

STATE OF ALASKA

SARAH PALIN, GOVERNOR

DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
SOUTHEAST REGIONAL DIRECTOR'S OFFICE

PO Box 112506
6860 GLACIER HIGHWAY
JUNEAU, ALASKA 99811-2506

PHONE: (907) 465-1763
FAX: (907) 465-2016

February 10, 2009

RE: Gravina Access Project

Dear Agency Representative:

We are providing the attached *Gravina Access Pre-Screening Alternatives Memorandum* on behalf of the Federal Highway Administration (FHWA) and the Alaska Department of Transportation & Public Facilities (DOT&PF). The purpose of the Gravina Access Project is to improve surface transportation between Revillagigedo Island, the primary population center for the Ketchikan Gateway Borough, the City of Ketchikan, and the City of Saxman; and to Gravina Island, the location of the Ketchikan International Airport and adjoining lands that offer development and recreation potential.

The DOT&PF and FHWA have initiated a supplemental environmental impact statement (SEIS) process to add the Gravina Island Highway to reasonable alternatives evaluated in the original EIS and any new variations that have since been proposed. This memorandum identifies those alternatives, which will be evaluated and screened to determine the alternatives that will be studied in detail in the SEIS.

DOT&PF has reviewed the eighteen build alternatives in the original 2004 Environmental Impact Statement (EIS) and has also considered other revised alternatives. DOT&PF has also explored potential cost savings by changing some of the original design parameters (design speed, increasing the amount of fill, encroachment into FAA's Part 77 airspace, adjustment of vessel tracklines, different component or structure types, construction phasing, etc.) to develop variations for consideration in the screening process. Six new alternatives were developed and include C3-4 (variant of C3a and C4), F3v (variant of F3), G4v (variant of G4), M1 and M2 (new movable bridge alternatives), and T1 (a new tunnel alternative).

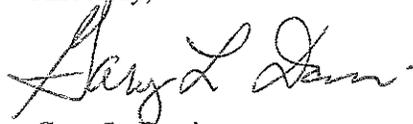
Based on the original 2004 EIS, comments heard during public and agency scoping, and additional work that has been performed subsequent to the 2004 ROD, we anticipate fifteen build alternatives will be screened for detailed evaluation in the Supplemental Environmental Impact Statement (SEIS); these alternatives are described in the attached memorandum. A No Build Alternative will also be evaluated in the SEIS.

"Providing for the safe movement of people and goods and the delivery of state services."

We are interested in your comments regarding the build alternatives outlined in the attached memorandum. *If you have any comments or concerns regarding the alternatives, please submit them in writing or via email no later than the close of business on Monday, March 9.* We are planning on holding an open house in Ketchikan to take comment on the pre-screening alternatives and present preliminary screening criteria on March 5, 2009, and then beginning the screening process, so it is imperative that we get your comments in a timely manner.

Thank you for your continued participation in the Gravina Access Project. For more information, please feel free to contact Reuben Yost, Southeast Environmental Coordinator, at (907) 465-1774 or via email at reuben.yost@alaska.gov, or you may visit the project website at www.gravina-access.com.

Sincerely,



Gary L. Davis
Regional Director
DOT&PF Southeast Region

cc: Mike Vanderhoof, FHWA Alaska Division Environmental Coordinator

Distribution List:

Steve Brockman, Acting Field Supervisor, USDOJ – Fish and Wildlife Service
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Karl Cook Jr., Mayor, Metlakatla Indian Community
Lee Wallace, President, Organized Village of Saxman

MEMORANDUM

To: Cooperating, Participating, and other interested Agencies

From: Department of Transportation & Public Facilities –
SE Region



Subject: Gravina Access Project Pre-Screening Alternatives Memorandum

Date: 2/6/09

Subsequent to the approval of the Gravina Access Project Final Environmental Impact Statement (FEIS) and issuance of the Record of Decision (ROD) in 2004, the Governor determined in September 2007 that the cost of selected alternative (F1) is beyond the realistic amount of funding available to the state and not financially feasible. As a result of this decision, the Department of Transportation and Public Facilities (DOT&PF) has initiated a supplemental environmental impact statement (SEIS) process to evaluate reasonable alternatives including those that have been discussed since the original Environmental Impact Statement (EIS) was published. In support of the SEIS, DOT&PF has reviewed the 2004 EIS alternatives and developed this memorandum in order to identify the alternatives that will be screened for reasonableness and evaluated in the SEIS.

The DOT&PF initially developed 18 build concepts for crossing Tongass Narrows as part of the original EIS. These concepts were based on previous studies, input from agencies and the public, engineering, and the purpose and need for the project. These build concepts were screened for several factors included the ability to meet the project purpose and need, cost, environmental impacts, impacts to Section 4(f) properties, and transportation impacts. Nine options were not considered practical or feasible from a technical and economic standpoint and were eliminated from further consideration, which resulted in the nine build alternatives evaluated in the 2004 EIS.

Seven of the nine dropped alternatives (four bridges and three tunnels) had costs greater than F1, the 2004 selected alternative now considered too expensive to be constructed. Given that these alternatives would clearly be too costly now, we do not propose to rescreen them. However modified versions of two of these alternatives, a tunnel and two movable span bridges, are proposed for screening because they address concerns raised during SEIS scoping. One high bridge in the vicinity of the airport was determined to be an unnecessary variation of other high bridges in the same vicinity. It continues to be an unnecessary variation. The last of the originally dropped alternatives was a ferry proposal that was determined not reasonable due to not meeting purpose and need and Section 4(f) impacts. No recent interest has been expressed in this alternative and nothing has changed relative to purpose and need and 4(f) impacts, therefore we do not propose to rescreen this alternative. Nevertheless all nine of the originally dropped alternatives and the reasons why they were dropped will be mentioned in the new screening report and the SEIS.

This memorandum describes the nine build alternatives presented in the 2004 EIS and six other alternatives such as movable span bridges and a submersed tunnel. DOT&PF has also explored potential cost savings by changing some of the original design parameters (design speed, approach embankment to or beyond water's edge [i.e., causeway fill to shorten structure length], greater encroachment into FAA's Part 77 airspace, adjustment of vessel tracklines, using different component or structure types, delaying implementation of various features, etc.) to develop variations for consideration in the screening process. The six new or revised alternatives include C3-4 (variant of C3a and C4), F3v (variant of F3), G4v (variant of G4), M1 and M2 (new movable bridge alternatives), and T1 (a new tunnel alternative).

Based on the original 2004 EIS, comments heard during public and agency SEIS scoping, and additional work performed after the 2004 ROD, the following 15 build alternatives will be screened for inclusion in the SEIS. The attached figure depicts the location of each of these alternatives. A No Build Alternative will also be evaluated in the SEIS.

1. **C3a** (high bridge in the vicinity of the airport): Alternative C3a provides a bridge across Tongass Narrows approximately 2,500 feet north of the Ketchikan International Airport passenger terminal that's connects to Signal Road on Revilla Island. The entire length of the alignment would be 2.22 miles, including the 6,800-foot long bridge and a 0.34 mile Airport Return Loop. The maximum height of the bridge would be approximately 265 feet above Mean Higher High Water (MHHW), and will penetrate into the FAA Part 77 airspace. The main bridge span would have a vertical navigational clearance of 200 feet above MHHW and a horizontal navigational clearance of at least 550 feet. The main bridge span would be located over water deeper than 40 feet at Mean Lower Low Water (MLLW) to accommodate deep draft vessels. These navigational clearances would accommodate one-way passage of cruise ships and two-way passage of most other ships including the largest Alaska Marine Highway System (AMHS) ferries. The main span of the eastern pier would be in water about 115 feet deep, and the western pier would be in water about 70 feet deep.
2. **C3b** (low bridge in the vicinity of the airport): Alternative C3b provides a bridge across Tongass Narrows approximately 3,600 feet north of the airport passenger terminal that connects to Signal Road on Revilla Island. The alignment would be about 2.20 miles long, with a bridge that would be approximately 4,250 feet long and a 0.34 mile Airport Return Loop. The maximum height of the bridge would be approximately 175 feet above MHHW. The main span of this bridge would have a vertical navigational clearance of 120 feet above MHHW and a horizontal navigational clearance of more than 500 feet. The main span would be located over water deeper than 40 feet at MLLW to accommodate deep draft vessels. These navigational clearances would accommodate passage of ships as large as AMHS ferries. The main span eastern pier would be in water just over 100 feet deep, and the western pier would be about 90 feet deep.

3. **C4** (high bridge in the vicinity of the airport): Alternative C4 includes a bridge across Tongass Narrows approximately 2,500 feet north of the airport passenger terminal. The bridge is generally on the same alignment as Alternative C3a, but the Revilla Island approach connects near Cambria Drive. This alignment would be 2.08 miles long, with a bridge that would be approximately 5,000 feet long and a 0.40 mile Airport Return Loop. The maximum height of the bridge would be approximately 260 feet above MHHW, and will penetrate into the FAA Part 77 airspace. The main span of this bridge would have a vertical navigational clearance of 200 feet above MHHW and a horizontal navigational clearance of over 550 feet. The main span would be located over water deeper than 40 feet at MLLW to accommodate deep draft vessels. These navigational clearances would accommodate one-way passage of cruise ships and two-way passage of most other ships, including AMHS ferries. The main span eastern pier would be in water about 115 feet deep, and the western pier would be in water about 50 feet deep.
4. **C3-4** (variant of C3a and C4 consisting of a high bridge in the vicinity of the airport): Alternative C3-4 is a new alternative that removes a curve from the bridge main span, and uses the Borough's proposed Bench Road to Rex Allen Drive/Misty Marie Lane/Signal Road near Wal-Mart, rather than a large cut to Signal Road and Tongass Avenue. Alternative C3-4 is 1.87 miles long with a bridge that would be approximately 4,190 feet long. This alternative moves the cruise ship trackline approximately 175 feet to the east. The maximum height of the bridge over the navigational channel would be approximately 280 feet above MHHW, and will penetrate into the FAA Part 77 airspace. The vertical navigational clearance would be 200 feet above MHHW. The horizontal navigational clearance would be 550 feet. The main span would be located over water deeper than 40 feet at MLLW to accommodate deep draft vessels. These navigational clearances would accommodate one-way passage of cruise ships and two-way passage of most other ships, including AMHS ferries. The main span eastern pier would be in water about 115 feet deep, and the western pier would be in water about 100 feet deep.
5. **D1** (low bridge at the airport): Alternative D1 includes a bridge that would cross Tongass Narrows directly east of the airport passenger terminal. The alignment would be about 1.59 miles long, and the bridge would be approximately 3,600 feet long with a 0.42 mile Airport Return Loop. The maximum height of the bridge would be approximately 165 feet above MHHW. The main span of this bridge would have a vertical navigational clearance of 120 feet above MHHW and a horizontal navigational clearance of approximately 500 feet. The main span would be located over water deeper than 40 feet at MLLW to accommodate deep draft vessels. These navigational clearances would accommodate passage of ships as large as the AMHS ferries. The main span eastern pier would be in water just over 100 feet deep, and the western pier would be about 55 feet deep.
6. **F1** (two bridges that cross via Pennock Island): Alternative F1 is approximately 7.03 miles long and would cross Tongass Narrows with two bridges via Pennock Island. The access would begin at South Tongass Avenue north of the US Coast

Guard Station, and continue to Gravina Island and the airport. One bridge would cross the East Channel and the other would cross the West Channel. The East Channel bridge would be approximately 3,400 feet long, and have a maximum height of approximately 285 feet above MHHW as it rises up to meet the Pennock Island bluff. The bridge would have a vertical navigational clearance of 200 feet above MHHW and a horizontal navigational clearance of approximately 550 feet. The main span of the bridge would be centered on the cruise ship trackline and would be over water deeper than 40 feet at MLLW to accommodate deep draft vessels. These clearances would accommodate one-way passage of cruise ships and two-way passage of most other ships, including AMHS ferries. Both the East Channel main span piers would be in water about 110 feet deep. The West Channel bridge would be approximately 2,465 feet long and have a maximum height of approximately 160 feet above MHHW. The bridge would have a vertical navigational clearance of 120 feet above MHHW and a horizontal navigational clearance of approximately 500 feet. The main span would be located over water deeper than 40 feet at MLLW to accommodate deep draft vessels. These navigational clearances would accommodate passage of ships as large as the AMHS ferries, but not the largest cruise ships. The West Channel main span western pier would be in water just under 90 feet deep, and the eastern pier would be on dry land.

7. **F3** (two bridges that cross via Pennock Island): Similar to the Alternative F1 alignment, except the access would begin at South Tongass Avenue south of the US Coast Guard Station and continue west to Gravina Island and the airport. This 5.87-mile long Alternative F3 would include a low bridge over the East Channel and a high bridge over the West Channel of Tongass Narrows. The East Channel bridge would be approximately 1,985 feet long and have a maximum height of approximately 115 feet above MHHW. The bridge would have a vertical navigational clearance of 60 feet above MHHW and a horizontal clearance of approximately 350 feet. These clearances would not accommodate cruise ship, AMHS ferries, or tall freight barges that currently use the East Channel as their primary navigational route; these vessels will be required to use the West Channel of Tongass Narrows for southern approaches or departures into and out of Ketchikan. The primary users of the East Channel are anticipated to be smaller tug and barge configurations for both dry and liquid cargoes and commercial and recreational vessels with air drafts less than sixty feet. The East Channel main span eastern pier would be in water as deep as 120 feet, and the western pier would be in only 40 feet of water. The West Channel bridge would be approximately 2,470 feet long and have a maximum height of approximately 270 feet above MHHW. The bridge would have a vertical navigational clearance of 200 feet above MHHW and a horizontal navigational clearance of approximately 550 feet. The main spans of the bridges would be centered on the AMHS ferry trackline and would be over water deeper than 40 feet at MLLW to accommodate deep draft vessels. These navigational clearances would accommodate one-way passage of cruise ships and two-way passage of most other ships, including AMHS ferries. Both the West Channel main span piers would be in water just over 40 feet deep. In order to accommodate the change in cruise ship passage, this

alternative will include dredging the West Channel to improve its navigational characteristics and provide a 750 foot wide channel 30 feet deep at MLLW with the 550 foot navigational channel having a minimum depth of 40 feet.

8. **F3v** (variant of F3 that consists of two bridges that cross via Pennock Island): Alternative F3v is a new alternative that would be located on the same alignment as Alternative F3. The main difference between the Alternatives F3 and F3v is the use of fill to minimize the length of the bridge structures crossing the channels. The use of embankment for bridge approaches allows the length of structure to be reduced with the intent of achieving an overall cost saving. The implementation of approach embankments makes use of readily available and accessible rock material in the area. Two different bridge configurations were also considered to reduce costs; one that lends itself to a segmental concrete box girder, and the other lends itself to a cable-stayed alternative with a single deep water pylon and symmetric spans. The East Channel box girder main span would be 500 feet long, and the cable-stayed would be 1700 feet long. The West Channel box girder would be 700 feet long, and the cable-stayed would be 1760 feet long. The East Channel bridges would have a vertical navigational clearance of 60 feet above MHHW and a horizontal navigational clearance of approximately 350 feet. The West Channel bridges would have a vertical navigational clearance of 200 feet above MHHW and a horizontal navigational clearance of approximately 550 feet. The main spans of these bridges would be centered on the AMHS ferry trackline and would be over water deeper than 40 feet at MLLW to accommodate deep draft vessels. As with Alternative F3, in order to accommodate the change in cruise ship passage, this alternative will include dredging the West Channel to improve its navigational characteristics and provide a 750 foot wide channel 30 feet deep at MLLW with the center 550 foot portion having a minimum depth of 40 feet.
9. **G2** (new ferry service between Peninsula Point and Lewis Point near Ward Cove): Alternative G2 would be a new ferry service that would complement the existing airport ferry for vehicles and passengers between Peninsula Point on Revilla Island and Lewis Point on Gravina Island. This alternative would cross Tongass Narrows approximately 2 miles north of the airport passenger terminal and would have a sailing distance of approximately 3/4 mile. Two new ferry vessels and construction of a new ferry terminal on each side of Tongass Narrows would be required for this alternative. A 0.75-mile long road would be constructed on Gravina Island to connect the ferry terminal at Lewis Point with Seley Road. This alternative would also include a 60 passenger waiting facility with restrooms and two shuttle vans to carry both pedestrians and their luggage from Charcoal Point on Revilla Island to the terminal (cost of this service to be included in their ferry ticket price). Additionally, a heavy freight terminal and 3/4-acre staging area will be built just south of the current ferry dock on Gravina Island.
10. **G3** (new ferry service between downtown and Clump Cove): Alternative G3 would be new ferry service that would complement the existing airport ferry for vehicles and passengers between downtown Ketchikan at Jefferson Street (near the Plaza Mall at Bar Point) on Revilla Island and a location approximately 1.3 miles south of

the Airport passenger terminal on Gravina Island near Clump Cove. The crossing distance would be approximately 1.25 miles. This alternative would require construction of a new ferry terminal on each side of Tongass Narrows and two new ferry vessels. Dredging may be required to provide adequate navigational depth for the ferry terminal on Revilla Island. The existing breakwater could also be widened and extended for use as the ferry terminal pier. A paved road would be constructed on Gravina Island from the ferry terminal past the new Runway 11/29 extension approximately 0.2 miles to the Gravina Island Highway. This alternative would also include a 60-passenger waiting facility with restrooms and two shuttle vans to carry both pedestrians and their luggage from Charcoal Point on Revilla Island to the terminal (cost of this service to be included in their ferry ticket price). Additionally, a heavy freight terminal and a ¾-acre staging area will be built just south of the current ferry dock on Gravina Island.

11. **G4** (new ferry service adjacent to the existing airport ferry): Alternative G4 would be new ferry service for vehicles and passengers adjacent to the existing airport ferry route between Charcoal Point on Revilla Island and the existing ferry lay-up berth on Gravina Island on a quarter-mile crossing of Tongass Narrows, 2.6 miles north of downtown. This alternative would require two new ferry vessels and construction of a new ferry terminal on each side of Tongass Narrows adjacent to the existing airport ferry terminals, a 60-passenger waiting facility with restrooms and two shuttle vans to carry both pedestrians and their luggage from Charcoal Point on Revilla Island to the terminal (cost of this service to be included in their ferry ticket price). Additionally, a heavy freight terminal and ¾-acre staging area will be built just south of the current ferry dock on Gravina Island.
12. **G4v** (variant of G4 which is new ferry service adjacent to the existing airport ferry): Alternative G4v would be new ferry service for vehicles and passengers adjacent to the existing airport ferry route on a quarter-mile crossing of Tongass Narrows, 2.6 miles north of downtown. However, unlike Alternative G4, new ferries and terminals would not be constructed at this time. This alternative would initially include the addition of a 60 passenger waiting facility with restrooms and two shuttle vans to carry both pedestrians and their luggage from Charcoal Point on Revilla Island to the terminal (cost for this service to be included in their ferry ticket price). Additionally, a heavy freight terminal and ¾-acre staging area will be built just south of the current ferry dock on Gravina Island. When ferry demand increases enough to warrant it, a new ferry, and two new docks at the same location as proposed in G4 could be constructed. Although a fourth ferry is not anticipated in the 75-year design life of the project, another ferry could be added in the future if demand warrants it.
13. **M1** (vertical lift structure at the airport): Alternative M1 is a new alternative that is a moveable bridge over Tongass Narrows near the quarry on Tongass Avenue and the existing ferry terminal on Gravina Island. The alignment would be about 0.31-miles long on an essentially flat grade, and the bridge would be approximately 1,400-feet long. This alternative moves the cruise ship trackline approximately 140 feet to the east. The bridge would be a vertical lift of a steel through-truss span

with 300-foot high lift towers, providing navigational clearances of 550 feet horizontally and 200 feet vertically above MHHW in the raised position. In the lowered position, the vertical clearance would be 20 feet above MHHW, lower than any of the other bridge options. The lift towers will penetrate into the Part 77 airspace. The alignment would connect to Tongass Avenue using a T-intersection and access Gravina Island in the vicinity of the airport terminal, resulting in a relatively flat alignment. The lift span would accommodate one-way passage of cruise ships and two-way passage of most other ships, including AMHS ferries. The eastern lift tower would be in water about 80 feet deep, and the western tower would be in water about 20 feet deep. The time to raise the span, allow a vessel to pass, and then lower the span would be up to 30 minutes for each passage. With a vertical clearance of only 20 feet, the bridge would be raised for cruise ships (up to eight cruise ships per day enter and leave Tongass Narrows during the summer), AMHS ferries (up to six passages per day during the summer), the Inter-Island Ferry, barges, commercial vessels, and many recreational craft.

14. **M2** (vertical lift structure near the airport): Alternative M2 is a new alternative that is a moveable bridge over Tongass Narrows near the two existing ferry terminals on Revilla and Gravina islands. The alignment would be about 0.51 miles long, and the bridge would be approximately 1700 feet long. This alternative moves the cruise ship trackline approximately 145 feet to the east. The bridge would be a vertical lift of a steel through-truss span with 300 foot high lift towers, providing navigation clearances of 550 feet horizontally and 200 feet vertically above MHHW in the raised position. In the lowered position, the vertical clearance would be approximately 60 feet above MHHW. The lift towers will penetrate into the Part 77 airspace. The curved alignment would connect to Tongass Avenue through the existing ferry terminal parking lot, and provide adequate room for a minimum queue of approximately 25 vehicles while waiting for ship passage. On Gravina Island, the connection would be in the vicinity of the airport terminal building. The lift span would accommodate one-way passage of cruise ships and two-way passage of most other ships, including AMHS ferries. The eastern lift tower would be water about 90 feet deep, and the western tower would be in water about 50 feet deep. With a vertical clearance of 60 feet, most local shipping including barges, commercial vessels, and many recreational craft can pass without raising the span.
15. **T1** (tunnel between Peninsula Point and Lewis Point): Alternative T1 is a new alternative that resulted from a modification of one of the tunnel alternatives presented in the 2004 EIS. The alternative would be a 3,200-foot submersed tunnel crossing between Peninsula Point on Revilla Island and Lewis Point on Gravina Island, at the location of Alternative G2. The crossing distance would be approximately one-half mile. A 0.75-mile long new road would be constructed on Gravina Island to connect the tunnel with Seley Road.

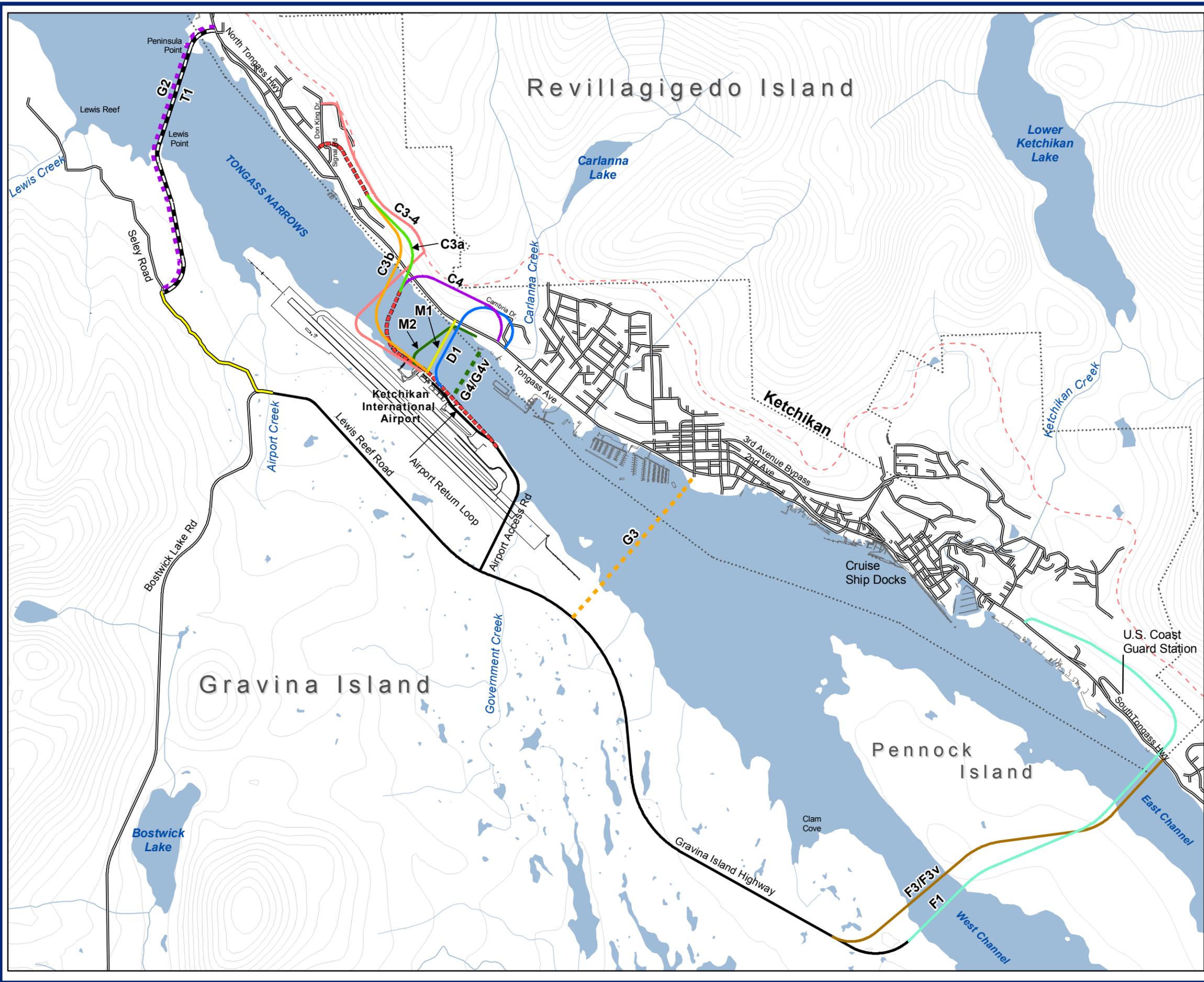
Each build alternative includes the maintenance and operation of:

- The recently constructed Gravina Island Highway to the southern airport reserve boundary, for a total length of approximately 3.2 miles (G3' s length is 2.6 miles);
- Lewis Reef and Seley roads to the northern airport reserve boundary, for a total length of approximately 2.2 miles; and
- Airport Access Road, which extends from the airport terminal, passes beneath the runway safety area in a tunnel, and then climbs the hill to its intersection with the Gravina Island Highway and Lewis Reef Road, a distance of approximately 1.15 miles.

The SEIS will include an analysis of the impacts of the Gravina Island Highway for each of the reasonable alternatives. Not all of the reasonable alternatives evaluated in the 2004 EIS included the recently constructed Gravina Island Highway which is now open to public traffic. The Gravina Island Highway starts at the intersection of the Airport Access Road and Lewis Reef Road and continues 3.4 miles south to its terminus at the approximate location of the West Channel abutment for the F1 Alternative on Gravina Island. The SEIS reasonable alternatives will also include upgrading the existing single-lane bridge over Airport Creek at the end of Lewis Reef Road to 36 feet wide. When warranted, a 300-car parking structure would be built at the airport terminal to accommodate additional airport traffic from improved access and would be funded under an appropriate FAA program separate from this FHWA project.

After considering your input and input from the public, we will screen build alternatives. Screening factors will include how well each build alternative meets the purpose and need for the project, the construction and operation costs, any potential Section 4(f) impacts, and the presence of designated special areas or a high level of environmental impacts that might make permitting and/or authorization for the alternative unlikely.

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Alternatives to be Considered in the SDEIS Screening Process

- recently constructed roads
 - common to multiple alternatives
 - road constructed independent of FEIS
- Bridge Alternatives*:**
- C3a (200' x 550')
 - C3b (120' x 500')
 - C4 (200' x 550')
 - C3-4 (200' x 550')
 - D1 (120' x 500')
 - F1 WEST (120' x 500')
EAST (200' x 550')
 - F3/F3v WEST (200' x 550')
EAST (60' x 350')
 - M1 (20' to 200' x 550')
 - M2 (60' to 200' x 550')
- multiple alignments
- Ferry Alternatives:**
- G2**
 - G3
 - G4/G4v
- Tunnel Alternative:**
- T1 (3200' tunnel)
- Bypass Road (proposed)
- docks
 - existing road
 - city boundary
 - stream
- * Dimensions listed refer to bridge navigation opening (vertical x horizontal)
** G2 connection slightly modified from FEIS

Date: February 12, 2009
 Projection: Alaska State Plane Zone 1, NAD 27
 Author: HDR Alaska, Inc.
 Sources: KGB, HDR Alaska, Inc.

The information displayed here is for planning purposes only. Base information shown constitutes data from various federal, state, public, and private sources. These drawings are for review purposes only and are not intended for use in securing permits or for construction purposes.

Gravina Access Project

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