis of the alternative; the projected fares used in the analysis are based on a combination of projected costs and reasonable rates based on past practice.

Current planning for funding the construction of any build alternative in the Supplemental Draft EIS assumes a project-specific congressional earmark. If a special congressional appropriation does not become available, initial funding would come from the state's Federal Aid Highway Program. This would require a revision to the STIP by delaying or eliminating projects in the current 2004 to 2006 STIP to make room for the Juneau Access Improvements Project.