Technical Memorandum

Level 2 Screening Results

To:	Greg Lockwood PE, Project Manager, Alaska Department of Transportation and Public Facilities
From:	Steve Noble PE, Project Manager, DOWL
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Project:	Juneau Douglas North Crossing PEL Study Project Numbers: SFHWY00299/0003259

Purpose of the Technical Memorandum

This technical memorandum provides the results of the Level 2 Screening to support the identification of recommended alternatives for potential future National Environmental Policy Act (NEPA) review as part of the Juneau Douglas North Crossing (JDNC) Planning and Environmental Linkage (PEL) Study (Project Numbers: SFHWY00299/0003259)[1].

The alternative screening process provides critical information about how well an alternative satisfies a proposed project's purpose and if it will meet the transportation needs of its users. This is known as a purpose and need (P&N) statement. If an alternative does not meet the project's P&N, it will be eliminated. The screening process will also evaluate the extent to which an alternative:

- Satisfies adopted planning documents
- Is technically feasible and constructable from an engineering perspective
- Is financially feasible
- Is reasonable under the NEPA
- Is practicable under the Clean Water Act
- Is prudent and feasible under Section 4(f) of the Department of Transportation Act of 1966

The alternative screening process accommodates the development of new alternatives throughout the PEL process to give confidence that all alternatives are evaluated consistently.

[1] The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by DOT&PF pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated April 13, 2023, and executed by FHWA and DOT&PF.

Purpose and Need Statement

The purpose and need statement developed for the PEL study is:

The **purpose** of the Juneau Douglas North Crossing PEL Study is to identify ways to improve the connection between Douglas Island and Juneau. The secondary purposes are to identify ways to improve transportation for non-motorized users and reduce transportation-related energy consumption.

An improved connection to Douglas Island should address the following **needs**:

- Alternate access and transportation infrastructure resilience
- Decrease traffic pressure on Douglas Island Bridge and its intersections

Identified alternatives should consider these **additional goals**:

- Improve connection to North and West Douglas Island by creating additional traffic capacity to support the future development of affordable housing and economic development opportunities
- Enhance and protect the public health and safety of travelers and the communities that transportation facilities traverse and serve
- Transportation improvements should avoid, minimize, and mitigate impacts to the environment and to residential areas
- Transportation improvements should maintain the visual, cultural, and scenic identity of Juneau and Douglas Island

Alternative Screening Process

The alternative screening process is a decision-making framework to determine how well each alternative meets the P&N and the additional goals. NEPA requires that a reasonable range of alternatives be considered and reviewed objectively, and the selection process and alternatives eliminated be well documented. The process used for the JDNC PEL study met these documentation requirements including supporting the elimination of alternatives from further consideration during a future NEPA process and the identification of reasonable alternatives that will be evaluated during future development under NEPA.

Under NEPA, reasonable alternatives are those that are practical and feasible from a technical, engineering, environmental, cost, and social standpoint, and which meet the P&N for the project. The screening process compares the advantages and disadvantages of a broad range of alternatives for advancement through the stages of development into more refined alternatives and, ultimately, the recommended reasonable alternative(s).

An iterative, stepped alternative selection process was used for this PEL Study, as set out in the Recommended Alternative Selection Criteria Memo (Updated June 5, 2023). This memo outlines that the alternative development and screening process used an eight-step approach, with Step 6 being the application of Level 2 Screening:

Step 6. Apply Level 2 Screening: *Screening of the detailed alternatives using a broad range of qualitative and quantitative criteria including the cost of alternatives, wetland impacts, right-of-way (ROW) impacts, impacts to important habitat, conservation lands, historic or cultural resources. The goal is to compare and rank the detailed alternatives and to identify recommended alternative(s).*

The Level 1 Screening Results Technical Memorandum (dated March 2, 2023) documents the results of the preliminary alternative screening. A total of ten alternatives were considered (nine "build" alternatives and one "no build" alternative), and six were recommended to proceed to detailed alternative development since these alternatives were at that time deemed to meet the P&N and to be technically and economically feasible. The "no build" alternative will proceed to detailed alternative screening to provide a baseline for the evaluation of alternatives. Figure 1 illustrates the six build alternatives moved forward for detailed alternatives screening. The six alternatives build alternatives and the no build alternative that are proceeding to detailed alternative development and Level 2 screening are (Figure 1):

- Mendenhall Peninsula
- West Sunny Point
- East Sunny Point
- Vanderbilt
- Twin Lakes
- Salmon Creek
- No Build

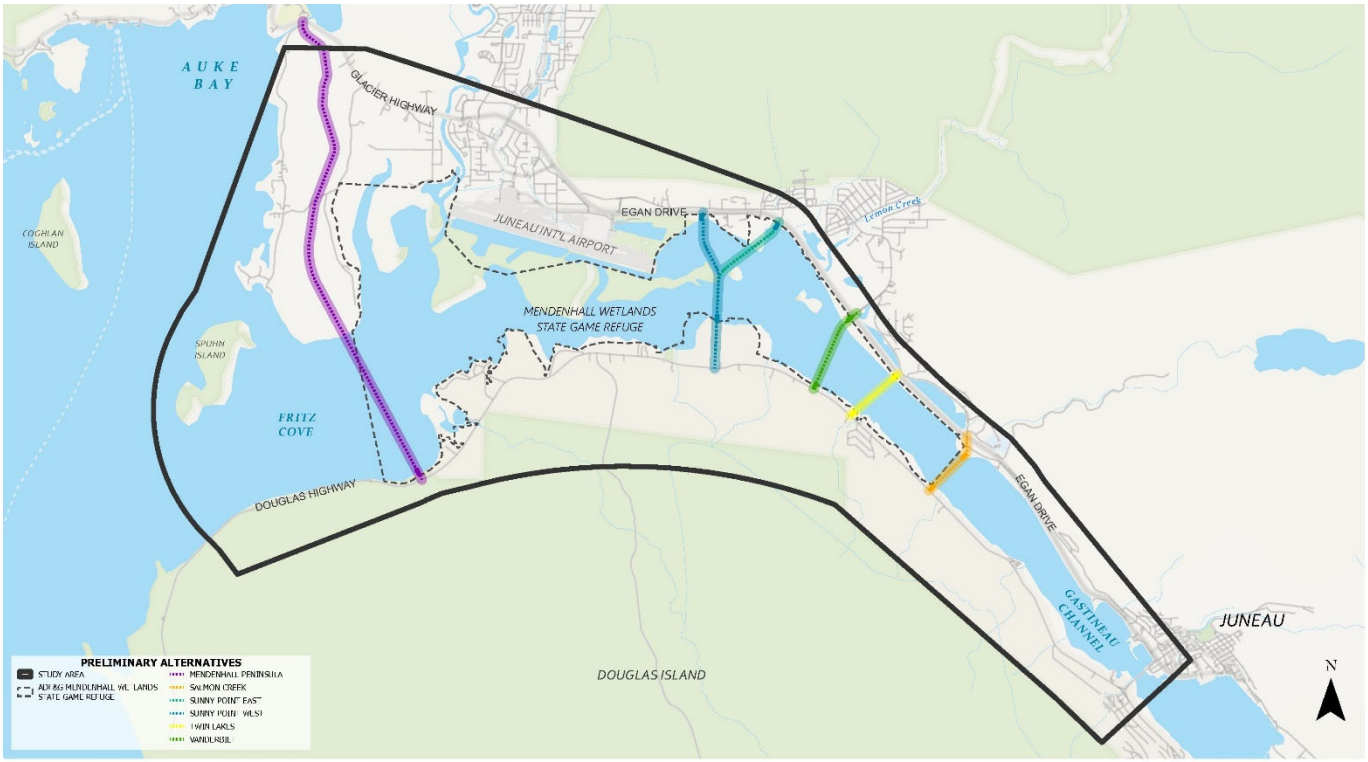

Figure 1. Alternatives Selected for Detailed Alternative Development.

Preliminary Engineering

Part of advancing the preliminary alternatives to detailed alternative development includes conducting preliminary engineering and refining the alternatives to increase the level of detail. This includes conducting preliminary design to a level that enables understanding of potential environmental constraints and improves constructability. It also helps to determine how a north crossing will tie into existing transportation facilities (also known as logical termini) on Douglas Island and the Juneau side of the channel.

Engineering detail for the six build alternatives included developing typical sections, intersection tie-ins, and bridge structural components. The level of engineering completed at this planning stage is conceptual using available mapping and GIS resources to support the development of preliminary estimates of cut and fill, structural impacts, and quantification of these impacts.

The north crossing alternative concepts consist primarily of two typical sections that work together – a pile supported bridge deck (Figure 2) with an earthen embankment bridge approach (Figure 3) to connect either side of the bridge to existing surface transportation infrastructure. The typical sections have two 12-foot lanes and six-foot paved shoulders for roadway sections, with slightly wider seven-foot shoulders on the bridge deck portion. Curb and gutter are included on the roadway bridge approach typical section (Figure 3). A ten-foot-

wide multi-use path is proposed on one side of the bridge, with a six-foot sidewalk on the other and one-foot-wide railings on both sides. The approach section will have vegetated side slopes, with varying slopes up to a 1.5:1 maximum slope. Further detail on the features of each of the alternatives is provided in following section describing the Level 2 Screening Criteria and Methodology.

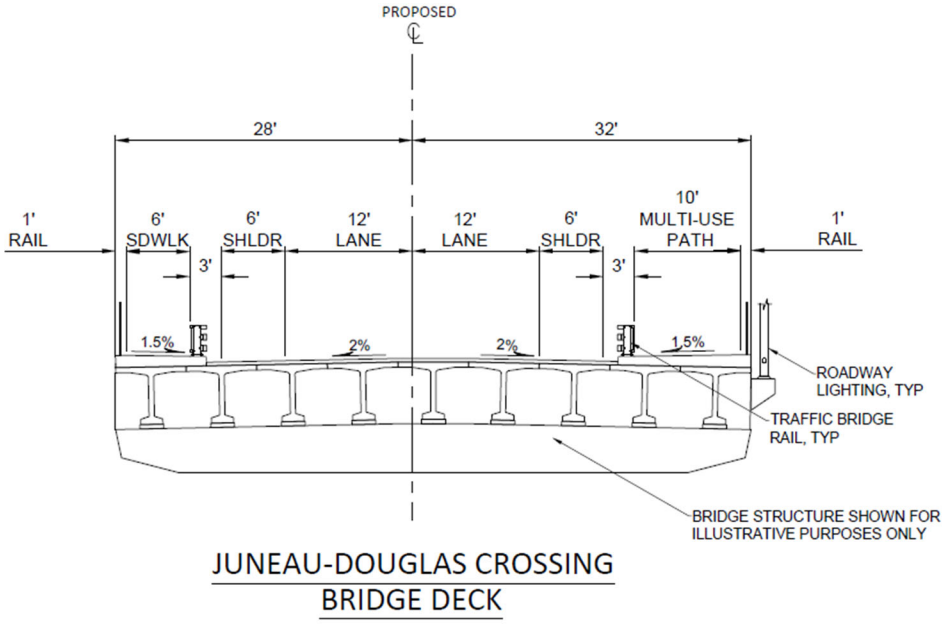

Figure 2. Pile Supported Bridge Deck Typical Section.

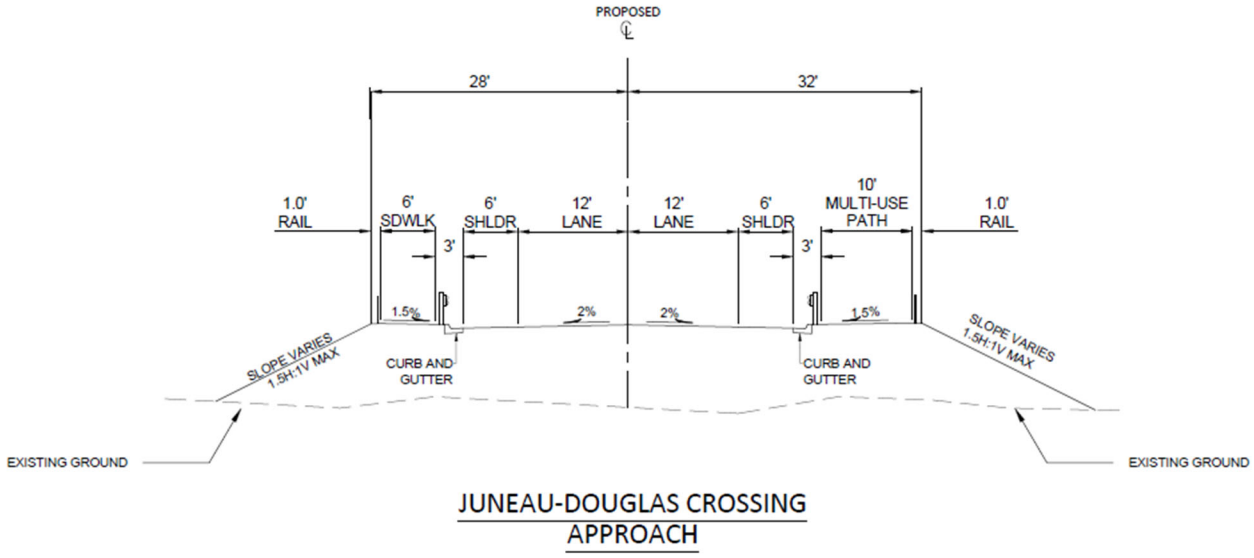

Figure 3. Roadway Bridge Approach Typical Section

Level 2 Screening Criteria and Methodology

Engineering and environmental analyses were conducted to refine the detailed alternatives to address constraints, minimize impacts, improve constructability, select logical termini of each alternative, and develop infrastructure concepts to tie in with the existing transportation network. Following initial refinement, the detailed alternatives were evaluated on how well they meet the P&N and additional goals, as well as using a range of criteria to consider impacts to the natural environment, key socioeconomic factors, housing challenges, traffic and safety, cost, ROW, and public support. The alternatives were scored based on quantifying potential impacts as much as possible, with some qualitative evaluations when data was not available. The Level 2 Screening provides calculations of impacts based on GIS overlays of preliminary engineering extents over environmental resource mapping to provide a quantitative evaluation of impacts.

Draft Level 2 screening results were shared with the Advisory Committees (including agencies as participants in the advisory committees) and the Department of Transportation and Public Facilities (DOT&PF) Statewide Environmental Office (SEO). Comments/feedback obtained on the draft screening suggested that greater weight should be applied to resources that are within the Section 4(f) properties. Consequently, weight was applied to resources to reflect the concern with impacts to the Mendenhall Wetland State Game Refuge (MWSGR). The weight applied means impacts within the refuge were scored more negatively than impacts outside of the refuge. Calculations of impacts were completed (i.e. counts, acreage, linear feet), however calculations of impacts were a secondary consideration to the direct impacts to the MWSGR.

The scoring sheets with rationale and impact quantity tables can be found in Appendix A and B. Methodology and measurements applied to identify impact levels can be found in the Recommended Alternative Screening Criteria Memo (DOWL, June 2023), available on the project website[2] and in the scoring sheets and impact quantity tables.

Detailed Alternatives – Level 2 Screening Results

Table 1 shows the final scores for each alternative that continued from Level 1 screening. A summary of the Level Screening 2 results is included below with the alternatives listed in order from the highest scoring to lowest scoring:

Table 1: Level 2 Scoring Results

Alternative	Score
Salmon Creek	3
Twin Lakes	-10
Mendenhall Peninsula	-11
Vanderbilt	-18
Sunny Point East	-20
Sunny Point West	-23
No Build Alternative*	-16

**Does not meet the P&N but the No Build Alternative will be carried forward into the future NEPA process to provide a baseline against which to evaluate the other alternatives.*

Although the Mendenhall Peninsula Alternative scored relatively strongly in relation to other alternatives, the total cost of construction for the alternative is difficult to quantify and is estimated in the range of $1.1 - $1.7B. Additionally, the maintenance cost estimate for the Mendenhall Peninsula Alternative is twice the annual expense of the next highest maintenance cost estimate. The total cost of this alternative is above a level that can be considered financially feasible, which is one of the key criteria of the alternative screening process. On this basis, the Mendenhall Peninsula Alternative has been eliminated from the recommended alternatives. The costs and uncertainties associated with this alternative are discussed further on Page 15 of this memorandum.

[2] https://www.jdnorthcrossing.com/index.html

Salmon Creek – Performance Against Criteria Overall Score: 3

The Salmon Creek Alternative begins at approximately MP 3.4 of North Douglas Highway and creates a new fourth leg of the Egan Drive intersection that routes across the bridge alignment. Channel Drive would terminate at the intersection with the new road alignment. This alignment is illustrated in Figure 5.

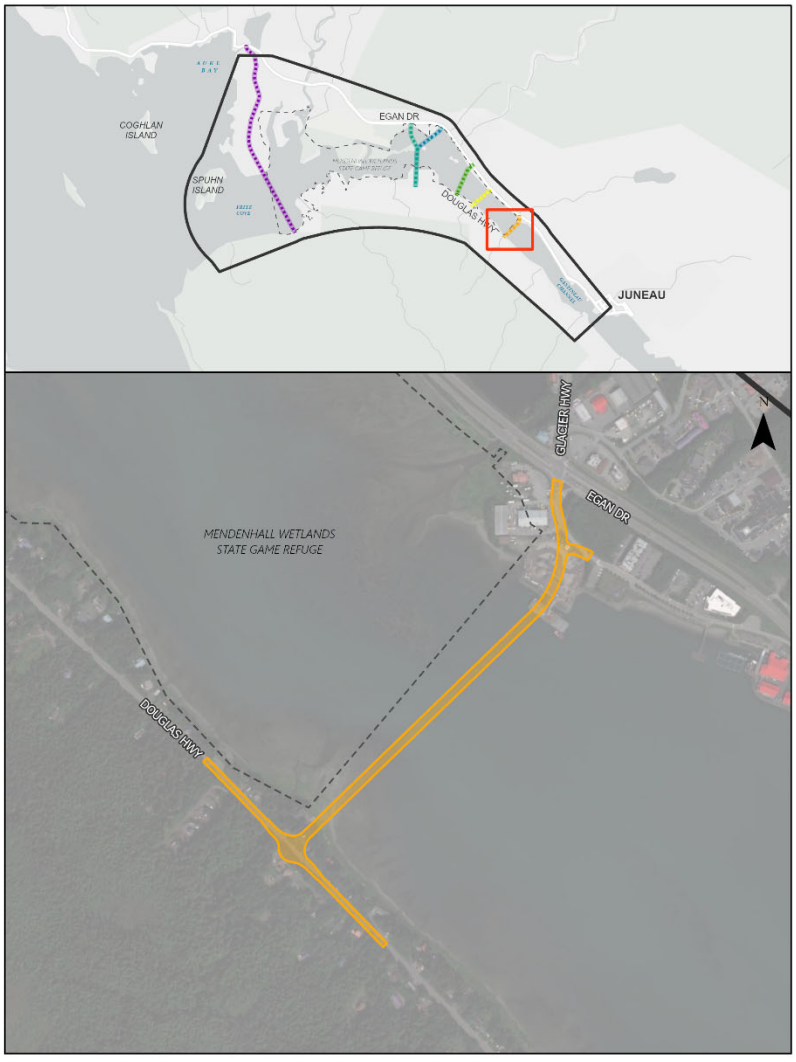

Figure 4. Salmon Creek Alternative

The Salmon Creek Alternative received the highest overall score of 3 when evaluated against all Level 2 Screening criteria. The scoring of this alternative was positively affected by the weighted scoring of impacts within the MWSGR. Because impacts were calculated only when they occurred inside the MWSGR, the Salmon Creek Alternative had no impact, or very minor impacts in multiple categories relative to other alternatives that occur within the MWSGR. Considering quantities only, this alternative had the greatest impact on one category when compared to other alternatives:

- One commercial use directly affected
- Within 100 ft of commercial uses (5 properties)

Other potential environmental impacts and land use implications for the Salmon Creek Alternative include:

- Intertidal zone, considered one type of essential fish habitat (2.9 acres)
- Wetlands and high value wetlands (2.8 acres each)
- Wildlife habitat (3.6 acres)
- Impervious surfaces[3] added (3.3 acres)
- Vacant commercial land directly affected (0.05 acres)
- Indirect impact of one documented eagle nesting tree
- Neighborhoods divided or disrupted (1), one neighborhood located on Douglas Island
- Commercial land use directly affected (1)
- Residential use directly affected (4)
- Within 100 ft of residential property (28)
- Vacant residential land directly affected (0.4 acres)
- Residential parcels (full or partial) acquired (6 parcels, 1.1 acres)
- Commercial parcel (full or partial) acquisition (5 parcels, 1.0 acres)
- Total potential ROW needed (14 full or partial parcels, 13.9 acres)

The Salmon Creek Alternative is the only crossing location that currently experiences marine traffic associated with commercial barging activities. All other crossing locations are not generally used to convey marine traffic (other than small personal watercraft) owing to the shallow water depth and ongoing impacts associated with isostatic rebound.

As part of the agency consultation, the project team reached out to the United States Coast Guard (USCG) to discuss the bridge height/clearance requirements. The guidance received was that the project team should consider the existing bridge as the starting point for navigable clearance (>50' of clearance between mean high tide and the bottom of the existing bridge) and that modifications to this requirement would require greater consultation and community engagement that would typically be done as part of the NEPA process.

[3] Although the crossings are proposed to be elevated structures, the elevated portions, such as bridge decks, were included in the calculation of impervious surfaces.

As aligned on Figure 4, meeting the >50' clearance criteria for the Salmon Creek Alternative is not feasible on the east of the alignment. Since the alignment routes through the landside dock area, this alternative assumes that the dock would no longer be able to function as it has historically, and that the project would need to acquire this property. With this acquisition, a 50' clearance on this end of the bridge may or may not be needed in the future, but this will be subject to the future NEPA process and USCG consultation.

To maintain the roadway geometry on Egan Drive and minimize impacts to existing development, the Salmon Creek Alternative requires a 6% grade, three crest vertical curves on the bridge, and elevating the north end of Channel Drive. With these relatively aggressive measures, the alignment can achieve a 30' bridge clearance at the east end of the alignment. Raising the bridge higher will require more significant modifications to Egan Drive, possible acquisition of additional properties, consideration of extending the bridge over Egan Drive with a new interchange configuration, and additional environmental impacts and costs that are not captured in this screening analysis.

The Salmon Creek Alternative was the least favored of the build alternatives during the survey, primarily due to the crossing location having a lower travel time savings for motorists accessing North Douglas from Mendenhall Valley. The construction cost for the Salmon Creek Alternative has been estimated at approximately $360M while the annual maintenance cost has been estimated at approximately $65k, based on updated planning level costs. This cost estimate would increase significantly if a high crossing variant is required to maintain the navigable channel.

In April 2024, the owners of the Salmon Creek Dam, Alaska Electric Light and Power Company shared information with DOT&PF concerning the Salmon Creek Dam, a concrete arch dam constructed in 1914 to provide water for hydroelectric power generation. The data was a result of ongoing evaluations and modeling of the Salmon Creek Dam, however, this issue did not come to light during the Level 1 Screening process and was not included in the initial screening analysis. The dam is regulated by the Federal Energy Regulatory Commission (FERC), which has very specific requirements for public safety and dams. The FERC requirements include annual inspections and the development of a Dam Safety Surveillance and Monitoring Plan. The PEL Study team requested the most recent evaluation of the Salmon Creek Dam through the Freedom of Information Act in order to assess the risk of a dam breach event. The request is outstanding and would be reviewed in a future NEPA analysis. Due to proximity of location, the alternative that would be most impacted by a dam failure is the Salmon Creek Alternative.

Twin Lakes – Performance Against Criteria Overall Score: -10

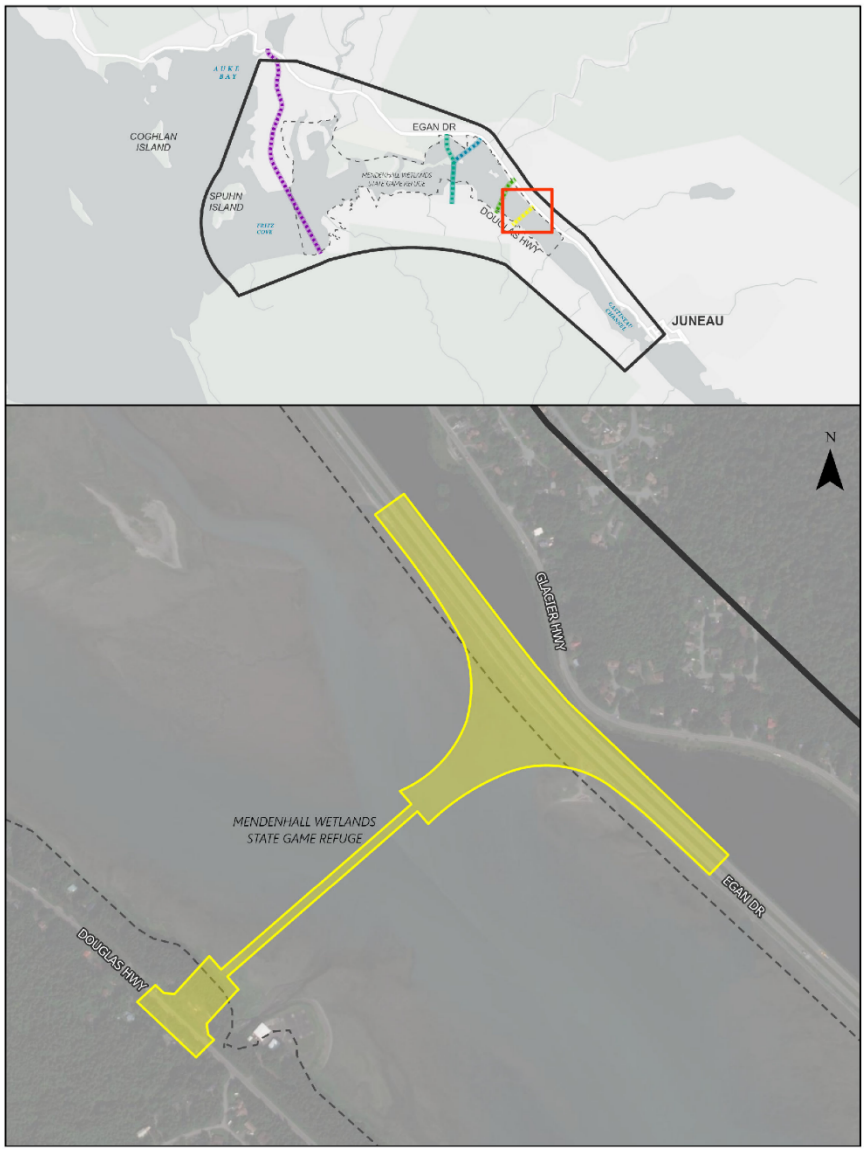

Figure 5. Twin Lakes Alternative

The Twin Lakes Alternative begins at approximately milepost 4.5 of North Douglas Highway, crosses the Mendenhall Wetlands State Game Refuge, and terminates at approximately milepost 4.5 of Egan Drive at an at-grade signalized intersection. This alignment is illustrated in Figure 5.

The Twin Lakes Alternative received the second highest overall score of -10 when evaluated against all Level 2 Screening criteria. The scoring of this alternative was negatively affected by the weighted scoring of impacts within the MWSGR. Impacts of this alternative were scored lower when the impact was associated with the MWSGR. Considering quantities only, this alternative had the greatest impact on seven categories when compared to other alternatives:

- Intertidal zone, considered one type of essential fish habitat (38.2 acres)
- Wetlands and high value wetlands (32.9 acres and 30.5 acres, respectively)
- Important[4] migratory bird habitat (18.6 acres)
- Protected lands including the MWSGR (18.6 acres)
- Vacant commercial land directly affected (1.8 acres)
- Commercial parcel (full or partial) acquisition (1 parcel, 1.8 acres)
- Commercial use directly affected (1)

Other potential environmental impacts and land use implications for the Twin Lakes Alternative include:

- Indirect impact of one documented eagle nesting tree
- Wildlife habitat (36 acres)
- Section 4(f)/6(f) resource (1 - MWSGR)
- Commercial land use directly affected (1)
- Neighborhoods divided or disrupted (2), one neighborhood located on Douglas Island and one neighborhood located in Juneau
- Residential parcel (full or partial) acquisition (1 parcel, 0.04 acres)
- Within 100 ft of residential property (4)
- Impervious surfaces[5] added (42.2 acres)
- Total potential ROW needed (2 full or partial parcels, 26.1 acres)

The Twin Lakes Alternative would maintain traffic operations on Egan Drive and improve safety by constructing an interchange on Egan Drive to tie the crossing into the existing road network. The Twin Lakes Alternative has a relatively low level of public support when compared to the other build alternatives under consideration in this Level 2 Screening, primarily due to the crossing location having a lower travel time savings for motorists accessing North Douglas from Mendenhall Valley. It also intersects Egan Drive at a relatively awkward location where the two lakes merge and there is limited space for the bridge approach. To accommodate the new intersection geometry associated with this alternative, Egan Drive would require a slight shift westward into the channel, thereby requiring intertidal fill for about a half mile long stretch of Egan Drive.

The Twin Lakes Alternative was not designed to meet the >50' vertical clearance because of the limited navigation that occurs in this area. USCG approval for the bridge height/clearance will be required during

[4] Importance characterized as within the boundaries of the MWSGR.
[5] Although the crossings are proposed to be elevated structures, the elevated portions, such as bridge decks, were included in the calculation of impervious surfaces.

NEPA. This alternative has ample flexibility in the design to increase the bridge clearance to meet the >50' criteria, if required. The cost would increase, but the footprint of the bridge and the connections to the existing infrastructure on either side of the crossing would be unchanged.

The construction cost for the Twin Lakes Alternative has been estimated at approximately $360M while the annual maintenance cost has been estimated at approximately $65k, based on updated planning level costs.

Mendenhall Peninsula – Performance Against Criteria Overall Score: -11

The Mendenhall Peninsula Alternative begins at approximately milepost 8.75 of North Douglas Highway, crosses Fritz Cove over to the Mendenhall Peninsula, and travels approximately four miles north along the ridgeline before terminating at approximately milepost 11 of Glacier Highway. This alignment is illustrated in Figure 6.

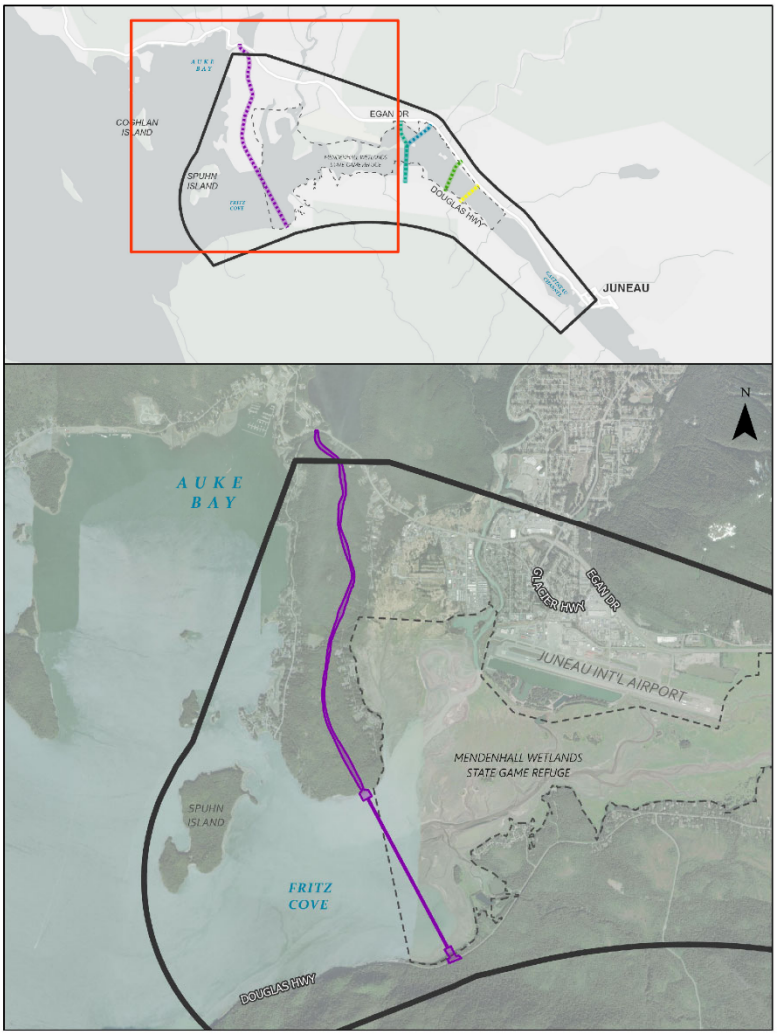

Figure 6. Mendenhall Peninsula Alternative

The Mendenhall Peninsula Alternative received the third highest overall score of -12 when evaluated against all Level 2 Screening criteria. The scoring of this alternative was affected in a positive way by the weighted scoring of impacts within the MWSGR since this alternative can be constructed wholly or mostly outside the refuge. As shown below, the Mendenhall Peninsula Alternative impacts the edge of the MWSGR, which is considered advantageous when considering the importance of the resource, regardless of the quantities of

impacts. Considering quantities only, this alternative had the greatest impact on six categories when compared to the other alternatives:

- Wildlife habitat (56.8 acres)
- Indirect effects to six eagle nesting trees
- Potential Section 4(f)/6(f) resource (3 – MWSGR and two trails on Mendenhall Peninsula)
- Commercial uses affected (1 – Juneau International Airport)
- Impervious surfaces[6] added (64.2 acres)
- Total potential ROW needed (8 full or partial parcels, 110.4 acres)

Other potential environmental impacts and land use implications include:

- Intertidal zone, one type of essential fish habitat (14.1 acres)
- Wetlands including high value wetlands (17.9 and 3.4 acres, respectively)
- Anadromous streams (1)
- Important[7] migratory bird habitat (9.2 acres)
- Protected lands (9.2 acres – MWSGR)
- Stream and riparian habitat (435 linear feet)
- Vacant residential land (1.5 acres)
- Residential parcels (full or partial) acquired (1 parcels, 1.9 acres)
- Within 100ft of residential property (3 properties within 100ft)

The Mendenhall Peninsula Alternative would improve safety by reducing the number of conflict points for travelers that choose this alternative because they would not have to route through all the signalized intersections along Egan Drive, however it is also anticipated to attract the least number of motorists due to the limited network travel time savings. The Mendenhall Peninsula Alternative has a moderate level of public support when compared to other alternatives considered in this Level 2 Screening.

The Mendenhall Peninsula Alternative will need USCG approval to disrupt the navigable channel but vertical clearance of this alternative can easily be designed to achieve the desired >50' clearance criteria. The cost of this alternative will increase for alignments that have greater clearance, but the footprint of the bridge and the connections to the existing infrastructure on either side of the crossing would be unchanged.

The Mendenhall Peninsula Alternative requires a long and complex bridge structure that spans a dynamic section of open water. Estimates at this early planning stage requires significant assumptions regarding the depth of the foundations and type of structure. One of the major assumptions for the structure is the height (measured from the sea floor) of the structure which ranges from shallow mud flats to 160' in depth. The cost of this alternative is highly dependent on the length of bridge that is built over deep water. The shallow bridge

[6] Although the crossings are proposed to be elevated structures, the elevated portions, such as bridge decks, were included in the calculation of impervious surfaces.
[7] Importance characterized as within the boundaries of the MWSGR.

assumes a structure cost of $48,000 per linear foot (which is the same as the structure unit cost for all the other alternatives), and the deep-water portion of the bridge is estimated at $120,000 per linear foot. The current $1.1B cost estimate assumes about half of the structure is built over the deep water and the other half is over the shallow foundations. This is the most optimistic view of the cost estimate based on the available sea floor mapping. If the length of bridge that requires deep foundations increases to be the full length of the bridge due to changing hydrology or the presence of deep muddy/silty soils, the cost of this bridge would increase to as much as $1.7B.

Considering the significant uncertainties surrounding this complex structure at this early stage of analysis, the cost estimate is best represented as a range, $1.1B on the low end to $1.7B on the high end. Annual maintenance cost is estimated at approximately $365k.

Whilst the Mendenhall Peninsula Alternative scored relatively strongly in relation to other alternatives, the total cost of the alternative is two to three times more than other alternatives and is above a level that can be considered financially feasible. On this basis, the Mendenhall Alternative is not recommended for continued consideration during NEPA.

Vanderbilt – Performance Against Criteria Overall Score: -18

The Vanderbilt Alternative begins at approximately milepost 5 of North Douglas Highway, crosses the Mendenhall Wetlands State Game Refuge, and intersects Egan Drive at the Vanderbilt Hill Road intersection located at approximately milepost 5.3. Concepts for this alternative have been considered for both an at-grade intersection or a grade-separated interchange. This alignment is illustrated in Figure 7.

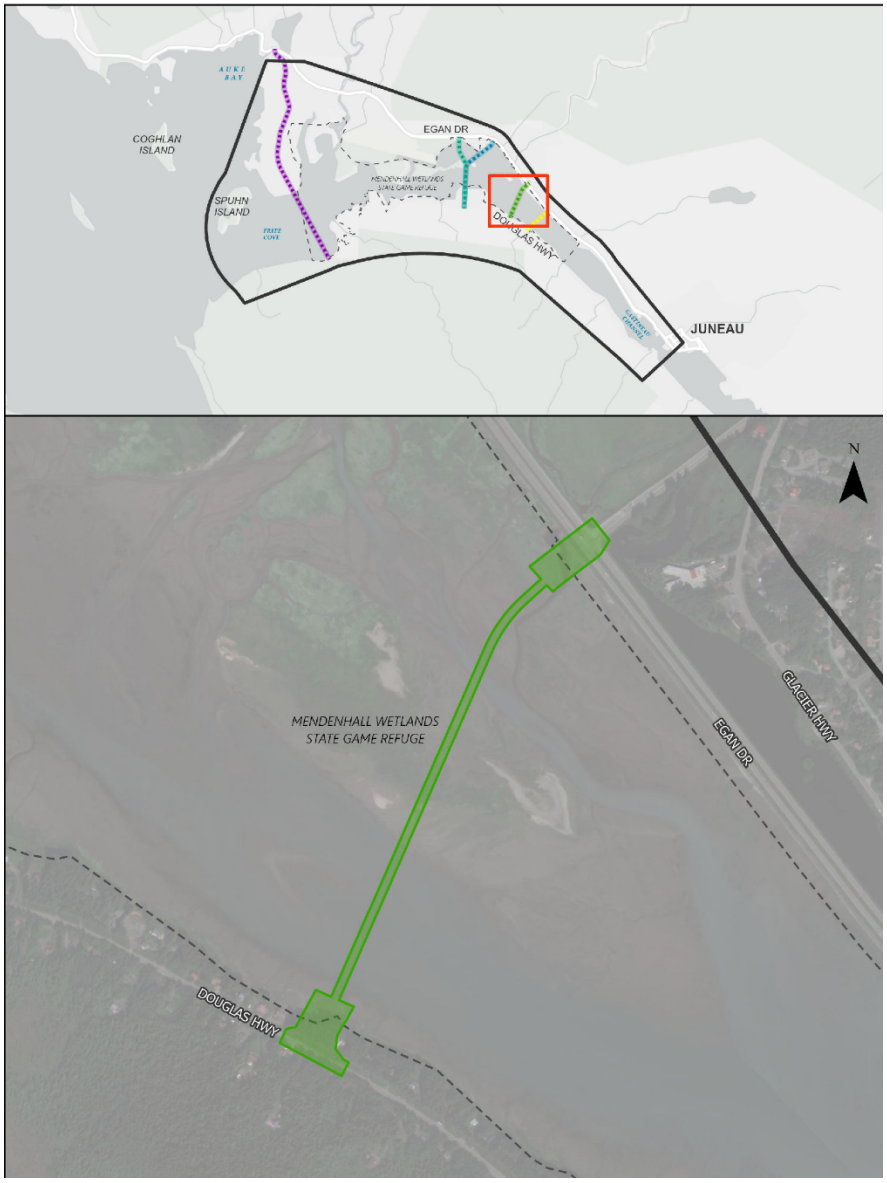

Figure 7. Vanderbilt Alternative

The Vanderbilt Alternative received an overall score of -18 when evaluated against all Level 2 Screening criteria. The scoring of this alternative was negatively affected by the weighted scoring of impacts within the MWSGR. Impacts of this alternative scored lower when the impact was associated with the MWSGR, regardless of the impact quantities. Considering quantities only, this alternative had the greatest impact on two categories when compared to other alternatives:

- Stream and riparian habitat (2621 linear feet)
- Residential parcels (full or partial) acquired (17 parcels, 32.1 acres)
- Residential uses directly affected (10)

Other potential environmental impacts and land use implications include:

- Intertidal zone, one type of essential fish habitat (28.7 acres)
- Wildlife habitat (37.5 acres)
- Potential Section 4(f)/6(f) resource (2 – MWSGR and 5-Mile Beach)
- Wetlands including high value wetlands (28.7 and 6.5 acres, respectively)
- Anadromous streams (3)
- Important[8] migratory bird habitat (8.4 acres)
- Protected lands (8.4 acres – MWSGR)
- Impervious surfaces[9] added (42 acres)
- Vacant residential land (1.9 acres)
- Neighborhoods divided or disrupted (1 on Douglas Island)
- Within 100ft of residential property (8 properties within 100ft)
- Total potential ROW needed (17 full or partial parcels, 32.1 acres)

The Vanderbilt Alternative would improve safety by connecting to Egan Drive at the existing signalized intersection. An interchange would not be immediately required at this location due to the existing road geometry, signalization, and intersection capacity. However, DOT&PF has historically considered the potential for an interchange at this location to improve traffic flow on Egan Drive. To maintain consistency with this long-term goal and to enable this alternative screening to capture all of the potential impacts, an interchange was included in the analysis.

The Vanderbilt Alternative was not designed to meet the >50' vertical clearance because of the limited navigation that occurs in this area. USCG approval for the bridge height/clearance will be required during NEPA. This alternative has ample flexibility in the design to increase the bridge clearance to meet the >50' criteria, if required. The cost would increase, but the footprint of the bridge and the connections to the existing infrastructure on either side of the crossing would be unchanged.

[8] Importance characterized as within the boundaries of the MWSGR.
[9] Although the crossings are proposed to be elevated structures, the elevated portions, such as bridge decks, were included in the calculation of impervious surfaces.

The Vanderbilt Alternative has a relatively high level of public support when compared to other alternatives, second most favorable alternative behind the Sunny Point Alternatives. The construction cost for the Vanderbilt Alternative has been estimated at approximately $340M while the annual maintenance has been estimated at approximately $90k, depending on the intersection type used on Egan Drive.

Sunny Point East – Performance Against Criteria Overall Score: -20

The Sunny Point East Alternative begins at approximately milepost six of North Douglas Highway, crosses the MWSGR, and intersects with Egan Drive at the partially constructed Sunny Point Interchange (approximately milepost 6.4) using an at-grade signal. This alignment is illustrated in Figure 8.

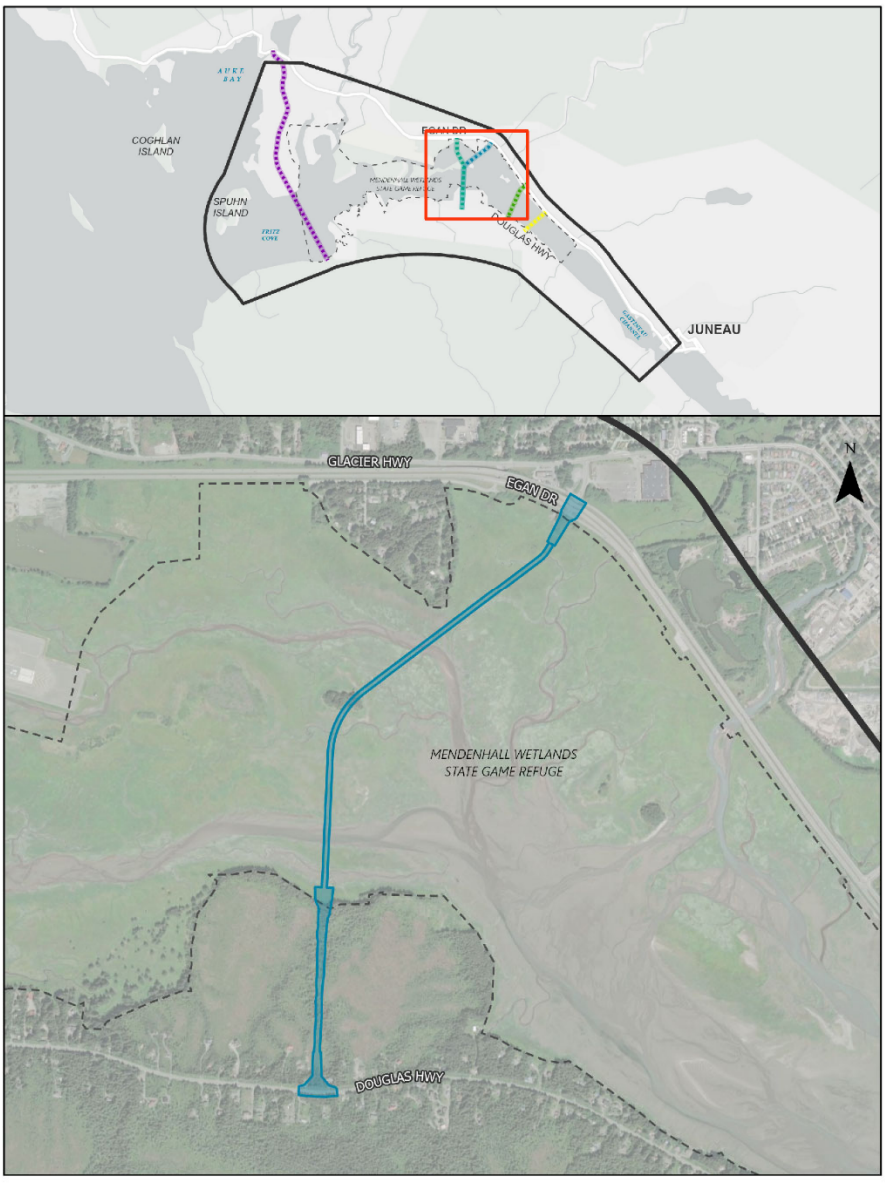

Figure 8. Sunny Point East Alternative

The Sunny Point East Alternative received an overall score of -20 when evaluated against all Level 2 Screening criteria. The scoring of this alternative was negatively affected by the weighted scoring of impacts within the MWSGR. Considering quantities only, this alternative had the greatest impact on three categories when compared to other alternatives:

- 13.8 acres of protected land including Southeast Alaska Land Trust (SEALT) conservation lands, MWSGR, and Hendrickson Point[10]. Although the acreage of protected land impacted is not the highest when compared to the other alternatives, this alternative is considered more impactful because it impacts the highest number or different properties, including SEALT conservation lands which have an added level of protection/conservation.
- Vacant residential land (7.3 acres) and total residential land (10.9 acres)

Other potential environmental impacts and land use implications for the Sunny Point East Alternative include:

- Wildlife habitat (14.7 acres)
- Important[11] migratory bird habitat (7.9 acres)
- Two potential Section 4(f)/6(f) resources (MWSGR and Hendrickson Point)
- Two neighborhoods divided or disrupted, one neighborhood located on Douglas Island and another located at Sunny Point
- Anadromous streams (4) and riparian habitat (1007 linear feet)
- Wetlands including high value wetlands (9.6 and 8.9 acres, respectively)
- Intertidal zone, considered one type of essential fish habitat (12 acres)
- Indirect impact to one documented eagle nesting tree
- Impervious surfaces added[12] (15.2 acres)
- Within 100ft of commercial uses (2)
- Indirect effects to one eagle nesting tree
- Residential uses directly and indirectly affected (5 and 10, respectively)
- Total potential ROW needed (9 full or partial parcels, 37.4 acres)

While Sunny Point East may not have the highest quantified impacts in some categories, it scores poorly when considering the application of the MWSGR weight. The Sunny Point East and West Alternatives are also deemed to have the greatest potential restrictions on the popular hunting activities in the refuge and are viewed by the airport as potential limitations to long term airport expansion and/or navigation. The PEL Study team has committed to the Juneau Airport Board that any alternative that conflicts with the Master Plan will be revised to eliminate the conflict or it will be deemed to be a fatal flaw for that alternative. At this time the

[10] Hendrickson Point is zoned for residential, however the Juneau Comprehensive Plan (2013) identifies the peninsula as a rural reserve. The location is considered protected until an official determination has been made.
[11] Importance characterized as within the boundaries of the MWSGR.
[12] Although the crossings are proposed to be elevated structures, the elevated portions, such as bridge decks, were included in the calculation of impervious surfaces.

Sunny Point East Alternative is not in conflict with the Master Plan, however an update to the Master Plan is in progress and this issue will need to be re-addressed during the NEPA phase.

The Sunny Point East Alternative was not designed to meet the >50' vertical clearance because of the limited navigation that occurs in this area. USCG approval for the bridge height/clearance will be required during NEPA. This alternative has ample flexibility in the design to increase the bridge clearance to meet the >50' criteria, if required. The cost would increase, but the footprint of the bridge and the connections to the existing infrastructure on either side of the crossing would be unchanged.

The Sunny Point East Alternative would improve safety by reducing the number of conflict points for travelers that choose this alternative and would tie directly into the existing Sunny Point Interchange. The Sunny Point area has the highest favorability score when compared to other build alternatives according to a survey conducted December 2022 to February 2023. The Sunny Point alternatives scored the least favorably when compared to the other build alternatives considered in this Level 2 Screening.

The construction cost for the Sunny Point East Alternative has been estimated at approximately $530M while the annual maintenance has been estimated at approximately $175k.

Sunny Point West – Performance Against Criteria Overall Score: -23

The Sunny Point West Alternative begins at approximately milepost 6 of North Douglas Highway and crosses the Mendenhall Wetlands State Game Refuge. This alternative terminates with a tie into Egan Drive at approximately milepost 7.3. The Sunny Point West Alternative serves as a variation of the Sunny Point East Alternative and avoids the SEALT conservation property. The Sunny Point West Alternative has been adapted to provide for future approaches and approach equipment at Juneau Airport. This alignment is illustrated in Figure 9.

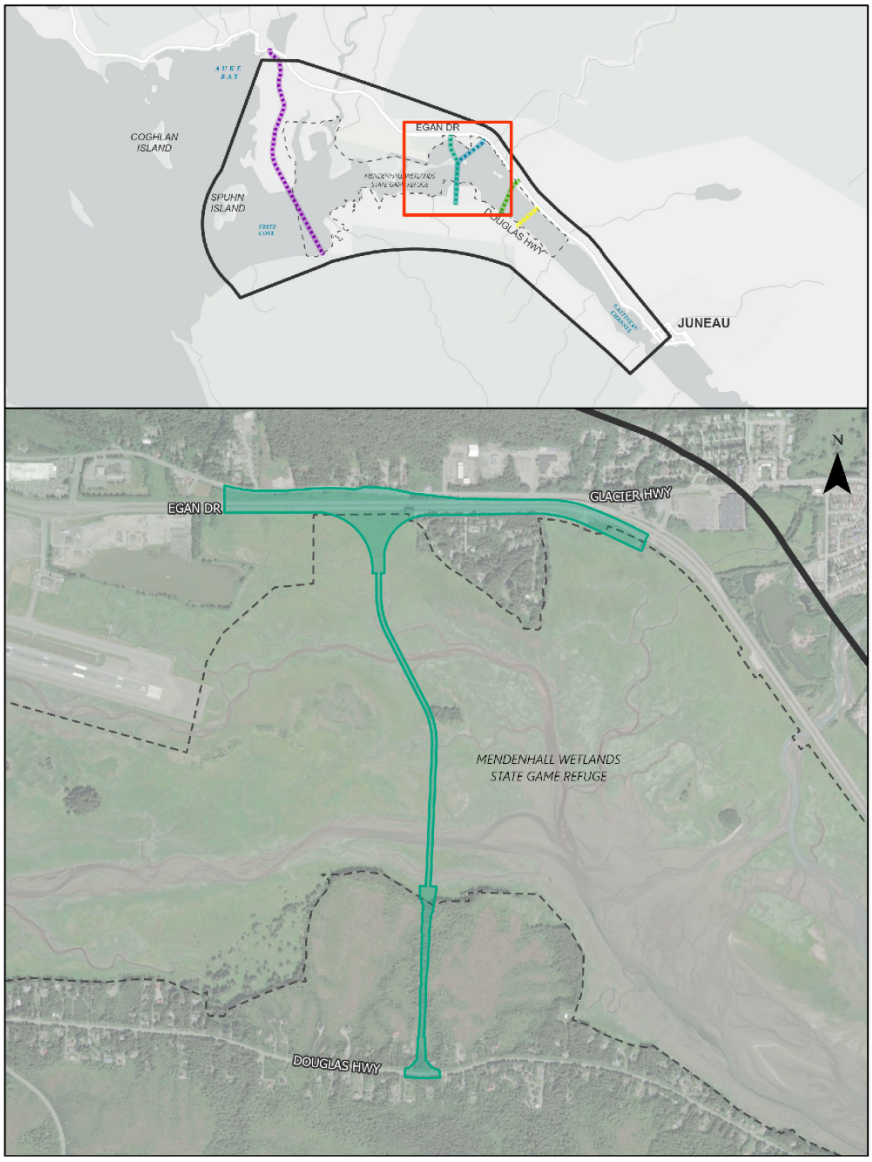

Figure 9. Sunny Point West Alternative

The Sunny Point West Alternative received an overall score of -23 when evaluated against all Level 2 Screening criteria. The scoring of this alternative was affected by the weighted scoring of impacts within the MWSGR. Impacts of this alternative were scored more poorly when the impact was associated with the MWSGR, regardless of the quantities of impacts. Considering quantities only, this alternative had the greatest impact on four categories. This alternative impacts the following resources in the greatest quantities when compared to other alternatives:

- Anadromous streams (14)
- Neighborhoods divided or disrupted (3), one neighborhood located on Douglas Island and two near Sunny Point
- Within 100ft of residential property (44 properties within 100ft)

Other potential environmental and land use implications include the following:

- Intertidal zone, one type of essential fish habitat (10.8 acres)
- Stream and riparian habitats (1167 linear feet)
- Wildlife habitat (32.8 acres)
- Indirect effects to two eagle nesting trees
- Potential Section 4(f)/6(f) resource (2 - Hendrickson Point and MWSGR)
- Wetlands including high value wetlands (21.5 and 20.9 acres, respectively)
- Important[13] migratory bird habitat (14 acres)
- Protected lands (18.2 acres – MWSGR and Hendrickson Point[14])
- Impervious surfaces[15] added (38 acres)
- Residential parcels (full or partial) acquired (6 parcels, 9.2 acres)
- Vacant residential land (5.6 acres)
- Within 100ft of commercial uses (2)
- Total potential ROW needed (9 full or partial parcels, 41.7 acres)

While Sunny Point West may not have the highest quantified impacts in some categories, it scores the lowest when considering the application of the MWSGR weight. Like Sunny Point East, this alternative is deemed to have the greatest potential restrictions on the popular hunting activities in the refuge and is viewed by the airport as a significant limitation to long term airport expansion and/or navigation. The PEL Study team has committed to the Juneau Airport Board that any alternative that conflicts with the Master Plan will be revised to eliminate the conflict or it will be deemed to be a fatal flaw for that alternative. At this time the Sunny Point

[13] Importance characterized as within the boundaries of the MWSGR.
[14] Hendrickson Point is zoned for residential, however the Juneau Comprehensive Plan (2013) identifies the peninsula as a rural reserve. The location is considered protected until an official determination is made.
[15] Although the crossings are proposed to be elevated structures, the elevated portions, such as bridge decks, were included in the calculation of impervious surfaces.

West Alternative is not in conflict with the Master Plan, however an update to the Master Plan is in progress and this issue will need to be re-addressed during the NEPA phase.

The Sunny Point West Alternative was not designed to meet the >50' vertical clearance because of the limited navigation that occurs in this area. USCG approval for the bridge height/clearance will be required during NEPA. This alternative has ample flexibility in the design to increase the bridge clearance to meet the >50' criteria, if required. The cost would increase, but the footprint of the bridge and the connections to the existing infrastructure on either side of the crossing would be unchanged.

The Sunny Point West Alternative would improve safety by reducing network travel time and would connect via a frontage road to the existing Sunny Point Interchange and to the existing signal at Yandukin/Egan Drives. The Sunny Point area has the highest favorability score when compared to other build alternatives according to a survey conducted December 2022 to February 2023. The Sunny Point alternatives scored the least favorably when compared to the other build alternatives considered in this Level 2 Screening.

The construction cost for the Sunny Point West Alternative has been estimated at approximately $490M while the annual maintenance has been estimated at approximately $150k.

No Build Alternative – Performance Against Criteria Overall Score: -16

The No Build alternative received an overall score of -16 when evaluated against all Level 2 Screening criteria. The No Build alternative does not provide for any action therefore it does not generate any impacts.

Although, this alternative does not meet the P&N established for the PEL, a survey conducted between December 12, 2022, and February 3, 2023, indicated about 30 percent (352) of people support a no build alternative versus any other build alternative and about 70 percent (801) expressed support for one or more of the build alternatives. The No Build alternative will be carried forward into the future NEPA process to provide a baseline against which to evaluate the other alternatives.

Conclusion

The alternatives identified through Level 1 Screening to proceed to detailed alternative development and evaluation using Level 2 Screening were:

- Mendenhall Peninsula,
- Sunny Point West,
- Sunny Point East,
- Vanderbilt,
- Twin Lakes, and
- Salmon Creek.

Engineering and environmental analyses were conducted to refine the detailed alternatives to address constraints, minimize impacts, improve constructability, select logical termini of each alternative, and develop infrastructure concepts to tie in with the existing transportation network. Following initial refinement, the detailed alternatives were evaluated on how well they meet the P&N and additional goals, as well as using a range of criteria to consider impacts to the natural environment, key socioeconomic factors, housing challenges, traffic and safety, cost, ROW, and public support. The Level 2 Screening provides calculations of impacts based on environmental resource mapping and GIS overlays of proposed alternatives to provide a quantitative evaluation of impacts.

The draft Level 2 Screening was reviewed by Advisory Committees and the DOT&PF SEO. The Advisory Committees and the SEO provided feedback and recommendations on the draft Level 2 analysis. The most robust feedback sought increased focus on the importance of the MWSGR and the resources located within the Refuge (e.g., wetlands, bird habitat, intertidal habitat, etc.). The Level 2 Screening was revised in response to comments and this document provides the final results. A complete comment response log will accompany the Final PEL Study.

All build alternatives reviewed under Level 2 Screening meet the P&N and have varying levels of constraints and impacts. As recommended by DOT&PF SEO and some members of the Advisory Committees, the application of weight to impacts in the MWSGR provided more favorable scoring for alternatives that cross entirely or partially outside the MWSGR limits. As a result, Salmon Creek and Mendenhall Peninsula scored more favorably because they avoid or only traverse the edge of the MWSGR.

Whilst the Mendenhall Peninsula Alternative scored relatively strongly in relation to other alternatives, the total cost of the alternative is estimated in the range of $1.1 - $1.7B. The total cost of this alternative is above a level that can be considered financially feasible. On this basis, the Mendenhall Alternative is not recommended for consideration in NEPA.

The final scores and rankings reflect a combination of quantitative impact analysis and MWSGR weighting. Level 2 Screening final scores of the alternatives are as follows:

1. Salmon Creek, 3
2. Twin Lakes, -10
3. No Build, -16
4. Vanderbilt, -18
5. Sunny Point East, -20
6. Sunny Point West, -23

The Level 2 Screening did not identify substantial impacts or constraints that were sufficiently outlying from the other alternatives to justify dismissal of any of the alternatives, except for the Mendenhall Peninsula Alternative which has been eliminated as it is not financially feasible. The remaining five build alternatives are recommended for a potential future NEPA analysis, in addition to the no build alternative.

APPENDIX A – LEVEL 2 SCORING RESULTS

Level 2 Screening Results Overview

	Criteria	Measure	No Build	Mendenhall Peninsula	Sunny Point West	Sunny Point East	Vanderbilt	Twin Lakes	Salmon Creek
1. Purpose and Need									
	Improve transportation for non-motorized users	Planned pedestrian and bicycle lanes tie into the existing network and improve access and safety for non-motorized users	-2	2	2	2	2	2	2
	Reduce transportation-related energy consumption	Scale from 2 (significant improvement) to -2 (no discernible improvement) of the estimated change in travel times based on travel origins and destinations	-2	1	1	1	1	1	1
	Decrease existing and future traffic congestion on Douglas Island Bridge and its intersections	Scale from 2 (significant improvement) to -2 (no discernible improvement) of estimated LOS during AM and PM peaks at the existing bridge and alternative	-2	-2	0	0	0	2	2
	Improve emergency response times	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction between the hospital/fire department and Douglas Island residents	-2	2	2	2	2	2	2
	Improve access to critical healthcare and emergency services	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction	-2	2	2	2	2	2	2
	Improve travel times (per user) to workplaces and critical resources	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction	-2	0	2	2	2	2	2
2. Additional Goals									
Additional Goals	Improve connection to North and West Douglas Island by creating additional traffic capacity to support the future development of affordable housing and economic development opportunities.	Scale from 2 (significant improvement) to -2 (no discernible improvement) of the connection to North and West Douglas Island	-2	2	2	2	2	2	2
	Enhance and protect the public health and safety of travelers and the communities that transportation facilities traverse and serve.	Scale from 2 (significant improvement) to -2 (no discernible improvement) to enhance and protect the public health and safety	-2	1	2	2	2	2	2
	Avoid, minimize, and mitigate impacts to the environment.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	0	-1	-2	-2	-2	-2	0
	Avoid, minimize, and mitigate impacts to residential areas.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	0	-1	-1	-1	-2	0	-1
	Maintain the visual, cultural, and scenic identity of Juneau and Douglas Island.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	0	-2	-2	-2	-1	-1	0
OTHER CONSIDERATIONS									
1. Environmental Screening									
Natural	Wetlands directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	-1	-2	-2	-2	-2	0
	High value wetlands directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	0	-2	-2	-2	-2	0
	Intertidal zone directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres intertidal zone impacted)	0	0	-2	-2	-2	-2	0
	Stream and riparian habitats (including buffer) directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres of stream and riparian habitats including buffer impacted)	0	0	-2	-1	-2	0	0
	Wildlife habitat directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres of wildlife habitat impacted)	0	-1	-2	-2	-2	-2	0
	Anadromous streams impacted	Scale from 0 (no or minimal impacts) to -2 (high number of anadromous streams impacted)	0	0	-2	-1	-1	0	0
	Threatened and endangered (T&E) habitat directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	0	0	0	0	0	0
	Important migratory bird habitat impacted in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres important migratory bird habitat impacted)	0	0	-2	-2	-2	-2	0
	Eagle nesting trees directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of trees impacted)	0	-2	-1	-1	0	-1	-1
	Contaminated sites directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of contaminated sites impacted)	0	0	0	0	0	0	0
	Section 4(f)/6(f) resources affected	Scale from 0 (no or minimal impacts) to -2 (high number of Section 4(f)/6(f) resources impacted)	0	-2	-2	-2	-2	-1	0
	Protected lands directly affected	Scale from 0 (no minimal impacts) to -2 (high number of acres of protected lands impacted)	0	-1	-2	-2	-2	-2	0
	Impervious surfaces added in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of impervious surfaces impacted)	0	-1	-2	-2	-2	-2	0
Social	EJ community, school, or community gathering space directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of properties impacted)	0	0	0	0	0	0	0
	Neighborhood divided or otherwise disrupted	Scale from 0 (no or minimal impacts) to -2 (high number of neighborhoods impacted)	0	0	-2	-2	-1	-2	-1
	Distance to Native Allotment	Scale from 0 (not within 50 feet) to -2 (within 50 feet) of a Native Allotment	0	0	0	0	0	0	0
Housing	Residential uses directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of residential uses impacted)	0	0	-1	-1	-2	0	-1
	Within 100 feet of residential property	Scale from 0 (not within 100 feet) to -2 (within 100 feet) of a residential property	0	0	-2	-1	-1	0	-2
	Acres of vacant residential land directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of developable land acquired)	0	-1	-1	-1	-1	0	0
Economic	Commercial uses directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of commercial uses impacted)	0	-2	0	0	0	-1	-1
	Within 100 feet of commercial uses	Scale from 0 (not within 100 feet) to -2 (within 100 feet) of a commercial property	0	0	-1	-1	0	0	-2
	Acres of vacant commercial land directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of developable land acquired)	0	0	0	0	0	-2	-1
Safety	Improves safety for all users	Scale from 2 (reduces conflict/friction on network) to -2 (higher risk of conflict/friction on network)	0	1	1	1	1	1	1
Cost	Estimated total construction cost	Scale from 0 (low construction cost) to -2 (high construction cost)	0	-2	-1	-1	0	0	0
	Estimated annual maintenance cost	Scale from 0 (low maintenance cost) to -2 (high maintenance cost)	0	-2	-1	-1	0	0	0
ROW	Total ROW needed	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted) and scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	-2	-2	-2	-2	-1	-1
	Residential property acquisition	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted)	0	0	-2	-2	-2	0	-1
	Commercial property acquisition	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted)	0	0	0	0	0	-1	-1
Public Support	Level of public support	Scale from 2 (high level of support) to 0 (low level of support)	0	1	2	2	1	0	0
Score/Result									
			-16	**-11**	**-23**	**-20**	**-18**	**-10**	**3**

No Build

	Criteria	Measure	Answer	Comment/Rationale/Justification
1. Purpose and Need				
	Improve transportation for non-motorized users	Scale from 2 (significant improvement) to -2 (no discernible improvement)	-2	No change from existing conditions
	Reduce transportation-related energy consumption	Scale from 2 (significant improvement) to -2 (no discernible improvement) of the estimated change in travel times based on travel origins and destinations	-2	No change from existing conditions
	Decrease existing and future traffic congestion on Douglas Island Bridge and its intersections	Scale from 2 (significant improvement) to -2 (no discernible improvement) of estimated LOS during AM and PM peaks at the existing bridge and alternative	-2	No change from existing conditions
	Improve emergency response times	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction between the hospital/fire department and Douglas Island residents	-2	No change from existing conditions
	Improve access to critical healthcare and emergency services	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction	-2	No change from existing conditions
	Improve travel times (per user) to workplaces and critical resources	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction	-2	No change from existing conditions
2. Additional Goals				
	Improve connection to North and West Douglas Island by creating additional traffic capacity to support the future development of affordable housing and economic development opportunities.	Scale from 2 (significant improvement) to -2 (no discernible improvement) of the connection to North and West Douglas Island	-2	No change from existing conditions
	Enhance and protect the public health and safety of travelers and the communities that transportation facilities traverse and serve.	Scale from 2 (significant improvement) to -2 (no discernible improvement) to enhance and protect the public health and safety	-2	No change from existing conditions
	Avoid, minimize, and mitigate impacts to the environment.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	0	No change from existing conditions, this alternative will avoid new impacts to the environment.
	Avoid, minimize, and mitigate impacts to residential areas.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	0	No change from existing conditions, this alternative will avoid new impacts to residential areas.
	Maintain the visual, cultural, and scenic identity of Juneau and Douglas Island.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	0	No change from existing conditions, this alternative will avoid new impacts to visual, cultural, and scenic identity.
OTHER CONSIDERATIONS				
1. Environmental				
Natural	Wetlands directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	No change from existing conditions
	High value wetlands directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	No change from existing conditions
	Intertidal zone directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres intertidal zone impacted)	0	No change from existing conditions
	Stream and riparian habitats (including buffer) directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of stream and riparian habitats including buffer impacted)	0	No change from existing conditions
	Wildlife habitat directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres of wildlife habitat impacted)	0	No change from existing conditions
	Anadromous streams impacted	Scale from 0 (no or minimal impacts) to -2 (high number of anadromous streams impacted)	0	No change from existing conditions
	Threatened and endangered (T&E) habitat directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	No change from existing conditions
	Important migratory bird habitat impacted in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres important migratory bird habitat impacted)	0	No change from existing conditions
	Eagle nesting trees directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of trees impacted)	0	No change from existing conditions
	Contaminated sites directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of contaminated sites impacted)	0	No change from existing conditions
	Section 4(f)/6(f) resources affected	Scale from 0 (no or minimal impacts) to -2 (high number of Section 4(f)/6(f) resources impacted)	0	No change from existing conditions
	Protected lands directly affected	Scale from 0 (no minimal impacts) to -2 (high number of acres of protected lands impacted)	0	No change from existing conditions
	Impervious surfaces added in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of impervious surfaces impacted)	0	No change from existing conditions
Social	EJ community, school, or community gathering space directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of properties impacted)	0	No change from existing conditions
	Neighborhood divided or otherwise disrupted	Scale from 0 (no or minimal impacts) to -2 (high number of neighborhoods impacted)	0	No change from existing conditions
	Distance to Native Allotment	Scale from 0 (not within 50 feet) to -2 (within 50 feet) of a Native Allotment	0	No change from existing conditions
Housing	Residential uses directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of residential uses impacted)	0	No change from existing conditions
	Within 100 feet of residential property	Scale from 0 (not within 100 feet) to -2 (within 100 feet) of a residential property	0	No change from existing conditions
	Acres of vacant residential land directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of developable land acquired)	0	No change from existing conditions
Economic	Commercial uses directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of commercial uses impacted)	0	No change from existing conditions
	Within 100 feet of commercial uses	Scale from 0 (not within 100 feet) to -2 (within 100 feet) of a commercial property	0	No change from existing conditions
	Acres of vacant commercial land directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of developable land acquired)	0	No change from existing conditions
Safety	Improves safety for all users	Scale from 2 (reduces conflict/friction on network) to -2 (higher risk of conflict/friction on network)	0	No change from existing conditions
Cost	Estimated total construction cost	Scale from 0 (low construction cost) to -2 (high construction cost)	0	No change from existing conditions
	Estimated annual maintenance cost	Scale from 0 (low maintenance cost) to -2 (high maintenance cost)	0	No change from existing conditions
ROW	Total ROW needed	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted) and scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	No change from existing conditions
	Residential property acquisition	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted)	0	No change from existing conditions
	Commercial property acquisition	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted)	0	No change from existing conditions
Public Support	Level of public support	Scale from 2 (high level of support) to 0 (low level of support)	0	In a survey conducted between December 12, 2022 and February 3, 2023, 30.5 percent of respondents preferred a no action or no build alternative versus 69.5 percent who preferred a build alternative.
Score/Result				
			-16	

2	Alternative demonstrates strong performance against criteria
1	Alternative demonstrates moderate performance against criteria
0	Alternative demonstrates neutral performance against criteria
-1	Alternative demonstrates slightly weak performance against criteria
-2	Alternative demonstrates weak performance against criteria

Mendenhall Peninsula Alternative

	Criteria	Measure	Answer	Comment/Rationale/Justification
1. Purpose and Need				
	Improve transportation for non-motorized users	Planned pedestrian and bicycle lanes tie into the existing network and improve access and safety for non-motorized users	2	Improves transportation for non-motorized users by providing an alternate crossing with an added separated multi-use path that ties into existing infrastructure.
	Reduce transportation-related energy consumption	Scale from 2 (significant improvement) to -2 (no discernible improvement) of the estimated change in travel times based on travel origins and destinations	1	Overall travel time between Douglas Island and Juneau mainland is reduced because some trips would experience shorter travel times when using this proposed bridge. Based on the origin-destination study, this alternative would reduce travel times for mainly recreational users and would lead to reduced transportation-related energy consumption. This alternative scores lower than others evaluated because fewer trips are benefited by the crossing, based on the origin-destination study.
	Decrease existing and future traffic congestion on Douglas Island Bridge and its intersections	Scale from 2 (significant improvement) to -2 (no discernible improvement) of estimated LOS during AM and PM peaks at the existing bridge and alternative	-2	Would decrease traffic pressure on the existing Douglas Island Bridge and its intersections by dividing the traffic between the existing bridge and the alternate crossing. Some traffic would switch to the proposed bridge, which would reduce demand for the Douglas Island Bridge and the intersections to either side of the bridge. This alternative scores lower than others evaluated because fewer vehicles would select this alternative (five to 15 percent) relative to the other alternatives.
	Improve emergency response times	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction between the hospital/fire department and Douglas Island residents	2	When emergencies require response from an out-of- district station or multiple stations simultaneously, the Mendenhall Peninsula crossing would allow a more timely response to Douglas Island from the Lynn Canal and Auke Bay stations, and in some cases the Glacier Station, by shortening the distance needed to travel to a crossing to Douglas Island.
	Improve access to critical healthcare and emergency services	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction	2	Based on the location, the alternative provides alternate access and improves access to critical healthcare and emergency services during the closure of the existing bridge or another single route closure, including road closures on Egan Drive and Glacier Highway caused by accidents, fallen trees or power lines, landslides, or avalanches.
	Improve travel times (per user) to workplaces and critical resources	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction	0	When considering the number of users with improved travel times combined with the minutes of travel time decreased, the alternative provides an average of 20-35 seconds of travel time saved per user. The time savings is an improvement but a lower improvement in travel time savings when compared to other alternatives.
2. Additional Goals				
	Improve connection to North and West Douglas Island by creating additional traffic capacity to support the future development of affordable housing and economic development opportunities.	Scale from 2 (significant improvement) to -2 (no discernible improvement) of the connection to North and West Douglas Island	2	Based on the location, this alternative has the potential to significantly improve the connection to North and West Douglas Island by creating additional traffic capacity.
	Enhance and protect the public health and safety of travelers and the communities that transportation facilities traverse and serve.	Scale from 2 (significant improvement) to -2 (no discernible improvement) to enhance and protect the public health and safety	1	This alternative has the potential to enhance public health and safety by reducing traffic in locations where delay is currently experienced, adding a separated multi-use pathway, and tying into existing active transportation infrastructure. It would provide resiliency in the transportation network by creating an additional crossing. This alternative scores lower than other alternatives because it results in longer out-of-direction travel for more users.
	Avoid, minimize, and mitigate impacts to the environment.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	-1	This alternative is not likely to avoid, but has potential to minimize or mitigate, impacts to the environment depending on design, location, or other measures. While it could be located outside of the Mendenhall Wetlands State Game Refuge, it has a potential to impact other Section 4(f) properties, important migratory bird areas, wildlife habitats, and waterbodies (refer to other considerations screening below). This alternative scored -8 cumulatively when considering the natural environmental factors below alone. This alternative scores better than others due to the location only partially impacting the MWSGR.
	Avoid, minimize, and mitigate impacts to residential areas.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	-1	This alternative would have one direct impact and potentially seven indirect impacts. It would not avoid impacts but has potential to minimize impacts to residential areas depending on design and location. Refer to the housing section of "other considerations" screening below.
	Maintain the visual, cultural, and scenic identity of Juneau and Douglas Island.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	-2	Based on the location within a protected viewshed (Guidelines and Considerations for Subarea 8, page 191f, CBJ Comprehensive Plan 2013) and the size of the structure needed, this alternative will impact the visual, cultural, and scenic identity of the area.
OTHER CONSIDERATIONS				
1. Environmental				
Natural	Wetlands directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	-1	This alternative impacts approximately 17.9 acres of wetlands, which is the third lowest acreage of impact when including the bridge deck. This alternative scores higher than others because it is only partially impacting the MWSGR.
	High value wetlands directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	This alternative impacts 3.4 acres of high value wetlands, which is the second lowest acreage of high value wetlands impacted when compared to other alternatives. This alternative scores higher than others because it is only partially impacting high value wetlands in the MWSGR.
	Intertidal zone directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres intertidal zone impacted)	0	This alternative impacts approximately 14.1 acres of intertidal zone, which is the third most impactful alternative. This alternative scores higher than others because it only partially impacts intertidal zone within the MWSGR.
	Stream and riparian habitats (including 50' buffer) directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of linear feet of stream and riparian habitats including buffer impacted)	0	This alternative impacts 436 linear feet of stream and riparian habitat buffer, which is the third lowest impact alternative, above Twin Lakes, and Salmon Creek. This alternative impacts less than half the amount of linear feet as the next most impactful alternative Sunny Point East. This alternative scores higher than others because it is only partially impacting the MWSGR.
	Wildlife habitat directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres of wildlife habitat impacted)	-1	This alternative impacts 56.8 acres of wildlife habitat, which is the most impactful alternative with almost 20 acres more than the next most impactful alternative. Even though this alternative has a higher acreage of impact, this alternative scores higher than others because it is only partially impacting the MWSGR.
	Anadromous streams impacted	Scale from 0 (no or minimal impacts) to -2 (high number of anadromous streams impacted)	0	This alternative impacts one anadromous stream. The number of streams impacted is much fewer than the two alternatives with greatest impact, Sunny Point West (14) and Sunny Point East (4).
	Threatened and endangered (T&E) habitat directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	No T&E habitat is impacted by this alternative.
	Important migratory bird habitat impacted in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres important migratory bird habitat impacted)	0	This alternative impacts 9.2 acres of important migratory bird habitat. This alternative is the third lowest acreage of impact, but scores higher because it is only partially in the MWSGR.
	Eagle nesting trees directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of trees impacted)	-2	This alternative impacts six known eagle nesting trees including a 660-ft buffer, making it the most impactful alternative.
	Contaminated sites directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of contaminated sites impacted)	0	This alternative does not directly impact known contaminated sites.
	Section 4(f)/6(f) resources affected	Scale from 0 (no or minimal impacts) to -2 (high number of Section 4(f)/6(f) resources impacted)	-2	This alternative has the potential to directly impact three potential Section 4(f)/6(f) resources, which is the highest impact of the alternatives considered. This alternative partially impacts the MWSGR and two trails on the peninsula, making it the most impactful alternative.
	Protected lands directly affected	Scale from 0 (no minimal impacts) to -2 (high number of acres of protected lands impacted)	-1	This alternative impacts 9.2 acres of protected lands. Protected lands impacted by this alternative include the MWSGR. This alternative is the third least impactful alternative.
	Impervious surfaces added in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of impervious surfaces added)	-1	This alternative adds approximately 64.2 acres of impervious surfaces, which is the most impactful alternative, but scores higher than other alternatives because it is only partially impacting the MWSGR.
Social	EJ community, school, or community gathering space directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of properties impacted)	0	This alternative does not appear to directly impact an EJ community, school, or community gathering space.
	Neighborhood divided or otherwise disrupted	Scale from 0 (no or minimal impacts) to -2 (high number of neighborhoods impacted)	0	This alternative does not impact any neighborhoods.
	Distance to Native Allotment	Scale from 0 (not within 50 feet) to -2 (within 50 feet) of a Native Allotment	0	This alternative passes within 1.3 miles of a conveyed Native Allotment, which is the closest of the alternatives evaluated. However, impacts to Native Allotments are very unlikely.
Housing	Residential uses directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of residential uses impacted)	0	This alternative directly affects one residential parcel, which is the least impactful alternative tied with Twin Lakes. This alternative has nine fewer residential uses impacted than the most impactful alternative.
	Within 100 feet of residential property	Scale from 0 (not within 100 feet) to -2 (within 100 feet) of a residential property	0	This alternative is within 100 feet of three residential properties, which is the least impactful of the alternatives considered.
	Acres of vacant residential land directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of developable land acquired)	-1	This alternative impacts 1.5 acres of vacant residential land, which is the third least impactful alternative.
Economic	Commercial uses directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of commercial uses impacted)	-2	This alternative only impacts one commercial use; however, the commercial use is an airport, which is one of the most substantial mixed public/commercial uses in the area. Therefore, this alternative scores lower than Twin Lakes and Salmon Creek, which also impact one commercial use each.
	Within 100 feet of commercial uses	Scale from 0 (not within 100 feet) to -2 (within 100 feet) of a commercial property	0	This alternative is not within 100 feet of any commercial uses.
	Acres of vacant commercial land directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of developable land acquired)	0	No acres of commercial land are directly impacted by this alternative.
Safety	Improves safety for all users	Scale from 2 (reduces conflict/friction on network) to -2 (higher risk of conflict/friction on network)	1	The Mendenhall Peninsula alternative passes 20 individual conflict points (driveways or intersections/lanes). This alternative has the second highest number of conflict points, but still fewer than the No Build alternative, which suggests a reduced likelihood of a negative interaction between a roadway user traveling in one direction and another roadway user traveling in another direction.
Cost	Estimated total construction cost	Scale from 0 (low construction cost) to -2 (high construction cost)	-2	Planning level construction cost is estimated at $1.1 Billion, the most expensive when compared to other alternatives
	Estimated annual maintenance cost	Scale from 0 (low maintenance cost) to -2 (high maintenance cost)	-2	The planning level cost estimate for annual maintenance cost is $365,000, the most expensive when compared to other alternatives.
ROW	Total ROW needed	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted) and scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	-2	A total of 110.4 acres, or 8 parcels (full or partial) are needed for this alternative, making it the most impactful. Acreage of impact is twice as much as the next most impactful alternative.
	Residential property acquisition	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted)	0	A total of 1.9 acres or one parcel (full or partial) of residential land is needed for this alternative, making it the third least impactful.
	Commercial property acquisition	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted)	0	No commercial property acquisition is needed for this alternative.
Public Support	Level of public support	Scale from 2 (high level of support) to 0 (low level of support)	1	Respondents of a survey conducted between December 12, 2022 and February 3, 2023 ranked Mendenhall Peninsula as the fourth top choice when compared to other build alternatives.
Score/Result				
			-11	

2	Alternative demonstrates strong performance against criteria
1	Alternative demonstrates moderate performance against criteria
0	Alternative demonstrates neutral performance against criteria
-1	Alternative demonstrates slightly weak performance against criteria
-2	Alternative demonstrates weak performance against criteria

Sunny Point West Alternative

	Criteria	Measure	Answer	Comment/Rationale/Justification
1. Purpose and Need				
	Improve transportation for non-motorized users	Planned pedestrian and bicycle lanes tie into the existing network and improve access and safety for non-motorized users	2	Improves transportation for non-motorized users by providing an alternate crossing with an added separated multi-use path that ties into existing infrastructure.
	Reduce transportation-related energy consumption	Scale from 2 (significant improvement) to -2 (no discernible improvement) of the estimated change in travel times based on travel origins and destinations	1	Overall travel time between Douglas Island and Juneau mainland is reduced because some trips would experience shorter travel times when using this proposed bridge. Based on the origin-destination study, this alternative would reduce travel times for mainly recreational uses, and would lead to reduced transportation-related energy consumption. Other alternatives will have a greater benefit in shifting trips to the new bridge location, hence the reduced score.
	Decrease existing and future traffic congestion on Douglas Island Bridge and its intersections	Scale from 2 (significant improvement) to -2 (no discernible improvement) of estimated LOS during AM and PM peaks at the existing bridge and alternative	0	The alternative would decrease traffic pressure on the existing Douglas Island Bridge and its intersections by dividing the traffic between the existing bridge and the alternate crossing. Some traffic would switch to the proposed bridge (20-30 percent), which would reduce demand for the Douglas Island Bridge and associated intersections. This alternative scores lower than others because a smaller percentage of travelers would select this bridge as an alternate route.
	Improve emergency response times	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction between the hospital/fire department and Douglas Island residents	2	When emergencies require response from an out-of-district station or multiple stations simultaneously, the Sunny Point West crossing would allow a more timely response to Douglas Island from the Lynn Canal and Auke Bay stations, and in some cases the Glacier Station, by shortening the distance needed to travel to a crossing to Douglas Island.
	Improve access to critical healthcare and emergency services	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction	2	Improves access to critical healthcare and emergency services during the closure of the existing bridge or another single route closure including road closures on Egan Drive and Glacier Highway caused by accidents, fallen trees or power lines, landslides, or avalanches.
	Improve travel times (per user) to workplaces and critical resources	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction	2	When considering the number of users with improved travel times combined with the minutes of travel time decreased, the alternative provides an average of 55-65 seconds of travel time saved per user, the highest travel time savings.
2. Additional Goals				
Additional Goals	Improve connection to North and West Douglas Island by creating additional traffic capacity to support the future development of affordable housing and economic development opportunities.	Scale from 2 (significant improvement) to -2 (no discernible improvement) of the connection to North and West Douglas Island	2	This alternative has the potential to significantly improve the connection to North and West Douglas Island by creating additional traffic capacity.
	Enhance and protect the public health and safety of travelers and the communities that transportation facilities traverse and serve.	Scale from 2 (significant improvement) to -2 (no discernible improvement) to enhance and protect the public health and safety	2	This alternative has the potential to enhance public health and safety by reducing traffic in locations where delay is currently experienced, adding a separated multi-use pathway and tying into existing active transportation infrastructure. It would provide resiliency in the transportation network by creating an additional crossing.
	Avoid, minimize, and mitigate impacts to the environment.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	-2	This alternative is not likely to avoid, but has potential to minimize or mitigate, impacts to the environment depending on design, location, or other measures. It has a potential to impact other Section 4(f) properties, important migratory bird areas, wildlife habitats, and waterbodies. Refer to other considerations screening below. This alternative scored -21 cumulatively when considering natural environmental factors below alone. This alternative is the most impactful alternative and therefore has the least potential to avoid, minimize, or mitigate impacts when compared to other alternatives.
	Avoid, minimize, and mitigate impacts to residential areas.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	-1	This alternative has four direct impacts and potentially 44 indirect impacts. It would not avoid impacts but has potential to minimize or mitigate impacts to residential areas depending on design and location. Refer to the housing section of "other considerations" screening below.
	Maintain the visual, cultural, and scenic identity of Juneau and Douglas Island.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	-2	Based on the location within a protected viewshed (Guidelines and Considerations for Subarea 8, page 191f, CBJ Comprehensive Plan 2013) and the size of the structure needed, this alternative will impact the visual, cultural, and scenic identity of the area.
OTHER CONSIDERATIONS				
1. Environmental				
Natural	Wetlands directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	-2	This alternative impacts 21.5 acres of wetlands, which is the third most impactful alternative. This alternative impacts habitat in the MWSGR and therefore scores the lowest.
	High value wetlands directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	-2	This alternative impacts 20.9 acres of high value wetlands, which is the second highest acreage of high value wetlands impacted when compared to other alternatives. This alternative impacts habitat in the MWSGR and therefore scores the lowest.
	Intertidal zone directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres intertidal zone impacted)	-2	This alternative impacts approximately 10.8 acres of intertidal zone, which is the second least impactful alternative but scores the lowest because it impacts intertidal zone within the MWSGR.
	Stream and riparian habitats (including buffer) directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of linear feet of stream and riparian habitats including buffer impacted)	-2	This alternative impacts 1,167.4 linear feet of stream and riparian habitat buffer, which is the second most impactful alternative. This alternative impacts habitat in the MWSGR and therefore scores the lowest.
	Wildlife habitat directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres of wildlife habitat impacted)	-2	This alternative impacts 32.8 acres of wildlife habitat, which is the third least impactful alternative. This alternative impacts habitat in the MWSGR and therefore scores the lowest.
	Anadromous streams impacted	Scale from 0 (no or minimal impacts) to -2 (high number of anadromous streams impacted)	-2	This alternative impacts 14 anadromous streams, the most of any alternative. This alternative impacts anadromous streams in the MWSGR and therefore scores the lowest.
	Threatened and endangered (T&E) habitat directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	No T&E habitat is impacted by this alternative.
	Important migratory bird habitat impacted in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres important migratory bird habitat impacted)	-2	This alternative impacts 14 acres of important migratory bird habitat in the MWSGR and therefore scores the lowest. This alternative is the second most impactful alternative.
	Eagle nesting trees directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of trees impacted)	-1	This alternative directly impacts two documented eagle nesting trees including a 660-ft buffer, making it the second most impactful alternative.
	Contaminated sites directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of contaminated sites impacted)	0	This alternative does not directly impact known contaminated sites.
	Section 4(f)/6(f) resources affected	Scale from 0 (no or minimal impacts) to -2 (high number of Section 4(f)/6(f) resources impacted)	-2	This alternative has the potential to directly impact two potential Section 4(f)/6(f) resources, Hendrickson Point and MWSGR.
	Protected lands directly affected	Scale from 0 (no minimal impacts) to -2 (high number of acres of protected lands impacted)	-2	This alternative impacts 18.2 acres of protected land, including the MWSGR and Hendrickson Point, making it the second most impactful alternative.
	Impervious surfaces added in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of impervious surfaces added)	-2	This alternative adds approximately 38 acres of impervious surfaces, which is the third least impactful alternative. This alternative adds impervious surfaces to the MWSGR and therefore scores the lowest.
Social	EJ community, school, or community gathering space directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of properties impacted)	0	This alternative does not appear to directly impact an EJ community, school, or community gathering space.
	Neighborhood divided or otherwise disrupted	Scale from 0 (no or minimal impacts) to -2 (high number of neighborhoods impacted)	-2	This alternative impacts three neighborhoods, one on Douglas Island and two near Sunny Point, the highest number of neighborhoods impacted. In addition, two residential parcels would be impacted (see below).
	Distance to Native Allotment	Scale from 0 (not within 50 feet) to -2 (within 50 feet) of a Native Allotment	0	This alternative passes within 1.7 miles of a conveyed Native Allotment, which is the second closest of the alternatives evaluated. However, impacts to native allotments are very unlikely.
Housing	Residential uses directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of residential uses impacted)	-1	This alternative directly affects four residential uses, which is the third most impactful alternative, tied with Salmon Creek.
	Within 100 feet of residential property	Scale from 0 (not within 100 feet) to -2 (within 100 feet) of a residential property	-2	This alternative is within 100 feet of 44 residential properties, which is the most impactful alternative and over 14 times more impactful than the least impactful alternative, Mendenhall Peninsula.
	Acres of vacant residential land directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of developable land acquired)	-1	This alternative impacts 5.6 acres of vacant residential land, which is the second most impactful alternative.
Economic	Commercial uses directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of commercial uses impacted)	0	This alternative does not directly impact commercial uses.
	Within 100 feet of commercial uses	Scale from 0 (not within 100 feet) to -2 (within 100 feet) of a commercial property	-1	This alternative crosses within 100 feet of two commercial uses, which is tied for the second most impactful alternative along with Sunny Point East.
	Acres of vacant commercial land directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of developable land acquired)	0	No acres of commercial land are directly impacted by this alternative.
Safety	Improves safety for all users	Scale from 2 (reduces conflict/friction on network) to -2 (higher risk of conflict/friction on network)	1	The Sunny Point West alternative passes 17 individual conflict points (driveways or intersections/lanes), which suggest a lower likelihood of a negative interaction between a roadway user traveling in one direction and another roadway user traveling in another direction. This alternative has the third fewest number of conflict points of any alternative, which is nearly half of the no build alternative.
Cost	Estimated total construction cost	Scale from 0 (low construction cost) to -2 (high construction cost)	-1	Planning level construction cost is estimated at $490M
	Estimated annual maintenance cost	Scale from 0 (low maintenance cost) to -2 (high maintenance cost)	-1	The planning level cost estimate for annual maintenance cost is $150,000
ROW	Total ROW needed	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted) and scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	-2	A total of 41.7 acres, or nine parcels (full and partial) are needed for this alternative, making it the second most impactful.
	Residential property acquisition	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted)	-2	A total of 9.2 acres, or six parcels (full and partial) are needed for this alternative, making it the second most impactful.
	Commercial property acquisition	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted)	0	No commercial property acquisition is needed for this alternative.
Public Support	Level of public support	Scale from 2 (high level of support) to 0 (low level of support)	2	Respondents of a survey conducted between December 12, 2022 and February 3, 2023 indicated that of eight alternatives proposed, the Sunny Point area ranked as the top choice when compared to other build alternatives.
Score/Result				
			-23	

2	Alternative demonstrates strong performance against criteria
1	Alternative demonstrates moderate performance against criteria
0	Alternative demonstrates neutral performance against criteria
-1	Alternative demonstrates slightly weak performance against criteria
-2	Alternative demonstrates weak performance against criteria

Sunny Point East Alternative

	Criteria	Measure	Answer	Comment/Rationale/Justification
1. Purpose and Need				
	Improve transportation for non-motorized users	Planned pedestrian and bicycle lanes tie into the existing network and improve access and safety for non-motorized users	2	Improves transportation for non-motorized users by providing an alternate crossing with a separated multi-use path that ties into existing infrastructure.
	Reduce transportation-related energy consumption	Scale from 2 (significant improvement) to -2 (no discernible improvement) of the estimated change in travel times based on travel origins and destinations	1	Overall travel time between Douglas Island and Juneau mainland is likely to be reduced because some trips would experience shorter travel times when using this proposed bridge. Based on the traffic study, this alternative would reduce travel times for mainly recreational uses, and would lead to reduced transportation-related energy consumption.
	Decrease existing and future traffic congestion on Douglas Island Bridge and its intersections	Scale from 2 (significant improvement) to -2 (no discernible improvement) of estimated LOS during AM and PM peaks at the existing bridge and alternative	0	The alternative would decrease traffic pressure on the existing Douglas Island Bridge and its intersections by dividing the traffic between the existing bridge and the alternate crossing. Some traffic would switch to the proposed bridge (20-30 percent), which would reduce demand for the Douglas Island Bridge and associated intersections. This alternative scores lower than others because a smaller percentage of travelers would select this bridge as an alternate route.
	Improve emergency response times	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction between the hospital/fire department and Douglas Island residents	2	When emergencies require response from an out-of-district station or multiple stations simultaneously, the alternative would allow a more timely response to Douglas Island from the Lynn Canal, Auke Bay stations, and in some cases the Glacier Station, by shortening the distance to a crossing.
	Improve access to critical healthcare and emergency services	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction	2	Provides alternate access to critical healthcare and emergency services during the closure of the existing bridge or another single route closure including road closures on Egan and Glacier Highway caused by accidents, fallen trees or power lines, landslides, or avalanches.
	Improve travel times (per user) to workplaces and critical resources	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction	2	When considering the number of users with improved travel times in combination with the minutes of travel time decreased, the alternative provides an average of 55-65 seconds of travel time saved per user, the highest travel time savings.
2. Additional Goals				
Additional Goals	Improve connection to North and West Douglas Island by creating additional traffic capacity to support the future development of affordable housing and economic development opportunities.	Scale from 2 (significant improvement) to -2 (no discernible improvement) of the connection to North and West Douglas Island	2	This alternative has the potential to significantly improve the connection to North and West Douglas Island by creating additional traffic capacity.
	Enhance and protect the public health and safety of travelers and the communities that transportation facilities traverse and serve.	Scale from 2 (significant improvement) to -2 (no discernible improvement) to enhance and protect the public health and safety	2	This alternative has the potential to enhance public health and safety by reducing traffic in locations where delay is currently experienced, adding a separated multi-use pathway and tying into existing active transportation infrastructure. It would provide resiliency in the transportation network by creating an additional crossing.
	Avoid, minimize, and mitigate impacts to the environment.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	-2	This alternative is not likely to avoid, but has potential to minimize or mitigate impacts to the environment depending on design, location, or other measures. It has a potential to impact Section 4(f) properties, important migratory bird areas, wildlife habitats, and waterbodies. Refer to other considerations screening below. This alternative scored -19 cumulatively when considering environmental factors below alone. This is tied for the second worst score amongst alternatives, although environmental impacts are considerable when compared to the no build.
	Avoid, minimize, and mitigate impacts to residential areas.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	-1	This alternative has five direct impacts and potentially 10 indirect impacts. It would not avoid impacts but has potential to minimize or mitigate impacts to residential areas depending on design and location. Refer to the housing section of "other considerations" screening below.
	Maintain the visual, cultural, and scenic identity of Juneau and Douglas Island.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	-2	Based on the location within a protected viewshed (Guidelines and Considerations for Subarea 8, page 191f, CBJ Comprehensive Plan 2013) and the size of the structure needed, this alternative will impact the visual, cultural, and scenic identity of the area.
OTHER CONSIDERATIONS				
1. Environmental				
Natural	Wetlands directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	-2	This alternative impacts 9.6 acres of wetlands, which is the second least impactful alternative. This alternative scores the lowest because it impacts wetlands within the MWSGR.
	High value wetlands directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	-2	This alternative impacts 8.9 acres of high value wetlands, which is the third highest acreage of high value wetlands impacted when compared to other alternatives. This alternative impacts habitat in the MWSGR and therefore scores the lowest.
	Intertidal zone directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres intertidal zone impacted)	-2	This alternative impacts approximately 12 acres of intertidal zone, which is less than half the acreages of the next highest alternative. This alternative is the third least impactful alternative but scores the lowest because it impacts intertidal zone within the MWSGR.
	Stream and riparian habitats (including buffer) directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of linear feet of stream and riparian habitats including buffer impacted)	-1	This alternative impacts 1,007 linear feet of stream and riparian habitat buffer and the third most impactful alternative but still less than half the amount of linear feet than the most impactful alternative. This alternative scores the lowest because it impacts stream and riparian habitat within the MWSGR.
	Wildlife habitat directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres of wildlife habitat impacted)	-2	This alternative impacts 14.7 acres of habitat, the second least impactful alternative. However, this alternative is in the MWSGR and therefore scores the lowest.
	Anadromous streams impacted	Scale from 0 (no or minimal impacts) to -2 (high number of anadromous streams impacted)	-1	This alternative impacts four anadromous streams, the second highest alternative, but impacts 10 fewer streams than the most impactful alternative, Sunny Point West.
	Threatened and endangered (T&E) habitat directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	No T&E habitat is impacted by this alternative.
	Important migratory bird habitat impacted in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres important migratory bird habitat impacted)	-2	This alternative impacts 7.9 acres of habitat in the MWSGR and is the second least impactful alternative. This alternative scores the lowest due to impacting migratory bird habitat within the MWSGR.
	Eagle nesting trees directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of trees impacted)	-1	This alternative directly impacts one known eagle nesting tree including a 660-ft buffer, making it the tied for second least impactful alternative.
	Contaminated sites directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of contaminated sites impacted)	0	This alternative does not directly impact known contaminated sites.
	Section 4(f)/6(f) resources affected	Scale from 0 (no or minimal impacts) to -2 (high number of Section 4(f)/6(f) resources impacted)	-2	This alternative has the potential to directly impact two potential Section 4(f)/6(f) resources, Hendrickson Point and MWSGR.
	Protected lands directly affected	Scale from 0 (no minimal impacts) to -2 (high number of acres of protected lands impacted)	-2	This alternative impacts 13.8 acres protected lands which is the third most impactful. Protected lands impacted by this alternative include MWSGR, Hendrickson Point, and SEALT lands. This alternative scores the lowest due to affecting protected land within the MWSGR.
	Impervious surfaces added in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of impervious surfaces added)	-2	This alternative adds approximately 15.2 acres of impervious surfaces, which is the second least impactful alternative and one quarter the size of the lands impacted by the most impactful alternative, Mendenhall Peninsula. This alternative scores the lowest because it impacts the MWSGR.
Social	EJ community, school, or community gathering space directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of properties impacted)	0	This alternative does not appear to directly impact an EJ community, school, or community gathering space.
	Neighborhood divided or otherwise disrupted	Scale from 0 (no or minimal impacts) to -2 (high number of neighborhoods impacted)	-2	This alternative impacts two neighborhoods, one on Douglas Island and one at Sunny Point, and is tied with Twin Lakes for the second highest number of neighborhoods impacted. In addition, five residential parcels would be impacted (see below).
	Distance to Native Allotment	Scale from 0 (not within 50 feet) to -2 (within 50 feet) of a Native Allotment	0	This alternative passes within 1.8 miles of a conveyed Native Allotment, which is the third closest of the alternatives evaluated. However, impacts to Native Allotments are very unlikely.
Housing	Residential uses directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of residential uses impacted)	-1	This alternative directly affects five residential uses, which is the second most impactful alternative.
	Within 100 feet of residential property	Scale from 0 (not within 100 feet) to -2 (within 100 feet) of a residential property	-1	This alternative is within 100 feet of ten residential properties, which is the third most impactful alternative, but only about a quarter the number of residential properties within 100 feet of Sunny Point West.
	Acres of vacant residential land directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of developable land acquired)	-1	This alternative impacts 7.3 acres of vacant residential land, which is the most impactful alternative.
Economic	Commercial uses directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of commercial uses impacted)	0	This alternative does not directly impact commercial uses.
	Within 100 feet of commercial uses	Scale from 0 (not within 100 feet) to -2 (within 100 feet) of a commercial property	-1	This alternative crosses within 100 feet of two commercial uses, which is the second most impactful alternative tied with Sunny Point West.
	Acres of vacant commercial land directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of developable land acquired)	0	No acres of commercial land are directly impacted by this alternative.
Safety	Improves safety for all users	Scale from 2 (reduces conflict/friction on network) to -2 (higher risk of conflict/friction on network)	1	The Sunny Point East alternative passes 18 individual conflict points (driveways or intersections/lanes), which suggests a lower likelihood than No Build of a negative interaction between a roadway user traveling in one direction and another roadway user traveling in another direction. This alternative has the third most conflicts, but nearly half of the no build alternative.
Cost	Estimated total construction cost	Scale from 0 (low construction cost) to -2 (high construction cost)	-1	Planning level construction cost is estimated at $530M
	Estimated annual maintenance cost	Scale from 0 (low maintenance cost) to -2 (high maintenance cost)	-1	The planning level cost estimate for annual maintenance cost is $175,000
ROW	Total ROW needed	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted) and scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	-2	A total of 37.4 acres, or nine parcels (full and partial) are needed for this alternative, making it third most impactful.
	Residential property acquisition	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted)	-2	A total of 10.9 acres, or seven parcels (full and partial) are needed for this alternative, making it most impactful.
	Commercial property acquisition	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted)	0	No commercial property acquisition is needed for this alternative.
Public Support	Level of public support	Scale from 2 (high level of support) to 0 (low level of support)	2	Respondents of a survey conducted between December 12, 2022 and February 3, 2023 indicated that of eight alternatives proposed, the Sunny Point area ranked as the top choice when compared to other build alternatives.
Score/Result				
			-20	

2	Alternative demonstrates strong performance against criteria
1	Alternative demonstrates moderate performance against criteria
0	Alternative demonstrates neutral performance against criteria
-1	Alternative demonstrates slightly weak performance against criteria
-2	Alternative demonstrates weak performance against criteria

Vanderbilt Alternative

	Criteria	Measure	Answer	Comment/Rationale/Justification
1. Purpose and Need				
	Improve transportation for non-motorized users	Planned pedestrian and bicycle lanes tie into the existing network and improve access and safety for non-motorized users	2	Improves transportation for non-motorized users by providing an alternate crossing with a separated multi-use path that ties into existing infrastructure.
	Reduce transportation-related energy consumption	Scale from 2 (significant improvement) to -2 (no discernible improvement) of the estimated change in travel times based on travel origins and destinations	1	Overall travel time between Douglas Island and Juneau mainland is likely to be reduced because some trips would experience shorter travel times when using this proposed bridge. Based on the traffic study, this alternative would reduce travel times for mainly recreational uses, and would lead to reduced transportation-related energy consumption.
	Decrease existing and future traffic congestion on Douglas Island Bridge and its intersections	Scale from 2 (significant improvement) to -2 (no discernible improvement) of estimated LOS during AM and PM peaks at the existing bridge and alternative	0	The alternative would decrease traffic pressure on the existing Douglas Island Bridge and its intersections by dividing the traffic between the existing bridge and the alternate crossing. Some traffic would switch to the proposed bridge (20-30 percent), which would reduce demand for the Douglas Island Bridge and associated intersections. This alternative scores lower than others because a smaller percentage of travelers would select this bridge as an alternate route.
	Improve emergency response times	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction between the hospital/fire department and Douglas Island residents	2	When emergencies require response from an out-of-district station or multiple stations simultaneously, the alternative would allow a more timely response to Douglas Island from the Lynn Canal, Auke Bay stations, and in some cases the Glacier Station, by shortening the distance to a crossing.
	Improve access to critical healthcare and emergency services	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction	2	Provides alternate access to critical healthcare and emergency services during the closure of the existing bridge or another single route closure including road closures on Egan and Glacier Highway caused by accidents, fallen trees or power lines, landslides, or avalanches.
	Improve travel times (per user) to workplaces and critical resources	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction	2	When considering the number of users with improved travel times in combination with the minutes of travel time decreased, the alternative provides an average of 55-65 seconds of travel time saved per user, the highest travel time savings.
2. Additional Goals				
	Improve connection to North and West Douglas Island by creating additional traffic capacity to support the future development of affordable housing and economic development opportunities.	Scale from 2 (significant improvement) to -2 (no discernible improvement) of the connection to North and West Douglas Island	2	This alternative has the potential to significantly improve the connection to North and West Douglas Island by creating additional traffic capacity.
	Enhance and protect the public health and safety of travelers and the communities that transportation facilities traverse and serve.	Scale from 2 (significant improvement) to -2 (no discernible improvement) to enhance and protect the public health and safety	2	This alternative has the potential to enhance public health and safety by reducing traffic in locations where delay is currently experienced, adding a separated multi-use pathway and tying into existing active transportation infrastructure. It would provide resiliency in the transportation network by creating an additional crossing.
	Avoid, minimize, and mitigate impacts to the environment.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	-2	This alternative is not likely to avoid, but has potential to minimize or mitigate impacts to the environment depending on design, location, or other measures. It has a potential to impact other Section 4(f) properties, important migratory bird areas, wildlife habitats, and waterbodies. Refer to other considerations screening below. This alternative scored -19 cumulatively when considering environmental factors below alone.
	Avoid, minimize, and mitigate impacts to residential areas.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	-2	This alternative has 10 direct impacts and potentially eight indirect impacts. It would not avoid impacts but has potential to minimize or mitigate impacts to residential areas depending on design and location. Refer to the housing section of "other considerations" screening below.
	Maintain the visual, cultural, and scenic identity of Juneau and Douglas Island.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	-1	Based on the location within a protected viewshed (Guidelines and Considerations for Subarea 8, page 191f, CBJ Comprehensive Plan 2013) and the size of the structure needed, this alternative will likely impact the visual, cultural, and scenic identity of Juneau and Douglas Island. However, a crossing at this location has better potential to minimize or mitigate potential visual impacts through vegetative buffers.
OTHER CONSIDERATIONS				
1. Environmental				
Natural	Wetlands directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	-2	This alternative impacts 28.7 acres of wetlands, which is the second most impactful alternative. This alternative scores the lowest because of impacting wetlands in the MWSGR.
	High value wetlands directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	-2	This alternative impacts 6.5 acres of high value wetlands, which is the third lowest acreage of high value wetlands impacted when compared to other alternatives. This alternative impacts habitat in the MWSGR and therefore scores the lowest.
	Intertidal zone directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres intertidal zone impacted)	-2	This alternative impacts approximately 31.9 acres of intertidal zone, the second highest acreage of impact of all the alternatives and nearly twice the acreage of the next closest alternative. This alternative impacts intertidal areas in the MWSGR and therefore scores the lowest.
	Stream and riparian habitats (including buffer) directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of linear feet of stream and riparian habitats including buffer impacted)	-2	This alternative impacts 2,621 linear feet of stream and riparian habitat buffer, over two times the linear feet of the next most impactful alternative. This alternative impacts stream and riparian habitat in the MWSGR and therefore scores the lowest.
	Wildlife habitat directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres of wildlife habitat impacted)	-2	This alternative impacts 37.5 acres of wildlife habitat, which is the second most impactful alternative. This alternative impacts habitat in the MWSGR and therefore scores the lowest.
	Anadromous streams impacted	Scale from 0 (no or minimal impacts) to -2 (high number of anadromous streams impacted)	-1	This alternative impacts three anadromous streams, the third highest alternative evaluated.
	Threatened and endangered (T&E) habitat directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	No T&E habitat is impacted by this alternative.
	Important migratory bird habitat impacted in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres important migratory bird habitat impacted)	-2	This alternative impacts 8.4 acres of important migratory bird habitat, the third least impactful alternative. This alternative impacts habitat in the MWSGR and therefore scores the lowest.
	Eagle nesting trees directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of trees impacted)	0	This alternative does not impact known eagle nesting trees.
	Contaminated sites directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of contaminated sites impacted)	0	This alternative does not directly impact known contaminated sites.
	Section 4(f)/6(f) resources affected	Scale from 0 (no or minimal impacts) to -2 (high number of Section 4(f)/6(f) resources impacted)	-2	This alternative has the potential to directly impact two potential Section 4(f)/6(f) resources, 5-mile beach access and MWSGR.
	Protected lands directly affected	Scale from 0 (no minimal impacts) to -2 (high number of acres of protected lands impacted)	-2	This alternative impacts 8.4 acres of protected land including the MWSGR. This alternative impacts the second least amount of protected lands. Because this alternative impacts the MWSGR, it scores the lowest.
	Impervious surfaces added in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of impervious surfaces added)	-2	This alternative adds approximately 42 acres of impervious surfaces, which is the third most impactful alternative. This alternative impacts the MWSGR and therefore scores the lowest.
Social	EJ community, school, or community gathering space directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of properties impacted)	0	This alternative does not appear to directly impact an EJ community, school, or community gathering space.
	Neighborhood divided or otherwise disrupted	Scale from 0 (no or minimal impacts) to -2 (high number of neighborhoods impacted)	-1	This alternative impacts one neighborhood on Douglas Island, the second least number of neighborhoods impacted. In addition, ten residential parcels would be impacted (see below).
	Distance to Native Allotment	Scale from 0 (not within 50 feet) to -2 (within 50 feet) of a Native Allotment	0	This alternative passes within 2.7 miles of a conveyed Native allotment, which is tied for the furthest of the alternatives evaluated. However, impacts to Native allotments are very unlikely.
Housing	Residential uses directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of residential uses impacted)	-2	This alternative directly affects 10 residential uses, which is the most impactful alternative and double the second most impactful alternative.
	Within 100 feet of residential property	Scale from 0 (not within 100 feet) to -2 (within 100 feet) of a residential property	-1	This alternative is within 100 feet of eight residential properties, which is the third least impactful alternative.
	Acres of vacant residential land directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of developable land acquired)	-1	This alternative impacts 1.9 acres of vacant residential land, which is the third most impactful alternative, but still nearly one-third of the acreage of the most impactful alternative.
Economic	Commercial uses directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of commercial uses impacted)	0	This alternative does not directly impact commercial uses.
	Within 100 feet of commercial uses	Scale from 0 (not within 100 feet) to -2 (within 100 feet) of a commercial property	0	This alternative does not cross within 100 feet of a commercial use, which is the least impactful alternative.
	Acres of vacant commercial land directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of developable land acquired)	0	No acres of commercial land are directly impacted by this alternative.
Safety	Improves safety for all users	Scale from 2 (reduces conflict/friction on network) to -2 (higher risk of conflict/friction on network)	1	The Vanderbilt alternative passes 13 individual conflict points (driveways or intersections/lanes), which suggests a lower likelihood of a negative interaction between a roadway user traveling in one direction and another roadway user traveling in another direction. This alternative has the lowest number of conflict points for traffic traveling to and from Douglas Island but it creates a new major intersection on Egan Drive that will require an interchange and merge/diverge activity where there is none today. For this reason the score was changed to 1.
Cost	Estimated total construction cost	Scale from 0 (low construction cost) to -2 (high construction cost)	0	Planning level construction cost is estimated at $340M
	Estimated annual maintenance cost	Scale from 0 (low maintenance cost) to -2 (high maintenance cost)	0	The planning level cost estimate for annual maintenance cost is $90,000
ROW	Total ROW needed	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted) and scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	-2	A total of 32.1 acres, or 17 parcels (full and partial) are needed for this alternative, making it the third least impactful according to acreage.
	Residential property acquisition	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted)	-2	A total of 5.6 acres, or nine parcels (full and partial) are needed for this alternative, making it the third most impactful alternative.
	Commercial property acquisition	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted)	0	No commercial property acquisition is needed for this alternative.
Public Support	Level of public support	Scale from 2 (high level of support) to 0 (low level of support)	1	Respondents of a survey conducted between December 12, 2022 and February 3, 2023 indicated that of eight alternatives proposed, Vanderbilt ranked as the third top choice, coming in second for votes amongst other build alternatives.
Score/Result				
			-18	

2	Alternative demonstrates strong performance against criteria
1	Alternative demonstrates moderate performance against criteria
0	Alternative demonstrates neutral performance against criteria
-1	Alternative demonstrates slightly weak performance against criteria
-2	Alternative demonstrates weak performance against criteria

Twin Lakes Alternative

	Criteria	Measure	Answer	Comment/Rationale/Justification
1. Purpose and Need				
	Improve transportation for non-motorized users	Planned pedestrian and bicycle lanes tie into the existing network and improve access and safety for non-motorized users	2	Improves transportation for non-motorized users by providing an alternate crossing with a separated multi-use path that ties into existing infrastructure.
	Reduce transportation-related energy consumption	Scale from 2 (significant improvement) to -2 (no discernible improvement) of the estimated change in travel times based on travel origins and destinations	1	Overall travel time between Douglas Island and Juneau mainland is likely to be reduced because some trips would experience shorter travel times when using this proposed bridge. Based on the traffic study, this alternative would reduce travel times for mainly recreational uses, and would lead to reduced transportation-related energy consumption.
	Decrease existing and future traffic congestion on Douglas Island Bridge and its intersections	Scale from 2 (significant improvement) to -2 (no discernible improvement) of estimated LOS during AM and PM peaks at the existing bridge and alternative	2	The alternative would decrease traffic pressure on the existing Douglas Island Bridge and its intersections by dividing the traffic between the existing bridge and the alternate crossing. Some traffic would switch to the proposed bridge, which would reduce demand for the Douglas Island Bridge and associated intersections. This alternative scores higher because of a higher percentage of traffic (30-40 percent) would choose this location, when compared to Vanderbilt, Sunny Point East, Sunny Point West, and Mendenhall Peninsula.
	Improve emergency response times	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction between the hospital/fire department and Douglas Island residents	2	When emergencies require response from an out-of-district station or multiple stations simultaneously, the alternative would allow a more timely response to Douglas Island from the Lynn Canal, Auke Bay stations, and in some cases the Glacier Station, by shortening the distance to a crossing.
	Improve access to critical healthcare and emergency services	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction	2	Provides alternate access to critical healthcare and emergency services during the closure of the existing bridge or another single route closure including road closures on Egan and Glacier Highway caused by accidents, fallen trees or power lines, landslides, or avalanches.
	Improve travel times (per user) to workplaces and critical resources	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction	2	When considering the number of users with improved travel times in combination with the minutes of travel time decreased, the alternative provides an average of 60-65 seconds of travel time saved per user, the highest travel time savings.
2. Additional Goals				
Additional Goals	Improve connection to North and West Douglas Island by creating additional traffic capacity to support the future development of affordable housing and economic development opportunities.	Scale from 2 (significant improvement) to -2 (no discernible improvement) of the connection to North and West Douglas Island	2	This alternative has the potential to significantly improve the connection to North and West Douglas Island by creating additional traffic capacity.
	Enhance and protect the public health and safety of travelers and the communities that transportation facilities traverse and serve.	Scale from 2 (significant improvement) to -2 (no discernible improvement) to enhance and protect the public health and safety	2	This alternative has the potential to enhance public health and safety by reducing traffic in locations where delay is currently experienced, adding a separated multi-use pathway and tying into existing active transportation infrastructure. It would provide resiliency in the transportation network by creating an additional crossing.
	Avoid, minimize, and mitigate impacts to the environment.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	-2	This alternative is not likely to avoid, but has potential to minimize or mitigate impacts to the environment depending on design, location, or other measures. It has a potential to impact other Section 4(f) properties, important migratory bird areas, wildlife habitats, and waterbodies. Refer to other considerations screening below. This alternative scored -16 cumulatively when considering natural environment factors below alone. This is the third best score amongst the alternatives, although environmental impacts are considerable when compared to the no build.
	Avoid, minimize, and mitigate impacts to residential areas.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	0	This alternative has one direct impacts and potentially four indirect impacts. It would not avoid impacts but has potential to minimize or mitigate impacts to residential areas depending on design and location. Refer to the housing section of "other considerations" screening below.
	Maintain the visual, cultural, and scenic identity of Juneau and Douglas Island.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	-1	Based on the location within a protected viewshed (Guidelines and Considerations for Subarea 8, page 191f, CBJ Comprehensive Plan 2013) and the size of the structure needed, this alternative will likely impact the visual, cultural and scenic identity of Juneau and Douglas Island. However, a crossing at this location has better potential to minimize or mitigate potential visual impacts through vegetative buffers.
OTHER CONSIDERATIONS				
1. Environmental				
Natural	Wetlands directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	-2	This alternative impacts 32.9 acres of wetlands, which is the most impactful alternative. In addition, this alternative scores low because it impacts wetlands within the MWSGR.
	High value wetlands directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	-2	This alternative impacts 30.5 acres of high value wetlands, which is the most acreage of high value wetlands impacted when compared to other alternatives. In addition, this alternative impacts habitat in the MWSGR and therefore scores the lowest.
	Intertidal zone directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres intertidal zone impacted)	-2	This alternative impacts approximately 38.2 acres of intertidal zone, the highest acreage of impact of all the alternatives. This alternative impacts habitat in the MWSGR and therefore scores the lowest.
	Stream and riparian habitats (including buffer) directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of linear feet of stream and riparian habitats including buffer impacted)	0	This alternative does not impact linear feet of stream and riparian habitats.
	Wildlife habitat directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres of wildlife habitat impacted)	-2	This alternative impacts 36 acres of wildlife habitat, which is the third most impactful alternative. This alternative impacts habitat in the MWSGR and therefore scores the lowest.
	Anadromous streams impacted	Scale from 0 (no or minimal impacts) to -2 (high number of anadromous streams impacted)	0	This alternative does not impact anadromous streams.
	Threatened and endangered (T&E) habitat directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	No T&E habitat is impacted by this alternative.
	Important migratory bird habitat impacted in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres important migratory bird habitat impacted)	-2	This alternative impacts 18.6 acres of migratory bird habitat and is the most impactful alternative. In addition, this alternative impacts habitat in the MWSGR and therefore scores the lowest.
	Eagle nesting trees directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of trees impacted)	-1	This alternative directly impacts one known eagle nesting tree including a 660-ft buffer, making it the tied for second least impactful alternative.
	Contaminated sites directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of contaminated sites impacted)	0	This alternative does not directly impact known contaminated sites.
	Section 4(f)/6(f) resources affected	Scale from 0 (no or minimal impacts) to -2 (high number of Section 4(f)/6(f) resources impacted)	-1	This alternative has the potential to directly impact one potential Section 4(f)/6(f) resource, MWSGR.
	Protected lands directly affected	Scale from 0 (no minimal impacts) to -2 (high number of acres of protected lands impacted)	-2	This alternative impacts 18.6 acres of protected land, including the MWSGR. This alternative has the highest acreage of protected lands directly affected.
	Impervious surfaces added in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of impervious surfaces added)	-2	This alternative adds approximately 42.2 acres of impervious surfaces, which is the second most impactful alternative. In addition, this alternative impacts the MWSGR and therefore scores the lowest.
Social	EJ community, school, or community gathering space directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of properties impacted)	0	This alternative does not appear to directly impact an EJ community, school, or community gathering space.
	Neighborhood divided or otherwise disrupted	Scale from 0 (no or minimal impacts) to -2 (high number of neighborhoods impacted)	-2	This alternative impacts two neighborhoods, one on Douglas Island and one on the Juneau side of the crossing, and is tied with Sunny Point East for the second highest number of neighborhoods impacted. This alternative has no residential parcels impacted (see below).
	Distance to Native Allotment	Scale from 0 (not within 50 feet) to -2 (within 50 feet) of a Native Allotment	0	This alternative passes within 2.7 miles of a conveyed Native Allotment, which is the furthest of the alternatives evaluated. However, impacts to Native Allotments are very unlikely.
Housing	Residential uses directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of residential uses impacted)	0	This alternative directly affects one residential use which is tied with Mendenhall Peninsula for the least impactful alternative.
	Within 100 feet of residential property	Scale from 0 (not within 100 feet) to -2 (within 100 feet) of a residential property	0	This alternative is within 100 feet of four residential properties, which is the second least impactful alternative.
	Acres of vacant residential land directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of developable land acquired)	0	This alternative does not impact vacant residential land. This is the only alternative that does not directly affect vacant residential land.
Economic	Commercial uses directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of commercial uses impacted)	-1	This alternative directly impacts one commercial use. This alternative is tied with Salmon Creek and Mendenhall Peninsula for the most commercial uses directly affected.
	Within 100 feet of commercial uses	Scale from 0 (not within 100 feet) to -2 (within 100 feet) of a commercial property	0	This alternative does not cross within 100 feet of a commercial use.
	Acres of vacant commercial land directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of developable land acquired)	-2	1.8 acres of commercial land are directly impacted, which is the most impactful alternative.
Safety	Improves safety for all users	Scale from 2 (reduces conflict/friction on network) to -2 (higher risk of conflict/friction on network)	1	The Twin Lakes alternative passes 15 individual conflict points (driveways or intersections/lanes), which suggest a lower likelihood of a negative interaction between a roadway user traveling in one direction and another roadway user traveling in another direction. This alternative has the second lowest number of conflict points.
Cost	Estimated total construction cost	Scale from 0 (low construction cost) to -2 (high construction cost)	0	Planning level construction cost is estimated at $360M
	Estimated annual maintenance cost	Scale from 0 (low maintenance cost) to -2 (high maintenance cost)	0	The planning level cost estimate for annual maintenance cost is $65,000
ROW	Total ROW needed	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted) and scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	-1	A total of 26.1 acres, or two parcels (full and partial) are needed for this alternative, making it the second least impactful alterative.
	Residential property acquisition	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted)	0	A total of 0.04 acres, of one parcel (full and partial) are needed for residential property acquisitions are needed for this alternative, which is the least impactful.
	Commercial property acquisition	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted)	-1	A total of 1.8 acres, or one parcel (full and partial) are needed for this alternative, making it the most impactful.
Public Support	Level of public support	Scale from 2 (high level of support) to 0 (low level of support)	0	Respondents of a survey conducted between December 12, 2022 and February 3, 2023 indicated that of eight alternatives proposed, the Twin Lakes alternative was the second least favored of the build alternatives.
Score/Result				
			-10	

2	Alternative demonstrates strong performance against criteria
1	Alternative demonstrates moderate performance against criteria
0	Alternative demonstrates neutral performance against criteria
-1	Alternative demonstrates slightly weak performance against criteria
-2	Alternative demonstrates weak performance against criteria

Salmon Creek Alternative

	Criteria	Measure	Answer	Comment/Rationale/Justification
1. Purpose and Need				
	Improve transportation for non-motorized users	Planned pedestrian and bicycle lanes tie into the existing network and improve access and safety for non-motorized users	2	Improves transportation for non-motorized users by providing an alternate crossing with a separated multi-use path that ties into existing infrastructure.
	Reduce transportation-related energy consumption	Scale from 2 (significant improvement) to -2 (no discernible improvement) of the estimated change in travel times based on travel origins and destinations	1	Overall travel time between Douglas Island and Juneau mainland is likely to be reduced because some trips would experience shorter travel times when using this proposed bridge. Based on the traffic study, this alternative would reduce travel times for mainly recreational uses, and would lead to reduced transportation-related energy consumption. This alternative scores lower than others evaluated because fewer trips are benefited by the crossing, based on the origin-destination study.
	Decrease existing and future traffic congestion on Douglas Island Bridge and its intersections	Scale from 2 (significant improvement) to -2 (no discernible improvement) of estimated LOS during AM and PM peaks at the existing bridge and alternative	2	The alternative would decrease traffic pressure on the existing Douglas Island Bridge and its intersections by dividing the traffic between the existing bridge and the alternate crossing. Some traffic would switch to the proposed bridge, which would reduce demand for the Douglas Island Bridge and associated intersections. This alternative scores higher because of a higher percentage of traffic (30-40 percent) would choose this location, when compared to Vanderbilt, Sunny Point East, Sunny Point West, and Mendenhall Peninsula.
	Improve emergency response times	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction between the hospital/fire department and Douglas Island residents	2	When emergencies require response from an out-of-district station or multiple stations simultaneously, the alternative would allow a more timely response to Douglas Island from the Lynn Canal, Auke Bay stations, and in some cases the Glacier Station, by shortening the distance to a crossing.
	Improve access to critical healthcare and emergency services	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction	2	Provides alternate access to critical healthcare and emergency services during the closure of the existing bridge or another single route closure including road closures on Egan and Glacier Highway caused by accidents, fallen trees or power lines, landslides, or avalanches.
	Improve travel times (per user) to workplaces and critical resources	Scale from 2 (significant improvement) to -2 (no discernible improvement) of minutes of estimated travel time reduction	2	When considering the number of users with improved travel times in combination with the minutes of travel time decreased, the alternative provides an average of 60-65 seconds of travel time saved per user, the highest travel time savings.
2. Additional Goals				
	Improve connection to North and West Douglas Island by creating additional traffic capacity to support the future development of affordable housing and economic development opportunities.	Scale from 2 (significant improvement) to -2 (no discernible improvement) of the connection to North and West Douglas Island	2	This alternative has the potential to significantly improve the connection to North and West Douglas Island by creating additional traffic capacity.
	Enhance and protect the public health and safety of travelers and the communities that transportation facilities traverse and serve.	Scale from 2 (significant improvement) to -2 (no discernible improvement) to enhance and protect the public health and safety	2	This alternative has the potential to enhance public health and safety by reducing traffic in locations where delay is currently experienced, adding a separated multi-use pathway and tying into existing active transportation infrastructure. It would provide resiliency in the transportation network by creating an additional crossing.
	Avoid, minimize, and mitigate impacts to the environment.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	0	This alternative is not likely to avoid, but has potential to minimize or mitigate impacts to the environment depending on design, location, or other measures. It will likely be located outside the Mendenhall Wetlands State Game Refuge. However, it has a potential to impact wetlands, wildlife habitats, and waterbodies. Refer to other natural environment considerations screening below. This alternative scored 3 cumulatively when considering natural environment factors below alone. This alternative scores better than others due to the location only partially impacting the MWSGR.
	Avoid, minimize, and mitigate impacts to residential areas.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	-1	This alternative has four direct impacts and potentially 28 indirect impacts. It would not avoid impacts but has potential to minimize or mitigate impacts to residential areas depending on design and location. Refer to the housing section of "other considerations" screening below.
	Maintain the visual, cultural, and scenic identity of Juneau and Douglas Island.	Scale from 0 (significant potential to avoid impacts) to -2 (not likely to avoid, minimize, or mitigate impacts)	0	Based on the location within a protected viewshed (Guidelines and Considerations for Subarea 8, page 191f, CBJ Comprehensive Plan 2013) and the size of the structure needed, this alternative will likely impact the visual, cultural and scenic identity of Juneau and Douglas Island. However, a crossing at this location would have fewer impacts due to its location in an industrial area.
OTHER CONSIDERATIONS				
1. Environmental				
Natural	Wetlands directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	This alternative impacts approximately 2.8 acres of wetlands, which is the lowest acreage of impact when including the bridge deck.
	High value wetlands directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	This alternative impacts approximately 2.8 acres of high value wetlands, which is the lowest acreage of impact when including the bridge deck.
	Intertidal zone directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres intertidal zone impacted)	0	This alternative impacts approximately 2.9 acres of intertidal zone, which is the least impactful alternative.
	Stream and riparian habitats (including buffer) directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of linear feet of stream and riparian habitats including buffer impacted)	0	This alternative does not impact linear feet of stream and riparian habitats.
	Wildlife habitat directly affected in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres of wildlife habitat impacted)	0	This alternative impacts 3.6 acres of wildlife habitat and is outside the MWSGR, which makes it the least impactful alternative.
	Anadromous streams impacted	Scale from 0 (no or minimal impacts) to -2 (high number of anadromous streams impacted)	0	This alternative does not impact anadromous streams.
	Threatened and endangered (T&E) habitat directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	0	No T&E habitat is impacted by this alternative.
	Important migratory bird habitat impacted in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of acres important migratory bird habitat impacted)	0	This alternative does not directly impact habitat within the MWSGR and therefore does not directly impact what is considered "important migratory bird habitat".
	Eagle nesting trees directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of trees impacted)	-1	This alternative directly impacts one known eagle nesting tree including a 660-ft buffer. This alternative is tied for second least impactful alternative.
	Contaminated sites directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of contaminated sites impacted)	0	This alternative does not directly impact known contaminated sites.
	Section 4(f)/6(f) resources affected	Scale from 0 (no or minimal impacts) to -2 (high number of Section 4(f)/6(f) resources impacted)	0	This alternative does not directly impact any potential 4(f)/6(f) properties.
	Protected lands directly affected	Scale from 0 (no minimal impacts) to -2 (high number of acres of protected lands impacted)	0	This alternative does not appear to directly impact protected lands.
	Impervious surfaces added in the MWSGR	Scale from 0 (no or minimal impacts) to -2 (high number of impervious surfaces added)	0	This alternative adds approximately 3.3 acres of impervious surfaces, which is the least impactful alternative. This alternative scores the highest because impacts would occur outside of the MWSGR.
Social	EJ community, school, or community gathering space directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of properties impacted)	0	This alternative does not appear to directly impact an EJ community, school, or community gathering space.
	Neighborhood divided or otherwise disrupted	Scale from 0 (no or minimal impacts) to -2 (high number of neighborhoods impacted)	-1	This alternative impacts one neighborhood on Douglas Island. In addition, seven residential parcels would be impacted.
	Distance to Native Allotment	Scale from 0 (not within 50 feet) to -2 (within 50 feet) of a Native Allotment	0	This alternative passes within 2.0 miles of a conveyed Native Allotment, which is the third closest of the alternatives evaluated. However, impacts to Native Allotments are very unlikely.
Housing	Residential uses directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of residential uses impacted)	-1	This alternative directly affects four residential uses, which is tied for the second most impactful alternative.
	Within 100 feet of residential property	Scale from 0 (not within 100 feet) to -2 (within 100 feet) of a residential property	-2	This alternative is within 100 feet of 28 residential properties, which is the second most impactful alternative.
	Acres of vacant residential land directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of developable land acquired)	0	This alternative impacts 0.4 acres of vacant residential land, which is the second least impactful alternative.
Economic	Commercial uses directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of commercial uses impacted)	-1	This alternative directly impacts one commercial use, which is tied as the most impactful alternative.
	Within 100 feet of commercial uses	Scale from 0 (not within 100 feet) to -2 (within 100 feet) of a commercial property	-2	This alternative crosses within 100-foot of 5 commercial uses, which is the most impactful alternative.
	Acres of vacant commercial land directly affected	Scale from 0 (no or minimal impacts) to -2 (high number of acres of developable land acquired)	-1	0.05 acres of commercial land are directly impacted, which is the second most impactful alternative.
Safety	Improves safety for all users	Scale from 2 (reduces conflict/friction on network) to -2 (higher risk of conflict/friction on network)	1	The Salmon Creek alternative passes 27 individual conflict points (driveways or intersections/lanes), which suggest a lower likelihood of a negative interaction between a roadway user traveling in one direction and another roadway user traveling in another direction. This alternative has the second highest number of conflict points of the build alternatives, but fewer than the no build alternative.
Cost	Estimated total construction cost	Scale from 0 (low construction cost) to -2 (high construction cost)	0	Planning Level Construction Cost is estimated at $390M
	Estimated annual maintenance cost	Scale from 0 (low maintenance cost) to -2 (high maintenance cost)	0	The Planning Level Cost Estimate for annual maintenance cost is $70,000
ROW	Total ROW needed	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted) and scale from 0 (no or minimal impacts) to -2 (high number of acres impacted)	-1	A total of 13.9 acres, or 14 parcels (full and partial) are needed for this alternative, making it the least impactful.
	Residential property acquisition	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted)	-1	A total of 1.1 acres, or six parcels (full and partial) are needed for this alternative, making it the second least impactful.
	Commercial property acquisition	Scale from 0 (no or minimal impacts) to -2 (high number of full and partial parcels impacted)	-1	A total of 1 acres, or five parcels (full and partial) are needed for this alternative, making it the second most impactful.
Public Support	Level of public support	Scale from 2 (high level of support) to 0 (low level of support)	0	Respondents of a survey conducted between December 12, 2022 and February 3, 2023 indicated that of eight alternatives proposed, the Salmon Creek alternative was the least favored of the build alternatives.
Score/Result				
			3	

2	Alternative demonstrates strong performance against criteria
1	Alternative demonstrates moderate performance against criteria
0	Alternative demonstrates neutral performance against criteria
-1	Alternative demonstrates slightly weak performance against criteria
-2	Alternative demonstrates weak performance against criteria

APPENDIX B – LEVEL 2 IMPACT QUANTITIES

Level 2 Impact Table

	Criteria	Measurement	No Build	Mendenhall Peninsula	Sunny Point West	Sunny Point East	Vanderbilt	Twin Lakes	Salmon Creek
Natural Environment	Wetlands directly affected	Acreage impacted by construction	0	17.9	21.5	9.6	28.7	32.9	2.8
	High value wetlands directly affected	Acreage impacted by construction	0	3.4	20.9	8.9	6.5	30.5	2.8
	Intertidal zone directly affected	Acreage impacted by construction	0	14.1	10.8	12	31.9	38.2	2.9
	Stream and riparian habitat directly affected	Linear feet of impacted streams	0	436	1167	1007	2621	0	0
	Wildlife habitat directly affected	Acreage impacted by construction	0	56.8	32.8	14.7	37.5	36	3.6
	Anadromous streams impacted	Number of streams	0	1	14	4	3	0	0
	T&E habitat directly affected	Acreage OR distance to habitat	0	0	0	0	0	0	0
	Important migratory bird habitat impacted	Acres of habitat impacted by construction	0	9.2	14	7.9	8.4	18.6	0
	Eagle nesting trees directly affected	Number of historic nesting locations within 660'	0	6	2	1	0	1	1
	Contaminated sites directly affected	Number of sites	0	0	0	0	0	0	0
	Section 4(f) / 6(f) resources affected	Number of resources	0	3	2	2	2	1	0
	Protected lands directly affected	Acreage impacted by construction	0	9.2	18.2	13.8	8.4	18.6	0
	Impervious surfaces added	Area of added impervious surfaces	0	64.2	38	15.2	42	42.2	3.3
Social	EJ community, school, or community gathering space directly affected	Number AND distance	0	0	0	0	0	0	0
	Neighborhood divided or otherwise disrupted	Number of neighborhoods	0	0	3	2	1	2	1
	Distance to a native allotment	Distance	0	1.3	1.7	1.8	2.7	2.7	2
Housing	Residential uses directly affected	Estimated number	0	1	4	5	10	1	4
	Within 100 ft of residential property	Estimated number	0	3	44	10	8	4	28
	Acres of vacant residential land directly affected	Acreage of developable land acquired	0	1.5	5.6	7.3	1.9	0	0.4
Economic	Commercial uses directly affected	Estimated number	0	1	0	0	0	1	1
	Within 100 ft of commercial uses	Estimated number	0	0	2	2	0	0	5
	Acres of vacant commercial land directly affected	Acreage of developable land acquired	0	0	0	0	0	1.8	0.05
Safety	Improves safety for all users	Number of conflict points between users	33	20	17	18	13	15	27
Cost	Estimated total construction cost	Estimated cost	$0	$1.1B to 1.7B	$490M	$530M	$340M	$360M	$390M
	Estimated annual maintenance cost	Estimated cost	$0	$365K	$150K	$175K	$90K	$65K	$70K
Right of Way (ROW)	Total ROW needed	Acres and number of parcels (full and partial)	0	110.4 (8)	41.7 (9)	37.4 (9)	32.1 (17)	26.1 (2)	13.9 (14)
	Residential property acquisition	Acres and number of parcels	0	1.9 (1)	9.2 (6)	10.9 (7)	5.6 (9)	0.04 (1)	1.1 (6)
	Commercial property acquisition	Acres and number of parcels	0	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	1.8 (1)	1.0 (5)
Public Support	Level of public support	Survey Response for Preference of Build Options Only*	N/A	321	494		361	133	73
	Level of public support	Survey Respondents - Build vs. No-build**	352	801					

*At the time of the survey, there was only 1 alternative for Sunny Point, so the 494 was applied to both Sunny Point Alternatives.

**This row is not scored and is shown for clarifying purposes only.