Planning and Environmental Linkages (PEL) Study

Egan Drive and Yandukin Drive Intersection Improvements

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Public Review Draft

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 November 3, 2017 and executed by FHWA and DOT&PF.

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Acknowledgments

James Brown / *DOT&PF / Project Manager and Design Group Chief*
David Epstein / *DOT&PF / Regional Traffic and Safety Engineer*
Benjamin Storey / *DOT&PF / Regional Environmental Manager*
Christy Gentemann / *DOT&PF / Environmental Analyst*
Joseph Galgano / *DOT&PF / Environmental Analyst*
Ryan Bare / *DOT&PF / Environmental Analyst*
Scott Gray / *DOT&PF / Maintenance and Operations Superintendent*
Verne Skagerberg / *DOT&PF / Southcoast Region Planning Chief (ret.)*
Marie Heidemann / *DOT&PF / Southcoast Region Planning Chief*
Joanne Schmidt / *DOT&PF / Planner*
Jonathan Weaver / *DOT&PF / Engineer*
Nathan Purves / *DOT&PF / Engineer*
Richelle Martens / *DOT&PF / Engineering Assistant*
Gregory Weinert / *DOT&PF / Chief ROW Agent*
Hans Pedersen / *DOT&PF / Land Survey Manager*
Angelo Saggiomo / *DOT&PF / Publications Specialist*
Sam Dapcevich / *DOT&PF / Public Information Officer*
Mike Lesmann / *DOT&PF / Legislative Liaison*
Douglas Kolwaite / *DOT&PF / Statewide Environmental Manager*
Jill Taylor / DOT&PF / Statewide NEPA Assignment *Program Manager*
Emily Haynes / *DOT&PF / NEPA Program Manager*
Taylor Horne / *HDR / Project Manager*
Mark Dalton / *HDR / Contract Manager*
Gina McAfee / *HDR / Senior Environmental Planner*
Laurie Cummings / *HDR / Senior Transportation Planner*
Linda Smith / *HDR / Senior Environmental Planner*
Summer Hudson / *HDR / Graphic Designer*
Aurah Landau / *HDR / Senior Strategic Communications Coordinator*
Josie Wilson / *HDR / Strategic Communications Director*
Alice Rademacher / *HDR / Strategic Communications Coordinator*
Scott Norton / *HDR / Senior GIS Specialist*
Nikki Wray / *HDR / Project Coordinator*
Chase Quinn / *HDR / Project Coordinator*
Elizabeth Grover / *HDR / Technical Editor*
Jeanne Bowie / *Kinney Engineering / Senior Traffic Engineer*
James Smith / *Kinney Engineering / Transportation Engineer*
Aiza Miguel / *Kinney Engineering / Junior Transportation Engineer*
Jessi Miranda / *Kinney Engineering / Civil Engineer*
Michael Horntvedt / *Parametrix / Senior Strategic Advisor*

The DOT&PF would like to thank the members of the Community Focus Group and Agency Workgroup for their generous participation and engagement.

Community Focus Group

Sgt. Nick Zito / *Alaska State Troopers*
Trp. Christopher Umbs / *Alaska State Troopers*
Roscoe Bicknell IV / *Bicknell, Inc.*
Richard Peterson / *Central Council of the Tlingit and Haida Indian Tribes of Alaska*
William Ware / *Central Council of the Tlingit and Haida Indian Tribes of Alaska*
Royal Hill / *Central Council of the Tlingit and Haida Indian Tribes of Alaska*
John Hawkins / *Central Council of the Tlingit and Haida Indian Tribes of Alaska*
Michelle Hale / *City and Borough of Juneau / Assembly Member*
Richard Etheridge / *City and Borough of Juneau, Capital City Fire/Rescue*
Ed Foster / *City and Borough of Juneau, Capital Transit*

Hal Kulm / *City and Borough of Juneau, Capital Transit*
Denise Guizio / *City and Borough of Juneau, Capital Transit*
Alex Pierce / *City and Borough of Juneau, Community Development Department*
Irene Gallion / *City and Borough of Juneau, Community Development Department*
Patty Wahto / *City and Borough of Juneau, Juneau International Airport*
David Campbell / *City and Borough of Juneau, Juneau Police Department*
Lt. Scott Erickson / *City and Borough of Juneau, Juneau Police Department*
Mike Stoll / *Fred Meyer*
Charlie Williams / *Greater Juneau Chamber of Commerce*
Mike Satre / *Greater Juneau Chamber of Commerce*
Mike Rose / *Juneau Christian Center*
Rob Welton / *Juneau Freewheelers*

Agency Workgroup

Barbara Trost / *Alaska Department of Environmental Conservation, Division of Air Quality*
Bill O'Connell / *Alaska Department of Environmental Conservation, Contaminated Sites Program*
Adeyemi Alimi / *Alaska Department of Environmental Conservation, Division of Air Quality*
Terri Lomax / *Alaska Department of Environmental Conservation, Division of Water*
Jesse Lindgren / *Alaska Department of Fish and Game, Division of Habitat*
Kate Kanouse / *Alaska Department of Fish and Game, Division of Habitat*
Judith Bittner / *Alaska Department of Natural Resources, Office of History and Archaeology*
Sarah Meitl / *Alaska Department of Natural Resources, Office of History and Archaeology*
Lee Cole / *Alaska Department of Natural Resources, Division of Mining, Land and Water*
Chris Carpeneti / *Alaska Department of Natural Resources, Division of Mining, Land & Water*
Irene Gallion / *City and Borough of Juneau, Community Development Department*
Alex Pierce / *City and Borough of Juneau, Community Development Department*
Benjamin Soiseth / *U.S. Army Corps of Engineers*
Delana Wilks / *U.S. Army Corps of Engineers*
Matthew Brody / *U.S. Army Corps of Engineers*
Randy Vigil / *U.S. Army Corps of Engineers*
James King / *U.S. Forest Service*
Don MacDougall / *U.S. Forest Service*

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Acronyms

ADA	Americans with Disabilities Act
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
AHRS	Alaska Heritage Resources Survey
APE	Area of Potential Effects
BMP	Best Management Practice(s)
CBJ	City and Borough of Juneau
CE	Categorical Exclusion
CEQ	Council on Environmental Quality
CFG	Community Focus Group
CFR	Code of Federal Regulations
CGP	Construction General Permit
COA	Class of Action
DOT&PF	Alaska Department of Transportation and Public Facilities
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
E-Y	Egan Drive and Yandukin Drive
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
HSIP	Highway Safety Improvement Program
ITS	Intelligent Transportation Systems
LMP	Limited Maintenance Plan
LOS	Level of Service
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
PEL	Planning and Environmental Linkages
PI	Public Involvement
PIP	Public Involvement Plan

PM_{10}	Particulate Matter with a Diameter of 10 micrometers
Refuge	Mendenhall Wetlands State Game Refuge
ROW	Right-of-way
SEAL Trust	Southeast Alaska Land Trust
SEO	Statewide Environmental Office
SHPO	State Historic Preservation Office
SR	Southcoast Region
STIP	Statewide Transportation Improvement Program
TDM	Travel Demand Management
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
VPD	Vehicles per Day
WEDCOR	*West Egan Drive Corridor Study*

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Executive Summary

The Alaska Department of Transportation and Public Facilities (DOT&PF) is planning improvements to the Egan Drive and Yandukin Drive (E-Y) intersection in Juneau, Alaska, in response to concerns about safety and the need for an alternate driving route in the event of a crash on Egan Drive. DOT&PF is using a Planning and Environmental Linkages (PEL) study to define issues associated with the E-Y intersection to develop potential solutions for enhancing the safety, connectivity, and reliability of the corridor as a whole. The study area is approximately 1.5 miles long and 0.25 mile wide. The western terminus is approximately 0.25 mile west of the Glacier-Nugget intersection, while the eastern terminus is approximately 0.6 mile east of the E-Y intersection.

PEL Study Process

The E-Y intersection PEL study started in June 2019. The project team, composed of DOT&PF staff and a consultant team, generally met every week over the course of the project.

As required by planning regulations (23 Code of Federal Regulations [CFR] 450.210 and 450.316), public and agency involvement is an important part of PEL studies. During the PEL study, local government, state, and federal agency representatives were engaged through four Agency Workgroup meetings. Key stakeholders, including business owners, tribal representatives, and elected officials, were engaged through four Community Focus Group (CFG) meetings. The general public was involved through two Public Open House meetings, a project website, and other outreach activities.

The process consisted of several steps, including alternatives development, pre-screening (or fatal flaw screening), and Level 1 and Level 2 alternatives screening. The steps in this process can generally be described as follows:

1. The draft purpose and need statement was generated using data and input from stakeholders, agencies, and the public. The needs and goals described in the purpose and need statement were used as a basis for designing the alternatives and generating screening measures. The purpose and need statement was finalized after modifications were made in response to public and agency feedback.
2. An initial list of engineering treatments was generated by the project team, focused on addressing the project needs of improving safety and mobility for drivers and non-motorized uses at the E-Y intersection and providing an alternate driving route.
3. The list of treatments was used to generate 15 alternatives that were forwarded into the Level 1 Screening process. Treatments that were not reasonable or feasible, or did not adequately address a project need, were not used in the range of alternatives (see Section 3.4).
4. Concurrently, the project team identified an immediate need to improve safety as quickly as possible at the E-Y intersection. Because implementing any recommended alternative from this PEL study could take several years, the project team looked for other ways to quickly implement a safety improvement at the intersection. The Highway Safety Improvement Program (HSIP) was identified as one way to potentially fund and

implement these improvements on an expedited timeframe. The project team developed a set of low-cost, effective treatments to improve safety that was funded, and will be designed and constructed as a separate HSIP project (see Section 3.3). These improvements would be permanent.

5. Level 1 screening measures were developed to qualitatively evaluate each alternative, focusing on how well the design met the project needs, goals, and other social and environmental considerations. The screening measures were established in cooperation with stakeholders and using public input gathered during the first Public Open House on November 19, 2019. The Level 1 Screening process is discussed in Section 3.6.
6. From the 15 alternatives evaluated using the Level 1 Screening measures, the top five scoring alternatives were brought forward into the Level 2 Screening process.
7. Level 2 Screening measures were developed, using a more quantitative approach that used traffic modeling software and traffic engineering best practices to evaluate how well each of the five alternatives performed against each other. Screening measures were again based on project needs, goals, and other social and environmental considerations, as informed by stakeholders and public input. The Level 2 Screening process is discussed in Section 3.7.
8. Applying the Level 2 Screening measures to the five alternatives during the Level 2 Screening process resulted in the top scoring alternative being identified as the Recommended Alternative: the Partial Access Signalized Intersection with a protected pedestrian crossing and Glacier Lemon Spur Extension. The Recommended Alternative is discussed in Section 3.8.

At five points during the PEL study development, concurrence on certain work products and decisions was obtained from the DOT&PF Statewide Environmental Office (SEO; see Appendix B for concurrence communications). The DOT&PF SEO administers the National Environmental Policy Act (NEPA) Assignment Program and is crucial in the development of PEL studies as DOT&PF has assumed the duties of FHWA with regards to adopting components of a PEL study into the NEPA process.

Purpose and Need

The purpose and need statement was developed during this PEL study in a way that allows it to be used in the subsequent NEPA processes for any project that results from this study. Throughout the initial phase of this PEL study, members of the Agency Workgroup, CFG, and public participated in identifying needs at the intersection and were provided the opportunity to comment on the draft purpose and need statement. Data reviewed to develop the purpose and need statement included crash data, the current transportation grid, existing pedestrian and bicycle facilities, existing and forecasted traffic volumes, and community plans. See Chapter 2 Purpose and Need for more details on the purpose and need development process.

The accepted purpose and need statement for this PEL study is as follows:

The purpose of the Egan Drive and Yandukin Drive (E-Y) Intersection Planning and Environmental Linkages (PEL) Study is to identify ways to improve transportation safety for all users. The secondary purposes are to identify ways to improve mobility and route diversity in the transportation grid, improve access and mobility for pedestrians and bicyclists, and maintain traffic capacity and flow through the E-Y intersection and the surrounding area.

Transportation improvements will address the following needs:

- **Safety:** The traveling public has expressed concerns regarding intersection safety. Crash frequency at this intersection is similar to the statewide average for similar intersections. Data show that out of a total of 86 crashes between 2005 and 2017, 7 involved major injuries. While there have been no fatalities at the intersection, nearly 48 percent of all crashes involved some sort of injury.
- **Alternate route in the event of crashes:** Motorists traveling between the Mendenhall Valley and downtown are limited to using a single roadway, Egan Drive, for travel. Juneau businesses rely on the intersection as a vital component of the connection between downtown, Juneau International Airport, Mendenhall Valley, and points further out the road. When an accident occurs on Egan Drive, the lack of an alternate route directly affects travel time reliability, particularly during peak travel times. The lack of an alternate route results in area-wide congestion and traffic delays when collisions occur and increases overall perception of the crash rate and severity at the intersection.
- **Non-motorized access:** The nearest controlled crossing of Egan Drive for pedestrians and bicyclists is 0.75 mile north from the E-Y intersection. Bicyclists and pedestrians unwilling to follow the lengthy, circuitous path often cross Egan Drive at Yandukin Drive, which is illegal and unsafe.

Potential improvements to the E-Y intersection should meet these additional community goals:

- Provide improvements that are consistent with approved land use plans and ordinances
- Consider designs that maintain or improve access to and visibility of businesses
- Transportation improvements should support opportunities for economic development and support planned future land uses
- Seek to minimize increases in vehicle delay, especially during the peak morning and evening commuting periods, to maintain the high mobility function of the corridor

Range of Alternatives

The alternatives development process began with two project team workshops (held April 8 and 15, 2020) held to outline specific traffic management and geometric improvements that would address the project purpose and need, and to discuss combinations of treatments to create alternatives. During these workshops, the project team developed a list of treatments that were then combined to create build alternatives. This information was presented to the Agency Workgroup meeting on June 30, 2020, and the CFG meeting on July 1, 2020. Afterwards, refinements were made in the alternatives, including adding compatible elements to some

alternatives so they would better meet the purpose and need. The refined alternatives were presented to the Agency Workgroup on August 20, 2020, and the CFG on August 21, 2020. Based on the workshop results and stakeholder input, the project team developed 15 stand-alone build alternatives for consideration (see Section 3.4 for a list of the alternatives considered; see Appendix F *Range of Alternatives White Paper* for a complete description of each alternative).

Alternatives Screening

The alternatives screening process was designed to initially consider a wide range of transportation options, then screen the alternatives to identify those that best address project needs. See Chapter 3 Alternatives Considered and Screening Process for more information on the alternatives development and screening process. The screening process consisted of two levels:

Level 1: Identified which alternatives met the project's purpose and need, and qualitatively assessed each alternative's impacts to environmental, social, and economic considerations in comparison to the No Build alternative. The five top-ranking build alternatives were advanced into the next level of refinement and screening.

Level 2: Used more detailed engineering and traffic modeling analyses along with quantitative calculations of approximate environmental consequences to compare the performance of the five build alternatives against each other and against the No Build alternative. The top performing alternative was identified as the Recommended Alternative.

Level 1 Screening

Level 1 screening measures were developed initially by the project team using comments gathered during the first Open House. Draft Level 1 Screening measures were presented to the Agency Workgroup on June 30, 2020, and CFG on July 1, 2020. Comments received from those groups were incorporated into the final Level 1 Screening measures, presented in Section 3.6.

The 15 build alternatives (plus the No Build alternative) from the *Range of Alternatives White Paper* (Appendix F) were screened and ranked using the Level 1 Screening measures. Five alternatives advanced to Level 2 Screening:

- Mobility Alternative (HSIP Interim Action)[1]
- Partial Access Signalized Intersection
- Full Access Signalized Intersection

[1] This was termed the HSIP Interim Action in the *Level 1 Screening Results White Paper* (Appendix G) and stakeholder outreach. Later in the PEL study process, this alternative was renamed as the "Mobility Alternative" to avoid confusion with the separate HSIP Interim Action project, which is included in the No Build alternative for this PEL study. The Mobility Alternative focused on adding compatible elements to the HSIP Interim Action project to meet the needs for an alternate driving route and non-motorized access improvements.

- Two Signalized T-intersections
- Diamond Interchange

These alternatives scored higher than the ten alternatives that were not advanced to the next level of screening.

Level 2 Screening

Level 2 screening was a more in-depth, quantitative ranking of alternatives in comparison to each other and to the No Build alternative. The screening measures used during this process were based on project purpose and need as well as environmental, social, and economic factors, as presented in Section 3.7 and further described in the *Level 2 Screening Results White Paper* (Appendix H).

Two variants of each alternative were analyzed during Level 2 Screening, each adding a compatible design element. One variant added the median crossover element to each build alternative,[2] and the other variant included a two-way frontage road to the Glacier-Nugget intersection (Glacier Lemon Spur Extension) element to each build alternative. By adding these variants, the analysis conducted during the Level 2 Screening process verified that each build alternative was paired with a viable method for reducing delay when a crash occurs by providing an alternate route. Two compatible elements that could be added to the build alternatives were also analyzed: a pedestrian bridge over Egan Drive and transit stop relocation. These elements were analyzed for their effect on pedestrian access, comfort, safety, and equity in the context of the Level 2 Screening measures.

While the project team was conducting the Level 2 Screening process, they learned that:

- Median crossover traffic control measures could not be implemented quickly enough to provide alternate driving route benefits during crashes on Egan Drive. Therefore, they were eliminated from consideration because they are not reasonable.
- The compatible element that is a frontage road (Glacier-Lemon Spur) extended to the Glacier-Nugget intersection was added to each alternative design as a way to meet the alternative route need.
- Constructing an elevated pedestrian overpass (also known as a pedestrian bridge) over Egan Drive meets the needs for safety and non-motorized accessibility, provides benefits for the pedestrian and bicycling community, and is compatible with guidelines in the Americans with Disabilities Act (ADA). Therefore, the pedestrian overpass was added to each alternative design for evaluation purposes. Each design also functions with at-grade pedestrian crossings, with reduced benefits to non-motorized users compared to the pedestrian overpass but improved benefits compared to the No Build alternative.

[2] The exception is the Two Signalized T-Intersections alternative, which would inherently allow additional routes when there is a crash without the median crossover treatment.

- Each design is compatible with keeping the existing transit stops; no bus stop changes are necessary. Coordination with Capital Transit should continue during future design development.
- Acquiring right-of-way (ROW) from the Juneau International Airport is challenging.
- The private property parcels in the southwest quadrant of the E-Y intersection were sold and some of the new owners are seeking permits for construction.

The Partial Access Signalized Intersection alternative scored the highest among the alternatives that met the project purpose and need, with acceptable impacts to ROW, wetlands, and vegetation. While the Full Access Signalized Intersection and Diamond Interchange alternatives also met purpose and need with acceptable impacts, the Partial Access Signalized Intersection had several advantages compared to the other two top-scoring alternatives. The Partial Access Signalized Intersection alternative has less wetland impacts than the Diamond Interchange alternative and fewer ROW, stormwater, and air quality impacts than the Full Access Signalized Intersection and Diamond Interchange alternatives. The Partial Access Signalized Intersection alternative is less complex, which means there would be less impacts to the traveling public during construction, and construction would be for a shorter period. The overall costs of the Partial Access Signalized Intersection alternative are less than the other two top-scoring alternatives. The overall costs for the benefit provided by the Partial Access Signalized Intersection alternative are more consistent with optimizing the system performance within statewide planning budgets.

Summary of Recommended Alternative

The Partial Access Signalized Intersection with a protected pedestrian crossing and Glacier Lemon Spur Extension is the Recommended Alternative based on the alternatives screening process used for this PEL process. This alternative scored the highest among the alternatives that met the project purpose and need while having acceptable impacts to ROW, wetlands, and vegetation. This alternative was also considered more cost effective as it meets the project needs at a reduced cost as compared to the interchange.

The Partial Access Signalized Intersection alternative is composed of three main components that each help meet a primary or secondary need for the project:

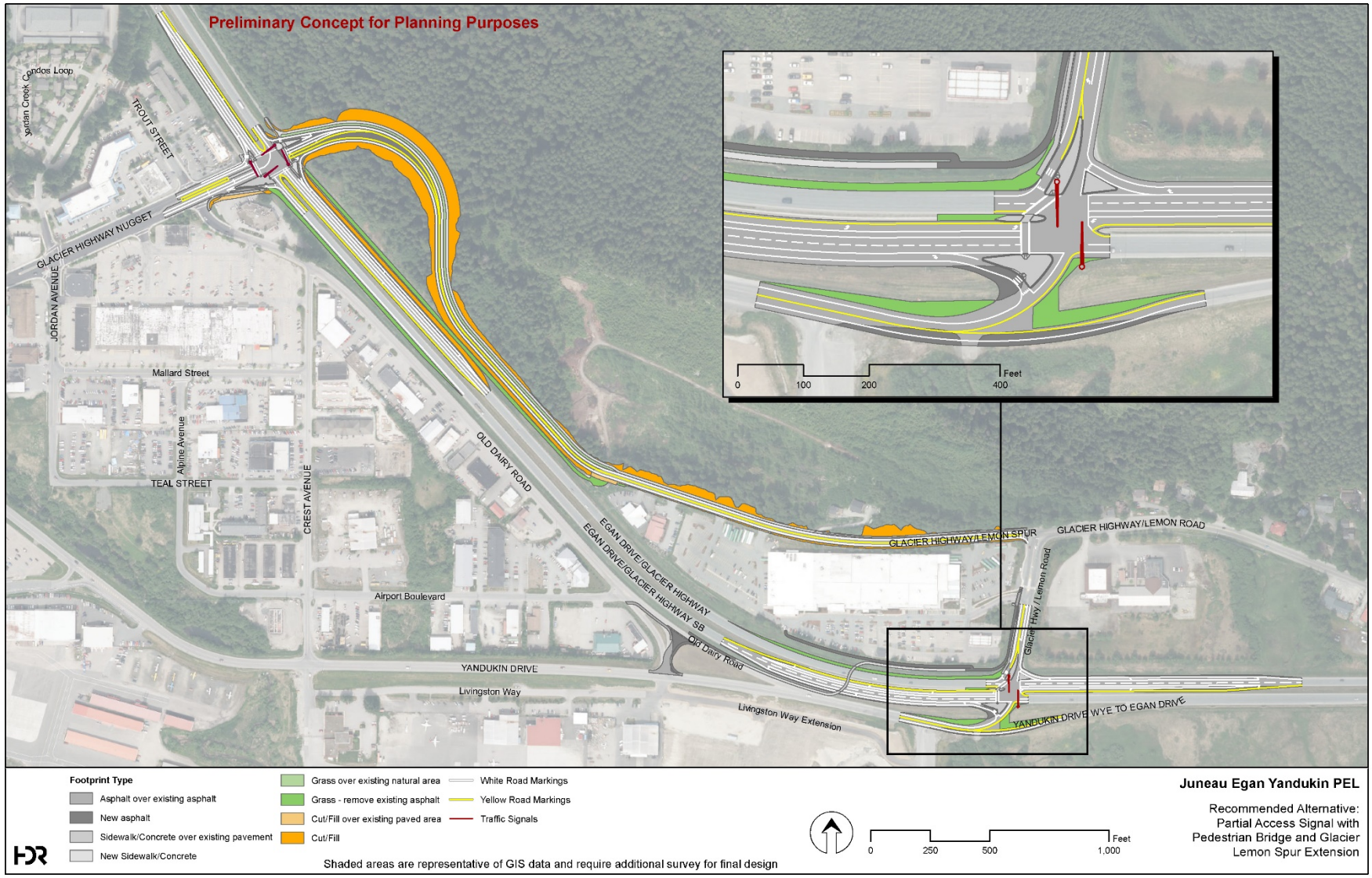
- Driving safety is improved through the signalization of existing left-turn movements at the E-Y intersection with other intersection improvements;
- Pedestrian safety is improved through construction of a protected pedestrian crossing, either an at-grade crossing or a pedestrian bridge across Egan Drive; and
- An alternate route in the event of crashes on Egan Drive is provided by extending Glacier-Lemon Spur Road to the Glacier-Nugget intersection.

The project team determined that impacts to the Juneau International Airport property and private properties near Honsinger Pond were critical factors in identifying the Recommended Alternative because acquiring the ROW needed for the Full Access Signalized Intersection and Diamond Interchange alternatives could drastically impact new development planned for that

area, which would have socioeconomic impacts that were not considered in the Level 2 Screening measures. Furthermore, acquiring land from the airport is complicated and time-consuming (see discussion of Federal Aviation Administration [FAA] approval in Section 4.3.10). The Partial Access Signalized Intersection alternative does not impact these properties, while the Full Access Signalized Intersection and Diamond Interchange alternatives do impact these properties.

Figure ES-1 depicts the Partial Access Signalized Intersection preliminary planning concept.

Figure ES-1. Recommended Alternative: Partial Access Signal with Pedestrian Bridge and Glacier Lemon Spur Extension



Environmental Overview

The project team conducted a high-level overview of the existing environmental setting, potential impacts, mitigation, and stakeholder concerns for the alternatives (and variants) that were analyzed as part of the alternatives screening process. The impacts discussed for each resource are based on conceptual-level design and available data; no fieldwork was conducted to assess existing conditions or gather resource data. As the design is advanced and refined during the subsequent NEPA and preliminary design processes, alternative-specific impacts may change. See Chapter 4 Environmental Overview and Appendix J *Environmental Overview Memorandum* for more information.

Public and Agency Involvement

Planning regulations (23 CFR 450.316 and 210) relevant to public and agency involvement were followed for this PEL study.

The project team created an advisory group, the CFG, comprising 22 members of the public who contributed meaningful and substantive feedback outside of the open houses. This CFG helped the project team's understanding of the community's needs and concerns during the PEL study. An Agency Workgroup was also created to engage 18 representatives of regulatory agencies and divisions, the local municipality, and service providers in discussions about the project and affected resources, as well as solicit feedback that could be used during the PEL study. Two public open houses were held to present information on the PEL study and gather public comments. Public comment periods lasted 30 days.

Key public and agency involvement activities that occurred during the PEL study are included in Table ES-1.

Table ES-1. Key Public and Agency Involvement Activities

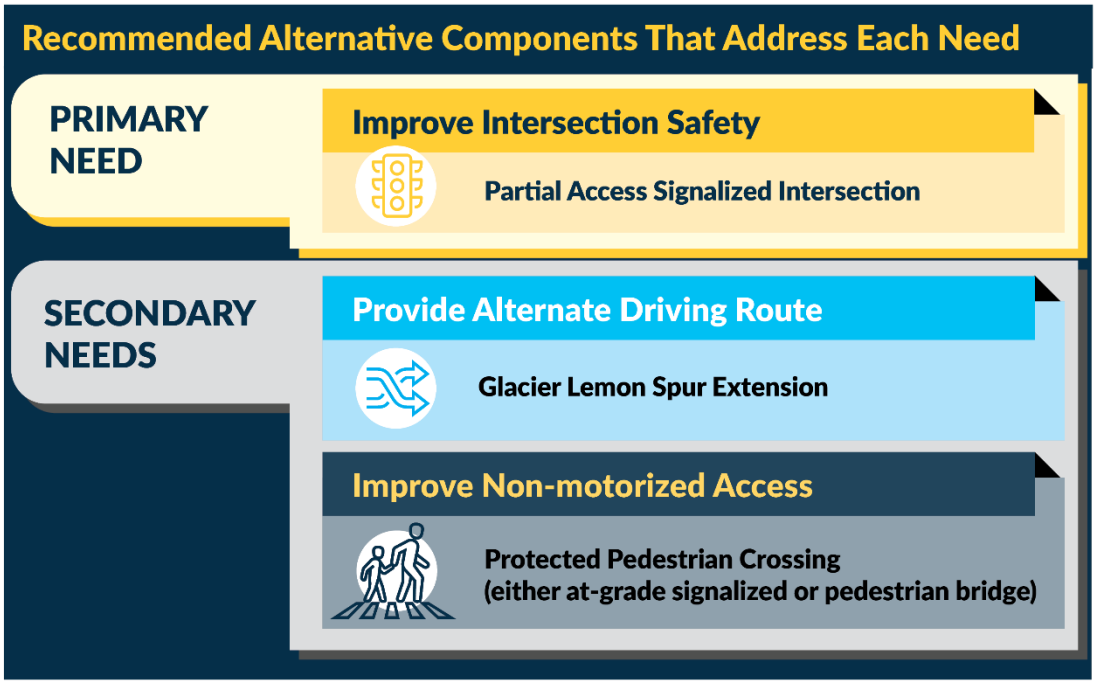
Meeting	Date
Agency Workgroup Meeting #1	November 5, 2019
Community Focus Group Meeting #1	November 5, 2019
Public Open House #1	November 19, 2019
Online Open House #1	November 19 – December 20, 2019
Agency Workgroup Meeting #2	June 30, 2020
Community Focus Group Meeting #2	July 1, 2020
Agency Workgroup Meeting #3	August 20, 2020
Community Focus Group Meeting #3	August 21, 2020
Online Open House #2 (Virtual Public Meeting)	October 14, 2020
Online Open House #2	October 14 – November 12, 2020
Agency Workgroup Meeting #4	January 6, 2021
Community Focus Group Meeting #4	January 7, 2021

Starting in spring 2020, due to restrictions on in-person gatherings due to the COVID-19 pandemic, all outreach activities were changed to virtual delivery. The project team meetings were held using online collaboration software. CFG and Agency Workgroup meetings were held using similar collaboration software to enable sharing of content and teleconferencing. The project team developed meeting-specific websites for each CFG and Agency Workgroup meeting that presented information and enabled participants to leave written feedback during the comment period. These websites remained accessible to participants throughout the entire PEL study. The second planned in-person Public Open House was also converted to an Online Open House event using online collaboration software. A live question and answer session was provided for the public, along with a comment period. The second Online Open House website remained available for viewing through the remaining portion of the PEL study process. See Chapter 5 Public and Agency Involvement for more information on public and agency involvement.

Implementation Plan

The Recommended Alternative is composed of components that address each of the E-Y Intersection Improvements project needs, compared to the No Build alternative: improve intersection safety, provide an alternate route in the event of a crash on Egan Drive, and improve non-motorized access, all while maintaining traffic flow through the area. Building upon the HSIP solution implemented as part of the No Build alternative, each component of the Recommended Alternative must be constructed to meet each of the needs identified for this project. Figure ES-2 lists project needs and components of the Recommended Alternative that address each of those needs.

Figure ES-2. Recommended Alternative Components that Address Each Need



Two options presented below describe some of the available methods for DOT&PF to implement the Recommended Alternative:

Implementation Option 1: Design and Construct the Entire Recommended Alternative

Under this option, DOT&PF would program the entire Recommended Alternative in the Statewide Transportation Improvement Program (STIP), conduct a single NEPA process, and design and construct the Recommended Alternative as a single project.

Implementation Option 2: Design and Construct the Recommended Alternative in Stages

Under this option, DOT&PF would create several independent projects out of the components of the Recommended Alternative. Each project could be programmed in the STIP as a separate project, and NEPA would be conducted on each project, as well as design and construction, due to each project having independent utility and logical termini.

The anticipated NEPA Class of Action determinations would likely vary depending on how DOT&PF chooses to stage the design and construction of the Recommended Alternative (see Table ES-2).

Table ES-2. Recommended Alternative Anticipated Class of Action

Implementation Option	Project Components	Anticipated NEPA Class of Action
Option 1 – Program Recommended Alternative as Single Project	Partial access signalized intersection with protected pedestrian crossing and Glacier Lemon Spur Extension	Environmental Assessment (EA)
Option 2 – Program Recommended Alternative Components as Separate Projects	Partial access signalized intersection with at-grade pedestrian crossing	Categorical Exclusion (CE)
	Glacier Lemon Spur Extension	EA
	Pedestrian bridge	CE
	(Variant) Partial access signalized intersection with pedestrian bridge	CE

Cost estimates for the Recommended Alternative, Partial Access Signalized Intersection with Glacier Lemon Spur Road and Protected Pedestrian Crossing, including design, ROW acquisition, utilities, and construction are summarized in Table ES-3. Costs are presented by component to inform possible ways the project could be staged for design and construction.

Cost estimates are expected to have a rough order of magnitude accuracy range between -30 and +40 percent, as presented in Table ES-3. These costs do not include NEPA analysis and documentation, which is forecasted to cost between $100,000 and $500,000.

Table ES-3. Recommended Alternative Cost Estimates

Component	Estimated Cost (in millions)
Partial Access Signalized Intersection with At-grade Protected Pedestrian Crossing	$5.0–$9.9
Pedestrian Overpass[a]	$2.7–$5.3
Glacier Lemon Spur Extension	$16.0–$31.9
Total Cost	**$23.6–$47.2[b]**

[a] This study did not analyze the maintenance and operations and other considerations of a pedestrian bridge. During design, DOT&PF will need to conduct additional research and stakeholder reached is needed to determine the appropriate type of pedestrian crossing. A pedestrian overpass was assumed for the purposes of the cost estimate because it is typically more expensive than an at-grade crossing.
[b] Refer to Engineer's Cost Estimates in Appendix H *Level 2 Screening Results White Paper* for detailed planning-level estimated costs. Total cost may vary slightly from what is presented here due to variance in design cost as percentage of construction for each component.

Regardless of which Implementation Option is selected by DOT&PF, it is most likely that project implementation will be funded using federal-aid highway program funds. Most projects in Alaska are funded in this manner. Any project nominations that implement the Recommended Alternative would need to score high enough, in competition with similar categories of projects from throughout the state, to be included in the approved STIP. Other funding options may be available. Chapter 6 Implementation Plan presents a set of possible delivery schedules, with responsible parties; unresolved issues; and next steps towards NEPA, design, and construction of the Recommended Alternative.

1. Introduction

The Alaska Department of Transportation and Public Facilities (DOT&PF) is planning improvements to the Egan Drive and Yandukin Drive (E-Y) intersection in Juneau, Alaska, in response to concerns about safety and the need for an alternate driving route in the event of a crash on Egan Drive.

DOT&PF is using a Planning and Environmental Linkages[3] (PEL) study to define issues associated with the E-Y intersection to develop potential solutions for enhancing the safety, connectivity, and reliability of the corridor as a whole.

DOT&PF is expecting to apply for federal financial assistance to implement the improvements at the E-Y intersection. In an effort to ensure the project can move through the federal National Environmental Policy Act (NEPA) process, DOT&PF has initiated the PEL process per federal guidelines. The PEL study uses a collaborative and integrated approach to identify transportation solutions while integrating environmental issues and public involvement into the planning process. The goal of using the PEL study approach is that it can reduce the time it takes for a project to move from planning to implementation by allowing certain planning products and decisions to be used during the NEPA and other environmental review processes, as authorized by 23 United States Code (USC) 139 and 168, and 23 Code of Federal Regulations (CFR) 450.

Appendix A is a completed PEL Questionnaire for this PEL study. Appendix B is a compilation of SEO Concurrence Communications regarding this PEL study.

1.1 Project Background/History

Egan Drive is the primary north-south surface connection in Juneau, Alaska. This corridor links Downtown Juneau with the Mendenhall Valley and Juneau International Airport as well as with the University of Alaska Southeast, Auke Bay Ferry Terminal, and other northern destinations.

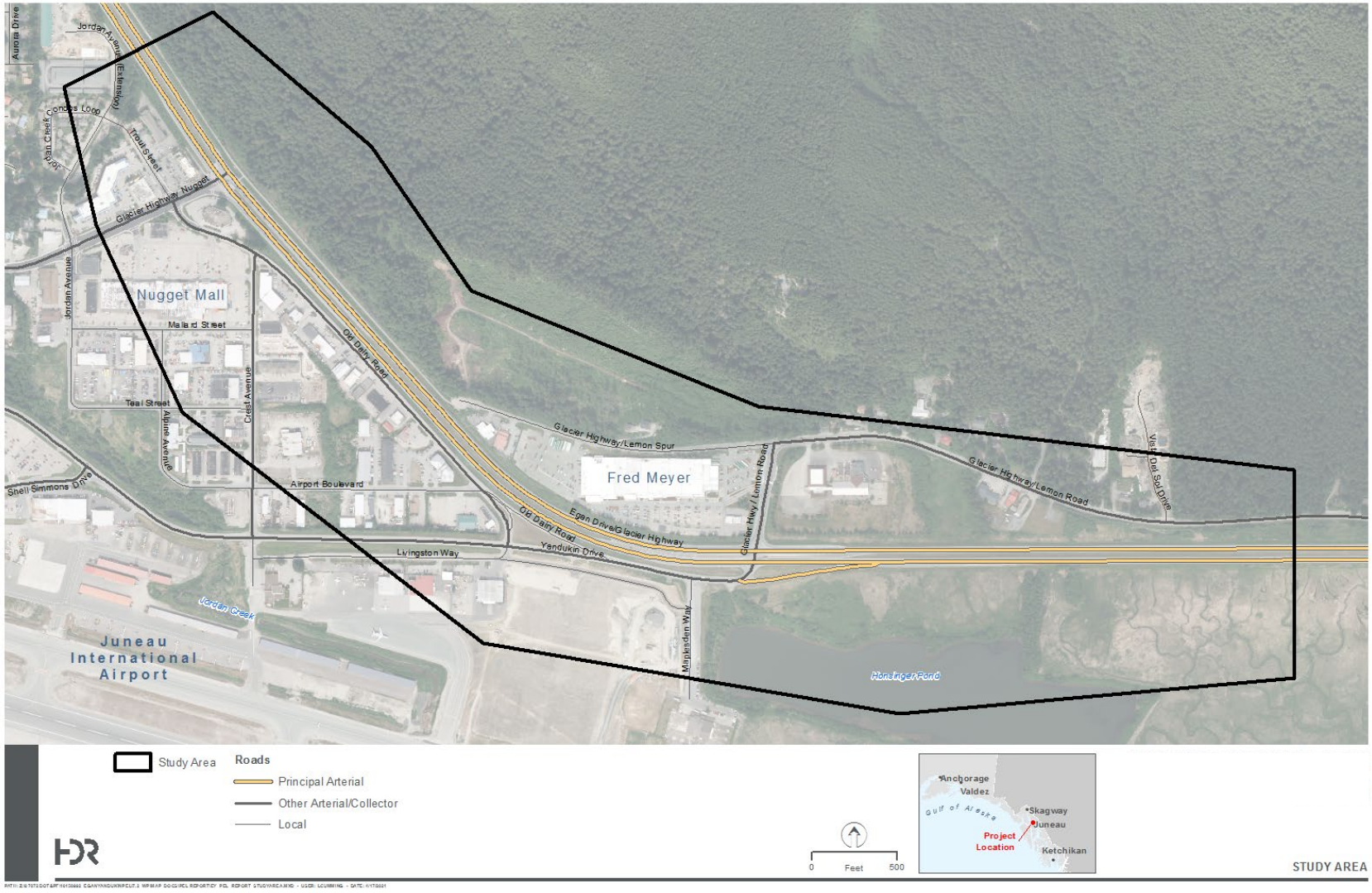
1.1.1 Study Area

The study area is approximately 1.5 miles long and 0.25 mile wide. The western terminus is approximately 0.25 mile west of the Glacier-Nugget intersection, while the eastern terminus is approximately 0.6 mile east of the E-Y intersection. The PEL study area is shown in Figure 1-1.

The E-Y intersection has been identified as an intersection of concern for at least 20 years. Several planning-level documents and published studies have identified the need for and suggested transportation improvements in the study area. These improvements are suggested to improve safety for vehicles, pedestrians, and bicyclists; improve mobility; improve resiliency (by providing an alternative route); and support planned land use changes.

[3] PEL-type approaches are referenced in two statutes: 23 USC 168 and 23 USC 139(f)(4)(E). The U.S. Department of Transportation adopted regulations for PEL studies in 23 CFR 450.212 and 450.318.

Figure 1-1. Egan Drive and Yandukin Drive Intersection Improvements PEL Study Area



1.1.2 Area Wide Transportation Plan (CBJ 2001[4])

The *City and Borough of Juneau Area Wide Transportation Plan*, published in 2001, recommended solutions for transportation problems and concerns throughout Juneau. Since its publication, many of the solutions listed in the *City and Borough of Juneau Area Wide Transportation Plan* have been implemented, including solutions in the study area. This section describes only the solutions that have not been implemented in the study area.

The *City and Borough of Juneau Area Wide Transportation Plan* recommended the following transportation improvements/recommendations within the study area:

- Extending the sidewalk along Egan Drive
- Preserving the median along Egan Drive for a possible mass transit route in the future
- Extending Glacier Highway/Lemon Spur to the Glacier Highway/Nugget intersection
- Widening Glacier Highway from two to three lanes

1.1.3 West Egan Drive Corridor Study (DOT&PF 2003)

The *West Egan Drive Corridor Study* (WEDCOR*)* identified possible solutions for the current and expected future transportation problems along and across the Egan Drive corridor between Industrial Boulevard and Yandukin Drive.

WEDCOR identified traffic and safety deficiencies along Egan Drive. The identified concerns within the E-Y intersection included:

- **Capacity and Level of Service**
  - Based on the traffic projections in WEDCOR, by the year 2025, unacceptable PM peak hour Level of Service (LOS)[5] was anticipated at the intersections of Egan Drive at Glacier-Nugget and Yandukin Drive.
- **System Linkage**
  - Based on the traffic projections in WEDCOR, by 2025, people driving on and crossing Egan Drive would experience more delay. Part of the reason for the projected delay would be that Egan Drive was used for local trips where other facilities were neither available nor convenient, such as between the Mendenhall Valley and Fred Meyer, and between Glacier Highway (North) and Riverside Drive.
- **Airport Access**
  - Due to the importance of Juneau International Airport to the regional economy, access to the airport is critical in the Egan Drive corridor. The study evaluated how well Egan Drive and the surrounding transportation system accommodated the

[4] References cited in this PEL study are included in Appendix V.
[5] For the purposes of the WEDCOR report, LOS D or above was considered acceptable for signalized intersections, and LOS E or above was considered acceptable for minor movements at unsignalized intersections.

movement of people between and among air, ground, and sea transportation in and around the study area.
  - The study indicates that travel between Juneau International Airport and other key destinations in the Juneau area (e.g., Downtown Juneau, Auke Bay Ferry Terminal) often required the use of local streets, a factor understood by the residents but that was not obvious to visitors. The resulting confusion created unnecessary out-of-direction travel.

- **Safety**
  - The intersection within the study area that has one of the highest accident rates in Southeast Alaska is Egan Drive at Glacier Highway/Nugget. The top five intersections in Juneau by the total number of accidents at the time of the study were:
    - Egan Drive/Mendenhall Loop Road
    - Egan Drive/Glacier Highway ("McNugget")
    - Egan Drive/Vanderbilt
    - Mendenhall Loop/Atlin Drive/Mendenhall Mall
    - Egan Drive/Vintage
  - Other safety problems identified in WEDCOR included inadequate or marginal sight distance at the E-Y intersection. (Note: The sight distance concern was addressed with the 2012 DOT&PF construction project.)

- **Pedestrian and Bicycle Facilities**
  - The unsignalized intersection at the Fred Meyer E-Y intersection was of particular concern for pedestrians and bicyclists. Additional lanes on Egan Drive to accommodate more vehicles would make access by pedestrians even more difficult unless adequate alternate pedestrian and bicycle facilities were provided.
  - Transit stops at unsignalized intersections like Glacier Highway/Lemon Road at Fred Meyer could be a safety concern for pedestrians.

WEDCOR's proposed action for the E-Y intersection was a full interchange that would be located to the east of the existing intersection. Other transportation improvements recommended by WEDCOR included realigning Industrial Boulevard opposite Wildmeadow Lane and installing a traffic signal, extending Riverside Drive south to Glacier Highway (North), removing the connection of Glacier Highway (North) to Egan Drive, and extending Lemon Spur Road to Glacier Highway (Airport).

1.1.4 Juneau Non-Motorized Transportation Plan (CBJ 2009)

The purpose of the *Juneau Non-Motorized Transportation Plan* was to improve the safety and capacity of the non-motorized transportation network by recommending infrastructure and policy improvements.

The *Juneau Non-Motorized Transportation Plan* identified non-motorized transportation issues along Egan Drive, Yandukin Drive, and Glacier Highway/Lemon Road. (Note: the *Juneau Non-*

Motorized Transportation Plan referred to Glacier Highway/Lemon Road as Old Dairy Road.) The *Juneau Non-Motorized Transportation Plan* recommended the following projects within the study area:

- **High Priority – Crossing between Fred Meyer and Bus Stop.** A crosswalk on Glacier Highway/Lemon Road between Fred Meyer and the bus stop on the east side of the road. (Note: The project was completed in 2013.)
- **Medium Priority – Bicycle Lane**. Bicycle lane on Glacier Highway/Lemon Spur between separated path along Egan Drive and Fred Meyer. (Note: This project has been partially completed.)
- **Medium Priority – Coastal Trail.** Paved pathway at least 10 feet wide along the south side of Egan Drive from Yandukin Drive to Twin Lakes Path.

1.1.5 Comprehensive Plan of the City & Borough of Juneau (CBJ 2013)

The *Comprehensive Plan of the City & Borough of Juneau* (*Comprehensive Plan*) provided a guide for the long-range growth, development, and conservation of valued resources.

The *Comprehensive Plan* listed the following improvements within the study area as needed actions:

- **Non-motorized facilities improvements.** Provide sidewalks and bicycle paths/lanes "along existing roads to provide safe and efficient access and recreation and to reduce pedestrian/automobile accidents," and provide a safe pedestrian and bicycle circulation system in the Lemon Creek area.
- **Transportation improvements.** Construct an extension of Glacier Highway from its current dead-end north of Fred Meyer to the intersection of Glacier Highway and Egan Drive at McDonald's and the Nugget Mall.
- **Parks, trail, community garden, and stream corridor improvements.** Construct a coastal trail along Egan Drive or along the "inside" or north side of Egan Drive, connecting Sunny Point to neighborhoods to the east and west.

The City and Borough of Juneau (CBJ) also acknowledged the need to improve the resiliency of the transportation system by developing duplicate transportation routes and/or modes where access was limited to a single transportation route. Egan Drive at Yandukin Drive and Glacier Highway were identified as two locations where alternative routes were needed.

1.1.6 Lemon Creek Area Plan (CBJ 2018)

The *Lemon Creek Area Plan* is a community-based planning document that developed a series of goals and actions within the Lemon Creek area, which includes the study area.

The *Lemon Creek Area Plan* identified multiple actions to occur within the study area. These included:

- Advocating for improvements to the Fred Meyer and Egan Drive intersection
- Advocating for the extension of Glacier Highway to Egan Drive at the Glacier-Nugget intersection

- Advocating for DOT&PF's plan for Glacier Highway's pedestrian and bicycle improvements in the Lemon Creek area
- Improving bicycle/pedestrian infrastructure in the area as a way to improve access to jobs

1.1.7 Traffic Analysis and Alternative Concepts Report (DOT&PF 2019)

The *Traffic Analysis and Alternative Concepts Report* analysis identified two main concerns for the intersection:

- Left-turning vehicles had difficulty judging gaps in oncoming traffic, resulting in injury crashes. The high speed of oncoming vehicles (85th percentile speeds of around 60 miles per hour) contributed to this condition.
- Pedestrians had difficulty crossing Egan Drive at the E-Y intersection because of the lack of adequate crossing gaps. While a controlled, marked crossing of Egan Drive was provided at the Glacier-Nugget intersection, pedestrians had been observed crossing Egan Drive at the Fred Meyer intersection. Thus, any proposed changes should also consider accommodating pedestrian crossing movement.

Some treatments to reduce or eliminate left-turn crashes were identified:

- Control left-turn movements with a signal or roundabout
- Eliminate left-turn movements
- Provide physical separation of the left-turn and through movements
- Control speed
- Provide traffic demand management

From these possible methods of reducing crashes, four alternative concepts were chosen for analysis:

- Alternative Concept A: No Build
- Alternative Concept B: Signal at the Intersection of Egan Drive at Yandukin Drive
- Alternative Concept C1: One-Way Extension of Glacier Highway/Lemon Road to the Glacier Highway/Nugget Intersection and Closure of the Median at Yandukin Drive
- Alternative Concept C2: Extension of Glacier Highway/Lemon Road to the Glacier Highway/Nugget Intersection and Closure of the Median at Yandukin Drive
- Alternative Concept D: Separated Grade interchange at the Intersection of Egan Drive at Yandukin Drive

The *Traffic Analysis and Alternative Concepts Report* also recommended that raised channelization could be installed as a low-cost, short-term improvement to aid southbound left-turn drivers from Egan Drive in distinguishing between right-turn and through vehicles in the oncoming traffic.

The *Traffic Analysis and Alternative Concepts Report* recommended Alternative Concept D, a grade-separated interchange, to be advanced, citing the following reasons:

- All of the identified concerns were addressed.
- Crash reduction was through the physical separation of the conflicting movements rather than signal control.
- Travel delay was reduced over what is currently experienced by intersection users.
- The design had significant reserve capacity to accommodate future travel demand well beyond the study's design evaluation period.
- The design was consistent with the planning for this area that was previously developed and accepted by public interests and agencies.

This recommendation was solely based on the *Traffic Analysis and Alternative Concepts Report*, which did not provide an analysis or consideration of other factors that could affect any final determinations by DOT&PF. The results of the *Traffic Analysis and Alternative Concepts Report* were integrated into this PEL study, which considered environmental and socioeconomic issues through a more comprehensive public and agency involvement process.

An October 2019 report updated the 2018 study, adding analysis of crashes for the years 2015 through 2017 to the initial study of crashes from 2005 through 2014. Appendix C includes the complete study.

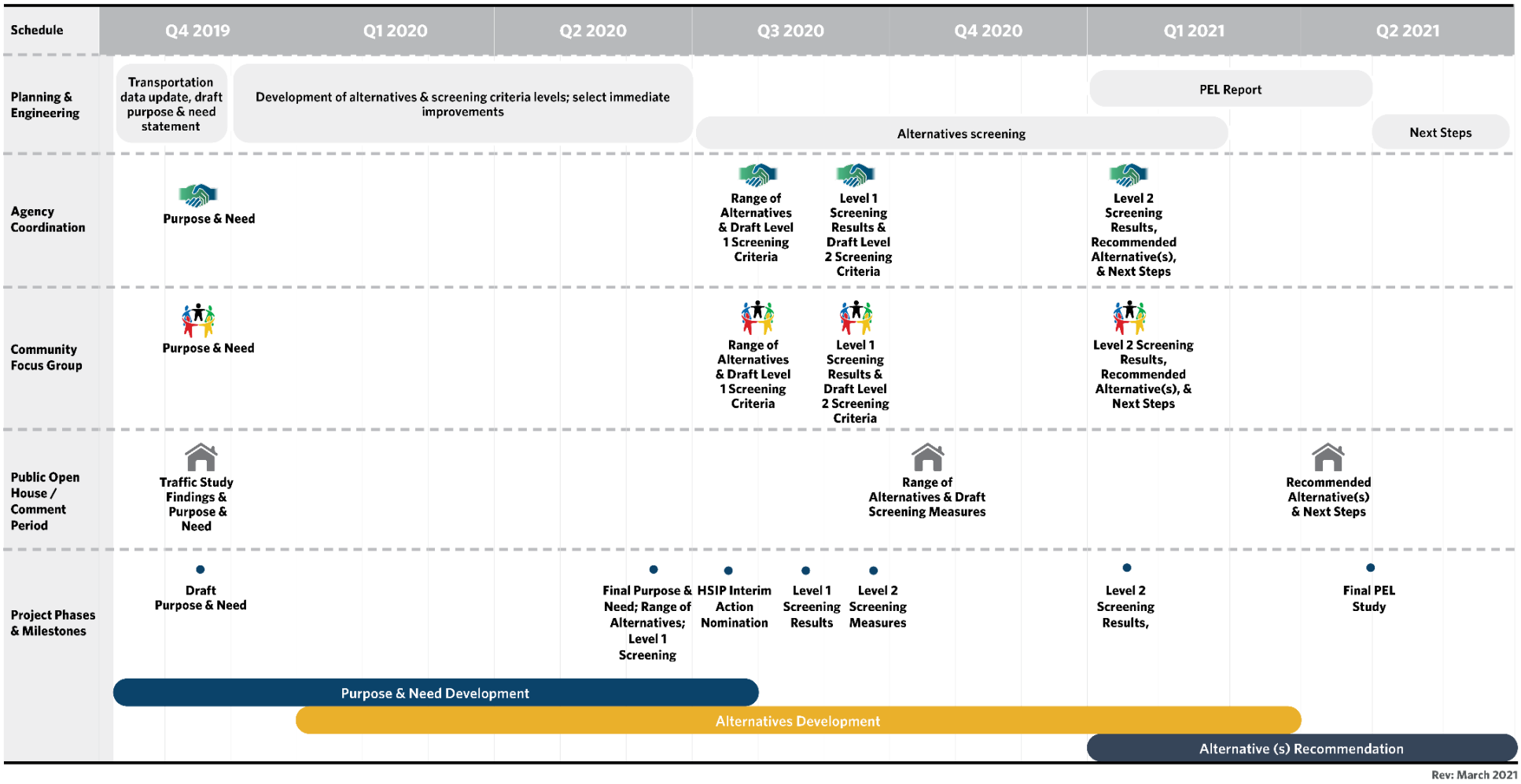
1.2 Public Notice of Intent

As required by 23 USC 168, a public notice was prepared and published on November 3, 2019, which stated that DOT&PF is conducting a study that may be adopted for future development and the environmental review process. This notice provided information about the public open house on November 19, 2019. Additional information about the public open house can be found in Chapter 5 Public and Agency Involvement and Appendix D.

1.3 General Process

The E-Y intersection PEL study started in June 2019. The project team, composed of DOT&PF staff and a consultant team, generally met every week over the course of the project. Figure 1-2 provides an overview schematic of the approach and timeline of the activities followed for completion of this PEL study.

Figure 1-2. Egan Drive and Yandukin Drive Intersection Improvements PEL Study Planning Approach



As required by planning regulations (23 CFR 450.210 and 450.316), public and agency involvement is an important part of PEL studies. During this PEL study, local government, state, and federal agency representatives were engaged through four Agency Workgroup meetings. Key stakeholders, including business owners, tribal representatives, and elected officials, were engaged through four Community Focus Group (CFG) meetings. The general public was involved through two Public Open House meetings, a project website, and other outreach activities. Chapter 5 describes the agency and public involvement process in more detail.

At five points during the PEL study development, concurrence on certain work products and decisions was obtained from the DOT&PF Statewide Environmental Office (SEO; see Appendix B for concurrence communications). Authorized under 23 USC 327, DOT&PF has entered into the NEPA Assignment Program through a Memorandum of Understanding (MOU) with the Federal Highway Administration (FHWA) to assume responsibilities under NEPA and all or part of FHWA's responsibilities for environmental review, consultation, or other actions required under any federal environmental law with respect to one or more federal highway projects within Alaska. This MOU was signed on November 3, 2017. The 2017 NEPA Assignment MOU specifically assigns FHWA's PEL responsibilities under 23 USC 139 and 168 to DOT&PF, as well as statutory provisions, regulations, policies, and guidance related to the implementation of NEPA for federal-aid highway projects. The DOT&PF SEO administers the NEPA Assignment Program and is crucial in the development of PEL studies as DOT&PF has assumed the duties of FHWA with regards to adopting components of a PEL study into the NEPA process in Alaska.

This PEL study was conducted to enable the following planning products and decisions to be used during the subsequent environmental review (including NEPA) processes, per 23 USC 168(c)(1):

- The purpose and need for the proposed action;
- Preliminary screening of alternatives and elimination of unreasonable alternatives;
- A basic description of the environmental setting; and
- A decision with respect to methodologies for analysis.

Also, this PEL study was conducted using the following analysis to enable planning products and decisions to be used during the subsequent environmental review (including NEPA) processes, per 23 USC 168(c)(1):

- Travel demands;
- Regional development and growth;
- Local land use, growth management, and development;
- Population and employment;
- Natural and built environmental conditions;
- Environmental resources and environmentally sensitive areas;
- Potential environmental effects, including the identification of resources of concern and potential direct, indirect, and cumulative effects on those resources; and
- Mitigation needs for a proposed project.

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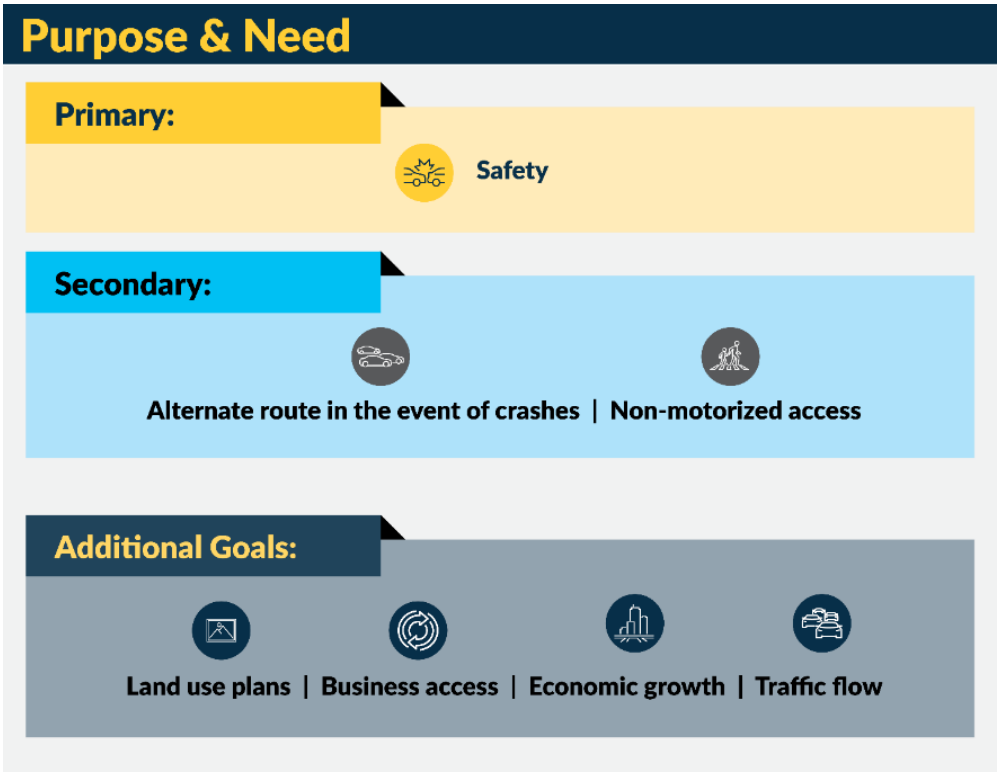
2. Purpose and Need

This PEL study is being used to produce certain planning products and decisions to be used in future phases of project development, such as NEPA and environmental permitting. The purpose and need for the proposed action is identified as one of the planning products eligible to be incorporated into the environmental review process, as long as certain conditions are met (23 USC 168). These conditions include a requirement that appropriate federal and state resource agencies, tribes, and the public are consulted during its development.

The purpose and need statement informs the alternatives developed and the PEL recommendations. Guidance relative to developing a purpose and need statement is found in Section 5.3.1 of the *Alaska Environmental Procedures Manual* and Section 430.3 of the *Alaska Highway Preconstruction Manual*. The purpose and need must be a statement of a transportation problem, not a specific solution. It must be specific enough to generate alternatives that may potentially yield real solutions to the identified problem.

The purpose and need statement was developed during this PEL study in a way that allows it to be used in subsequent NEPA processes for any project that results from this study. Throughout the initial phase of this PEL study, members of the Agency Workgroup, CFG, and public participated in identifying needs at the E-Y intersection and were provided the opportunity to comment on the draft purpose and need statement. Figure 2-1 shows the focus areas of the purpose and need statement.

Figure 2-1. Purpose & Need Focus Areas



2.1 Process Followed to Develop Purpose and Need

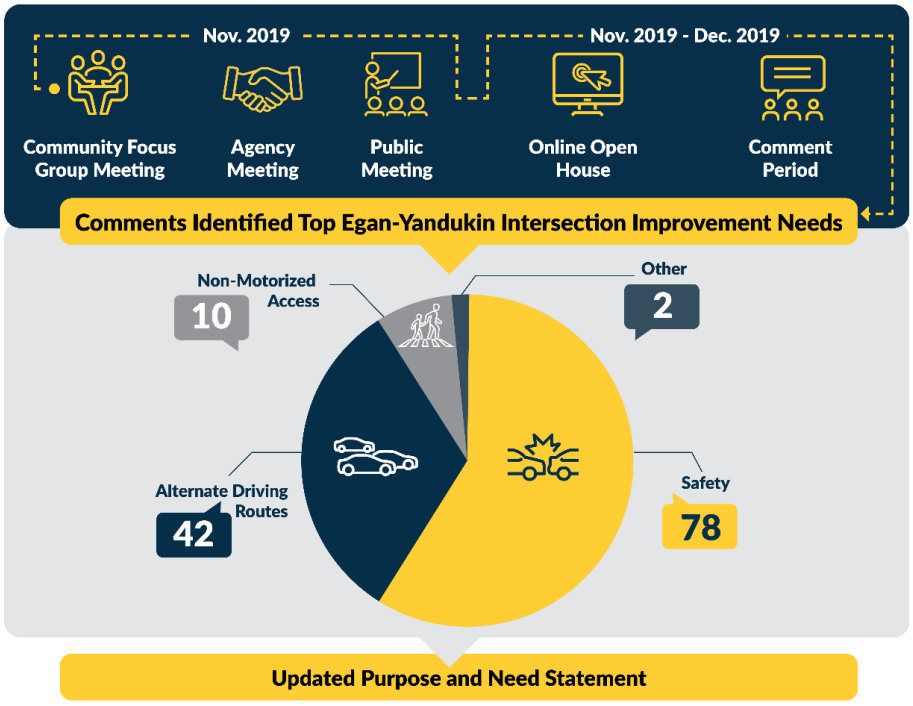
The purpose and need statement is important as it provides the justification for the project and provides the foundation for alternatives development, refinement, and screening.

Development of the purpose and need statement started in early 2019. The project team developed an initial draft based on a review of existing literature, data collection, and input provided through stakeholder interviews and public meetings (see Chapter 5 Public and Agency Involvement). Critical to the initial purpose and need development was a review of previous studies such as the *Juneau – Egan Drive and Yandukin Intersection Improvement Traffic Analysis and Alternative Concepts Report* (October 2018) and community plans such as the *Lemon Creek Area Plan* (January 2018), both discussed in Chapter 1 Introduction.

The initial purpose and need statement was then presented to the project's CFG and Agency Workgroup in November 2019. Based on feedback from both groups, the initial draft purpose and need statement was further refined.

The draft purpose and need statement was then presented to the general public at a public meeting in fall 2019. Based on public and agency input, the project team further refined the purpose and need statement. Figure 2-2 details the public and agency input received on the project needs, supporting safety improvements as the primary need and improving non-motorized safety and providing an alternate driving route as the secondary needs at the E-Y intersection. The revised purpose and need statement was brought back to the Agency Workgroup and CFG for their review in June/July 2020.

Figure 2-2. Public and Agency Comments Informed the Purpose and Need



2.2 Key Data Used

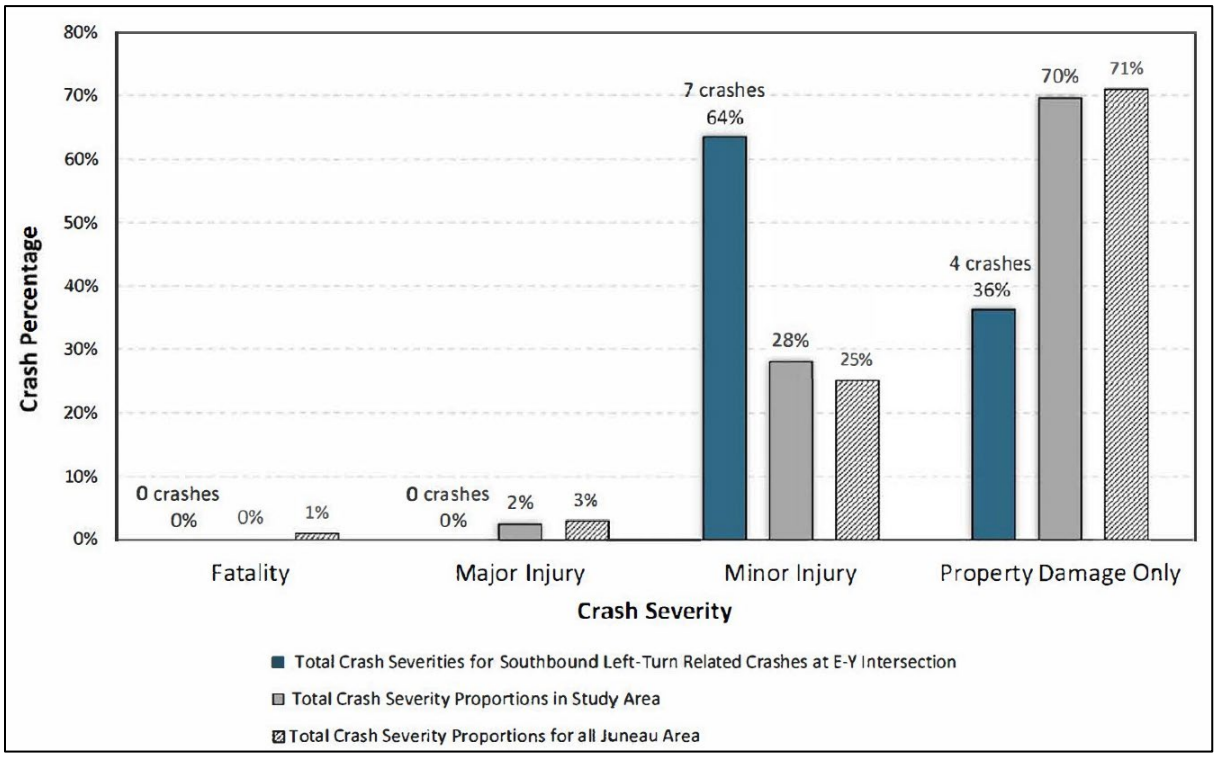
Data reviewed to develop the purpose and need statement included crash data, the current transportation grid, existing pedestrian and bicycle facilities, existing and forecasted traffic volumes, and community plans.

2.2.1 Crash Data

Between 2005 and 2017, 86 crashes occurred at the E-Y intersection. The most frequent crashes were left-turn related angle crashes involving vehicles turning left on Egan Drive and colliding with oncoming Egan Drive through traffic. Left-turn related crashes are also the type of crashes that result in the highest crash severity. The left-turn crashes were evenly divided among crashes making a southbound left turn and vehicles making a northbound left turn.

Figure 2-3 shows a comparison of crash severity frequencies for southbound left-turn related crashes at the E-Y intersection compared to the severity of other crashes in the study area as well as the average of all crashes in the whole Juneau area using data from 2013 through 2017.

Figure 2-3. Crash Severity Analysis, 2005–2017



Four of the ten reported accidents at the E-Y intersection in 2017 were minor injury crashes, all of which were related to left turns, with three involving southbound left turns and one involving northbound left turns. It is evident from the available data that major injury crashes are likely to occur in the future due to the southbound left-turn movement on Egan Drive.

According to the crash data, crashes are more likely when roads are icy, snowy, or wet. Records indicate that 52 percent of the crashes at this intersection occur in November,

December, and January. Crashes are also more likely during periods of high traffic volumes and speeds, especially when these conditions occur during periods of darkness.

For additional information about the crash analysis, please see Appendix E *Interim Improvement Concepts White Paper.*

2.2.2 Current Transportation Grid and Community Planning Documents

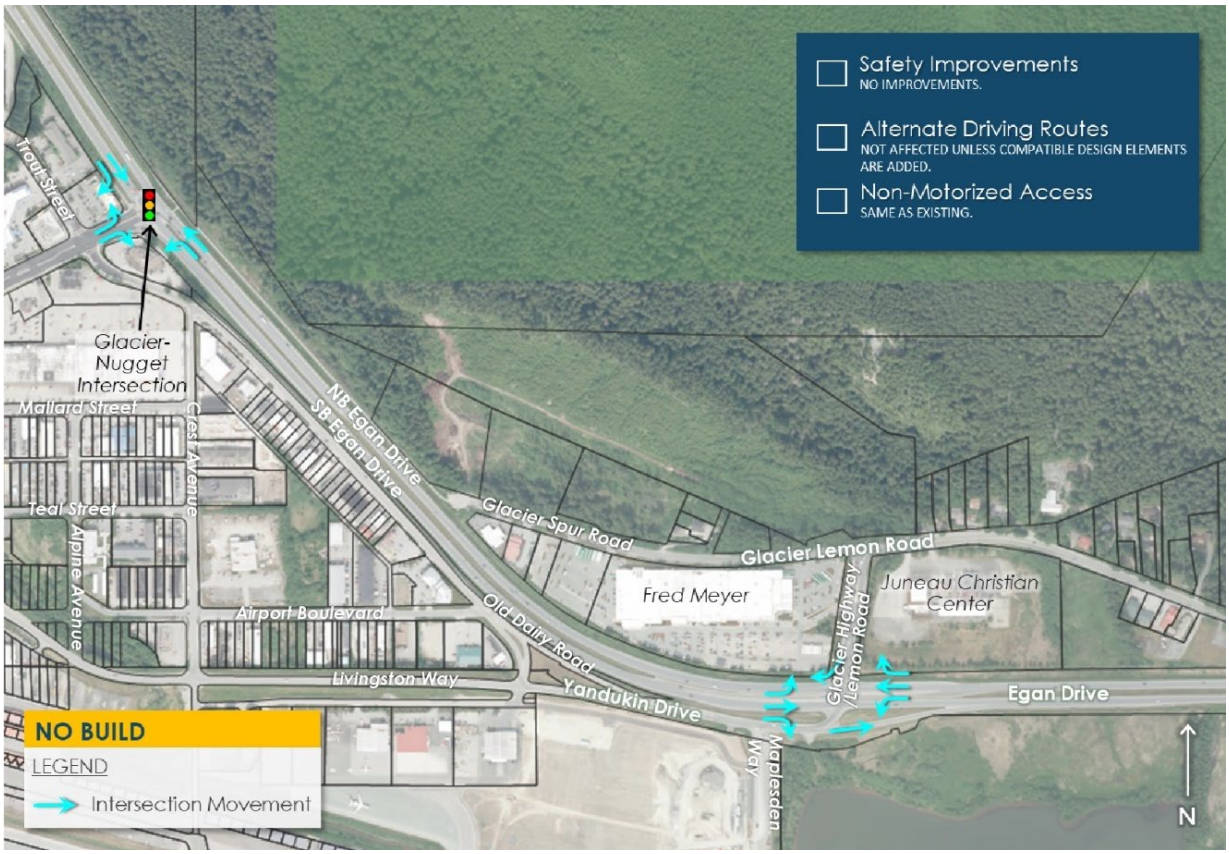
Egan Drive is the primary north-south surface connection in Juneau. For northbound drivers on Egan Drive, the E-Y intersection provides access to Yandukin Drive, the airport, and nearby destinations via an unsignalized dedicated left-turn lane. Access to Fred Meyer, the Juneau Christian Center, and destinations along Glacier Highway and Glacier Spur Road is provided by the unsignalized dedicated northbound right-turn lane onto Glacier Highway/Lemon Road. Travelers headed southbound on Egan Drive access Yandukin Drive via an unsignalized dedicated right-turn lane and access Glacier Highway/Lemon Road by an unsignalized dedicated left-turn lane. Traffic is not allowed to cross Egan Drive at this intersection. Eastbound drivers on Yandukin Drive may only merge onto Egan Drive southbound, and southbound drivers on Glacier Highway/Lemon Road may only merge onto Egan Drive northbound. Drivers on Yandukin Drive must travel to the Glacier-Nugget intersection north of the E-Y intersection to enter Egan Drive northbound. Drivers on Glacier Highway/Lemon Road must travel south on Glacier Highway to the Sunny Point interchange to enter Egan Drive southbound. Figure 2-4 shows the current traffic pattern.

Along certain segments of Egan Drive in the study area, there are no alternate routes for travelers. Northbound, no alternate route exists between Glacier Highway/Lemon Road and the Glacier-Nugget intersection. Southbound, no alternate route exists between Yandukin Drive and the Sunny Point interchange. When Egan Dive is blocked due to a crash at certain locations, traffic delays increase as this route is the only continuous connection between Downtown Juneau and the Mendenhall Valley.

The need for an alternate route was identified in several community planning documents, including the *CBJ Comprehensive Plan* and *Lemon Creek Area Plan*. These documents noted the need to provide improved access to the study area to accommodate planned mixed-use development, with a mix of housing and business development, to serve a diverse economy and provide employment opportunities. During the Public Open House comment period, Juneau community members expressed a desire for an alternate route around the E-Y intersection.

An alternate route would have a secondary benefit of improving access for local trips in the immediate vicinity of the intersection and supporting land use plans and ordinances.

Figure 2-4. Current Traffic Pattern



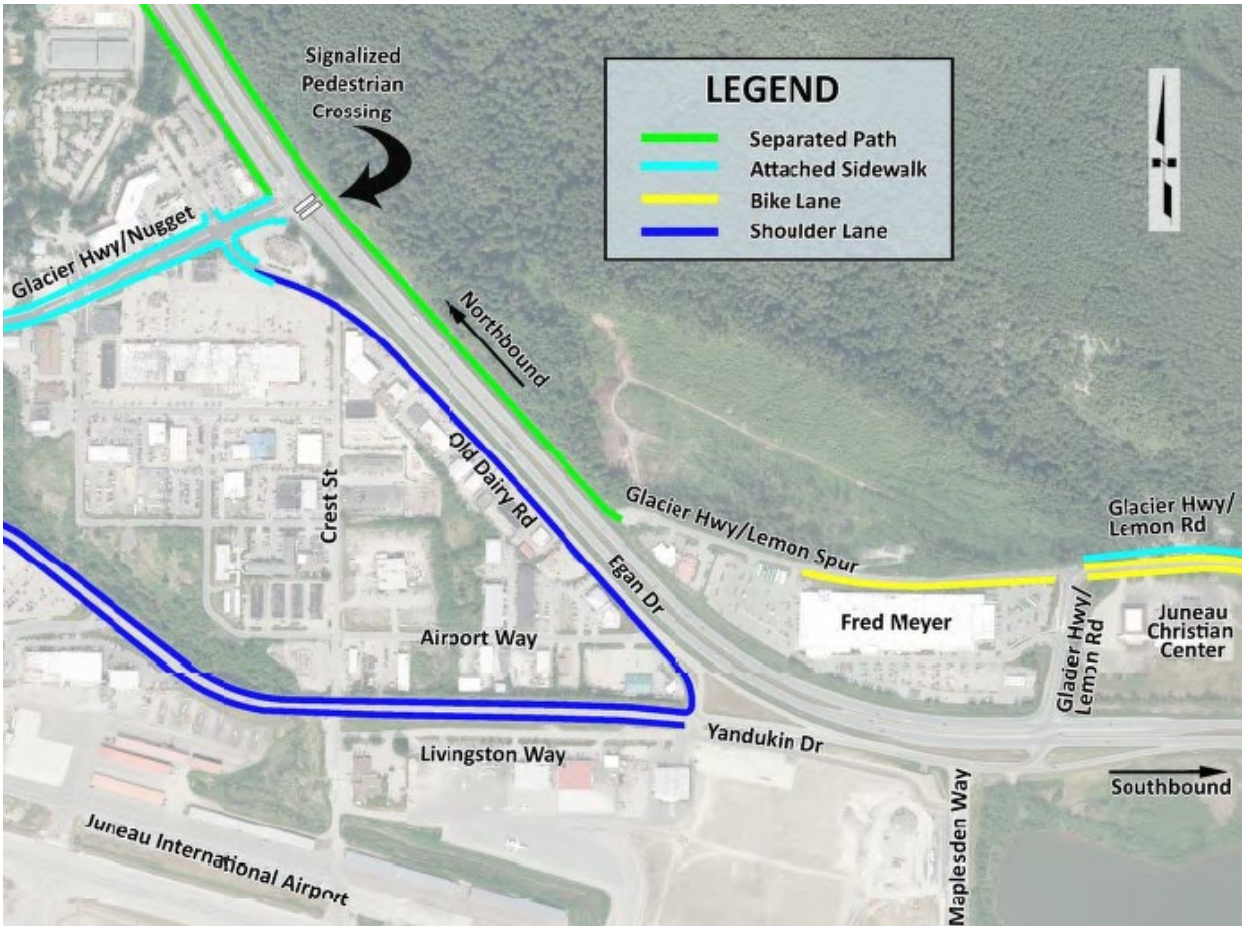
2.2.3 Existing Pedestrian and Bicycle Facilities

Currently, there are no designated pedestrian crossings at the intersection of Egan and Yandukin Drives. However, there are a variety of sidewalks, separated pathways, and bicycle lanes within the study area, as shown in Figure 2-5. While the existing infrastructure provides continuous coverage along the study area roadways, the only pedestrian/bicycle connection across Egan Drive is at the Glacier Highway/Nugget intersection.

Generally, pedestrians attempting to cross uncontrolled approaches at intersections in the study area experience delays of 45 seconds or more. In many cases, there are nearby controlled crossings that have less delay; however, the distance to the next available crossing is very far in some cases. For example, pedestrians wanting to cross Glacier Highway/Nugget at Old Dairy Road could travel approximately 300 feet to the Egan Drive signal for a controlled crossing. Similarly, pedestrians wanting to cross Glacier Highway/Lemon Road at Glacier Highway/Lemon Spur could cross the north leg, which is controlled by a stop sign. However, pedestrians wanting to cross Egan Drive at Yandukin Drive near Fred Meyer would have to travel the longest distance to reach a controlled crossing (approximately 0.75 mile from the Yandukin Drive intersection to the Glacier Highway/Nugget intersection). The unsignalized intersection on Egan Drive at Yandukin Drive is of particular concern for pedestrians and bicyclists because pedestrians have to travel for approximately 0.75 mile to reach a controlled

crossing. Pedestrians have been observed illegally crossing Egan Drive at the E-Y intersection, creating a safety hazard for both pedestrians and drivers.

Figure 2-5. Existing Pedestrian and Bicycle Facilities



2.2.4 Existing and Forecasted Traffic Volumes

Egan Drive carries almost 30,000 vehicles per day (VPD). Traffic volumes are heavy heading towards downtown (southbound) during the morning (AM peak) and towards Mendenhall Valley (northbound) in the evening (PM peak). Turning vehicles may sit at the Glacier-Nugget signal for more than one cycle. At the E-Y intersection, left-turning drivers may choose different routes or choose to turn when the gap in oncoming traffic is insufficient, causing oncoming drivers to brake.

Traffic in the area has been fairly consistent for many years. Using Southcoast DOT&PF long-term growth assumptions of 0.25 percent per year, future volumes on Egan Drive are estimated to be close to 31,000 VPD. Traffic movements that currently experience delay will experience increased delay under forecasted volumes. The LOS for Egan Drive northbound left-turn movements at the E-Y intersection would be LOS F in the AM peak and LOS B in all other peaks. The Egan Drive southbound left-turn movements would be LOS F in the PM peak and LOS B in all other peaks. The average Glacier-Nugget signalized intersection delay during the

peak hour periods is forecasted to remain at a LOS C in 2040. See Appendix C *Traffic Analysis and Alternative Concepts Report* for a more detailed analysis of current and future traffic in the study area.

2.3 Accepted Purpose and Need Statement

The accepted purpose and need statement for this PEL study is as follows:

The purpose of the Egan Drive and Yandukin Drive (E-Y) Intersection Planning and Environmental Linkages (PEL) Study is to identify ways to improve transportation safety for all users. The secondary purposes are to identify ways to improve mobility and route diversity in the transportation grid, improve access and mobility for pedestrians and bicyclists, and maintain traffic capacity and flow through the E-Y intersection and the surrounding area.

Transportation improvements will address the following needs:

- **Safety:** The traveling public has expressed concerns regarding intersection safety. Crash frequency at this intersection is similar to the statewide average for similar intersections. Data show that out of a total of 86 crashes between 2005 and 2017, 7 involved major injuries. While there have been no fatalities at the intersection, nearly 48 percent of all crashes involved some sort of injury.
- **Alternate route in the event of crashes:** Motorists traveling between the Mendenhall Valley and downtown are limited to using a single roadway, Egan Drive, for travel. Juneau businesses rely on the intersection as a vital component of the connection between downtown, Juneau International Airport, Mendenhall Valley, and points further out the road. When an accident occurs on Egan Drive, the lack of an alternate route directly affects travel time reliability, particularly during peak travel times. The lack of an alternate route results in area-wide congestion and traffic delays when collisions occur and increases overall perception of the crash rate and severity at the intersection.
- **Non-motorized access:** The nearest controlled crossing of Egan Drive for pedestrians and bicyclists is 0.75 mile north from the E-Y intersection. Bicyclists and pedestrians unwilling to follow the lengthy, circuitous path often cross Egan Drive at Yandukin Drive, which is illegal and unsafe.

Potential improvements to the E-Y intersection should meet these additional community goals:

- Provide improvements that are consistent with approved land use plans and ordinances
- Consider designs that maintain or improve access to and visibility of businesses
- Transportation improvements should support opportunities for economic development and support planned future land uses
- Seek to minimize increases in vehicle delay, especially during the peak morning and evening commuting periods, to maintain the high mobility function of the corridor

2.4 Statewide Environmental Office Concurrence

The SEO was involved in purpose and need development through their regular attendance at the weekly project team meetings and each of the CFG, Agency Workgroup, and Public Open House events. The purpose and need statement received SEO concurrence in June 2020. In September 2020, a wording change was made to the purpose and need statement. The SEO office concurred with this change on September 23, 2020 (see Appendix B for SEO concurrence communications).

3. Alternatives Considered and Screening Process

This chapter describes the process used to identify and screen alternatives. The process was designed to initially consider a wide range of transportation options, then screen the alternatives to identify those that best address project needs. A detailed description of the alternatives development process is in Appendix F *Range of Alternatives White Paper*. The results of the two-step screening process used for this PEL study are presented in Appendix G *Level 1 Screening Results White Paper* and Appendix H *Level 2 Screening Results White Paper*.

3.1 Process Followed

The PEL study approach was developed to be consistent with federal guidelines, to consider a wide array of transportation options, and to conduct a methodical screening process to identify the alternative(s) that best meet the project's purpose and need while also considering other factors. The process consisted of several steps, including alternatives development, pre-screening (or fatal flaw screening[6]), and Level 1 and Level 2 alternatives screening. This process is summarized in Figure 3-1. The steps in this process can generally be described as follows:

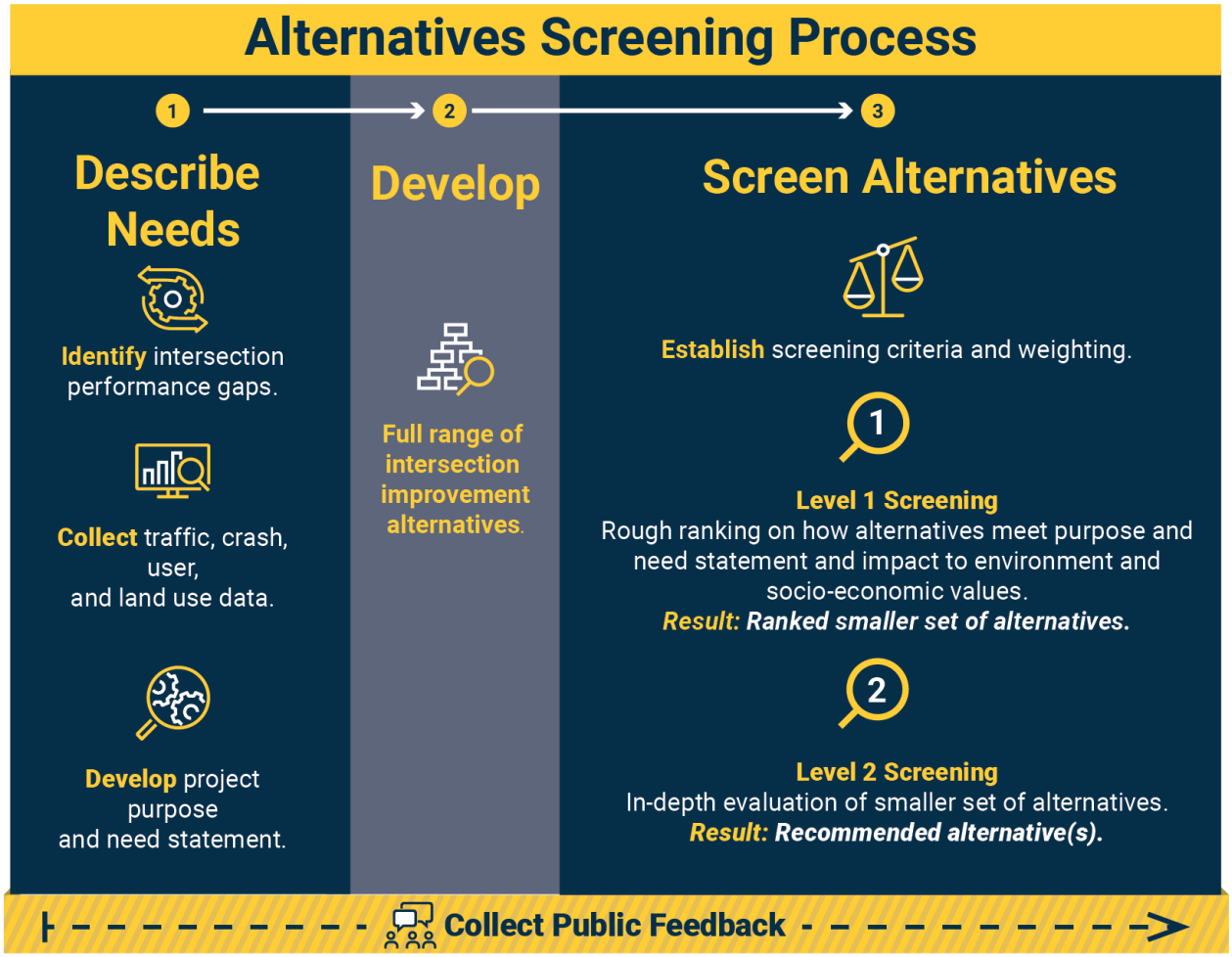
1. The draft purpose and need statement was generated using data and input from stakeholders, agencies, and the public. The needs and goals described in the purpose and need statement were used as a basis for designing the alternatives and generating screening measures. The purpose and need statement was finalized after modifications were made in response to public and agency feedback.
2. An initial list of engineering treatments was generated by the project team, focused on addressing the project needs of improving safety and mobility for drivers and non-motorized uses at the E-Y intersection and providing an alternate driving route.
3. The list of treatments was used to generate 15 alternatives that were forwarded into the Level 1 Screening process. Treatments that were not reasonable or feasible, or did not adequately address a project need, were not used in the range of alternatives (see Section 3.4).
4. Concurrently, the project team identified an immediate need to improve safety as quickly as possible at the E-Y intersection. Because implementing any recommended alternative from this PEL study could take several years, the project team looked for other ways to quickly implement a safety improvement at the intersection. The Highway Safety Improvement Program (HSIP) was identified as one way to potentially fund and implement these improvements on an expedited timeframe. The project team developed a set of low-cost, effective treatments to improve safety that was funded, and will be designed and constructed, as a separate HSIP project (see Section 3.3). These improvements would be permanent.

[6] Fatal flaws refer to costs or impacts that prohibit an alternative from being built. See Section 3.5 for more detail.

5. Level 1 Screening measures were developed to qualitatively evaluate each alternative, focusing on how well the design met the project needs, goals, and other social and environmental considerations. The screening measures were established in cooperation with stakeholders and using public input gathered during the first Public Open House in November 2019. The Level 1 Screening process is discussed in Section 3.6.
6. From the 15 alternatives evaluated using the Level 1 Screening measures, the top five scoring alternatives were brought forward into the Level 2 Screening process.
7. Level 2 Screening measures were developed, using a more quantitative approach that used traffic modeling software and traffic engineering best practices to evaluate how well each of the five alternatives performed against each other. Screening measures were again based on project needs, goals, and other social and environmental considerations, as informed by stakeholders and public input. The Level 2 Screening process is discussed in Section 3.7.
8. Applying the Level 2 Screening measures to the five alternatives during the Level 2 Screening process resulted in the top scoring alternative being identified as the Recommended Alternative: the Partial Access Signalized Intersection with a protected pedestrian crossing and Glacier Lemon Spur Extension. The Recommended Alternative is discussed in Section 3.8.

The SEO provided concurrence on the planned alternatives development and evaluation process on June 12, 2020. The SEO stated that the process would provide many opportunities for public and agency involvement in the development and screening of alternatives and may streamline future NEPA requirements (see Appendix B for SEO concurrence communications).

Figure 3-1. Alternatives Screening Process



3.2 Public and Agency Input

Public and agency input was solicited during each step of the alternatives development and screening process. Refer to Chapter 5 Public and Agency Involvement for a more detailed description of the meetings listed below. Table 3-1 summarizes the public and agency input points, and how the project team responded.

Public and agency comments received throughout the process can be found in Chapter 5 Public and Agency Involvement and associated appendices.

Table 3-1. Public and Agency Input Points and Responses

Screening Process Step	Input Point	Response to Stakeholder Input
1. Purpose and Need	• CFG Meeting #1 • Agency Workgroup Meeting #1 • Open House #1 • CFG Meeting #2 • Agency Workgroup Meeting #2	• Draft purpose and need updated to focus on safety as primary need, alternate routes, and non-motorized access • Project goals added to purpose and need statement to embody public and agency concerns and values
2. Initial List of Treatments	• Open House #1 • CFG Meeting #2 • Agency Workgroup Meeting #2	• Project team used suggested improvements from Open House #1 comments to generate list of treatments
3. Range of Alternatives	• CFG Meeting #2 • Agency Workgroup Meeting #2 • Open House #2	• Alternatives and compatible elements added based on comments
4. Interim Action	• Open House #1 • CFG Meeting #2 • Agency Workgroup Meeting #2	• Interim action prioritized based on the public's desire to see rapid deployment of safety improvements
5. Level 1 Screening Measures	• Open House #1 • CFG Meeting #2 • Agency Workgroup Meeting #2	• Environmental and social considerations added as screening measures
6. Level 1 Screening Process/Results	• CFG Meeting #2 • Agency Workgroup Meeting #2 • Open House #2	• Focus on safety as primary need: alternatives must improve safety to proceed to Level 2 Screening
7. Level 2 Screening Measures	• CFG Meeting #3 • Agency Workgroup Meeting #3 • Open House #2	• Addition of criteria weighting based on CFG and Agency Workgroup Survey • Measures added address pedestrian comfort and equity

Screening Process Step	Input Point	Response to Stakeholder Input
8. Level 2 Screening Process/Recommended Alternative	• CFG Meeting #4 • Agency Workgroup Meeting #4 • Public review of Draft PEL Study (pending)	• Right-of-way concerns for airport and private property based on stakeholder feedback influenced Recommended Alternative • Deferred selection of pedestrian bridge or at-grade crossing until further stakeholder engagement during design

3.3 HSIP Interim Action

The project team identified an immediate need to improve safety as quickly as possible at the E-Y intersection. Because implementing any recommended alternative from this PEL study would take several years, the project team looked for other ways to quickly implement a safety improvement at the E-Y intersection. DOT&PF has secured HSIP funding for a project that includes several intersection improvements that will be implemented separately from the Recommended Alternative.

A charette was held on September 10, 2019, in which project team members met to discuss the intersection crash history and develop near-term strategies for addressing crash concerns. The following strategies were identified:

- **Strategy A:** Reduce Speeds to Reduce Crash Severity
- **Strategy B:** Provide More Frequent Gaps
- **Strategy C:** Reduce Conflicts and Improve Lane Alignment between Northbound Vehicles and Southbound Left-turn (SBLT) Vehicles
- **Strategy D:** Reduce Conflicts and Improve Lane Alignment between Southbound Vehicles and Northbound Left-turn (NBLT) Vehicles
- **Strategy E:** Eliminate Left-turn Movements

Several interim concepts were developed to implement the various strategies. See Appendix I *Interim Action Strategies Summary and Comparison* for more detail.

The project team rapidly responded to community concerns expressed during the Public Open House #1 comment period and prior community outreach regarding the need for immediate safety improvements at the E-Y intersection. The HSIP was identified as one way to potentially fund and implement these improvements on an expedited timeframe.

On April 1, 2020, the project team held an Interim Actions – HSIP Application planning meeting for the E-Y intersection. At the meeting, interim action concepts that had been previously identified by the project team and analyzed to determine planning-level benefit and costs were presented. The team discussed each concept, and also identified other concepts that could be

beneficial. The project team recommended implementing the following interim measures to help mitigate the crash issue at this intersection:

- Seasonal speed reduction in the vicinity of the intersection (Figure 3-2)
- Left-turn lane median striping with recessed pavement markers Figure 3-3)
- Offset northbound right-turn (NBRT) lane with recessed pavement markers (Figure 3-3)

The project team reconvened on April 3, 2020, to identify a group of proposed concepts that were bundled together and included in an HSIP nomination for a project to be constructed. See Appendix E *Interim Improvements Concept White Paper* for more details. The HSIP nomination was submitted in July 2020 and was approved and funded in October 2020. The HSIP funding will provide $1.37 million in funding that is included in the 2020–2023 Statewide Transportation Improvement Program (STIP). Design and NEPA documentation for these improvements are planned to begin in 2021, with planned construction starting in 2022.

The HSIP interim action project addresses only one need of the E-Y Intersection Improvements Project: it improves intersection safety. It does not provide an alternate driving route in the event of a crash on Egan Drive, nor does it improve non-motorized access in the area.

Figure 3-2. Seasonal Speed Reduction Components of the HSIP Interim Action

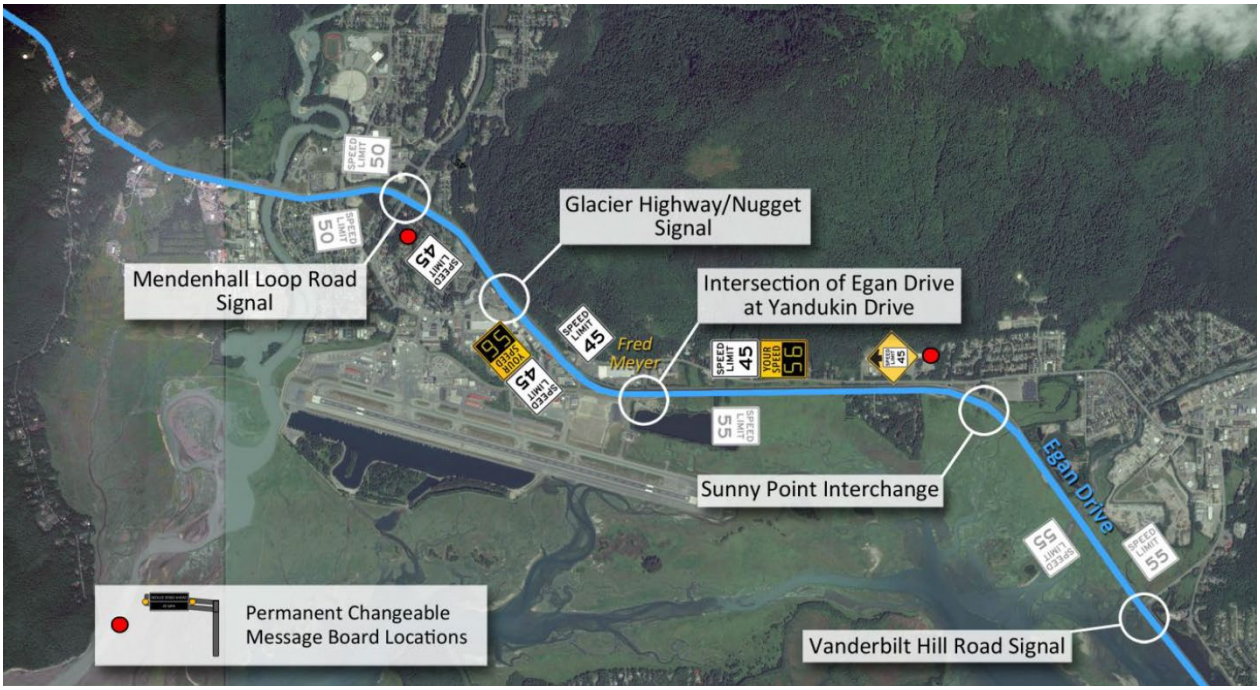
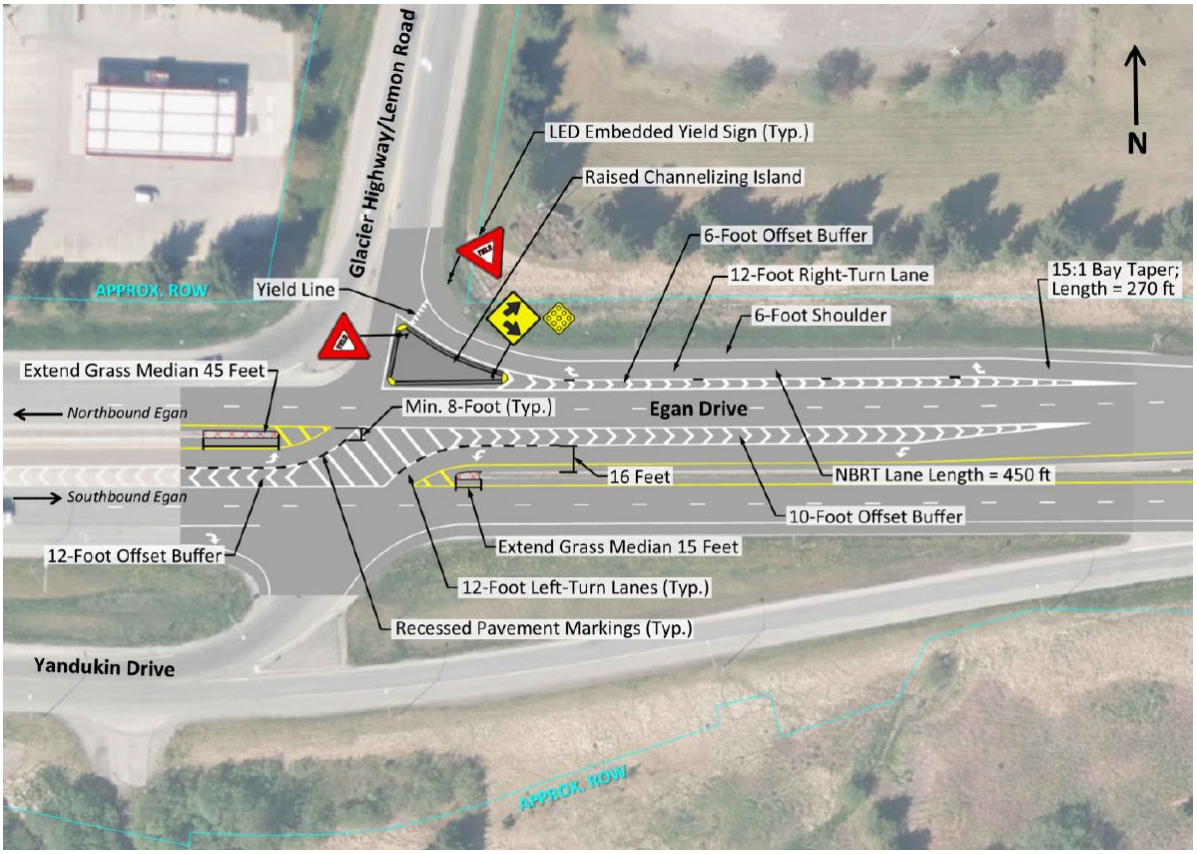


Figure 3-3. Left-turn Lane Median Striping and Offset Northbound Right-turn Lane Components of the HSIP Interim Action



3.4 Range of Alternatives Considered

The alternatives development process began with two project team workshops (April 8 and 15, 2020) held to outline specific traffic management and geometric improvements that would address the project purpose and need, and to discuss combinations of treatments to create alternatives.

During these workshops, the project team developed a list of treatments that were then combined to create build alternatives. Comments received from the public, agencies, and stakeholders were considered in the development of the alternatives. The initial list of treatments was preliminarily screened to identify reasonable treatments that address project purpose and need, resulting in the 15 build alternatives that were carried forward into the Level 1 Screening process (described in Section 3.6). The full list of treatments developed is detailed in Appendix F *Range of Alternatives White Paper*; this white paper also includes a tally of public comments on each treatment and the reasoning why each treatment was either incorporated into an alternative or rejected. Some treatments were identified as "compatible design elements," meaning they could not stand alone as alternatives but could be combined with several of the identified design alternatives to help meet project needs or goals.

Based on the workshop results and stakeholder input, the project team developed 15 stand-alone build alternatives for consideration (see Appendix F *Range of Alternatives White Paper* for a complete description of each alternative):

- Southbound Left Closure at E-Y Intersection and Two-way Frontage Road to Glacier-Nugget
- Median Closure at E-Y Intersection and Two-way Frontage Road to Glacier-Nugget
- Median Closure at E-Y, Interchange at Nugget
- Mobility Alternative (originally named Highway Safety Improvement Program (HSIP) Interim Action)
- Partial Access Signalized Intersection
- Full Access Signalized Intersection
- Move Signalized Intersection from Glacier-Nugget to E-Y Intersection
- Roundabout Intersection
- Two Signalized T-intersections
- Relocate Intersection to Southeast of Church
- Diverted Left-turn Intersection
- Diverging Diamond Intersection Pair (Glacier-Nugget and Yandukin Intersections)
- Single Point Urban Interchange (Overpass) at E-Y Intersection
- Diamond Interchange (Overpass) at E-Y Intersection
- Split Diamond Interchange (Overpass) Pair (Glacier-Nugget and Yandukin Intersections)

The project also identified six compatible elements that were incorporated into the alternatives:

- Travel Demand Management
- Intelligent Transportation Systems
- Flashing Intersection Ahead Sign or Signal Ahead Sign
- Median Crossover
- One-way Northbound or Two-way Frontage Road to Glacier-Nugget
- Grade-separated Connection between Yandukin Drive and Glacier-Lemon Road

This information was presented at the Agency Workgroup meeting on June 30, 2020, and the CFG meeting on July 1, 2020. Afterwards, refinements were made in the alternatives, including adding compatible elements to some alternatives so they would better meet the purpose and need. The refined alternatives were presented to the Agency Workgroup on August 20, 2020, and the CFG on August 21, 2020. These alternatives were presented during Online Open House #2 on October 16, 2020.

3.5 Two-level Screening Process Overview

The screening process consisted of two levels:

- **Level 1:** Identified which alternatives met the project's purpose and need, and qualitatively assessed each alternative's impacts to environmental, social, and economic considerations in comparison to the No Build alternative. The five top-ranking build alternatives were advanced into the next level of refinement and screening.
- **Level 2:** Used more detailed engineering and traffic modeling analyses along with quantitative calculations of approximate environmental consequences to compare the performance of the five build alternatives against each other and against the No Build alternative. The top performing alternative was identified as the Recommended Alternative.

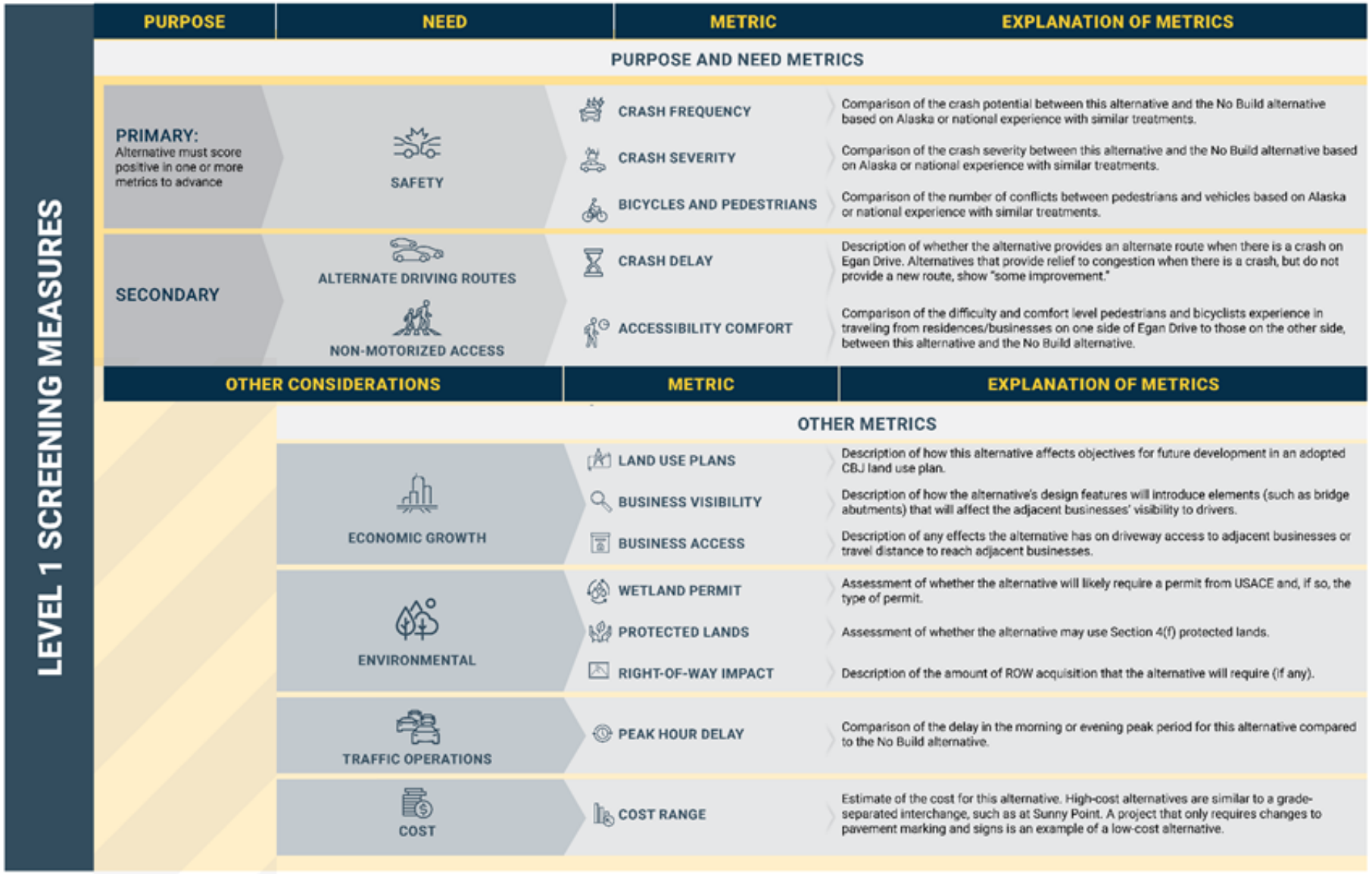
Certain terminology used to identify recommended and not recommended alternatives was defined early in the screening process:

- **Fatal flaws:** This includes costs or impacts that prohibit an alternative from being built.
- **Infeasible:** This considers if the alternative is physically incapable of being built or has other technical issues that are so challenging that they result in unusually difficult construction requirements, ongoing maintenance difficulties, or other unacceptable environmental or social impacts.
- **Reasonable/Unreasonable:** The Council on Environmental Quality (CEQ) regulations do not define a "reasonable" alternative; however, guidance is provided. The CEQ's guidance states that "[i]n determining the scope of alternatives to be considered, the emphasis is on what is 'reasonable' rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant" (CEQ 1986: Question 2a). Alternatives can be eliminated in the screening process based on any factor that is relevant to reasonableness. An alternative that does not meet the purpose and need is, by definition, unreasonable. For that reason, it can be eliminated in the screening process. An alternative that does meet the purpose and need can still be rejected as unreasonable based on other factors, including environmental impacts, engineering, and cost. For example, if two alternatives both meet the purpose and need to a similar degree, but one is much higher impact and more costly, those factors can be cited as a basis for rejecting the higher-impact alternative as unreasonable (AASHTO 2016).

3.6 Level 1 Screening Process and Results

Level 1 screening measures were developed initially by the project team using comments gathered during Open House #1. Draft Level 1 Screening measures were presented to the Agency Workgroup on June 30, 2020, and CFG on July 1, 2020. Comments received from those groups were incorporated into the final Level 1 Screening measures, presented in Figure 3-4.

Figure 3-4. Level 1 Screening Measures



The 15 build alternatives (plus the No Build alternative) from the *Range of Alternatives White Paper* (Appendix F) were screened and ranked using the Level 1 Screening measures. Although all build alternatives met the vehicular safety needs, most of the alternatives alone did not meet all of the baseline purpose and need elements. Compatible elements were then included with each build alternative to create combinations that met all of the baseline needs. If it were possible to add more than one compatible element to meet the same need, the element that met the needs with the least amount of impacts was included.

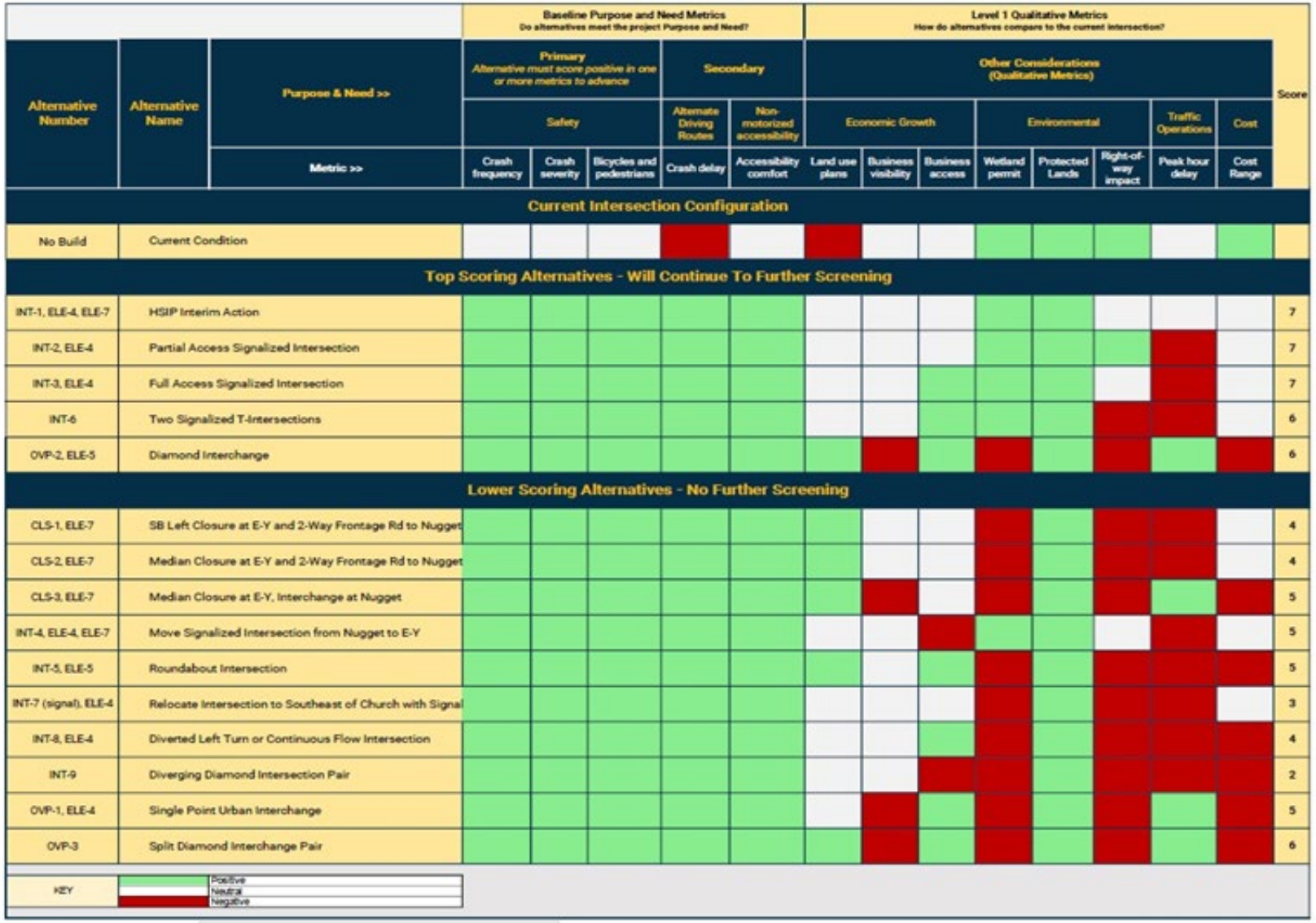
3.6.1 Screening Results

ELE-1: Travel Demand Management (TDM), ELE-2: Intelligent Transportation Systems (ITS), and ELE-3: Flashing Intersection Ahead or Signal Ahead Signs were assumed to be included in all the alternatives, when compatible. However, they were not included in the screening because none of these elements changed the screening results; they all help meet the project purpose and need, but do not meet them on their own.

Figure 3-5 shows a graphical representation of the Level 1 Screening results. For full results, see the *Level 1 Screening Results White Paper* (Appendix G). Across the top of Figure 3-5 are the primary and secondary needs on the left and the other considerations (e.g., economic growth, environmental impacts, traffic operations) to the right. Relative cost is also presented in Figure 3-5 but was not used as a deciding factor in choosing which alternatives would advance to Level 2 Screening. The left-most column lists the alternatives evaluated during Level 1 Screening. The alternatives are presented in two groups: those that are proposed to carry forward and those that did not make it through Level 1 Screening. In Figure 3-5, green represents an alternative responding positively to a screening measure, which is an improvement over current conditions. White is neutral, which means there was no improvement over current conditions. Red is negative, which is worse conditions over current conditions or substantial impacts to resources. In the right-most column is a numerical accounting of each alternative's score.

Because the project team was successful at meeting the primary and secondary needs for each alternative with the addition of various compatible elements, the difference between alternatives scores was apparent by examining the Other Considerations measures.

Figure 3-5. Level 1 Screening Results



Based on Level 1 Screening results, five alternatives advanced to Level 2 Screening (see Figure 3-6):

- Mobility Alternative (HSIP Interim Action)[7]
- Partial Access Signalized Intersection
- Full Access Signalized Intersection
- Two Signalized T-intersections
- Diamond Interchange

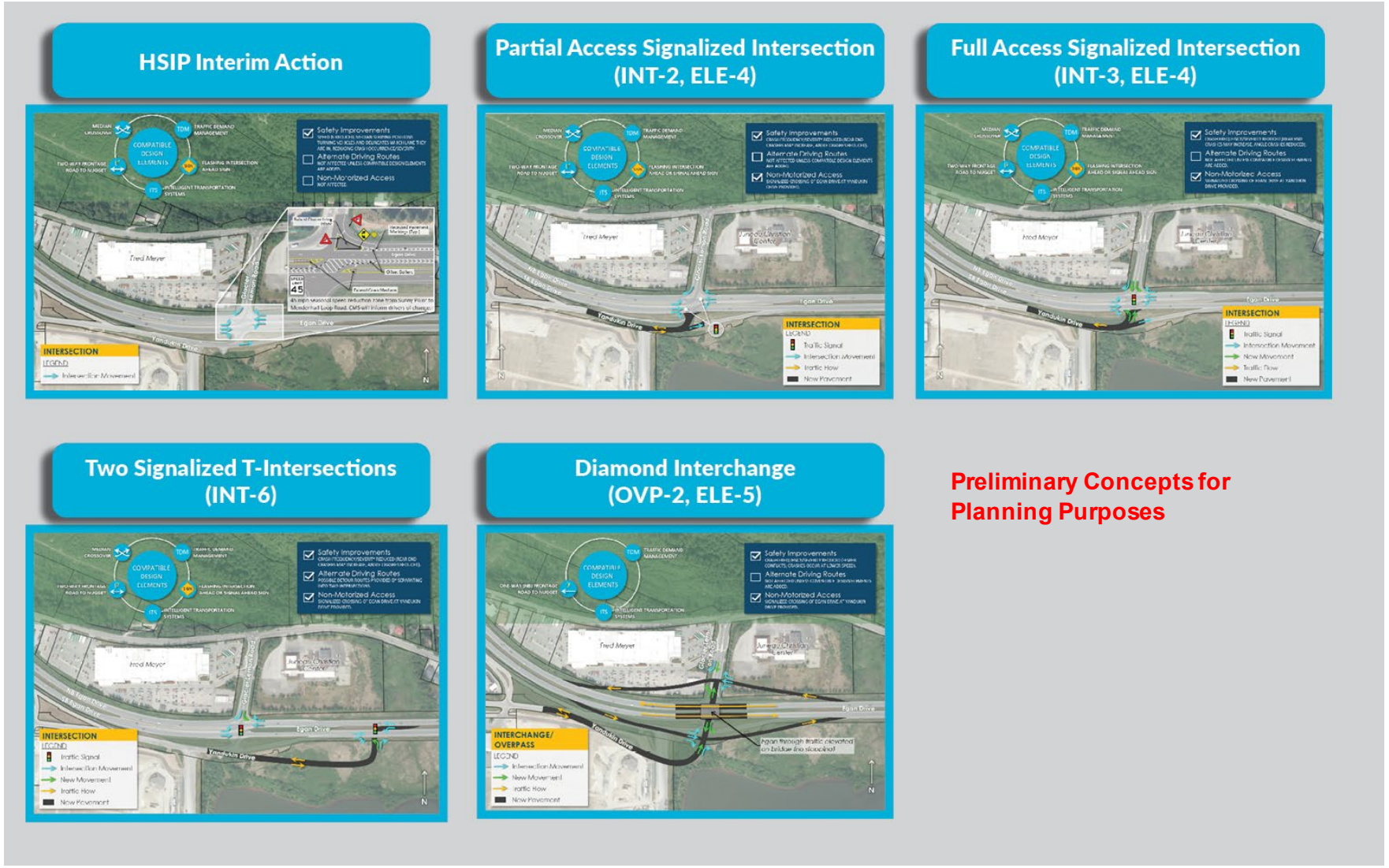
These alternatives scored higher than the ten alternatives that were not advanced to the next level of screening. The Split Diamond Interchange Pair was an exception, scoring equal to Diamond Interchange, which was advanced to Level 2 Screening. The project team elected to advance the Diamond Interchange because there were several stakeholder comments that supported the construction of an interchange at the E-Y intersection, and an interchange was the recommended solution of the prior traffic study. Although they scored equally, the Diamond Interchange design offered several advantages over the Split Diamond Interchange Pair: the design is less complex, offers opportunities to expand as needed, requires less right-of-way (ROW), and does not require improvements to the Glacier-Nugget intersection. Therefore, the project team determined it was appropriate to evaluate the Diamond Interchange during Level 2 Screening.

The draft Level 1 Screening process results were presented for review and comment to the Agency Workgroup on August 20, 2020, and the CFG on August 21, 2020. The same information was made available for public comment at Online Open House #2 on October 16, 2020. No changes to the results were necessary in response to comments.

The SEO concurred with the Level 1 Screening results on January 13, 2021 (see Appendix B).

[7] This was termed the HSIP Interim Action in the *Level 1 Screening Results White Paper* (Appendix G) and stakeholder outreach. Later in the PEL study process, this alternative was renamed as the "Mobility Alternative" to avoid confusion with the separate HSIP Interim Action project, which is included in the No Build alternative for this PEL study. The Mobility Alternative focused on adding compatible elements to the HSIP Interim Action project to meet the needs for an alternate driving route and non-motorized access improvements.

Figure 3-6. Five Alternatives Moved into Level 2 Screening



3.6.2 Alternatives Eliminated

Table 3-2 summarizes the alternatives eliminated from consideration as the result of the Level 1 Screening process.

Table 3-2. Alternatives Eliminated in Level 1 Screening

Alternative	Reason for Elimination
Southbound Left Closure at E-Y Intersection and Two-way Frontage Road to Glacier Nugget	• Unacceptable wetland and ROW impacts • Scored lower than other alternatives • Determined unreasonable
Median Closure at E-Y Intersection and Two-way Frontage Road to Glacier Nugget	• Unacceptable wetland and ROW impacts • Scored lower than other alternatives • Determined unreasonable
Median Closure at E-Y, Interchange at Nugget	• Unacceptable wetland and ROW impacts • Reduced business visibility • Scored lower than other alternatives • Determined unreasonable
Move Signalized Intersection from Glacier-Nugget to E-Y Intersection	• Unacceptable business impacts due to right-in, right-out movement at Glacier-Nugget intersection • Scored lower than other alternatives • Determined unreasonable
Roundabout Intersection	• Unacceptable wetland and ROW impacts • No reduction in delay anticipated • Scored lower than other alternatives • Determined unreasonable
Relocate Intersection to Southeast of Church	• Unacceptable wetland and ROW impacts • No reduction in delay anticipated • Scored lower than other alternatives • Determined unreasonable
Diverted Left Turn Intersection	• Unacceptable wetland and ROW impacts • No reduction in delay anticipated • Scored lower than other alternatives • Determined unreasonable
Diverging Diamond Intersection Pair (Glacier-Nugget and Yandukin Intersections)	• Unacceptable wetland and ROW impacts • Reduced business accessibility • No reduction in delay anticipated • Scored lower than other alternatives • Determined unreasonable
Single Point Urban Interchange (Overpass) at E-Y Intersection	• Unacceptable wetland and ROW impacts • Scored lower than other alternatives • Determined unreasonable
Split Diamond Interchange (Overpass) Pair (Glacier-Nugget and Yandukin Intersections)	• Unacceptable wetland and ROW impacts and high cost • Determined unreasonable

3.7 Level 2 Screening Process and Results

The five alternatives that ranked highest during Level 1 Screening were advanced to the second level of screening, which was a more in-depth, quantitative ranking of alternatives in comparison to each other and to the No Build alternative. The screening measures used during this process were based on project purpose and need as well as environmental, social, and economic factors, as presented in Figure 3-7 and further described in the *Level 2 Screening Results White Paper* (Appendix H).

Two variants of each alternative were analyzed during Level 2 Screening, each adding a compatible design element[8], shown in Figure 3-8. One variant added the median crossover element to each build alternative,[9] and the other variant included a two-way frontage road to the Glacier-Nugget intersection (Glacier Lemon Spur Extension) element to each build alternative. By adding these variants, the analysis conducted during the Level 2 Screening process verified that each build alternative was paired with a viable method for reducing delay when a crash occurs by providing an alternate route.

Two compatible elements that could be added to the build alternatives were also analyzed: a pedestrian bridge over Egan Drive and transit stop relocation. These elements were analyzed for their effect on pedestrian access, comfort, safety, and equity in the context of the Level 2 Screening measures.

[8] The alternative names were changed to include the variant title to make it clear which components were evaluated.
[9] The exception is the Two Signalized T-Intersections alternative, which would inherently allow additional routes when there is a crash without the median crossover treatment.

Figure 3-7. Level 2 Screening Measures

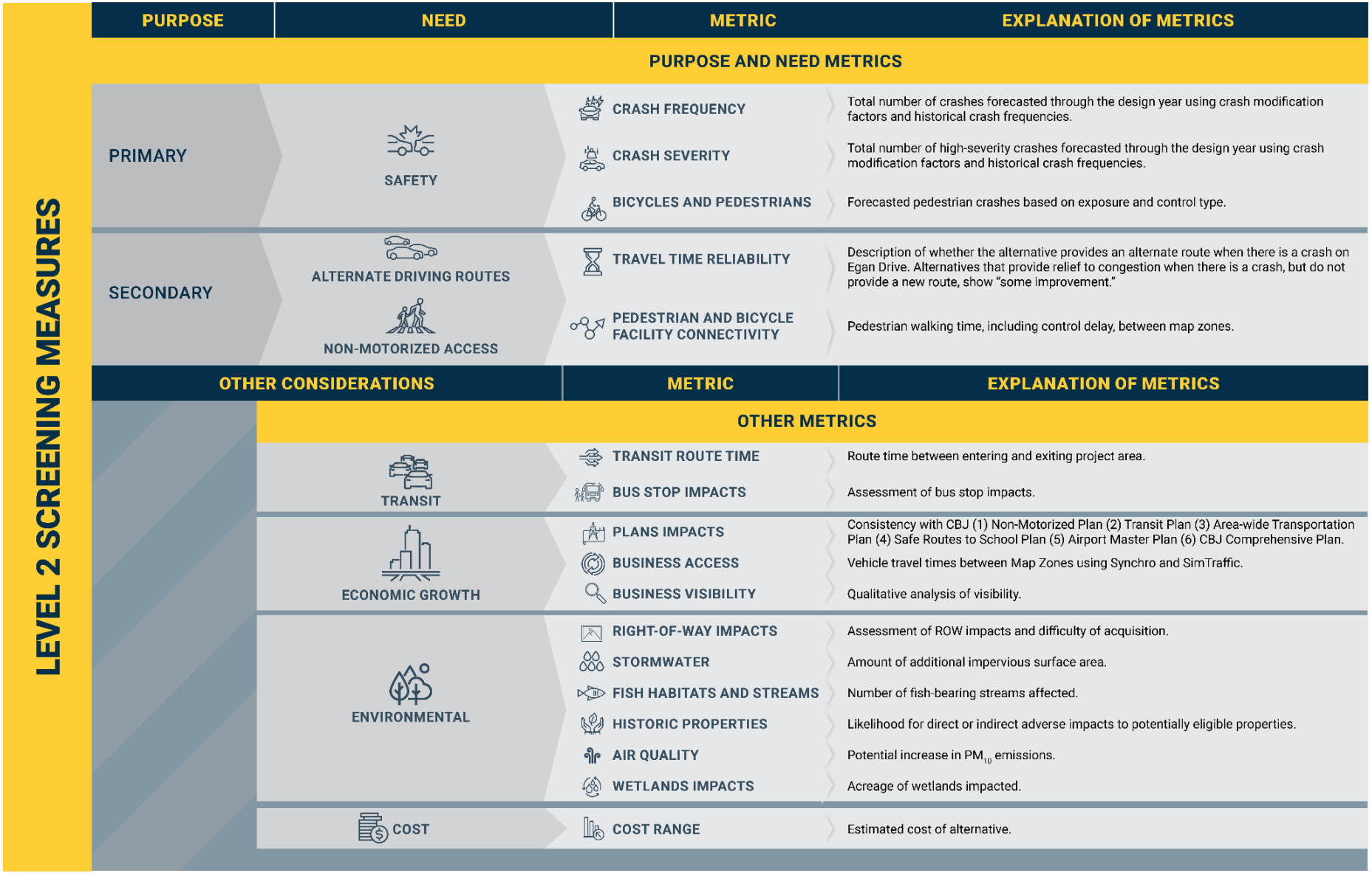
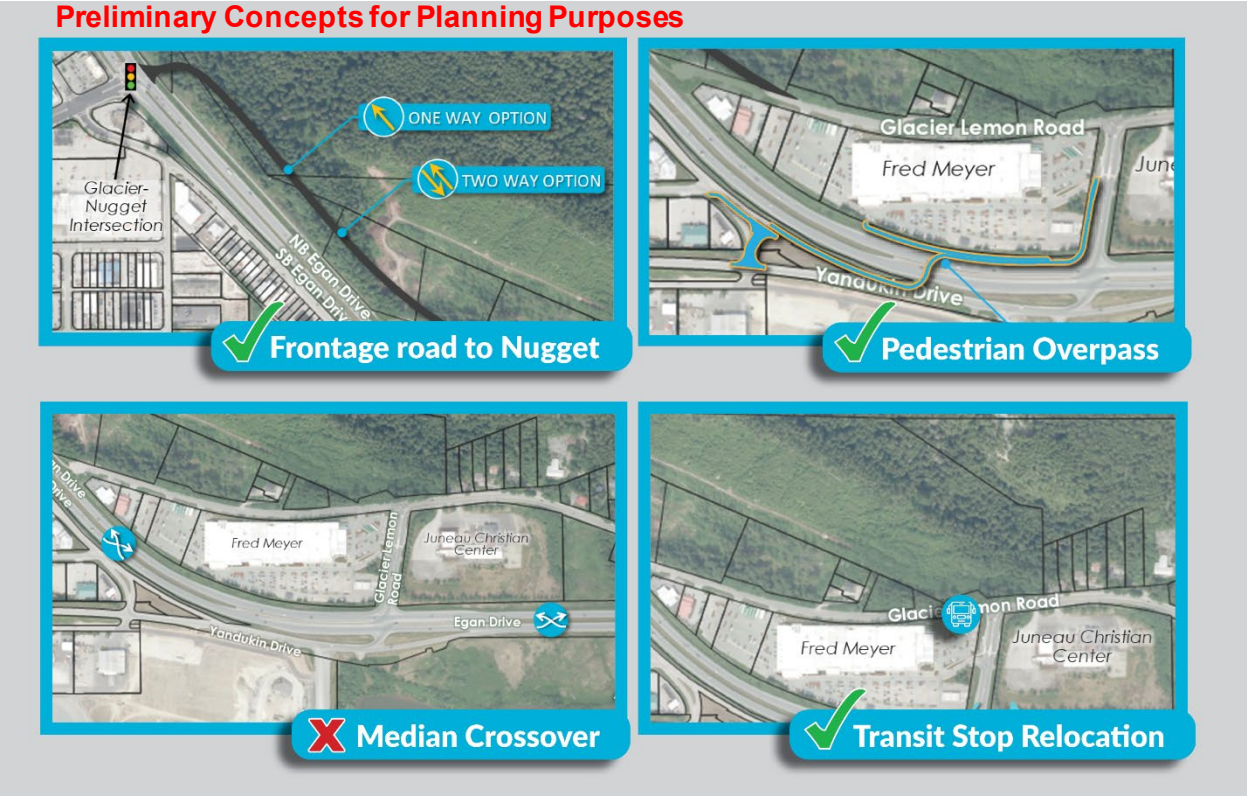


Figure 3-8. Compatible Design Elements



While the project team was conducting the Level 2 Screening process, they learned that:

- Median crossover traffic control measures could not be implemented quickly enough to provide alternate driving route benefits during crashes on Egan Drive. Therefore, they were eliminated from consideration because they are not reasonable.
- The compatible element that is a frontage road (Glacier-Lemon Spur) extended to the Glacier-Nugget intersection was added to each alternative design as a way to meet the alternative route need.
- Constructing an elevated pedestrian overpass (also known as a pedestrian bridge) over Egan Drive meets the needs for safety and non-motorized accessibility, provides benefits for the pedestrian and bicycling community, and is compatible with guidelines in the Americans with Disabilities Act (ADA). Therefore, the pedestrian overpass was added to each alternative design for evaluation purposes. Each design also functions with at-grade pedestrian crossings, with reduced benefits to non-motorized users compared to the pedestrian overpass but improved benefits compared to the No Build alternative.
- Each design is compatible with keeping the existing transit stops; no bus stop changes are necessary. Coordination with Capital Transit should continue during future design development.

- Acquiring ROW from the Juneau International Airport is challenging. There is more information about this issue in Chapter 4 Environmental Setting and Consequences.
- The private property parcels in the southwest quadrant of the E-Y intersection were sold, and some of the new owners are seeking permits for construction.

3.7.1 Screening Results

During the Level 2 Screening process, the project team eliminated several alternatives due to being infeasible or unreasonable and, as a result, did not forward them through the entire screening process. Each alternative variant that included the median crossover element was deemed unreasonable because they could not be implemented quickly enough to provide alternate driving route benefits during crashes on Egan Drive; therefore, they were eliminated. The project team determined that the Two Signalized T-Intersections alternative had a fatal flaw that made it infeasible due to unacceptably high property and social impacts. The alternative would create a two- to three-lane roadway through a large portion of private property southeast of the intersection (Honsinger Pond), rendering the property mostly unusable. Therefore, this alternative was excluded from further evaluation. Section 3.7.2 provides additional information on the alternatives that were eliminated during Level 2 Screening.

The Partial Access Signalized Intersection alternative scored the highest among the alternatives that met the project purpose and need, with acceptable impacts to ROW, wetlands, and vegetation. While the Full Access Signalized Intersection and Diamond Interchange alternatives also met purpose and need with acceptable impacts, the Partial Access Signalized Intersection had several advantages compared to the other two top-scoring alternatives. The Partial Access Signalized Intersection alternative has less wetland impacts than the Diamond Interchange alternative and fewer ROW, stormwater, and air quality impacts than the Full Access Signalized Intersection and Diamond Interchange alternatives. The Partial Access Signalized Intersection alternative is less complex, which means there would be less impacts to the traveling public during construction, and construction would be for a shorter period. The overall costs of the Partial Access Signalized Intersection alternative are less than the other two top-scoring alternatives. The overall costs for the benefit provided by the Partial Access Signalized Intersection alternative are more consistent with optimizing the system performance within statewide planning budgets.

Table 3-3 presents a summary of the Level 2 Screening results. Additional detail is included in Appendix H *Level 2 Screening Results White Paper*.

Table 3-3. Level 2 Screening Results

		Alternative & Compatible Element				
		No Build	**Mobility & Glacier Lemon Spur Extension**	**Partial Access Signal & Glacier Lemon Spur Extension**	**Full Access Signal & Glacier Lemon Spur Extension**	**Diamond Interchange & Glacier Lemon Spur Extension**
	Include Pedestrian Bridge?	N/A	Yes	Yes	Yes	N/A
	Move Transit Stops?	N/A	No	No	No	No
Combined Purpose & Need and Categories						
Purpose and Need Overall Score:	100.00%	3.2	4.3	6.0	6.0	6.2
Transit Overall Score:	26.00%	0.5	0.4	0.4	0.4	0.5
Land Use Overall Score:	27.33%	0.5	0.7	0.6	0.6	0.7
Environmental Overall Score:	25.33%	0.8	0.4	0.4	0.3	0.3
Cost:	21.33%	1.1	0.9	0.6	0.6	0.2
Combined Score:		**6.1**	**6.7**	**8.0**	**7.9**	**7.9**

N/A = not applicable

3.7.2 Alternatives Eliminated

Table 3-4 summarizes the alternatives eliminated during the Level 2 Screening process.

Table 3-4. Alternatives and Variants Eliminated in Level 2 Screening

Alternative	Reason for Elimination
Mobility & Median Crossovers	• Does not meet the need for an alternative route during a crash • Determined unreasonable
Mobility & Glacier Spur Road Extension	• Does not reduce crash frequency and severity compared to the No Build alternative • Determined unreasonable
Partial Access Signalized Intersection & Median Crossovers	• Does not meet the need for an alternative route during a crash • Determined unreasonable
Full Access Signalized Intersection & Median Crossovers	• Does not meet the need for an alternative route during a crash • Determined unreasonable

Alternative	Reason for Elimination
Two Signalized T-Intersections	• Unacceptable property impacts • Determined infeasible
Two Signalized T-Intersections & Glacier Spur Road Extension	• Unacceptable property impacts • Determined infeasible
Dimond Interchange & Median Crossovers	• Does not meet the need for an alternative route during a crash • Determined unreasonable

3.8 Recommended Alternative

The Partial Access Signalized Intersection with Glacier Lemon Spur Extension and protected pedestrian crossing is the Recommended Alternative.

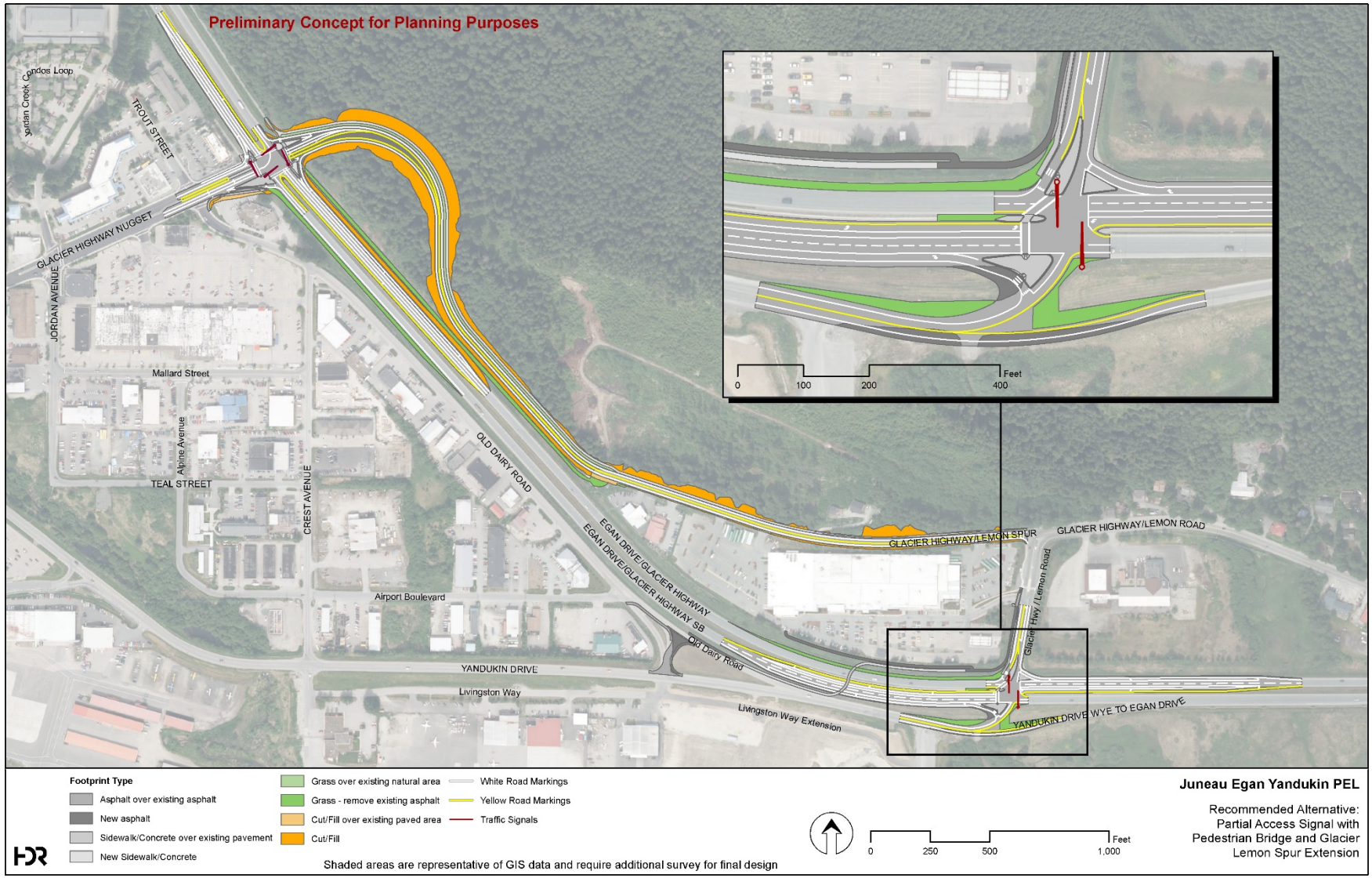
The project team determined that impacts to the Juneau International Airport property and private properties near Honsinger Pond were critical factors in identifying the Recommended Alternative because acquiring the ROW needed for the Full Access Signalized Intersection and Diamond Interchange alternatives could drastically impact new development planned for that area, which would have socioeconomic impacts that were not considered in the Level 2 Screening measures. Furthermore, acquiring land from the airport is complicated and time-consuming (see discussion of Federal Aviation Administration [FAA] approval in Section 4.3.10 Economic and Right-of-Way). The Partial Access Signalized Intersection alternative does not impact these properties, while the Full Access Signalized Intersection and Diamond Interchange alternatives do impact these properties.

3.8.1 Partial Access Signalized Intersection and Glacier Lemon Spur Extension

The Partial Access Signalized Intersection alternative would signalize the E-Y intersection but would only allow currently permitted vehicle movements (i.e., no left turns or through movements from the side streets would be allowed). A protected pedestrian crossing for Egan Drive is a component of the Recommended Alternative: either a signalized at-grade crossing or a pedestrian bridge. The Glacier Lemon Spur Extension is a component of the Recommended Alternative. Three additional compatible elements are included in the Recommended Alternative: TDM, ITS, and Flashing Intersection Ahead or Signal Ahead Signs.

Figure 3-9 presents the conceptual design of the Partial Access Signalized Intersection alternative with Glacier Lemon Spur Extension.

Figure 3-9. Recommended Alternative: Partial Access Signal with Pedestrian Bridge and Glacier Lemon Spur Extension



4. Environmental Setting and Consequences

4.1 Process Followed

This chapter provides a high-level overview of the existing environmental setting, potential impacts, mitigation, and stakeholder concerns for the alternatives that were analyzed as part of the Level 2 Screening process described in Chapter 3 Alternatives Considered and Screening Process (specifically, see Section 3.7). The impacts discussed for each resource are based on conceptual-level design and available data; no fieldwork was conducted to assess existing conditions or gather resource data. As the design is advanced and refined during the subsequent NEPA and preliminary design processes, alternative-specific impacts may change. See Appendix J *Environmental Overview Memorandum* for additional analyses for each alternative (and variant) that was carried into the Level 2 Screening process and more detail on the setting and impacts for each resource category.

This analysis followed regulations identified in 23 CFR 450 and guidance prepared by FHWA. 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 USC 327 and a MOU dated November 3, 2017, and executed by FHWA and DOT&PF.

4.2 Public and Agency Input

The Agency Workgroup, CFG, and public provided input regarding existing conditions, potential impacts, and possible mitigation measures. The input they provided and the project team response is summarized by resource in Table 4-1. More details regarding public and agency comments are provided in Appendices K through U.

Table 4-1. Summary of Public and Agency Input and Project Team Response to Environmental Impacts

Resource	Public and Agency Input	Project Team Response
Floodplains/Drainage	• None	• None
Water Quality (Groundwater and Surface Water)	• Water quality in Jordan Creek is a concern • Construction project must comply with Alaska Department of Environmental Conservation (ADEC) Construction General Permit (CGP) provisions	• Water quality screening measures added • Noted; compliance will be required for construction
Wetlands and Waters of the United States	• Presence of wetlands • Alternatives to avoid impacts to wetlands	• Wetland impacts screening measures added • Preliminary analysis of wetland impacts included in this chapter and Appendix J
Vegetation and Invasive Species	• None	• None

Resource	Public and Agency Input	Project Team Response
Threatened and Endangered Species and Wildlife	• Impacts to fish habitat and streams	• Fish and stream impacts screening measures added
Historic, Archaeological, and Paleontological	• Consider using impacts to historic resources as a screening criterion • Tax records could be used to identify the buildings in the area that could be of historic age	• Historic properties screening measures added • Additional historic properties research will occur during NEPA, including Section 106 consultation, if required
Socioeconomic Characteristics and Environmental Justice	• Need for additional ROW if an interchange at Glacier-Nugget intersection is recommended • Include equity considerations • Engage transit users in the process	• ROW impact screening measure added • Pedestrian access screening measures added • Transit screening measure added; Capital Transit representatives engaged during process; advertisements for Open Houses targeting transit riders was conducted

Transportation	• Improving connectivity and adding an additional route is important
	• Safety is a significant concern at the E-Y intersection
	• Adding a stoplight could be a benefit, or it could unnecessarily delay traffic
	• Adding an overpass could be a benefit
	• Eliminating left turns at the intersection would improve safety
	• Traffic signal is slowing traffic too much
	• Potential benefits that will result from the alternative
	  ○ Are the benefits worth the cost?
	  ○ Is the improvement really needed as the problems are caused by driver behavior rather than intersection design?
	• Safety for non-motorized users
	• Traffic delays caused by vehicle crashes
	• Potential loss of the bicycle path
		• Alternative driving route need identified
		• Safety need and measures added, and given priority during screening
		• Range of alternatives included both stoplight and non-stoplight configurations
		• Overpass/interchange alternatives analyzed
		• Left-turn restrictions analyzed
		• Traffic delay screening measure added
		• Costs of alternatives presented
		• Nonconstructive demand management and driver behavior measures were assumed to be included in all alternatives
		• Non-motorized safety screening measure added
		• Alternate route in the event of crashes on Egan Drive need identified
		• Multiuse path connectivity included in all alternatives

Resource	Public and Agency Input	Project Team Response
	• Lack of pedestrian crossing at the E-Y intersection, and accessibility to Fred Meyer • ADA accessibility of non-motorized improvements • Capital Transit access to Fred Meyer • Snow removal ○ Can the alternatives accommodate snow removal?	• Addition of pedestrian crossing at E-Y intersection analyzed • All non-motorized improvements will be ADA compliant • Bus stop and transit screening measures added • Operations will be considered during future design phases
Land Use	• Coordinate with the owners of the Honsinger Pond private property that is currently under development • Consistency with future land use plans is a goal	• Contact made with several private property owners near Honsinger Pond • Land use plan consistency screening measure included
Economic and Right-of-Way	• Access to Fred Meyer • Business visibility • Need for additional ROW • Acquiring ROW from Juneau International Airport land is very difficult • Consider economic development opportunities	• Access preserved for all alternatives • Business access/visibility screening measure added • ROW screening measure added • Consultation with airport management conducted • Some alternatives include increased access to private property; business access measure added
Recreational/ Section 4(f)	• Bicyclist and pedestrian facilities and safety • U.S. Forest Service (USFS) land may be protected under Section 4(f) • Historic properties may be protected under Section 4(f)	• Non-motorized safety measure added; non-motorized access analyzed • Consultation with USFS conducted • Preliminary Section 4(f) resource identification conducted
Visual Resources	• Impacts of the project on the viewshed, specifically views from the Juneau Christian Center and Fred Meyer • Visual impacts of elevating the roadway for an overpass (like at Sunny Point) • Sightlines and limited views of parts of the travelway and driveways • Safety issues associated with visibility/sightlines	• Business visibility measure added • Future design phases will refine geometry, sightlines, and safety standards • Visual impacts will be considered during NEPA process

Resource	Public and Agency Input	Project Team Response
	• Overpass/interchange alternatives affect views of wetlands, Douglas Island, and Gastineau Channel • Impacts on views for travelers arriving in Juneau and leaving the Juneau International Airport	
Noise	• None	• None
Air Quality	• Increased road dust • Transportation conformity required by ADEC	• Air quality screening measure added • Noted; conformity determination will occur during a later project phase
Hazardous Materials	• None	• None
Cumulative Impacts	• None	• None

4.3 By Resource

This section provides a short summary of the existing environmental setting, issues and potential impacts, mitigation, and next steps by NEPA resource category for the alternatives that were not eliminated during the Level 2 Screening process. More detailed resource information and an analysis of all the alternatives and variants brought into the Level 2 Screening are included in Appendix J *Environmental Overview Memorandum*.

Table 4-2 provides a summary of the calculated impacts to several resource categories, as presented in Section 4.3.

In addition to the calculated resource impacts presented in this chapter, the Economic and Right-of-Way category impacts played an important role in the alternatives analysis and selection of the Recommended Alternative, as described in Section 3.8 Recommended Alternative. The socioeconomic impacts of ROW acquisition of private properties currently under development near Honsinger Pond and the potentially complicated ROW acquisition process for airport property were not captured in the screening measures related to ROW used during the alternatives screening process. However, the socioeconomic considerations are described below in Section 4.3.10 Economic and Right-of-Way.

Table 4-2. Summary of Calculated Impacts to Resources

Alternative	Additional Paved Surface (Acres)	Wetlands Impacted (Acres)	Total Fish Stream Impacts (Linear Feet)	Consistency with Plan (Count; Max. 7)	ROW Acquisition (Acres)	Additional Winter Sanding Area (Acres)
No Build	0	0	0	1	0	0
Mobility with Glacier Lemon Spur Extension	4.57	3.4	1,906	5	7.11	1.48
Partial Access Signalized Intersection with Glacier Lemon Spur Extension (Recommended Alternative)	4.71	3.4	1,931	5	7.11	1.87
Full Access Signalized Intersection with Glacier Lemon Spur Extension	5.83	6.1	1,889	4	11.47	2.36
Diamond Interchange with Glacier Lemon Spur Extension	7.78	7.9	2,030	5	14.07	2.94

4.3.1 Floodplain/Drainage

Setting

Water resources within the study area include an unnamed perennial stream that flows down the hillside, through a culvert under the Glacier Highway, across an open field, and under Egan Drive. A dredged pond, known as Honsinger Pond, is located south of the E-Y intersection. Just outside the study area is Jordan Creek, a perennial stream that originates on the slopes of Thunder Mountain; crosses Egan Drive north of the Glacier/Egan ("Nugget") intersection; flows through a largely industrial area before its flow is routed under the Juneau International Airport runway through a culvert; and continues south, eventually into an estuary in the Mendenhall Wetlands State Game Refuge (Refuge).

Flood hazard zones, defined by Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), are located adjacent to both sides of Egan Drive.

Stormwater in the study area originates from impervious surfaces such as roads, parking lots, and roofs.

Issues

No alternatives would impact a regulated floodway. It is anticipated that each alternative would encroach on or impact a flood hazard area. The alternatives would add additional impervious surface, which would affect stormwater quality and quantity.

Mitigation

Mitigation measures that would be considered include limiting the extent of any fill or widening the roadway to avoid impacts into adjacent flood hazard areas.

Next Steps

Per Executive Order (EO) 11988, Floodplain Management, the project will need to avoid adverse impacts associated with the use or modification of floodplains. If there are impacts, the project will follow the process as described in the EO. Coordination with CBJ will be required for all floodplains permitting.

If there are floodplains impacts, the FIRM will need to be revised by submitting to FEMA a Conditional Letter of Map Revision prior to construction and a Letter of Map Revision after construction.

4.3.2 Water Quality

Setting

The western end of the study area is part of the Jordan Creek watershed. In 1998, Jordan Creek was added to Alaska's list of Section 303(d) impaired waterbodies for high sediment loads, low dissolved oxygen, and debris. A Total Maximum Daily Load (TMDL) study is a process through which pollution sources are identified. The study analyzes pollution sources of a waterbody and calculates the amount or load of that specific pollutant that the water can receive and still maintain water quality standards. For Jordan Creek, TMDLs were completed for debris in 2005. In 2009, TMDLs for dissolved gas and sediment were added and Jordan Creek was removed from the Section 303(d) list of impaired waters and moved to the Category 4a list of impaired water with an approved TMDL. Regular water quality monitoring and reporting continues for Jordan Creek.

Issues

Existing TMDLs and management plans identify Jordan Creek water quality as an area of concern. This issue was discussed with the Agency Workgroup and CFG.

Each build alternative would add pavement to the Jordan Creek watershed and could have water quality impacts. The Diamond Interchange with Glacier Lemon Road Extension would add the most impervious surface. Increased amounts of impervious surface could increase sediments as well as heavy metals from brakes, salts from winter maintenance, and oils and grease. Winter maintenance sanding could increase sediments that could make their way into the waterways.

Increased amounts of paved surface would increase stormwater volumes. Table 4-3 summarizes the increase of impervious surface added to the study area by alternative. These estimates do not include areas that replace existing paved surfaces with new pavement.

Table 4-3. Increase of Impervious Surface Added to the Study Area by Alternative

Alternative	Additional Paved Surface (acres)
No Build	0.00
Mobility with Glacier Lemon Spur Extension	4.57
Partial Access Signalized Intersection with Glacier Lemon Spur Extension	4.71
Full Access Signalized Intersection with Glacier Lemon Spur Extension (Recommended Alternative)	5.83
Diamond Interchange with Glacier Lemon Spur Extension	7.78

Mitigation

Stormwater management would be incorporated into any project design, per CBJ and DOT&PF typical practices. This could include designing and constructing swales or other retention methods, and operational measures addressing snow disposal locations and street sweeping. Alaska Department of Environmental Conservation (ADEC) General Permit compliance would be required for construction of each alternative; a Stormwater Pollution Prevention Plan would be developed to manage stormwater during construction.

Mitigation measures could include sediment fences as well as other sediment and erosion protection measures during construction. Design measures could include designing vegetated swales or sediment traps to reduce the loads reaching Jordan Creek and other stormwater pathways. Operational measures could include increased street sweeping and stormwater system maintenance.

Next Steps

During a subsequent NEPA process, an impact assessment will occur to specifically identify the potential water quality and stormwater impacts of the Recommended Alternative. Any activity that could result in a discharge into waters of the United States must apply to ADEC for a Section 401 of the Clean Water Act State Water Quality Certification, unless the project qualifies for an U.S. Army Corps of Engineers (USACE) nationwide permit.

4.3.3 Wetlands and Waters of the United States

Setting

Based on National Wetlands Inventory (NWI) mapping prepared before development in the area, freshwater forested/shrub wetlands were present where the existing Fred Meyer building and parking lot and Glacier Highway/Lemon Road is sited, as well as the hillside above Egan Drive between Fred Meyer and the Glacier-Nugget intersection. Freshwater emergent wetlands align both sides of Egan Drive to the east of Fred Meyer, along the flats. Lacustrine wetlands, encompassing Honsinger Pond, are present south of the project intersection.

The Refuge is a large estuarine wetland complex that abuts the southern edge of the study area. A section of estuarine wetlands adjacent to Honsinger Pond was sold to a non-profit conservation entity, Southeast Alaska Land Trust (SEAL Trust), as mitigation for the proposed filling of the emergent and lacustrine wetlands within the Honsinger industrial park area. A permit for wetland fill has been granted by USACE to allow industrial development underway around Honsinger Pond. Construction activities have begun and may have already filled certain areas that are listed in the NWI as wetlands.

Issues

Agency stakeholders participating in Agency Workgroup meetings held as part of the PEL study are concerned about the presence of and impacts to area wetlands based on the understanding that wetlands have important functions and value to habitat and flood protection, as well as USACE's statutory responsibility to protect wetlands.

Each build alternative would impact wetlands as mapped in the NWI. Table 4-4 identifies type and acreages, assuming that existing paved development has already been filled.

Table 4-4. Approximate Wetland Impacts by Alternative

Alternative	Wetland Type(s)	Wetlands Impacted (Acres)
No Build	None	0.0
Mobility with Glacier Lemon Spur Extension	Forested/Shrub	3.4
Partial Access Signalized Intersection with Glacier Lemon Spur Extension (Recommended Alternative)	Emergent; Forested/Shrub	3.4
Full Access Signalized Intersection with Glacier Lemon Spur Extension	Emergent; Lacustrine; Forested/Shrub	6.1
Diamond Interchange with Glacier Lemon Spur Extension	Emergent; Lacustrine; Forested/Shrub	7.9

Mitigation

Mitigation measures would include additional design refinement to avoid and minimize impacts. Measures would be employed during construction to stake edges of wetlands, protect wetlands from pollutants generated during construction, and restore areas of temporary impacts as soon as possible. Compensatory mitigation could be required by USACE for any alternative that impacts wetlands.

Next Steps

During the subsequent NEPA process, wetlands in the study area will be delineated and a functional assessment prepared. A field evaluation will identify what areas remain jurisdictional wetlands. A delineation report will be prepared in compliance with EO 11990, Protection of Wetlands, and the project team will coordinate its content with USACE and identify any

necessary Section 404 permits. Design measures will identify opportunities to avoid and minimize impacts.

4.3.4 Vegetation and Invasive Species

Setting

Vegetation within the heart of the study area is primarily disturbed grasses and shrubs, common to roadside areas. Non-native plant occurrences are noted on the Alaska Exotic Plants Information Clearinghouse data portal (ACCS, UAA 2020) within the study area. These include white and alsike clovers, annual and Canada bluegrasses, big chickweed, dandelion, common plantain, common tansy, corn spurry, creeping buttercup, curly dock, orange hawkweed, pineappleweed, reed canarygrass, and tall buttercup. Of these, reed canarygrass and orange hawkweed are the most invasive.

Issues

The alternatives would result in the removal of vegetation to accommodate the alternative. Most alternatives would affect disturbed grasses or areas immediately adjacent to improvements. Permanent vegetation impacts would be similar to those presented in Table 4-3, which summarizes additional paved surfaces by alternative. In addition to permanent removal of vegetation, temporary vegetation impacts would occur. However, the area disturbed during construction would be revegetated with native species.

Mitigation

DOT&PF typically employs mitigation measures to revegetate disturbed surfaces with native seeds, free of noxious weeds. Inventorying the presence of noxious weeds, and eradicating where possible prior to construction, could reduce this presence after construction completes.

Next Steps

During subsequent analyses, the study area will be surveyed for the presence of noxious weeds. Best Management Practices (BMPs) will be required during construction activities.

4.3.5 Threatened and Endangered Species and Wildlife

Setting

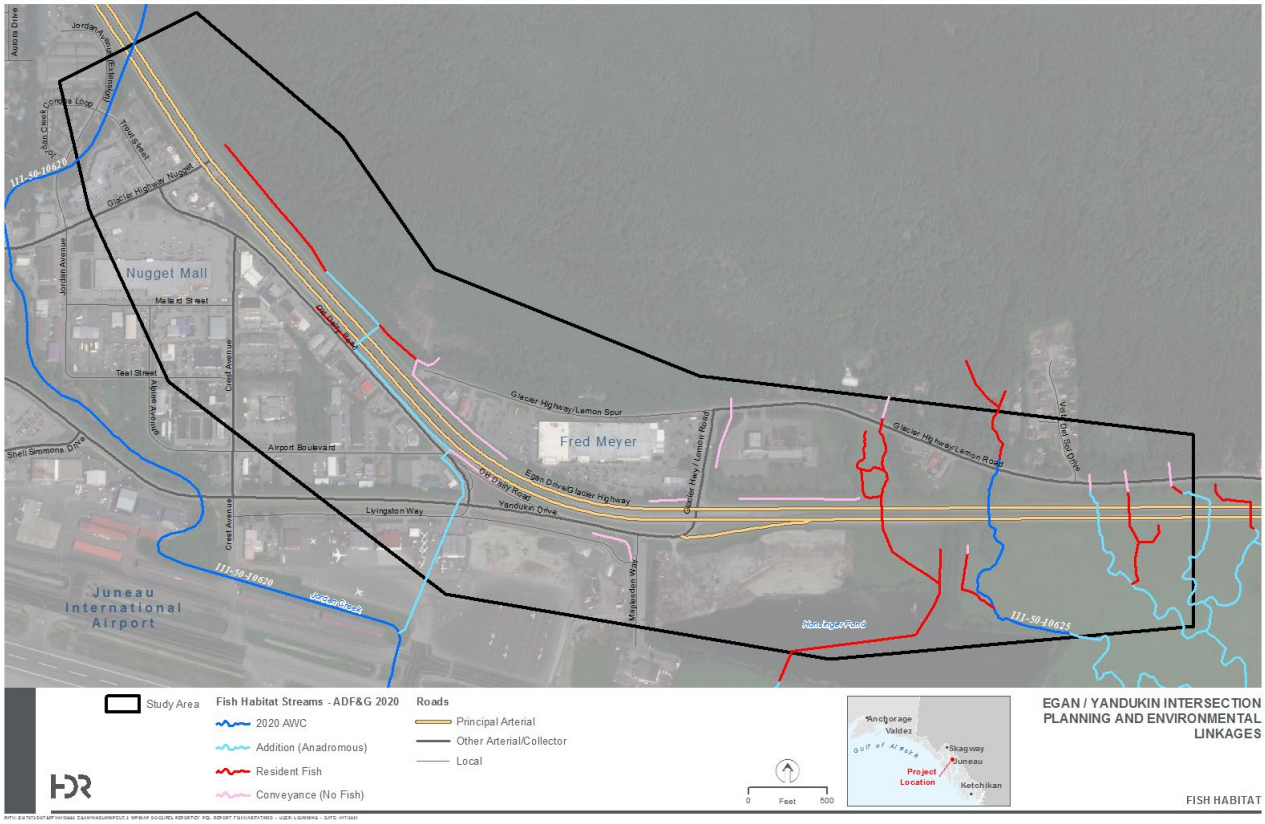
The U.S. Fish and Wildlife Service (USFWS) does not list threatened or endangered species within the study area, nor does it identify migratory birds of conservation concern at the location (USFWS 2020).

Waterfowl, shorebirds, raptors, and songbirds frequent the area, but are particularly numerous in and around the Refuge (Savell 2006). According to the Audubon Society (2020), it is a key migratory waterfowl and shorebird stopover location along coastal Alaska. A total of 230 species of birds have been documented in the Refuge wetlands, which represents 77 percent of the 300 bird species seen in the entire Juneau area (Armstrong and Gordon 2002 in Audubon Society 2020). Bald eagles, ravens, and crows are often viewed near and along roadways.

Small mammals, such as porcupine, red squirrel, voles, and mice are likely year-round residents in the study area. Large mammals such as black bear, Sitka black-tailed deer, and mountain goats live or cross through the north side of the study area for parts of the year.

The Alaska Department of Fish and Game (ADF&G) conducted two fish habitat surveys of the study area (November 2019 and September 2020). There are several fish-bearing streams and conveyances within the study area, as shown in Figure 4-1. One is an unnamed drainage (ADF&G stream catalog number 111-50-10625) that descends from the hillside east of Lemon Spur/Glacier Highway and makes its way under Glacier Highway and Egan Drive via a culvert south toward the Mendenhall Wetlands complex. It contains habitat supporting coho salmon rearing between the wetlands and hillside. Several other unnamed and unnumbered conveyances exist throughout the study area that support anadromous and resident fish. Just west of the study area is Jordan Creek (ADF&G stream catalog number 111-50-10620), which supports coho, sockeye, pink, and chum salmon; Dolly Varden; and cutthroat trout.

Figure 4-1. Study Area Fish Use Map



Issues

No impacts are anticipated to threatened and endangered species. Minor impacts to small mammal wildlife habitat could occur where vegetated areas are permanently removed and replaced with pavement or revegetated with native species.

Impacts to fish habitat and streams were mentioned as a concern by agency stakeholders during the Agency Workgroup meetings held during the PEL study.

As shown in Table 4-5, each build alternative would impact both anadromous and resident fish bearing streams.

Temporary impacts to water quality as a result of increased erosion and sediment during construction could result in minor impacts to the streams.

Table 4-5. Fish Stream Impacts

Alternative	Anadromous Fish Stream (Linear Feet)	Resident Fish Stream (Linear Feet)	Total Fish Stream Impacts (Linear Feet)
No Build	0	0	0
Mobility with Glacier Lemon Spur Extension	559	1,347	1,906
Partial Access Signalized Intersection with Glacier Lemon Spur Extension (Recommended Alternative)	542	1,389	1,931
Full Access Signalized Intersection with Glacier Lemon Spur Extension	542	1,347	1,889
Diamond Interchange with Glacier Lemon Spur Extension	1,488	542	2,030

Mitigation

Mitigation measures could include avoidance of land clearing activities during nesting seasons, revegetation of disturbed areas with native species, and use of BMPs during construction to minimize sedimentation. Modifications to water conveyances and streams could be required to be designed in a way that maintains or improves fish passage.

Next Steps

During subsequent NEPA processes, DOT&PF will coordinate with resource agencies to identify whether any species of special status or concern are present. An aerial or ground-level survey for bald eagle nests will be performed prior to construction. A permit will be required if construction activities will disturb bald eagles or take an active nest. Should any in-water or above-water work be required, DOT&PF will need to consult with ADF&G and obtain the necessary fish habitat permits.

4.3.6 Historic, Archaeological, and Paleontological Resources

Setting

A review of the Alaska Heritage Resources Survey (AHRS) identified four potentially historic resources and no archaeological or paleontological resources in the study area or its 0.25-mile buffer area (see Table 4-6). Three have not been evaluated for eligibility for listing in the

National Register of Historic Places (NRHP; JUN-00501, JUN-00502, JUN-00503). The fourth potentially historic resource (JUN-01107) was previously evaluated and found not eligible for listing in the NRHP. The Alaska State Historic Preservation Office (SHPO) concurred with this eligibility determination.

Table 4-6. Historic Sites in the Buffered Study Area

AHRS #/Name	Description	NRHP Eligibility
JUN-00501 Danner Residence	This building was the summer home of George and Rosa Danner, who established the Mendenhall Dairy in 1917. It is located at 7630 Glacier Highway, within the study area.	This building is associated with the early dairy industry in Juneau. It has not undergone a Determination of Eligibility.
JUN-00502 Mendenhall Dairy Milk House	This building supported the milk house and cooling room for the Mendenhall Dairy. Numerous additions have obscured the original structure. It is located at 7691 Glacier Highway, within the study area.	This building is associated with the early dairy industry in Juneau. It has not undergone a Determination of Eligibility.
JUN-00503 Mendenhall Dairy Barn	This barn replaced the original 1923 barn for the Mendenhall Dairy in 1934. Very few modifications have been made to the building since its original construction. It is located at 7671 Glacier Highway, within the study area.	This building is associated with the early dairy industry in Juneau. It has not undergone a Determination of Eligibility.
JUN-01107 Trout Street Bridge	This bridge was originally constructed from salvaged steel parts from the 1935 Gastineau Channel Bridge, with a modern, prefabricated concrete structure. The SHPO was consulted regarding replacement of the bridge in 2010. It is located northwest, and outside, of the study area but within the 0.25-mile buffer area.	This bridge was determined not eligible for the NRHP in 2010, and the SHPO concurred.

Issues

The SHPO suggested in comments during Agency Workgroup Meeting #2 (June 30, 2020) that preliminary research could be done regarding the ages of buildings in the built environment based on tax records to determine the number of historic-age buildings in the area. This research could be done as part of historic identification efforts during the next steps once a recommended alternative proceeds to the NEPA process and compliance with Section 106 of the National Historic Preservation Act (NHPA) is required. The SHPO also suggested that impacts to historic resources should be considered as one of the criteria for screening alternatives. This suggestion was incorporated by the project team.

None of the alternatives under consideration is anticipated to have a direct impact on the three potentially historic resources (JUN-00501, JUN-00502, JUN-00503) in the study area. These resources are located east and north of the alternatives, outside of their direct impact area. Indirect impacts to these resources from noise and visual intrusions could occur during construction; however, these impacts would be temporary and minimal. There may also be indirect noise and visual impacts of a permanent nature. Given the existing conditions of these resources and their location in regard to the project alternatives, the alternatives would likely not affect the resources' integrity of location, setting, design, materials, workmanship, feeling, and association in a way that would make them not eligible for listing in the NRHP.

Mitigation

The following mitigation measures could be considered:

- Route construction traffic away from identified historic resources to avoid or minimize temporary visual and noise impacts to these buildings during construction
- Retain trees/vegetation that screen these properties from the E-Y intersection to minimize visual and noise impacts

Next Steps

Several steps are required for paleontological, archaeological, and historic resources during the subsequent NEPA and associated Section 106 of the NHPA processes. DOT&PF will be required to:

- Consult with the SHPO, tribes and tribal entities, and other identified consulting parties as they define the Area of Potential Effects (APE);
- Identify cultural resources in the APE, including the research of building age based on tax records;
- Determine NRHP eligibility and effects from the project on NRHP-eligible resources in the APE; and
- Identify ways to avoid, minimize, or mitigate adverse effects to NRHP-eligible resources in the APE.

If any eligible properties are determined to be "used" from a Section 4(f) perspective, additional steps and documentation are required as described in Section 4.3.11.

4.3.7 Socioeconomic Characteristics and Environmental Justice

Setting

Businesses, Residences, and Community Resources
A number of businesses are located near the study area, including two large retail areas (Fred Meyer and Nugget Mall) in addition to smaller retail businesses. The study area includes an urgent care facility, multiple veterinary care centers, and one church. The Glacier Fire Station is approximately 3,000 feet west of the E-Y intersection. A small amount of residential development is located along Glacier Highway in the study area. No schools are located in or

near the study area. A day care facility is permitted at the Juneau Christian Center, with a capacity of 13 children and staff, located at the corner of Glacier Highway and Glacier Highway/Lemon Road.

Two low-income housing complexes, operated by St. Vincent de Paul, are located approximately 0.6 mile west of the E-Y intersection (approximately 0.3 mile south of the Glacier-Nugget intersection). The St. Vincent de Paul family shelter is also at that location. In addition to transitional living, the shelter includes the Sobering Center, the Dan Austin Center (which provides resources for people who are looking for ways into housing), Ida's Attic (which provides free clothes for the homeless), and a community center.

Plans exist to relocate Glory Hall, a homeless shelter and soup kitchen, from downtown to a location adjacent to the study area, near the intersection of Teal Street and Alpine Avenue. The new facility would include approximately 40 emergency shelter beds, a day room that would accommodate 120 people, and offices.

The Juneau Animal Shelter is approximately 1,500 feet east of the E-Y intersection.

Environmental Justice

According to the U.S. Environmental Protection Agency's (EPA's) EJSCREEN tool (EPA 2020), the study area consists of two census block groups[10] (one north and one south of Egan Drive). Both block groups have a higher percent of minority population than the State of Alaska, which is 38 percent minority (see Table 4-7). In terms of low-income population, the block group south of Egan Drive has a lower percentage of low-income population than the State of Alaska, while the block group north of Egan Drive has a higher percentage (see Table 4-8).

Table 4-7. Minority Population

Block ID	Block Group	State
021100004001	56%	38%
021100003003	70%	38%

Table 4-8. Low-income Population

Block ID	Block Group	State
021100004001	47%	25%
021100003003	10%	25%

[10] Please note that the block groups consist of a much larger area than the study area. The area immediately around the proposed project is believed to have little or no residential population, so the data may not accurately reflect existing conditions.

Issues

Socioeconomic and environmental justice concerns raised by the public and agencies include:

- Need for additional ROW if an interchange at the Glacier-Nugget intersection is recommended
- Equity considerations
- Engagement of transit users in the process

The alternatives under consideration would improve safety by reducing the number of crashes that occur in the area. This would reduce traffic delays associated with a crash. The improvements would also provide alternative access through this area should a crash occur, improving traffic flow, mobility, and quality of life. This would also improve conditions for emergency vehicles. The improvements would provide enhanced non-motorized facilities (pedestrian bridge or enhanced at-grade crossing), which would also improve safety, mobility, and business access.

Improved mobility in the area could have a small indirect benefit. The St. Vincent de Paul facilities (and the relocated Glory Hall) could benefit as they would have better pedestrian access to Fred Meyer.

Potential impacts or benefits to low-income or minority populations in or near the study area would include:

- Reduced air pollution associated with congestion or idling traffic, but increased air pollution associated with more paved surfaces
- Increased motorized and non-motorized safety
- Improved quality of life and safety for pedestrians and cyclists because of better facilities and access across Egan Drive
- Noise impacts (unknown at this time)
- Potential support for housing plans for all incomes identified in the *Lemon Creek Area Plan* associated with the Glacier Lemon Spur Extension

Mitigation

Mitigation measures that could be considered include:

- ROW and relocation benefits defined in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended
- Enhancements at bus stops for bus riders
- Improved access to bus stops for bus riders
- Improved non-motorized facilities for pedestrians and bicyclists
- Revegetation of disturbed areas
- Additional outreach to transit users
- Additional coordination with organizations whose clients rely on transit services such as St. Vincent de Paul, Southeast Alaska Independent Living, REACH, Catholic Social

Services, Polaris House, Juneau Housing First, AWARE, Salvation Army, Front St. Clinic, and the Southeast Alaska Regional Health Consortium

Next Steps

During the subsequent NEPA process, a full environmental justice analysis will be undertaken to determine if the project would cause disproportionately high and adverse impacts to low-income and minority populations. This process will include specialized outreach to low-income and minority communities, including those facilities serving these communities that are located in the study area. Mitigation will be incorporated into the project to reduce any impacts that are identified.

4.3.8 Transportation

Setting

Egan Drive is a four-lane, divided, principal arterial roadway running generally north-south. It carries approximately 30,000 VPD. Egan Drive connects Downtown Juneau with the Mendenhall Valley and Juneau International Airport as well as University of Alaska Southeast and Auke Bay Ferry Terminal.

Yandukin Drive is a major collector roadway, carrying approximately 2,500 VPD to Juneau International Airport and other commercial and residential locations.

Lemon Road/Glacier Highway is a minor arterial roadway. Volumes on the short segment between Fred Meyer and Juneau Christian Center are typically around 7,500 VPD. On the segment of Lemon Road/Glacier Highway that runs parallel to Egan Drive between the Sunny Point Interchange and Yandukin Drive, the volumes are approximately 4,500 VPD.

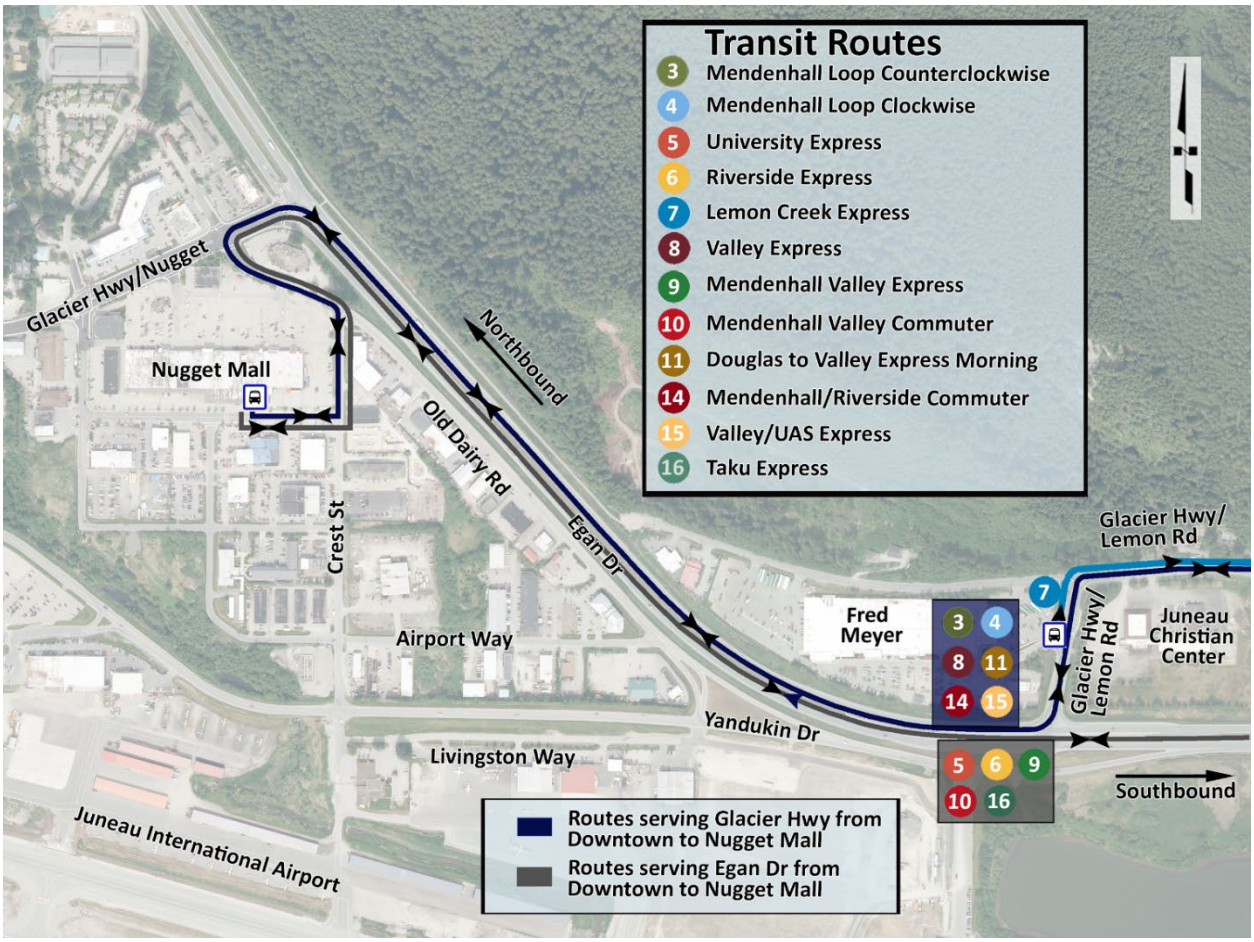
Glacier Highway, in front of Nugget Mall, is a minor arterial roadway and carries approximately 8,200 VPD.

The number of crashes at the E-Y intersection are of concern. Between 2005 and 2017, 86 crashes occurred at this location. No fatalities are associated with traffic accidents at this intersection. Left-turn crashes from Egan Drive are the predominant crash type of concern. Crashes are more likely when roads are icy, snowy, or wet, particularly during winter. According to the crash data, 52 percent of crashes at this intersection occur in November, December, and January. Crashes are more likely during rush hour, especially during periods of darkness. For additional information about crashes in the area, please see the *Traffic Analysis and Alternative Concepts Report* (Appendix C).

Currently, there are no designated pedestrian crossings at the E-Y intersection. However, there are a variety of sidewalks, separated pathways, and bicycle lanes within the study area. While the existing infrastructure provides continuous coverage (through sidewalks and other facilities) along the study area roadways, the only pedestrian/bicycle connection across Egan Drive is at the Glacier-Nugget intersection.

Two bus stops serve the area. One is on Glacier Highway/Lemon Road near Fred Meyer (E-Y intersection). The area around this bus stop was recently upgraded to connect to the sidewalk from Fred Meyer. There is another bus stop at Nugget Mall. Eleven bus routes typically pass through the study intersection (Figure 4-2)[11]. Five of the routes travel northbound/southbound along Egan Drive between the Nugget Mall and downtown. The other routes traverse Glacier Highway/Lemon Road near Fred Meyer and continue to/from downtown on Glacier Highway/Lemon Road and to/from the Nugget Mall on Egan Drive. At the study intersection, these routes make a westbound right turn when traveling towards the Mendenhall Valley/Nugget Mall, and make a southbound left turn when traveling towards the Lemon Creek Area/downtown.

Figure 4-2. Juneau Capital Transit Route Map



Issues

All alternatives would improve safety in the corridor, which would reduce associated travel delays. This would improve travel time reliability for vehicles and transit. All alternatives include alternative driving routes, which would improve mobility in the area and improve emergency

[11] As of October 2020, Capital Transit has been providing modified service due to the COVID-19 pandemic.

vehicle access when Egan Drive is blocked. All alternatives would improve safety and mobility for non-motorized users.

It is expected that construction would result in some temporary delays and service disruptions for transit users in the study area.

Mitigation

To address permanent and temporary impacts, mitigation measures that could be considered include:

- Additional amenities at transit facilities
- Maintenance of transit service during construction
- Maintenance of non-motorized access during construction

Next Steps

Next steps will include close coordination with Capital Transit, non-motorized user groups, and social service providers to design the improvements in a manner that better accommodates transit and non-motorized users. Next steps will also include evaluating the type of protected pedestrian crossing to be included (bridge or at-grade crossing). Additional work on the Glacier Lemon Spur Extension alternatives will be needed to determine if this improvement would result in access changes to Trout Street or Old Dairy Road.

4.3.9 Land Use

Setting

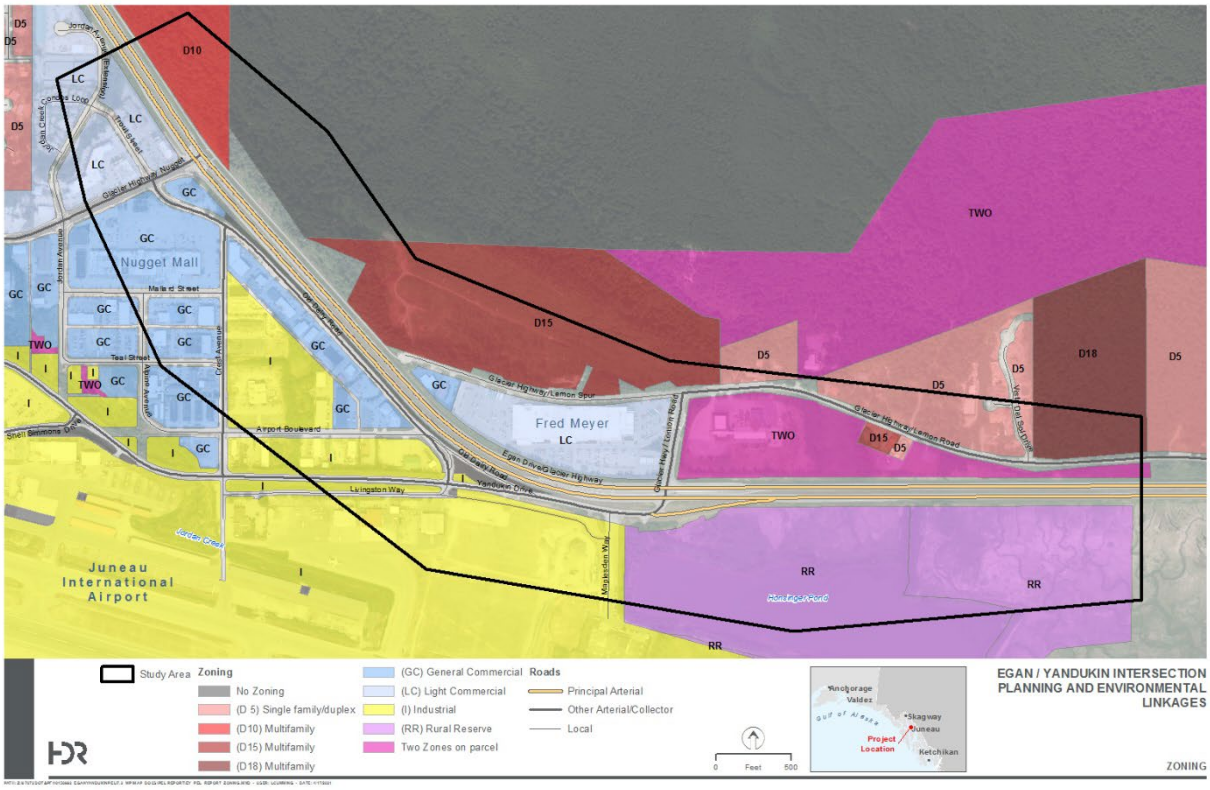
The study area is predominately commercial/retail land uses. Other land uses in the area include undeveloped, industrial, airport, and institutional (church). On the northwestern corner of Egan Drive and Glacier Highway/Lemon Road, there is a large retail development (Fred Meyer), while the northeastern corner is the Juneau Christian Center. The Juneau International Airport is on the southwestern corner of Egan and Yandukin Drives. The area south of Egan Drive (between the airport and Egan Drive) is a mixture of industrial and commercial development. The commercial development includes small-scale retail, larger big-box type stores, and restaurants. There are also multiple hotels in this area.

The project area is included in the *CBJ Comprehensive Plan* and the *Lemon Creek Area Plan*. The *CBJ Comprehensive Plan* supports the Glacier Lemon Spur Extension (Glacier Highway from its current termini to the Glacier-Nugget intersection). The *Lemon Creek Area Plan* identified the Glacier Lemon Spur Extension as one of its priority actions.

Several other plans were examined during the PEL study to determine the proposed alternatives' consistency with stated goals and objectives: *Juneau Safe Routes to School Plan*, *Airport Sustainability Master Plan – Juneau International Airport*, *City and Borough of Juneau (CBJ) Non-Motorized Transportation Plan*, *CBJ Transit Plan*, and *CBJ Area-Wide Transportation Plan*.

Zoning districts in the area include Rural Residential (RR), Industrial (I), General Commercial (GC), Light Commercial (LC), Multifamily (D15), and Multifamily (D10) (see Figure 4-3; CBJ 2020).

Figure 4-3. Zoning



Issues

Land use related concerns raised by the public and agencies include that the Honsinger Pond private property is currently under development. Coordination with the property owner has occurred to determine impacts to this development.

The build alternatives under consideration are generally consistent with existing land use plans and zoning. The alternatives with the Glacier Lemon Spur Extension are more consistent with the *CBJ Comprehensive Plan* and *Lemon Creek Area Plan* because these plans support the connection. This connection would provide a secondary route through the Lemon Creek area to reduce the complete reliance on Egan Drive and to allow for support to land uses discussed in the *Lemon Creek Area Plan*.

During the screening process, plan impacts were scored qualitatively based on whether the alternative was consistent with the following plans: *CBJ Comprehensive Plan*, *Lemon Creek Area Plan*, *Juneau Safe Routes to School Plan*, *Airport Sustainability Master Plan – Juneau International Airport*, *City and Borough of Juneau (CBJ) Non-Motorized Transportation Plan*, *CBJ Transit Plan*, and *CBJ Area-Wide Transportation Plan* (see Table 4-9). An alternative was

considered consistent with a plan if it accomplished a stated goal or project described in a plan, or if a plan did not state a goal or project in the study area.

Table 4-9. Plan Impacts

Alternative	Consistency with Plan						
	CBJ Comprehensive Plan	Lemon Creek Area Plan	Juneau Safe Routes to School Plan	Airport Sustainability Master Plan	CBJ Non-Motorized Transportation Plan	CBJ Transit Plan	CBJ Area-Wide Transportation Plan
No Build			X				
Mobility with Glacier Lemon Spur Extension	X	X	X	X		X	
Partial Access Signalized Intersection with Glacier Lemon Spur Extension (Recommended Alternative)	X	X	X	X		X	
Full Access Signalized Intersection with Glacier Lemon Spur Extension	X	X	X			X	
Diamond Interchange with Glacier Lemon Spur Extension	X	X	X			X	X

Mitigation

At this time, no mitigation for land use would be needed.

Next Steps

During the subsequent NEPA process, specific land use impacts will be assessed.

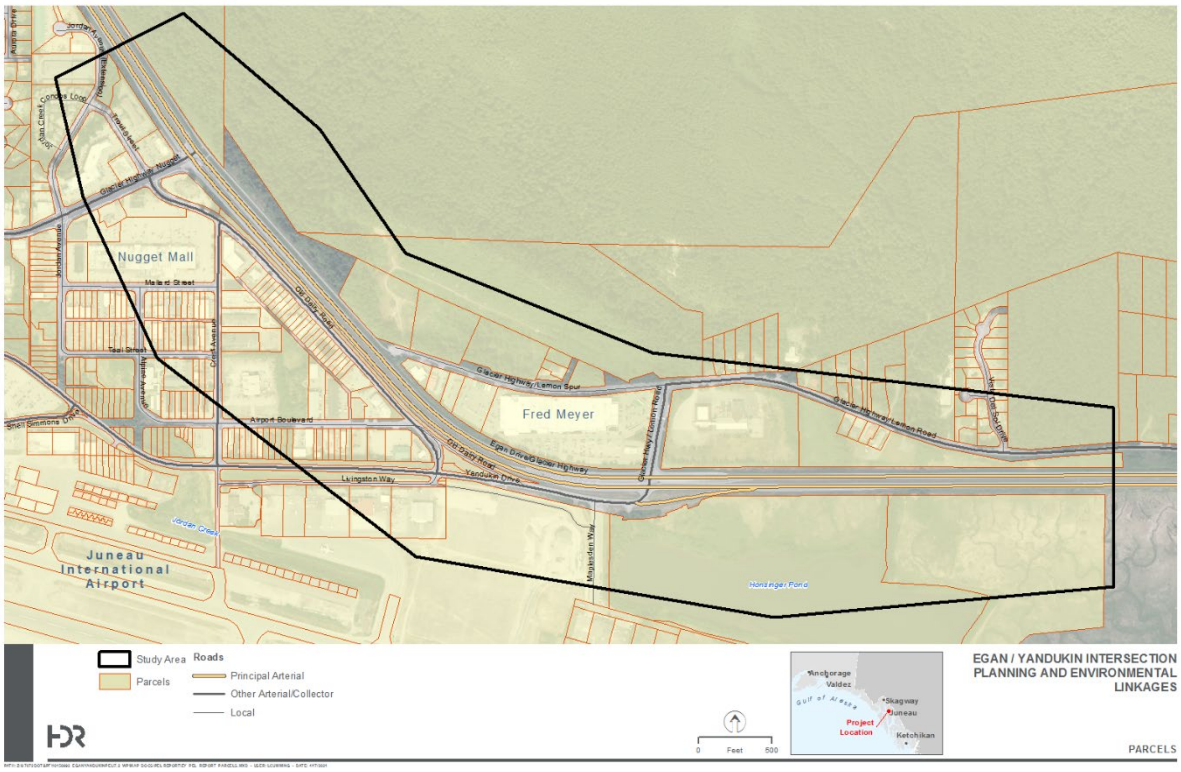
4.3.10 Economic and Right-of-Way

Setting

Most of the property in the study area is either commercial or industrial in use. Property boundaries are shown in Figure 4-4.

Property tax and sales tax revenue are relatively important revenue sources for CBJ, while hotel/motel taxes are a relatively minor income source.

Figure 4-4. Property Boundaries



Issues

Economic- and ROW-related concerns raised by the public and stakeholder groups include:

- Access to Fred Meyer
- Business visibility
- Need for additional ROW

During the PEL study, every attempt was made to avoid or minimize the need to acquire ROW for the project. Of the build alternatives under consideration, additional ROW would be needed for seven alternatives (see Table 4-10). The Diamond Interchange alternative would require ROW in all four quadrants of the E-Y intersection. All alternatives that include the Glacier Lemon Spur Road Extension would require ROW north of Egan Drive.

A concern was raised by representatives of the Juneau International Airport about alternatives that would need land from the airport. The Northeast Development in the *Airport Sustainability Master Plan* identifies land needed from the Full Access Signalized Intersection and Diamond Interchange alternatives as being slated for hangars/facilities on the large aircraft parking apron. The FAA Headquarters office oversees any property release from an airport. The process required is complex, time-consuming, and could end without the release being approved, potentially resulting in schedule delays and higher costs for the construction of an alternative that impacts airport property.

Table 4-10. Property to be Acquired

Alternative	Property to be Acquired (acres)
No Build	0.0
Mobility with Glacier Lemon Spur Extension	7.11
Partial Access Signalized Intersection with Glacier Lemon Spur Extension (Recommended Alternative)	7.11
Full Access Signalized Intersection with Glacier Lemon Spur Extension	11.47
Diamond Interchange with Glacier Lemon Spur Extension	14.07

A concern was raised by the private property owner southeast of the E-Y intersection. They have development plans for their recently acquired property, and they intend to begin construction in 2021. They would not support an alternative that would impact their property development: the Partial Access Signalized Intersection alternative would be preferable; the Full Access Signalized Intersection and Diamond Interchange alternatives would render their property useless for their intended use. The ROW acquisition process for either of the two latter alternatives would likely be costly and time-consuming.

The U.S. Forest Service (USFS) stated that modification of a Public Land Order would be necessary if USFS land would need to be converted to ROW to construct the Glacier Lemon Spur Extension. USFS would need to complete a NEPA process in order to transfer this land; USFS could potentially adopt DOT&PF's NEPA documentation, although USFS's process requirements are likely more extensive.

Alternatives that include the Glacier Lemon Spur Extension would provide additional road access that would potentially benefit private property owners along the road alignment. Additional access to public lands along the road alignment could also be provided.

The ROW needed from private property owners would be considered an adverse impact to these owners. This would not be expected to have an impact on local employment. The loss of property tax revenue would have a negligible impact on CBJ. The proposed project would not be expected to have an impact on sales tax or hotel/motel tax revenue.

It is likely that there would be long-term economic benefits realized by local businesses because customers would have better access to their business. This is due to the reduction in traffic congestion caused by a crash, which currently negatively affects decisions to access a business.

The Diamond Interchange alternative would have a negative impact on business visibility. The guardrail or concrete barriers on the overpass would obstruct portions of the Fred Meyer, Juneau Christian Center, and Honsinger Pond private properties. The elevated roadway would also obstruct people from viewing businesses on the other side of Egan Drive.

The Glacier Lemon Spur Extension would provide enhanced access to properties adjacent to the new road. This would be an economic benefit to these properties, which are planned for a mix of residential and commercial uses.

Mitigation

Ongoing conversations with property owners, businesses, and residents potentially affected by the project would be a critical part of future project development during the subsequent NEPA process. These conversations would help DOT&PF identify design details to avoid or minimize potential economic impacts of reduced visibility and property acquisition. Any property acquisition would conform to the requirements set forth in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and the Uniform Relocation Act Amendments of 1987 (as amended).

Given the nature of the corridor, construction would also have temporary impacts on study area businesses. Typical mitigation measures that could be considered include:

- Maintaining business access
- Establishing communications between the businesses and construction team
- Installing additional signage
- Conducting public outreach to let the wider region know that the area is open for business

Next Steps

During the subsequent NEPA process, for the alternative(s) that requires ROW acquisition there will be discussion on a property-by-property basis. Discussions will also need to occur with the Juneau International Airport.

During the subsequent NEPA process, a specific analysis of ROW to be acquired as well as impacts and improved access to businesses will be conducted. Additional work on the Glacier Lemon Spur Extension alternatives will be needed to determine if this improvement would result in access changes to Trout Street or Old Dairy Road and potential business and residential impacts.

4.3.11 Recreation/Section 4(f)

Section 4(f) is a federal environmental protection statute specific to U.S. Department of Transportation-funded projects that prohibits the use of land from publicly owned parks, recreation areas, wildlife and waterfowl refuges, or historic sites for transportation projects unless specific criteria are satisfied. Section 4(f) protections for parks apply when the property is 1) publicly owned, 2) generally open to the public, and 3) significant as determined by the Officials with Jurisdiction. DOT&PF has assumed FHWA's responsibility for Section 4(f) approvals under 23 USC 327, NEPA Assignment Program (see also 23 CFR 774.3). DOT&PF may not approve the use of a Section 4(f) property unless it can make a determination that there is no feasible and prudent avoidance alternative to the use of land from the property and the action includes all possible planning to minimize harm to the property resulting from such use,

or that the use of the property, including any measures to minimize harm, will have a *de minimis* impact on the property.

This section only addresses non-historic property areas that may be subject to Section 4(f) protection. Section 4.3.6 discusses historic properties that may also be subject to Section 4(f) protection.

If any projects move forward into NEPA analysis from the PEL study, DOT&PF will be responsible for determining whether Section 4(f) applies, and if so, which approval option is appropriate. The SEO has reviewed the *Preliminary Section 4(f) Applicability Research Memo*, contents of which are summarized below. Their comments were incorporated into that memo, and they have no additional comments, as documented via email on December 3, 2020. This memo is not available for public distribution because it contains sensitive information about cultural resources.

Setting

Multiple parks, recreation areas, and refuges are located in the study area. These areas are summarized in Table 4-11.

Table 4-11. Parks, Recreation Areas, and Wildlife and Waterfowl Refuges in the Study Area

Property	Description	Ownership	Open to the public	Recommended Section 4(f) Applicability
Honsinger Pond	Area directly south of the E-Y intersection, east of Juneau International Airport	*Private*	N/A Industrial	No
Honsinger Wetlands	32-acre parcel south of Egan Drive, north and east of Honsinger Pond, directly west of Mendenhall Wetlands	SEAL Trust *Private*	N/A Intent to provide public access	No
Mendenhall Wetlands State Game Refuge	4,000-acre refuge along 9 miles of shoreline in Gastineau Channel	State of Alaska *Public*	Yes	Yes
Glacier Highway Bike Pathway	Non-motorized, separated pathway on the north side of Egan Drive, from the termination of Lemon Spur to Mendenhall Loop Road	DOT&PF *Public*	Yes	No
Tongass National Forest	National forestland on the northwest side of Fred Meyer, uphill of Egan Drive, managed for semi-remote recreation and minerals	USFS *Public*	Yes	Unknown

N/A = Not Applicable

The Glacier Highway Bike Pathway is a non-motorized, separated pathway along the north side of Egan Drive from Lemon Spur to Mendenhall Loop Road. It is a publicly owned facility that is primarily used for transportation and is an integral part of the local transportation system. The requirements of Section 4(f) would not apply to this bike pathway since its primary use is for transportation and not recreation, qualifying it for an exception to the requirement for Section 4(f) approval, listed at 23 CFR 774.113 (f)(4), "Trails, paths, bikeways, and sidewalks that are part of the local transportation system and which function primarily for transportation."

Honsinger Pond, a dredged pond, and the adjacent Honsinger Wetlands, located south of the E-Y intersection, were sold to SEAL Trust as part of the mitigation plan for fill in the Honsinger Pond industrial area (see discussion in Section 4.3.3). As they are not publicly owned, Section 4(f) does not apply to these properties.

Mendenhall Wetlands State Game Refuge, located south of the study area, is a property afforded Section 4(f) protection under 23 CFR 774.11(i). The *Mendenhall Wetlands State Game Refuge Management Plan* (ADF&G 1990) identifies circumstances under which a transportation corridor may be established on or through Refuge lands; however, there is no formal designation for the transportation corridor and, should one be proposed, it would require Section 4(f) approval. The study area does not encompass any Refuge access points, with the nearest to the east at Sunny Point.

USFS manages federal lands within the Tongass National Forest, which are located east of Egan Drive near the intersection of Egan Drive and Glacier Highway. These lands are characterized by their "mostly natural" setting, and they are identified in the 2016 Forest Plan (USFS 2016a) as managed for semi-remote recreation, with an overlay land use designation to encourage mineral exploration and development (2016 Record of Decision, Land Use Designations Map; USFS 2016b). While the area is managed for recreation, it does not contain recreation facilities nor public access to recreation trails or facilities.

For a publicly-owned, multiple-use land holding to be subject to the requirements of Section 4(f), the primary purpose of the land as defined in an official management plan must be for public park, recreation, or wildlife and waterfowl refuge purposes and determined to be significant for such purposes (FHWA 2012: Question 4). Coordination with the Official with Jurisdiction (USFS in this case) has begun and will continue during the subsequent NEPA process. Understanding the primary purpose, current and planned functions of the property in question, and the significance of that property will be important in determining its Section 4(f) applicability.

There are no improvements that used funding from the Land and Water Conservation Fund. Therefore, Section 6(f) likely does not apply to this project.

Issues

Public and agency comments regarding recreation pertain primarily to bicyclist and pedestrian facilities and safety. Commenters are concerned that the alternatives provide safe facilities. No comments were received regarding Section 4(f) resources; however, this is a concern to the

SEO since they have responsibility to ensure the project (during the NEPA phase) complies with the requirements of Section 4(f).

The Glacier Highway Bike Pathway, along the north side of Egan Drive from Lemon Spur to Mendenhall Loop Road, is a publicly owned facility primarily used for transportation and is an integral part of the local transportation system. Therefore, it would likely not be considered a Section 4(f) resource.

Honsinger Pond and Honsinger Wetlands would be impacted by some alternatives. However, as discussed in Section 4.3.3, USACE has granted a permit for wetland fill to allow industrial development around Honsinger Pond. Construction activities have begun, and these areas could have already been filled.

None of the alternatives would be anticipated to use any lands within the Refuge. In addition, the study area would not encompass any Refuge access points, so no alternatives would affect access to the Refuge.

A small portion of federal lands within the Tongass National Forest, located east of Egan Drive near the intersection of Egan Drive and Glacier Highway, would be impacted by alternatives that include the Glacier Lemon Spur Extension. While the area is managed for recreation, it does not contain recreation facilities nor public access to recreation trails or facilities. Assuming it qualifies as a Section 4(f) property, the impacts to it could be considered *de minimis* because of the size of the property that could be needed for transportation uses compared to the overall size of the USFS parcel designated for remote recreation. Coordination with USFS regarding potential impacts is ongoing and would continue through the NEPA process.

Mitigation

Possible mitigation measures could include:

- Include BMPs during construction to reduce impacts from sedimentation and invasive plants
- Minimize impacts to properties through design techniques
- Revegetate using approved materials adjacent to properties

Next Steps

Next steps, as required for parks and recreation areas under Section 4(f) protection, are as follows:

- Confirm all Section 4(f) properties in the study area, both existing and planned
- Continue to coordinate with the Official with Jurisdiction (USFS) for the Tongass National Forest during the subsequent NEPA process
- Define uses of these properties
- If an individual Section 4(f) evaluation is determined to be needed, determine if a feasible and prudent alternative exists (see 23 CFR 774.17 for a definition of what constitutes a feasible and prudent alternative)

- Identify all possible planning measures to minimize harm to the properties
- Coordinate with the Official with Jurisdiction over the property
- Determine the correct type of Section 4(f) documentation to pursue, including an Individual Section 4(f) Evaluation (note, feasible and prudent alternatives to the use of the property will need to be developed), a *de minimis* impact (note: Official with Jurisdiction will need to concur with the finding that the project does not adversely affect the attributes that qualify the properties for protection under Section 4(f)), an enhancement exception (see note for *de minimis*), or a net benefit (because of the improved access and safety associated with wider walks)
- Prepare documentation of the Section 4(f) evaluation in accordance with 23 CFR 774

4.3.12 Visual

Setting

The study area varies in visual character. Commercial/retail use (big-box and small/stand-alone stores, restaurants, hotels, veterinary clinics) dominate the viewscape in the study area. Fred Meyer and its associated buildings and parking are northwest of the E-Y intersection. Other land use includes undeveloped and industrial land, the airport, and a church complex. The Juneau International Airport is southwest of the E-Y intersection. The Juneau Christian Center is northeast of the E-Y intersection. Some portions of the study area appear to be denser/visually cluttered (such as the area between the airport and Egan Drive), while others appear more open or undeveloped (e.g., the Honsinger Pond and Wetlands area).

Issues

Public and agency comments regarding visual resources expressed the following concerns:

- Impacts of the project on the viewshed, specifically views from the Juneau Christian Center and Fred Meyer
- Visual impacts of elevating the roadway for an overpass (like at Sunny Point)
- Sightlines and limited views of parts of the travelway and driveways
- Safety issues associated with visibility/sightlines
- Overpass/interchange alternatives affecting views of wetlands, Douglas Island, and Gastineau Channel
- Impacts on the views for travelers arriving in Juneau and leaving Juneau International Airport

Commenters requested renderings of the alternatives so the public could understand how viewscapes would change as a result of the project. While renderings are not currently available, they could be considered once the NEPA process has begun.

Most project alternatives would not significantly change the visual landscape in the study area as they would not significantly change the road vertically or horizontally, and therefore would not change views of the road nor views from the road. The Diamond Interchange alternative would affect the visual landscape, introducing an overpass with guardrail or concrete barriers, which

would obstruct views of portions of the Fred Meyer, Juneau Christian Center, and Honsinger Pond private properties. The overpass would also obstruct people's views of businesses on the other side of Egan Drive. In general, users of the road, as well as those viewing the road from other viewpoints, would still see an expanse of pavement and vehicles, edged by commercial, airport, and religious properties. Temporary visual impacts would occur during construction, including more construction vehicles, construction/detour signage, and material removals or stockpiles.

Mitigation

Possible mitigation for visual impacts could include:

- Selecting colors, treatments, and landscaping/vegetation to blend with adjacent surroundings
- Screening material stockpiles used during construction

Next Steps

Next steps for visual resources could include:

- During the NEPA process, a visual impact assessment will be performed, which may include renderings of alternatives.
- During the design process, aesthetic streetscape improvements will be investigated, including business visibility and signage, landscape materials selection, design elements/streetscape furnishings (e.g., planters, benches, trash receptacles), and lighting.

4.3.13 Noise

Setting

Identified noise-sensitive receptors located within and near the study area include a church, residential areas, hotels, and open space areas.

The primary existing noise source in the study area is traffic noise from Egan Drive. However, aircraft and helicopter noise is also heard due to the proximity of the Juneau International Airport. Noise levels were not measured, but existing levels are believed to be consistent with similar areas in close proximity to roads carrying high traffic volumes.

Issues

The *DOT&PF Noise Policy* defines traffic noise impacts as design year build conditions that would create a substantial noise increase over existing noise levels or design year build condition noise levels that would approach or exceed the Noise Abatement Criteria (DOT&PF 2018). A substantial noise increase would be considered an increase in design year noise levels of 15 or more A-weighted decibels over the existing noise level (for a Type I project).

The Diamond Interchange alternative would likely be considered a Type I project because of substantial vertical alteration. The Glacier Lemon Spur Extension component would likely be considered a Type I project because it is the construction of a highway on a new location. The other alternatives would likely be Type II projects. DOT&PF does not participate in the voluntary Type II noise program.

Mitigation

The *DOT&PF Noise Policy* (DOT&PF 2018) identifies when mitigation measures would be considered. According to this policy, traffic noise abatement measures would be considered when traffic noise impacts have been identified through the noise analysis process. Noise abatement measures must be found to be both feasible and reasonable to be included in a proposed project.

Construction noise would be subject to local regulations and ordinances.

Next Steps

The next step will be to confirm that alternative(s) that advance to the subsequent NEPA process do or do not qualify as a Type I project. If the alternative(s) under consideration is a Type I project, a noise study may be required to determine if there is a noise impact and if any mitigation is appropriate. The type of analysis performed as part of the noise study will be coordinated with the SEO prior to the study start.

4.3.14 Air Quality

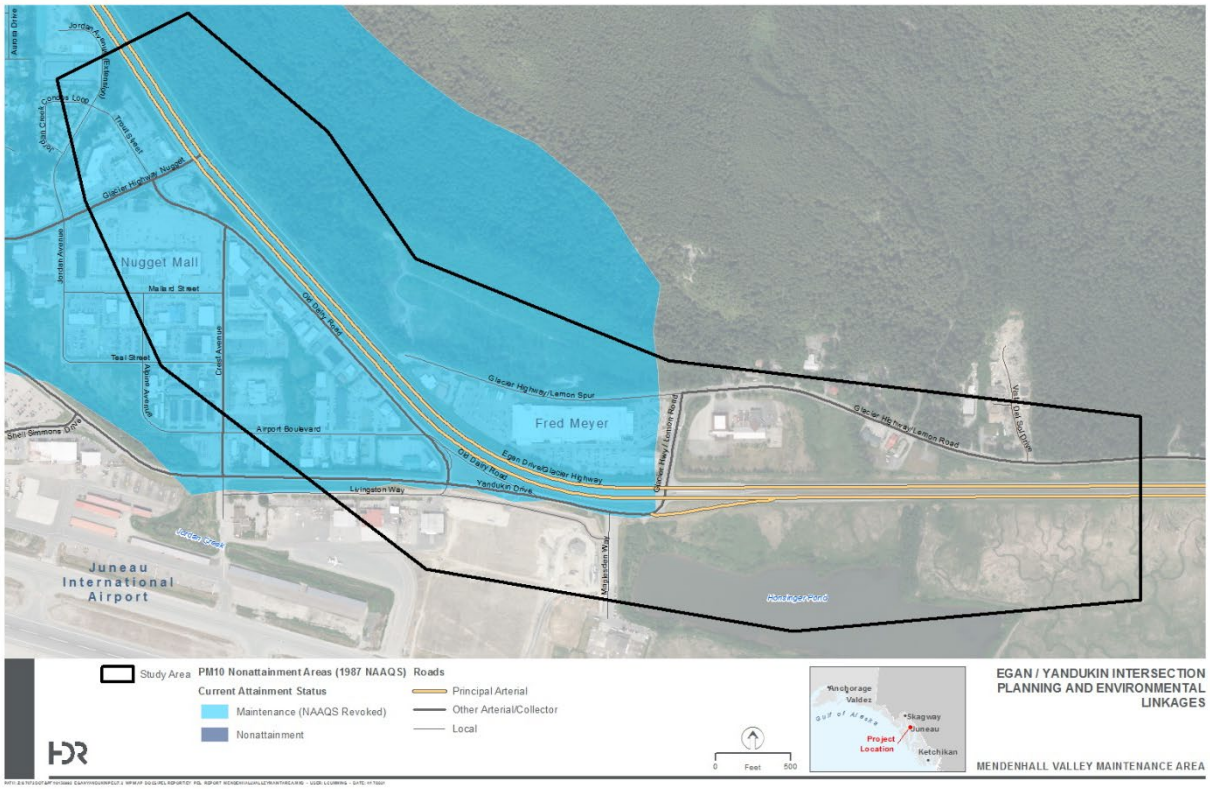
Setting

EPA designated Mendenhall Valley as an area of moderate nonattainment for National Ambient Air Quality Standards (NAAQS) for particulate matter with an aerodynamic diameter of 10 micrometers (PM_{10}) or less in 1991. Particulate matter pollution is a public health issue because these particles are small enough to penetrate deep into the lungs to cause health problems. Sources of PM_{10} include dust and soot, which can come from paved roads, unpaved roads, unvegetated lots, glacial silts, wood smoke, heating devices, and forest fires.

The State of Alaska has a Limited Maintenance Plan (LMP) for the Mendenhall Valley nonattainment area, which outlines the control measures and contingency measures in place. The EPA approved the plan and redesignated the area to attainment for the PM_{10} NAAQS, effective July 2013. The state has prepared a second LMP per regulations (ADEC 2020a) and conducted public outreach on the proposed 2020 LMP in June 2020.

The Mendenhall Valley maintenance area extends from the northern boundary of the Juneau International Airport north through Mendenhall Valley to the southern edge of the Mendenhall Glacier. It includes part of the study area, as shown in Figure 4-5.

Figure 4-5. Mendenhall Valley Air Quality Maintenance Area



Issues

Public stakeholders identified increased road dust as an issue of concern during public workshops. In addition, ADEC expressed concerns about transportation conformity.

Air quality impacts could occur from an increased amount of pavement needing winter sanding, which could result in increased PM_{10} emissions from re-entrained dust. The project alternatives would not increase forecasted traffic volumes nor change anticipated traffic vehicle mix. Therefore, it would not be anticipated that other NAAQS emissions levels, such as carbon monoxide, would be impacted.

Each build alternative would add pavement that would be subject to additional winter sanding, which could contribute to re-entrained dust particles and, as a result, could increase PM_{10} emissions.

The Diamond Interchange with Glacier Lemon Spur Extension would have the greatest increase in pavement area subject to winter sanding.

Table 4-12 summarizes the increase in pavement area subject to winter sanding. These estimates do not include areas that would replace existing paved surfaces with new pavement.

Temporary impacts to air quality would likely occur during construction.

Table 4-12. Increase in Pavement Area Subject to Winter Sanding

Alternative	Additional Winter Sanding Area (acres)
No Build	0.0
Mobility with Glacier Lemon Spur Extension	1.48
Partial Access Signalized Intersection with Glacier Lemon Spur Extension (Recommended Alternative)	1.87
Full Access Signalized Intersection with Glacier Lemon Spur Extension	2.36
Diamond Interchange with Glacier Lemon Spur Extension	2.94

Mitigation

The Mendenhall Valley maintenance area relies on measures that include sweeping and sanding mitigation programs, dust suppressants, and reducing speeds. CBJ and DOT&PF work to optimize sanding and deicing materials to maximize road safety and minimize the entrainment of fine dust in the air. These programs would continue as part of the proposed 2020 LMP, currently under review.

Next Steps

Because the study area is within the boundaries of a maintenance area, a transportation conformity analysis will be required. This includes:

- Conducting an analysis to determine if a PM_{10} quantitative hot spot analysis will be required; it is unlikely this will be required since the project will not result in a significant number of or significant increase in diesel vehicles
- Conducting either a quantitative or qualitative assessment of likely PM_{10} emissions
- Coordinating with the SEO and ADEC
- Making sure the project (with correct design scope) is in the STIP

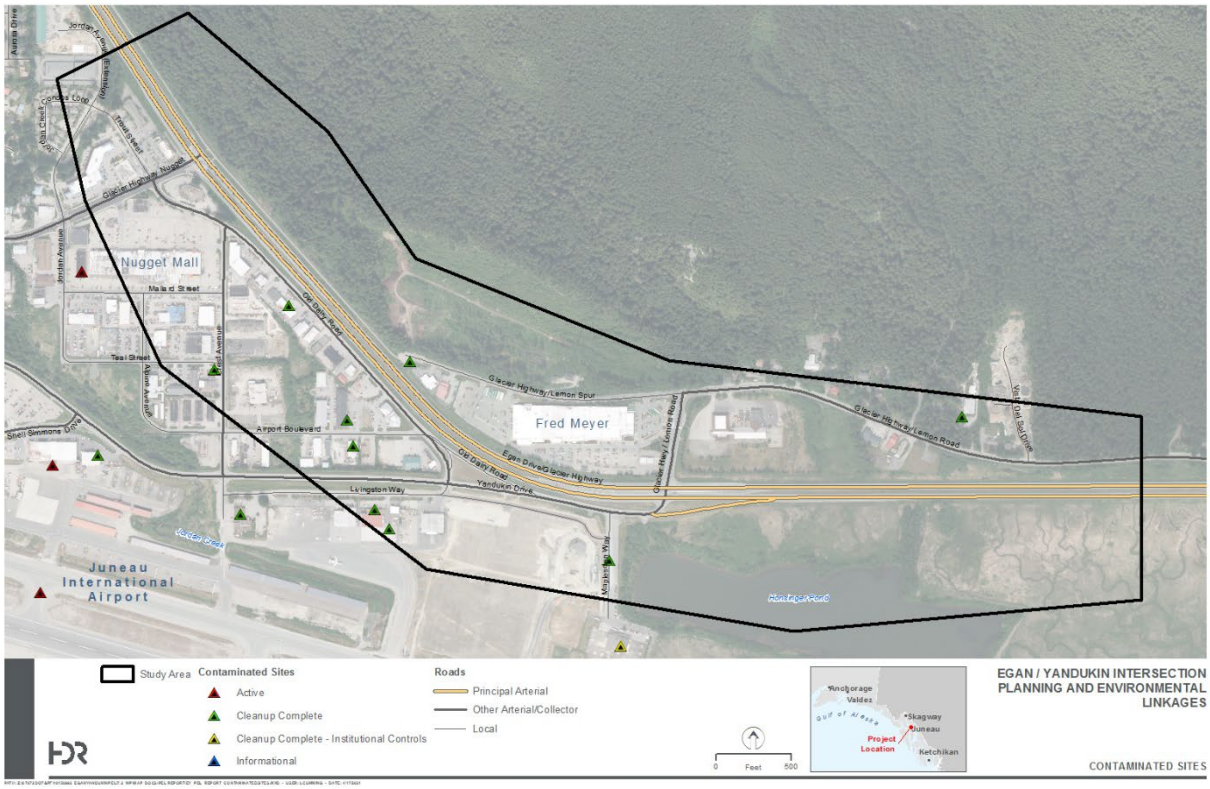
4.3.15 Hazardous Materials

Setting

An October 2020 search of the State of Alaska Contaminated Sites database (ADEC 2020b) identified multiple sites with historic petroleum contamination from underground and aboveground storage tanks that have been cleaned up and closed per ADEC (Figure 4-6).

There are multiple active sites at Juneau International Airport. However, the closest active site (approximately 220 feet) to the study area is the former Capital City Cleaners at the Nugget Mall, where soil and groundwater are contaminated with volatile organic compounds: Perchloroethylene, tetrachloroethylene , and 1,2- Dichloroethylene. The site has a soil vapor extraction system to mitigation the potential for vapor intrusion.

Figure 4-6. Hazardous Materials Locations



Fred Meyer operates a fuel stop at the southeast corner of its parking lot (8181 Glacier Highway). It has three underground storage tanks (USTs) in use for gasoline and diesel. While no reported spills or contaminated sites are associated with the USTs, the presence of petroleum products at that location being stored and dispensed regularly is a condition recognized as a potential environmental concern. Multiple USTs are permanently out of use (closure status unknown) at Temsco Helicopters (1650 Maplesden Way), immediately southwest of Honsinger Pond. One 8,000-gallon kerosene UST remains in use.

Issues

Any build alternative that would result in disturbing soils and groundwater in the study area could impact known contaminated soils. Construction of the Diamond Interchange alternative may impact the fuel stop at Fred Meyer. It is unknown whether this alternative would require the relocation of the UST or fuel stop entirely.

Mitigation

Should any previously unknown contaminated soils and waters be encountered during construction, DOT&PF would work with ADEC to determine a plan of action. Typically, this could include testing, removal, remediation as feasible, and monitoring. DOT&PF requires contractors to follow BMPs to properly store, transport, and contain hazardous substances during

construction to avoid spills and leaks. If excavation dewatering occurs within 1,500 feet of a contaminated site, an excavation dewatering permit would be obtained.

Next Steps

If contamination is known or suspected, DOT&PF typically performs a Phase I environmental site assessment to identify potential hazardous material concerns and required mitigation during the NEPA process.

4.3.16 Cumulative Impacts

Setting

Past actions that affect the resources in the study area include the development of Juneau International Airport and Egan Drive, development near Auke Bay and Mendenhall Valley, growth of the tourism industry, and related activities. This has resulted in changes in land use and increases in traffic along the corridor, as well as impacts to wetlands, wildlife, and other natural features.

Present and future actions that may impact resources in or near the study area include:

- Juneau International Airport has a number of infrastructure and planning projects underway. Most of these are expected to have little or no environmental impact because of their location or limited scope.
- The Honsinger Pond private property, located at the southeast corner of the E-Y intersection, is currently being developed as a commercial/light industrial development.
- DOT&PF and CBJ have renewed interest in considering a new crossing to Douglas Island. Previous work on this project has indicated that a possible location for the crossing could be near the study area.

Issues

To date, no public or agency concerns have been identified specific to cumulative impacts.

Mitigation

No mitigation has been identified.

Next Steps

These preliminary findings will be reassessed during the subsequent NEPA process when additional environmental analysis will be conducted, along with additional resource agency coordination and public engagement.

4.4 Additional Data or Gaps to be Supplemented in NEPA

4.4.1 Data Refinements/Outstanding Tasks

Data refinements and outstanding tasks to be addressed during the subsequent NEPA process include:

- Finalize the NEPA Class of Action (COA) determination for the Recommended Alternative or stages of it, depending on which Implementation Option is selected (see Chapter 6 Implementation Plan)
- Coordinate with the SEO once the NEPA process is initiated to determine if any data needs to be updated from the PEL study
- Initiate NEPA scoping, making sure the appropriate conditions for planning products and analyses to be adopted or incorporated into a NEPA process as listed in 23 USC 168 are being followed
- Conduct the NEPA process and prepare NEPA documentation for the Recommended Alternative or any stages of it
- Delineate wetlands and conduct a functional assessment analysis, prepare a delineation report, provide a Least Environmentally Damaging Practicable Alternative analysis to USACE, and obtain the appropriate wetland permit
- Conduct the Section 106 of the NHPA process
- Consult with USFWS on the need to conduct a bald eagle nest survey
- Assess impacts to the Honsinger Pond private property (currently under development)
- Acquire ROW (if needed) and coordinate with property owners
- Complete the Section 4(f) applicability process and any Section 4(f) documentation needed
- Conduct an air quality analysis (if applicable)
- Determine if additional hazardous materials investigative work is needed
- Update all other impact assessment categories as design or condition changes warrant

4.4.2 Agency Coordination

DOT&PF should continue agency and stakeholder coordination, including with:

- ADEC
- USACE
- ADF&G
- SHPO
- USFS
- USFWS
- CBJ
- Tribes and tribal entities
- Organizations whose clients rely on transit services
- Organizations that represent low-income and minority populations
- Organizations that represent bicyclists and pedestrians

5. Public and Agency Involvement

Planning regulations (23 CFR 450.316 and 210) relevant to public and agency involvement were followed for this PEL study. These include:

- Having a documented Public Involvement Plan (PIP)
- Establishing early and continuous public involvement (PI) opportunities
- Detailing explicit procedures, strategies, and outcomes such as time for public review and comment at key decision points and making public information available in electronically accessible formats and means
- Holding public meetings at convenient and accessible locations and times
- Providing timely notice and reasonable access to information
- Using visualization techniques if appropriate
- Providing reasonable public access to technical and policy information
- Demonstrating consideration of and response to input received
- Seeking out and considering the needs of traditionally underserved populations (including low-income and minority households)
- Periodically reviewing the effectiveness of procedures and strategies to ensure a full and open participation process

The public and agency involvement conducted during this PEL study does not substitute for public and agency involvement needed during NEPA or other environmental review processes, such as Section 106 of the NHPA. Information obtained during this PEL study is intended to be used to inform those future environmental review processes.

This chapter describes the goals of this PEL study's public and agency involvement program; the outreach tools used; and the outcomes of the public, CFG, and Agency Workgroup meetings.

5.1 Goals of the Program

Open and transparent communication among a diverse public, agencies, and the project team was necessary to (1) gain productive input, which led to better decisions that met community and agency needs in this PEL study; and (2) development and implementation of a transportation solution to the project needs and goals. The project team identified the following goals for the public and agency involvement program:

- Build awareness of the project and PEL approach through strategic communication and public relations tactics
- Inform and involve a diverse group of stakeholders, which includes residents of potentially affected areas; commuters; area business representatives and employees; local, state, and federal agencies; community organizations; tribal entities; and others
- Communicate project information and opportunities to comment in an open and transparent PI process that inspires trust in the information presented; participants should know that their input is heard and considered, and should understand how their comments will be used

- Provide a variety of opportunities for the public and stakeholders to stay informed and provide input
- Comply with Title VI of the Civil Rights Act of 1964, Title II of the ADA, and EO 12898
- Respond promptly to project-related inquiries, comments, and requests as well as document feedback for project consideration
- Document and measure the progress and effectiveness of the PIP
- Provide public notification that planning products may be adopted during a subsequent environmental review process
- Obtain concurrence from state and federal permitting and approval agencies in the planning process and products that are developed

5.2 Specific Techniques Used

The project team used a variety of techniques designed to lead to more informed public and agency stakeholders who meaningfully contributed to the PEL study. Specific activities and deliverables were crafted around the desired outcomes of the outreach effort at that phase. Key techniques that were used throughout the project include:

- **Public Open Houses** – Public Open Houses provide an opportunity for the public to learn more about the project and provide feedback. They also give the public an opportunity to ask questions of the project team. An in-person Public Open House was held on November 19, 2019.
- **Public Notice** – Public notices were published in the *Juneau Empire* newspaper and the State of Alaska Online Public Notice system, notifying the public of the Public Open Houses. The project team intends to provide notice for the availability of this draft PEL study in a similar method.
- **Information kiosk** – To promote the first Public Open House (November 19, 2019), project team members set up a kiosk at Fred Meyer during peak evening hours on November 18, 2019.
- **Online Open House** – An Online Open House helps reach populations that would be unable or unlikely to participate in a traditional in-person Public Open House. Online Open Houses provide the content and opportunity for feedback that typically occurs during a Public Open House. An Online Open House, following Public Open House #1, was published on November 20, 2019. A second Online Open House was published on October 16, 2020, with a live question and answer event held that evening.
- **Media engagement and inclusion** – Local television, radio, and print media were invited to attend the Public Open Houses. The DOT&PF project manager participated in a radio interview to answer questions about the project and promote community involvement.
- **Social media** – DOT&PF's social media account (Facebook) was used to post meeting notifications, meeting reminders, and reminders to submit comments.
- **Community focus group** – The project team created an advisory group, called the CFG, comprising 22 members of the public who contributed meaningful and substantive feedback outside of the open houses. This CFG helped the project team's understanding

of the community's needs and concerns during the PEL study. An in-person CFG workshop was held on November 5, 2019. Online CFG workshops were held on July 1, 2020; August 21, 2020; and January 7, 2021.

- **Agency Workgroup** – An Agency Workgroup was also created to engage 18 representatives of regulatory agencies and divisions, the local municipality, and service providers in discussions about the project and affected resources, as well as solicit feedback that could be used during the PEL study. An in-person Agency Workgroup meeting was held on November 5, 2019. Online Agency Workgroup meetings were held on June 30, 2020; August 20, 2020; and January 6, 2021.
- **Website** – A website with a customized URL was created for the project (www.eganyandukin.com) that was active during the project's public outreach activities. A DOT&PF-hosted project website provides similar information, at http://dot.alaska.gov/sereg/projects/egan-yandukin/index.shtml. This website offers access to current information and project documents, and serves as a repository for all project-related educational materials and public participation opportunities. It offers a link to join the project mailing list and an online form to provide comments and questions to the project team.
- **Small group presentations** – Members of the project team conducted small group presentations to local organizations, stakeholder groups, and government. On January 13, 2020, project team members presented information on the PEL study to the CBJ Public Works Committee. On February 19, 2020, project team members made a similar presentation to the Juneau Rotary Club.
- **Collateral project materials** – Materials supported project messaging, including fact sheets, frequently asked questions, fliers, postcards, and newspaper advertisements that explained the project, described how the public could be involved, and encouraged people to sign up to receive email updates.
- **Stakeholder contact list** – To reach out to all interested and potentially affected parties regarding the project, a contact list was developed and updated throughout the project. The contact list served as the information distribution list and a tracking list for all outreach activities.
- **Electronic project updates** – Regular correspondence was scheduled throughout the project to coincide with important PI opportunities and project updates.

Starting in spring 2020, due to restrictions on in-person gatherings due to the COVID-19 pandemic, all outreach activities were changed to virtual delivery. The project team meetings were held using online collaboration software. CFG and Agency Workgroup meetings were held using similar collaboration software to enable sharing of content and teleconferencing. The project team developed meeting-specific websites for each CFG and Agency Workgroup meeting that presented information and enabled participants to leave written feedback during a comment period. These websites remained accessible to participants throughout the entire PEL study. The second planned in-person Public Open House was also converted to an Online Open House event using online collaboration software. A live question and answer session was provided for the public, along with a comment period. The Online Open House website remained available for viewing throughout the PEL study process.

5.3 Membership in Groups

To help ensure project stakeholders were represented, two advisory groups were established: the CFG and Agency Workgroup. As part of the process, the project team complied with relevant regulations (including 23 CFR 450) and guidance, which indicated that environmental, regulatory, and resource agencies and tribes should be included in the PEL study. Guidance also indicated that the process should be conducted in coordination with federal, state, and tribal land management, wildlife, and regulatory agencies.

5.3.1 Community Focus Group

The CFG was composed of representatives from tribal governments, local government, state and local law enforcement, businesses, and transportation agencies and advocacy groups. According to PEL guidance, the CFG is not required to concur with PEL study results or outcomes, and does not have permitting or approval authority. However, the project team desired to have general agreement on each major milestone in the PEL study and worked toward consensus with CFG members.

Organizations represented in the CFG include:

- Alaska State Troopers
- Bicknell, Inc.
- Central Council of Tlingit and Haida Indian Tribes of Alaska
- CBJ Assembly
- Capital City Fire/Rescue
- Capital Transit
- CBJ Community Development Department
- Juneau International Airport
- Juneau Police Department
- Fred Meyer
- Greater Juneau Chamber of Commerce
- Juneau Christian Center
- Juneau Freewheelers

5.3.2 Agency Workgroup

An Agency Workgroup was convened consisting of nine state, federal, and local agencies and divisions/departments that have permitting or approval responsibility for transportation projects. Concurrence or approval from jurisdictional agencies on planning products and decisions developed during the PEL study is not required. However, PEL statutes and regulations allow certain planning products and decisions to be used during any subsequent NEPA processes for projects related to the PEL study. These planning products and decisions must be developed in consultation with appropriate federal and state resource agencies and tribes, and notice that the information is available for review must be provided to those agencies, tribes, and the public during the subsequent environmental processes. Therefore, during this PEL study, federal and state resource agencies and tribes were consulted during each step and provided multiple opportunities to comment on the planning products and decisions that were developed.

Agencies represented in the Agency Workgroup include:

- ADEC – Division of Air Quality
- ADEC – Division of Spill Prevention and Response – Contaminated Sites Program
- ADEC – Division of Water
- ADF&G – Division of Habitat
- Alaska Department of Natural Resources (ADNR) – Office of History and Archaeology
- ADNR – Division of Mining, Land, and Water
- CBJ – Community Development Department
- USACE
- USFS

5.4 Stakeholder Outreach Activities and Outcomes

The project team focused stakeholder (community, agency, and general public) outreach activities on four sets of planning products and decisions:

- Purpose and need statement
- Range of alternatives, alternatives screening process, and evaluation criteria
- Level 1 Screening results and Level 2 Screening criteria
- Level 2 Screening results and Recommended Alternative

At each of these meetings, information was shared with the groups, and they were provided opportunities and encouraged to comment during the meeting and a pre-determined comment period after the meeting.

5.4.1 Purpose and Need Statement

Agency Workgroup Meeting #1

On November 5, 2019, the project team hosted an Agency Workgroup meeting from 10:00 AM to 12:00 PM at the DOT&PF Headquarters building in Juneau, Alaska. The purpose of this meeting was to provide information on the project, solicit comments on the draft purpose and need statement, and foster positive agency relations.

The meeting hosted 12 key agency representatives and provided them with the opportunity to meet the project team. The agencies represented were DOT&PF, USACE, CBJ, ADF&G, and ADEC.

At the meeting, the project team gave a presentation that outlined the draft project purpose and need of this PEL study. The project team also presented information on the expected traffic changes, previous improvement efforts, existing crash data, current improvement efforts, and potential improvement options at the E-Y intersection. Lastly, the presentation included information on the PEL study approach, and the role of the agencies and community in the PEL study.

Attendee comment topics included:

- Clarify if the draft purpose and need statement is for a construction project or the PEL study
- Anticipate a USACE review of purpose and need and ensure the alternatives development process meets their regulatory requirements under Section 404 of the Clean Water Act (Section 404(b)(1); USACE comment)
- Be mindful of land development in the area; an industrial subdivision is starting to be developed in the area, and there is more land in the area that may start being developed soon

For additional information about this meeting, please see Appendix K.

Community Focus Group Meeting #1

On November 5, 2019, the project team hosted a CFG meeting from 1:00 to 4:00 PM at the DOT&PF Headquarters in Juneau, Alaska. The purpose of this meeting was to provide information on the project, solicit comments on the draft purpose and need statement, and foster positive community relations.

The meeting hosted 26 representatives from local businesses, public services, government agencies, community organizations, and religious groups. At the meeting, the project team gave a presentation that outlined the draft project purpose and need of this PEL study. The project team also presented information on expected traffic changes, previous improvement efforts, existing crash data, current improvement efforts, and potential improvement options. Lastly, the presentation described the importance of community involvement and specifically the role of the CFG.

Attendee comment topics included:

- Lack of alternative routes and connectivity issues when an accident occurs
- Spike in crashes during winter
- Effects to public transportation and pedestrian access
- Suggested modifications to the draft purpose and need statement
- Recommendation to present statistical crash data to the public
- Suggested trial restriction of left turns onto Glacier Highway/Lemon Road during peak accident months

For additional information about this meeting, please see Appendix L.

Public Open House #1

On November 19, 2019, the project team hosted a Public Open House from 4:00 to 7:00 PM at the Nugget Mall in Juneau, Alaska. The purpose of this event was to provide information on the project, solicit comments on the draft purpose and need statement, and foster positive community relations.

The event hosted 118 attendees and provided them with an opportunity to meet the project team. Overall, the attendees provided ample feedback on a variety of topics. Most of the attendees were local residents seeking to learn more about the project and share their comments on potential improvements. Representatives from the CBJ, Alaska State Legislature, and other State of Alaska departments/divisions were in attendance.

For additional information about this meeting, please see Appendix M.

Online Open House #1

On November 20, 2019, an Online Open House was published for the public. The purpose of this event was to provide an opportunity for the public to view information and materials that were presented at the Public Open House on November 19, 2019. This allowed individuals who were not able to attend Public Open House #1 to learn about the project and submit comments. The Online Open House hosted 168 visitors.

As a result of the public and agency participation activities, the project team received a total of 133 comments from 65 commentators during the comment period, which lasted from November 19 to December 20, 2019.

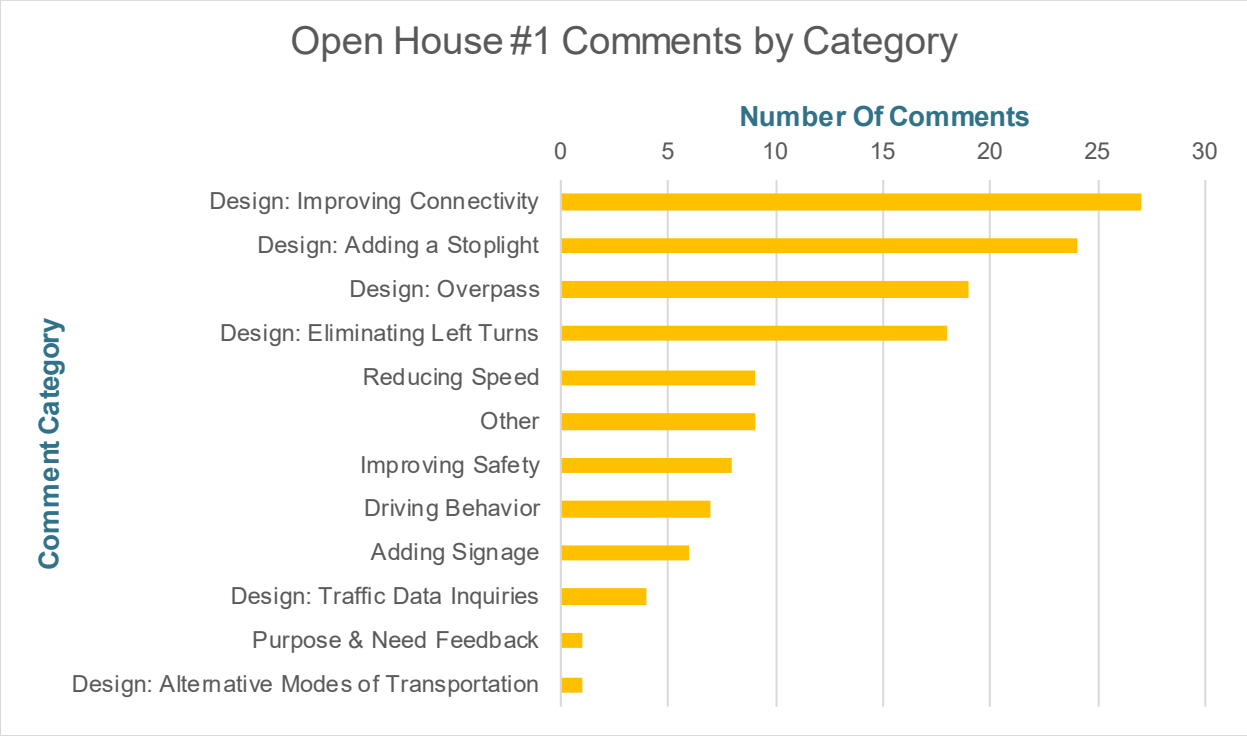
Public engagement for this PEL study is primarily generated by concerns about intersection safety. Thus, safety is assumed to be a central issue for most commenters even if safety is not directly mentioned in comments.

The project team categorized the suggestions for intersection improvements into 12 categories. Figure 5-1 is the graphical representation of the 12 categories and the number of comments in each category.

For additional information about this meeting, see Appendix M.

After this initial round of meetings, revisions were made to the purpose and need statement in response to comments received. All groups were asked to review the revised purpose and need statement during the second round of outreach activities held in June and July 2020.

Figure 5-1. Open House #1 Comments by Category



5.4.2 Range of Alternatives, Screening Process, and Evaluation Criteria

Agency Workgroup Meeting #2

On June 30, 2020, the project team hosted the second Agency Workgroup meeting from 9:00 AM to 12:00 PM using the Cisco WebEx virtual platform. The purpose of this meeting was to provide information on the project; solicit comments on the revised purpose and need statement (revised to reflect comments received from the Agency Workgroup, CFG, and general public outreach), draft range of alternatives, draft screening process, and evaluation criteria; and foster positive agency relations.

Sixteen agency representatives attended the meeting from USACE, CBJ, ADNR, and ADF&G.

At the meeting, the project team reviewed the content presented online via an ESRI StoryMap website. Opportunities for participant input and discussion were offered throughout the meeting. No objections were received regarding the updated draft purpose and need statement. The presentation included a request for feedback of Level 1 Screening criteria through an online survey. Participants were encouraged to provide written comments through July 10, 2020.

Attendee comment topics included:

- Suggestion to look for watershed plans in the project area
- Request for land ownership details and impacts
- Suggestion to consider impacts to stormwater, fish habitat, and historic properties

See Appendix N for the full summary of the meeting, including attendees, items discussed, and input provided.

Community Focus Group Meeting #2

On July 1, 2020, the project team hosted a CFG meeting from 9:00 AM to 12:00 PM using the Cisco WebEx virtual platform. The purpose of this meeting was to provide information on the project; solicit comments on the revised purpose and need statement, draft range of alternatives, draft screening process, and evaluation criteria; and foster positive community relations.

The meeting hosted 17 representatives from local businesses, public services, government agencies, tribal entities, and community organizations.

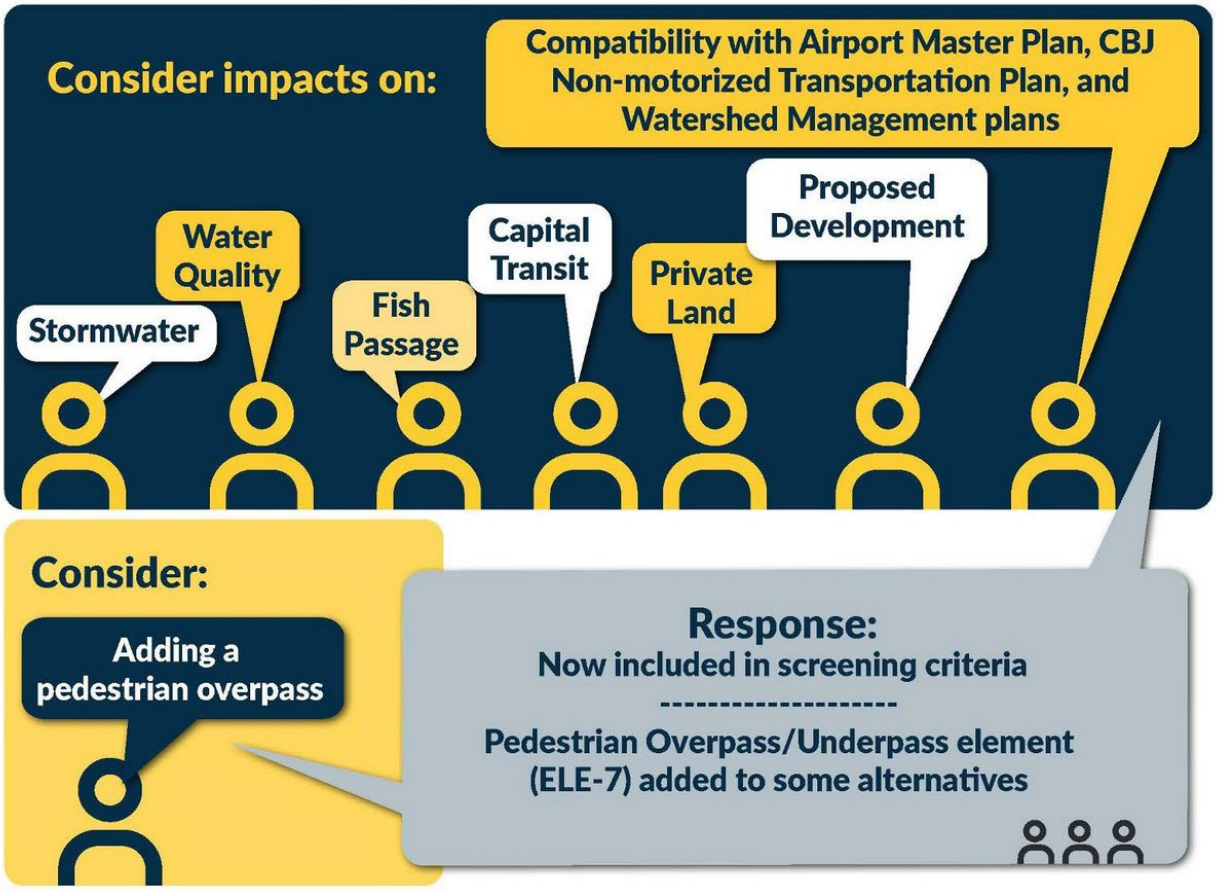
At the meeting, the project team reviewed the content presented online via an ESRI StoryMap website. Opportunities for participant input and discussion were offered throughout the meeting. No objections were received regarding the updated draft purpose and need statement. The presentation included a request for feedback through an online survey. Participants were encouraged to provide written comments through July 10, 2020.

Attendee comment topics included:

- Appreciation of inclusion of land use as a screening measure; land use is changing in the area
- Request to consider installing more or larger signage to discourage people crossing at the E-Y intersection, directing them to the Glacier-Nugget pedestrian crossing
- Comment that addition of the Glacier Lemon Spur Extension would allow Capital Transit to continue service to Fred Meyer when there is an accident at the E-Y intersection
- Comment that pedestrian crossing times at a signalized crossing may hold up traffic
- Comment that safety and pedestrian access are high priorities
- Request to consider land use and planned development near the E-Y intersection
- Comment that Level 1 Screening criteria are “dead on” with primary and secondary needs
- Comment that a possible relocation of emergency housing shelter operations to a location closer to the airport would increase pedestrian traffic in the project area
- Comment that alternatives that do not address pedestrians at E-Y intersection are not as attractive

See Appendix O for the full summary of the meeting, including attendees, items discussed, and input provided. Figure 5-2 shows how the project team responded to Agency Workgroup and CFG member comments on Level 1 Screening criteria.

Figure 5-2. Agency Workgroup and CFG Member Comments



5.4.3 Level 1 Screening Results, Level 2 Screening Criteria and Process

Agency Workgroup Meeting #3

On August 20, 2020, the project team hosted an Agency Workgroup meeting from 9:00 AM to 12:00 PM using the Cisco WebEx virtual platform. The purpose of this meeting was to provide information on the project, solicit comments on the draft Level 1 Screening results and draft Level 2 Screening criteria and process, and foster positive agency relations.

Three agency representatives attended the meeting, representing USACE, CBJ, and ADNR.

At the meeting, the project team reviewed the content presented online via an ESRI StoryMap website. The presentation included a request for feedback through an online survey. Participants were encouraged to provide written comments through August 28, 2020.

Attendee comment topics included:

- Clarify that the Interim Action is a permanently constructed alternative
- Appreciation of pedestrian accommodation, especially with potential for increased pedestrian use in the area with new development

- Consider weighting the criteria and discussing the weighting with group members
- Consider increased transit impacts with relocation of transit-reliant service programs to the area

See Appendix P for the full meeting summary, including attendees, items discussed, and input provided.

Community Focus Group Meeting #3

On August 21, 2020, the project team hosted a CFG meeting from 9:00 AM to 12:00 PM using the Cisco WebEx virtual platform. The purpose of this meeting was to provide information on the project, solicit comments on the draft Level 1 Screening results and draft Level 2 Screening criteria and process, and foster positive community relations.

The meeting hosted 12 representatives from local businesses, public services, government agencies, tribal entities, and community organizations.

At the meeting, the project team reviewed the content presented online via an ESRI StoryMap website. The presentation included a request for feedback through an online survey. Participants were encouraged to provide written comments through August 28, 2020.

Attendee comment topics included:

- Appreciation of the work on crash severity and focus on providing an alternate route when there is a crash
- Concern about what kinds of data are available for existing pedestrian use and vehicles in the area
- Concern about how the project team will quantify bicycle and pedestrian conflicts using national experiences with similar treatments
- Concern about pedestrians not always using an overpass/bridge, and not using protected/signalized crossing points
- Concern about proper navigation signage for pedestrian traffic
- Questions regarding several screening metrics and scoring
- Concern that seasonal speed reductions would not influence driver behavior due to design of the road for higher-speed travel
- Concern about the length of the at-grade pedestrian crossing at the E-Y intersection creating anxiety
- Concern that any alternative that affects the airport property would require a lengthy ROW process
- Concerns about logistics for deploying median crossovers
- Questions about traffic volumes and peak times
- Concerns about traffic delays caused by the addition of signals on Egan Drive
- Question about coordinating the results of this PEL study with the study of a second bridge to Douglas Island
- Concern about whether pedestrian bridge ramps would be bicycle compatible

- Reminder to examine the impacts to bus stops and Capital Transit users
- Concern about Level 1 Screening results not being weighted and the elimination of certain alternatives
- Desire to see rough order of magnitude costs for each alternative
- Request to consider equity issues in screening criteria
- Request to consider that the high volume of traffic on Egan Drive may make a grade-separated pedestrian crossing more appealing, despite it possibly requiring out of direction travel
- Request to consider providing estimates of maintenance costs for each alternative
- Request to consider multiple factors in creating an "equity" measure for Level 2 Screening
- Request to engage multiple user groups in measuring equity and pedestrian comfort

See Appendix Q for the full summary of the meeting, including attendees, items discussed, and input provided.

Virtual Public Meeting/Public Open House #2

On October 14, 2020, the project team hosted a Virtual Public Meeting from 5:30 to 7:30 PM, accessible via the project website (http://dot.alaska.gov/eganyandukin) and telephone. The purpose of this meeting was to provide information on the project; solicit comments on the draft range of alternatives, draft Level 1 and Level 2 Screening criteria and process, and draft Level 1 Screening results; and foster positive public relations.

A 37-minute prerecorded presentation was played at the Virtual Public Meeting; the transcript of this presentation is included as Appendix R. Topics covered included: project timeline, recent work, process for developing and draft criteria for evaluating alternatives for improving the E-Y intersection, draft range of alternatives, and draft Level 1 Screening results.

The event hosted 182 viewers and provided them with an opportunity to submit comments and ask questions of the project team for two hours after the prerecorded presentation. Questions could be submitted via a website form, telephone, email, and text message. A summary of the questions submitted during the event is included as Appendix R. Overall, the attendees asked questions and provided feedback on a variety of topics.

Online Open House #2

On October 14, 2020, Online Open House #2 was published online via an ESRI StoryMap website. The purpose of this event was to provide the public and other stakeholders an opportunity to view information and materials presented during the Virtual Public Meeting/Public Open House #2. This allowed individuals who were not able to attend the Virtual Public Meeting/Public Open House #2 to learn about the project and submit comments.

The Online Open House hosted 725 views from October 14 through November 12, 2020. As a result of the public and agency participation activities, the project team received a total of

62 comments from 30 commenters during the comment period, which lasted from October 14 through November 12, 2020, summarized below in Figure 5-3 and Figure 5-4.

Figure 5-3. Open House #2 Comments by Category

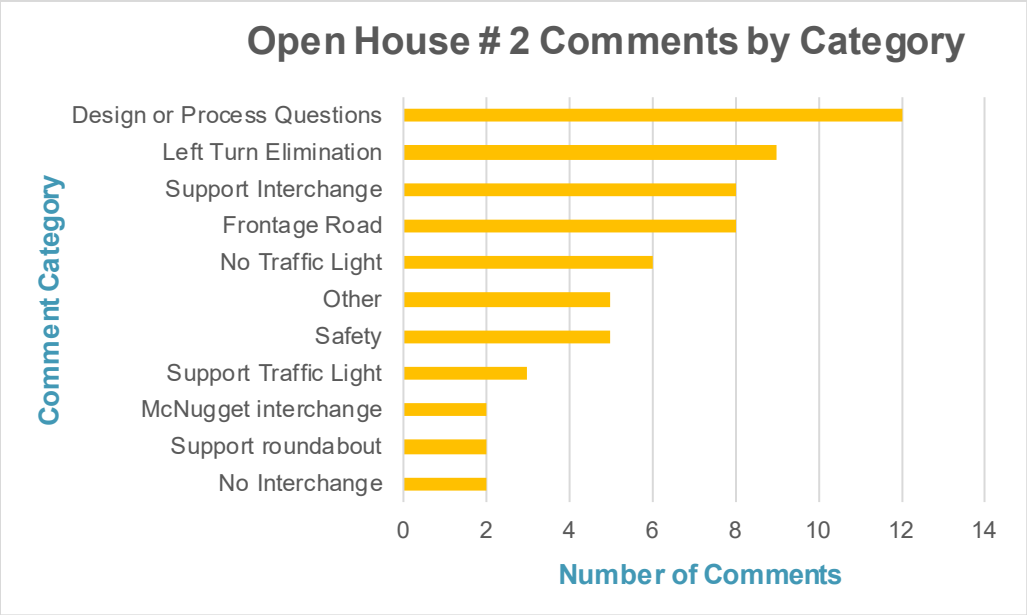


Figure 5-4. Online Open House #2 Comments

5.4.4 Level 2 Screening Results

Agency Workgroup Meeting #4

On January 6, 2021, the project team hosted an Agency Workgroup meeting from 9:00 AM to 12:00 PM using the Cisco WebEx virtual platform. The purpose of this meeting was to provide information on the project, solicit comments on the draft Level 2 Screening results and process, discuss the Recommended Alternative, and foster positive agency relations.

Six agency representatives attended the meeting, representing USACE, USFS, CBJ, ADEC, ADF&G, and ADNR.

At the meeting, the project team reviewed the content presented online via an ESRI StoryMap website. Participants were encouraged to provide written comments through January 22, 2021.

Attendee comment topics included:

- Concern whether pedestrians would actually use a pedestrian bridge over Egan Drive
- Recommendation that consultation with ADF&G should occur prior to construction of an alternative that affects fish bearing streams; the permitting process is pretty short
- General agreement that a pedestrian bridge is preferable to an at-grade pedestrian crossing
- Reminder that USFS will need to approve any ROW that is needed from USFS land; USFS may be able to adopt DOT&PF's NEPA decision if federal money is involved in construction that affects USFS land
- CBJ permitting would be similar for all alternatives; CBJ requests to be involved with other agencies as the permitting process on the construction project moves forward

See Appendix S for the full meeting summary, including attendees, items discussed, and input provided.

Community Focus Group #4

On January 7, 2021, the project team hosted a CFG meeting from 9:00 AM to 12:00 PM using the Cisco WebEx virtual platform. The purpose of this meeting was to provide information on the project, solicit comments on the draft Level 2 Screening results and process, and foster positive community relations.

The meeting hosted eight representatives from local businesses, public services, government agencies, tribal entities, and community organizations.

At the meeting, the project team reviewed the content presented online via an ESRI StoryMap website. Participants were encouraged to provide written comments through January 22, 2021.

Attendee comment topics included:

- Question why the Full Access Signalized Intersection and Diamond Interchange alternatives designs require so much airport property; question if they could be configured like Sunny Point with a stop sign
- Question why the Glacier Lemon Spur Extension is not a separate alternative
- Clarification needed on how the scores were calculated in Level 2 Screening
- Clarification needed that either an at-grade pedestrian crossing or pedestrian bridge would be constructed, not both simultaneously
- Comment that the airport does not support the Full Access Signalized Intersection or the Diamond Interchange due to the ROW impacts to airport property; approving this land transfer would be a very long process and may ultimately be rejected by the FAA
- Comment that the airport supports the Partial Access Signalized Intersection with Glacier Lemon Spur Extension, which does not appear to require airport property and still achieves the primary goal of safety
- Concerns that if there is business development at the Honsinger Pond private properties, diversionary fencing will not deter pedestrians from crossing at the E-Y intersection
- Clarification needed regarding pedestrian movement assumptions during this process
- Request that additional outreach to pedestrian and public service organizations occur
- Perception that many people will like the Glacier Lemon Spur Extension component
- Concerns that pedestrians will likely not use the pedestrian bridge; there is a strong preference to travel the shortest perceived route and avoid inclines
- Concerns about winter conditions on the pedestrian bridge, slippery deck materials, and potential for falling ice and snow
- Concerns about unsavory activity on the pedestrian bridge
- Concerns about maintenance of the pedestrian bridge
- Comment that the pedestrian bridge would benefit bicyclists
- Request to consider reconfiguring the pedestrian bridge to make access more appealing to potentially increased pedestrian traffic from Honsinger Pond private property development
- Comment that the Juneau Freewheelers supports the Partial Access Signalized Intersection with Glacier Lemon Spur Extension and Pedestrian Bridge that is ADA and bicycle accessible
- Comment that CBJ Community Development supports (in order of preference) the Full Access Signalized Intersection, Diamond Interchange, and Partial Access Signalized Intersection alternatives; they prefer improving the transportation grid if mobility will be inhibited

See Appendix T for the full summary of the meeting, including attendees, items discussed, and input provided.

5.5 Outstanding Issues and Recommendations for Future Involvement

Outstanding issues and recommendations for future involvement are summarized in Table 5-1.

Table 5-1. Outstanding Issues and Recommendations for Future Involvement

Outstanding Issue	Recommendation for Future Involvement
Protected pedestrian crossing (bridge or at-grade crossing)	• Conduct additional outreach to user groups regarding potential usage of a pedestrian bridge • Investigate alternative configurations and approaches that would make it more appealing for users from new development at Honsinger Pond • Conduct additional research on the demand for a pedestrian crossing at the E-Y intersection • Conduct research to identify BMPs, maintenance considerations, usage, and other considerations for each pedestrian crossing type to help determine the most appropriate crossing for this intersection
Pedestrian and transit user input regarding “equity”	• As design progresses, engage a broad range of social service organizations to solicit their input • A suggested list of organizations per CFG members includes: o Juneau Coalition on Housing and Homelessness o Tlingit-Haida Regional Housing Authority o Society of St. Vincent de Paul o Transit users working group o Southeast Alaska Independent Living o REACH, Inc. o Catholic Community Services o The Glory Hall o Polaris House o Housing First o AWARE o Salvation Army o Front St. Clinic o Southeast Alaska Regional Health Consortium
USFS Public Land Order process and NEPA	• When initiating public scoping for NEPA, officially adopt the purpose and need and alternatives screening from the PEL study or present modified purpose and need, as appropriate • Engage USFS when conducting the NEPA process and design for the Glacier Lemon Spur Extension component • Work closely with USFS to understand what they need for their NEPA process

Outstanding Issue	Recommendation for Future Involvement
Capital Transit operations	• Consult with Capital Transit representatives during the NEPA process and subsequent design
USACE approval of Section 404 permit needed	• Engage USACE during the NEPA and permitting processes for components that affect waters of the United States • Provide the information developed in consultation with USACE during this process to support the Section 404 permit application

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6. Implementation Plan

This chapter describes a range of options available to DOT&PF to implement the Recommended Alternative: the Partial Access Signalized Intersection with a protected pedestrian crossing and Glacier Lemon Spur Extension. Project funding sources and programming strategies are presented, along with a summary of the cost estimates for each component that comprises the Recommended Alternative. A set of possible delivery schedules are depicted, with responsible parties; unresolved issues; and next steps towards NEPA, design, and construction of the Recommended Alternative.

6.1 Highway Safety Improvement Program Safety Improvement (No Build)

DOT&PF has secured HSIP funding for a project that includes several intersection improvements that will be implemented separately from the Recommended Alternative. The planning-level design for the HSIP project (JNU: Egan-Yandukin Intersection Improvements – Design Services, SFHWY00307/0003261) was developed during this E-Y Intersection Improvement PEL study as an "interim improvement" that focuses on crashes of concern at the intersection: left turn collisions (see Appendix E *Interim Improvements Concept White Paper*).

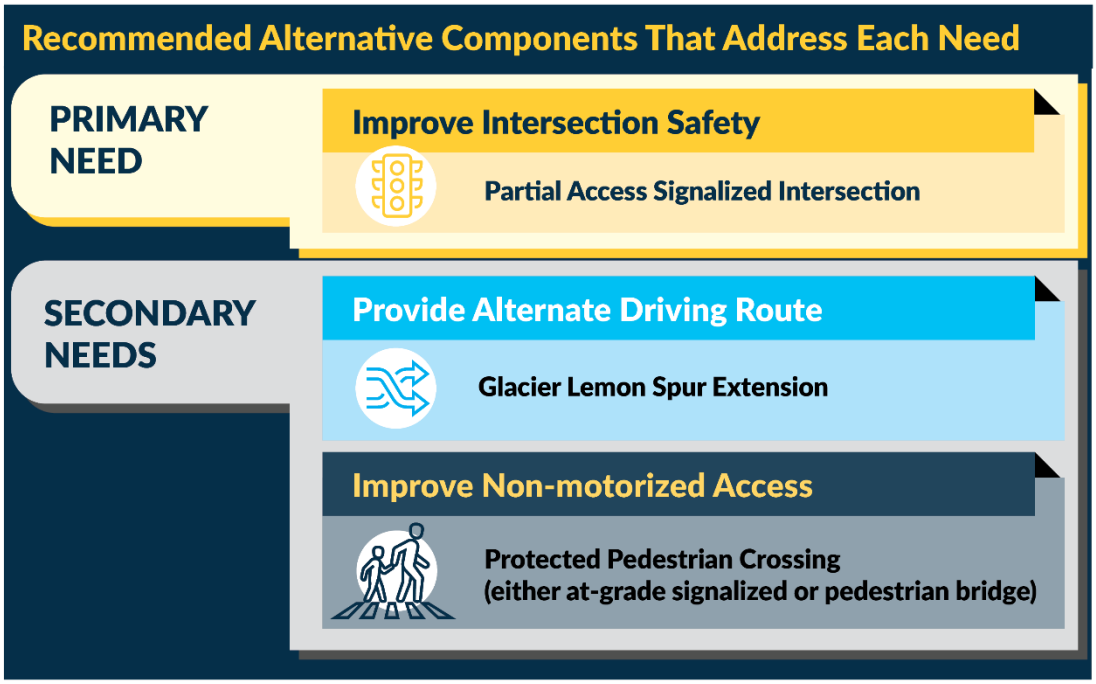
The project team rapidly responded to community concerns expressed during Public Open House #1 about the need for immediate safety improvements at the E-Y intersection. The project team identified an immediate need to improve safety as quickly as possible at the E-Y intersection. Because implementing any recommended alternative from this PEL study could take several years, the project team looked for other ways to more quickly implement a safety improvement at the intersection. The HSIP was identified as one way to potentially fund and implement these improvements on an expedited timeframe. The HSIP funding will provide $1.37 million in funding for improvements described in Section 3.3. Funding for these improvements is included in the 2020–2023 STIP. Design and NEPA documentation for these improvements are planned to begin in 2021, with construction starting in 2022.

The HSIP project partially addresses only one need of the E-Y Intersection Improvements project: it improves intersection safety. It does not provide an alternate driving route in the event of a crash on Egan Drive, nor does it improve non-motorized access to the area.

6.2 Recommended Alternative Implementation Options

The Recommended Alternative is composed of components that address each of the E-Y Intersection Improvements project needs, compared to the No Build alternative: improve intersection safety, provide an alternate route in the event of a crash on Egan Drive, and improve non-motorized access, all while maintaining traffic flow through the area. Building upon the HSIP solution implemented as part of the No Build alternative, each component of the Recommended Alternative must be constructed to meet each of the needs identified for this project. Figure 6-1 lists project needs and components of the Recommended Alternative that address each of those needs.

Figure 6-1. Recommended Alternative Components that Address Each Need



Two options presented below describe some of the available methods for DOT&PF to implement the Recommended Alternative.

Implementation Option 1: Design and Construct the Entire Recommended Alternative

Under this option, DOT&PF would program the entire Recommended Alternative in the STIP, conduct a single NEPA process, and design and construct the Recommended Alternative as a single project.

The benefits of Option 1 could be:

- All of the E-Y Intersection Improvements project needs would be addressed in a single delivery project.
- The NEPA process may be started within 5 years of this PEL study, making it easier to adopt information and decisions from the PEL study into the NEPA process to potentially expediate the NEPA process.
- The purpose and need statement, alternatives analysis, and other planning products and decisions from this PEL study can be used in the NEPA process without modification.

Drawbacks of Option 1 could be:

- Funding would need to be identified for all phases and components of the project at the same time. A larger, more costly project may be more difficult to program in the STIP than multiple, less costly projects (see Section 6.4).

- An Environmental Assessment (EA) would likely be required that covers the entire Recommended Alternative (see Section 6.3).
- ROW acquisition would need to be completed prior to construction of any components, which may involve a lengthy USFS process (see Section 6.7).

Implementation Option 2: Design and Construct the Recommended Alternative in Stages

Under this option, DOT&PF would create several independent projects out of the components of the Recommended Alternative. Each project could be programmed in the STIP as a separate project, and NEPA would be conducted on each project, as well as design and construction, due to each project having independent utility and logical termini.

The benefits of Option 2 could be:

- DOT&PF may be more successful programming multiple, less costly projects and implementing the components separately instead of trying to program the Recommended Alternative as one project as described in Implementation Option 1. Programming multiple smaller, less costly projects in the STIP is easier than a single, more costly project.
- Less time-consuming environmental documents (Categorical Exclusions [CEs]) may be appropriate for some of the components, allowing these projects to advance more quickly to final design and construction. A potentially lengthier EA process is likely required for the Glacier Lemon Spur Extension (see Section 6.3). Advancing the intersection improvements and pedestrian bridge components as separate CEs may enable them to be constructed more quickly than if they were included in the scope of the EA for the Glacier Lemon Spur Extension.
- Some projects may advance to construction more rapidly under this option, compared to Implementation Option 1, due to their smaller size, less complicated environmental and ROW needs, and fewer unresolved issues (see Section 6.7). The project(s) that do not require ROW acquisition could proceed to construction more quickly than the Glacier Lemon Spur Extension, which may involve a lengthy USFS ROW process.
- The NEPA process may be started within 5 years of this PEL study for some or all of the projects, making it easier to adopt information and decisions from the PEL study into the NEPA process.

Drawbacks of Option 2 could be:

- The full set of E-Y intersection needs would only be met by constructing all of the independent projects developed under this option. If a project is delayed or canceled, then all of the needs would not be met.
- The purpose and need statement from this PEL study would need to be modified for each project, rather than directly adopted. Scoping on the modified purpose and need statements would be required with the public and agencies during the NEPA process.

- Staged implementation may be inconsistent with the public and stakeholders' perceptions of the project as a single Recommended Alternative. Additional outreach may be necessary to explain the intent of staged implementation.

Section 6.5 contains potential delivery schedules for each Implementation Option.

6.3 Anticipated NEPA Class of Action Determinations and NEPA Process

The anticipated NEPA COA determinations would likely vary depending on how DOT&PF chooses to stage the design and construction of the Recommended Alternative. COA determinations would occur during the NEPA process for the respective projects. The anticipated COA determinations listed in Table 6-1 are based on the known environmental resources in the study area and the likely impacts of the Recommended Alternative as presented in this study; further design refinement and impact investigations may change the COA during the NEPA process.

Table 6-1. Recommended Alternative Anticipated Class of Action

Implementation Option	Project Components	Anticipated NEPA Class of Action
Option 1 – Program Recommended Alternative as Single Project	Partial access signalized intersection with protected pedestrian crossing and Glacier Lemon Spur Extension	EA
Option 2 – Program Recommended Alternative Components as Separate Projects	Partial access signalized intersection with at-grade pedestrian crossing	CE
	Glacier Lemon Spur Extension	EA
	Pedestrian bridge	CE

If the Recommended Alternative is pursued as a single design and construction project (Implementation Option 1), it is likely that an EA would be the appropriate COA. The construction of the Glacier Lemon Spur Extension component of the Recommended Alternative would likely fall outside of the activities listed as CEs in 23 CFR 771.117. However, the preliminary environmental overview and impacts identification for the Recommended Alternative that occurred during this PEL study did not identify any potential significant environmental impacts or unusual circumstances that would require an Environmental Impact Statement (EIS) to be completed. Additionally, the scope of this component is not listed as an example of actions that normally require an EIS (23 CFR 71.115).

If the design and construction of the Recommended Alternative is staged as several projects (Implementation Option 2), the NEPA process would be divided into multiple projects so that each NEPA analysis only covered a single stage. It is likely possible to show that each stage of the Recommended Alternative satisfies FHWA's regulatory requirements of actions having independent utility, logical termini, and not restricting alternatives for other reasonably foreseeable projects (23 CFR 771.111(f)). If the staged approach is chosen, a CE would likely

be appropriate for the partial access signalized intersection and protected pedestrian crossing (either at-grade or an elevated pedestrian overpass) component: the partial access signalized intersection component appears to meet the criteria for a CE under 23 CFR 771.117(c)(27) and the protected pedestrian crossing component appears to meet the criteria for a CE under 23 CFR 771.117(c)(3). Both components could be processed under a single CE as a single NEPA action, or each could be forwarded as independent projects with separate NEPA processes. As described above, the Glacier Lemon Spur Extension component of the Recommended Alternative would likely require an EA; however, the EA likely would not conclude that an EIS is required based on the preliminary research conducted during this PEL study.

If the decision is made to implement the Recommended Alternative in stages (Implementation Option 2), the purpose and need for each staged project would need to be refined to reflect the portion of the overall project purpose and need that is being evaluated in that particular project's NEPA process.

The PEL study completed for this project resulted in planning products, analyses, and decisions that are anticipated to be useful in future NEPA processes, although there may need to be some refinements as necessary. State and federal agencies involved in this PEL study process were informed multiple times of the intent to use these products during NEPA. These planning products, analyses, and decisions include:

- Development of purpose and need;
- Preliminary screening of alternatives and elimination of unreasonable alternatives;
- Basic description of the environmental setting;
- Preliminary identification of environmental impacts and mitigation; and
- Planning information and analysis (including travel demand, regional development and growth, local land use, existing and future population, and employment).

Because this PEL study approach met the following conditions, as described in 23 USC 168(d), the planning products, analyses, and decisions mentioned above can be used in future NEPA processes:

- The PEL study was conducted in accordance with federal law.
- The PEL study was developed in consultation with federal and state resource agencies and Indian tribes.
- The PEL study included multidisciplinary consideration of systems-level and corridor-wide needs and efforts.
- During the PEL study, notice was provided, and public participation took place.
- The PEL study had a rational basis and was based on reliable and reasonably current data and scientific methodologies.
- The PEL study is documented in sufficient detail to support the decision or results of the analysis and to meet requirements for use in the subsequent NEPA or permitting processes.

- The PEL study is appropriate for adoption and use in the NEPA and permitting processes.

In addition, in order for the planning products, analyses, and decisions to be used in future NEPA:

- At the beginning of the NEPA process and prior to determining whether to use these planning products or decisions, DOT&PF must make PEL documentation available to stakeholders and must consider any comments;
- There must be no significant new information or circumstances that have a reasonable likelihood of affecting the continued viability of the PEL products; and
- The PEL study must be approved no later than 5 years prior to the date on which information is adopted in the NEPA process.

6.4 Cost Estimates/Funding/STIP

Cost estimates for the Recommended Alternative, Partial Access Signalized Intersection with Lemon Glacier Spur Road and Protected Pedestrian Crossing, including design, ROW acquisition, utilities, and construction are summarized in Table 6-2. Costs are presented by component to inform possible ways the project could be staged for design and construction.

Table 6-2. Recommended Alternative Cost Estimates

Component	Estimated Cost (in millions)
Partial Access Signalized Intersection with At-grade Protected Pedestrian Crossing	$5.0–$9.9
Pedestrian Overpass[a]	$2.7–$5.3
Glacier Lemon Spur Extension	$16.0–$31.9
Total Cost	**$23.6–$47.2[b]**

[a] This study did not analyze the maintenance and operations and other considerations of a pedestrian bridge. During design, DOT&PF will need to conduct additional research, and stakeholder reached is needed to determine the appropriate type of pedestrian crossing. A pedestrian overpass was assumed for the purposes of the cost estimate because it is typically more expensive than an at-grade crossing.
[b] Refer to Engineer's Cost Estimates in Appendix H *Level 2 Screening Results White Paper* for detailed planning-level estimated costs. Total cost may vary slightly from what is presented here due to variance in design cost as percentage of construction for each component.

Cost estimates are expected to have a rough order of magnitude accuracy range between -30 and +40 percent, as presented in Table 6-2. These costs do not include NEPA analysis and documentation, which is forecasted to cost between $100,000 and $500,000. These cost estimates are in 2020 dollars. If decisions are made to stage the implementation of the Recommended Alternative, costs for the later-implemented stages would be greater than those listed above due to inflation. A reasonable estimate of cost increases due to inflation is 4 percent compounded annually.

A STIP document is the state's plan for projects and is required for DOT&PF to receive federal-aid highway program funding. A STIP covers a 4-year time frame; the next STIP is expected to

cover the years 2022–2025. It is anticipated that during 2021, DOT&PF will begin the nomination and scoring process for identifying projects to be included in the next STIP. DOT&PF's Southcoast Region (SR) may choose to nominate one (or more, depending on which Implementation Option is selected) project that implements the Recommended Alternative for inclusion in the STIP.

The right side of Figure 6-2 shows the steps involved in project nomination, scoring, ranking, and creating the STIP. Projects across Alaska are nominated to the STIP, then scored based on evaluation criteria. Currently, those evaluation criteria are Safety, Pavement, Bridges, and Traffic. The scored projects are then ranked, with the top-ranked projects added to the STIP project list. A series of balancing meetings are then held to make sure that the projects fit within the funding available. The resulting Draft STIP is released for a 30-day public comment period before being finalized. Once a project is adopted in the Final STIP, funding can be made available for project design and construction.

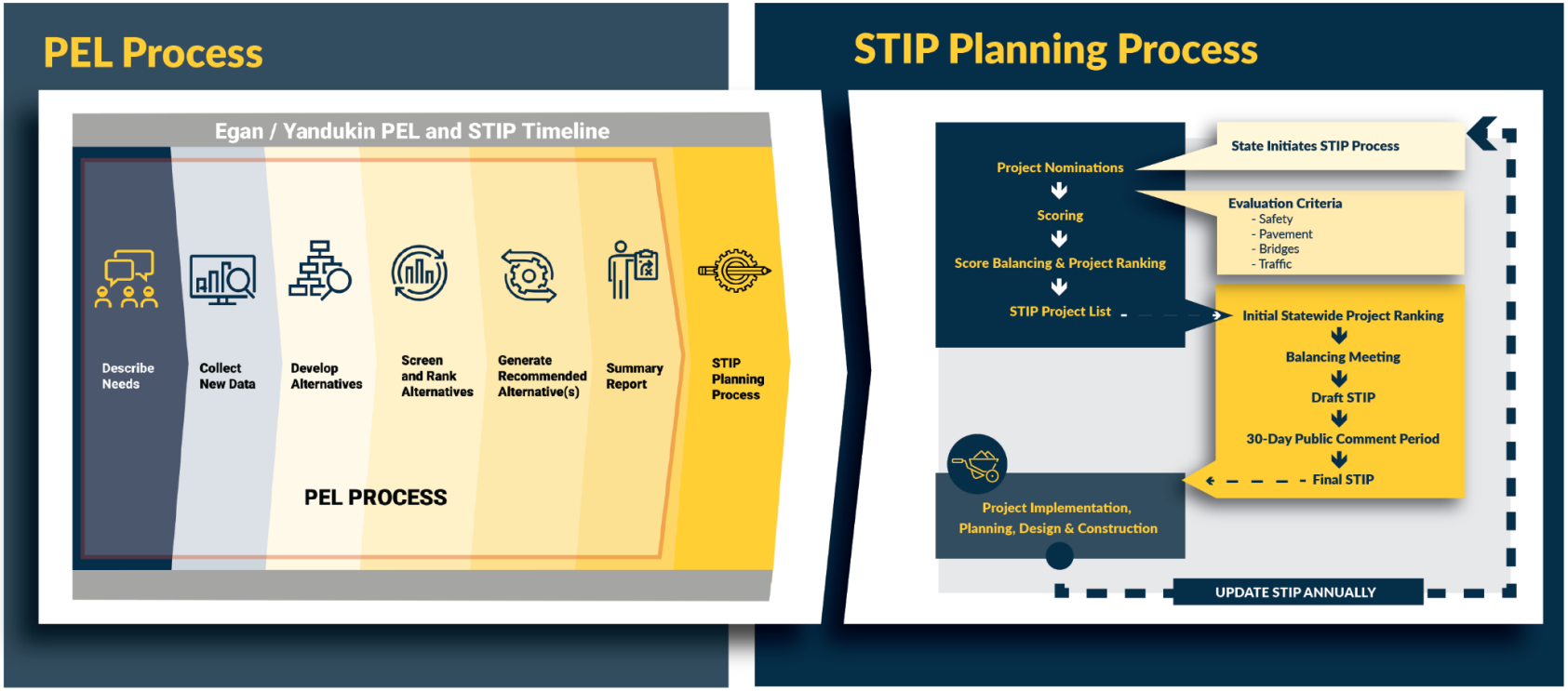
Regardless of which Implementation Option is selected by DOT&PF, it is most likely that project implementation will be funded using federal-aid highway program funds. Most projects in Alaska are funded in this manner. Any project nominations that implement the Recommended Alternative would need to score high enough, in competition with similar categories of projects from throughout the state, to be included in the approved STIP. Funding availability would also influence whether projects would be programmed in the STIP.

Other federal funding sources that can be explored include direct discretionary grant programs such as Rebuilding American Infrastructure with Sustainability and Equity (RAISE), Rural Opportunities to Use Transportation for Economic Success (ROUTES), and the Infrastructure for Rebuilding America (INFRA). Many of these programs have targeted either all or a portion of the investments in rural and small urban areas, and they may have funding available for small and large projects. In addition, the current administration may re-establish transportation project earmarks, which is a discretionary program. To compete for these programs, projects need to either be in, or have completed, the NEPA phase.

State capital improvement program funds have been declining over the past decade. The current Alaska state fiscal situation makes it unlikely that state funds would be allocated to fund implementation of this project.

Statewide bonds are an additional funding opportunity. The list of projects that are proposed on bond measures are generally produced by the Governor's Office or the Alaska Legislature. Enhanced outreach by DOT&PF to these entities would be necessary to raise awareness of the project and demonstrate community support for implementation of the Recommended Alternative.

Figure 6-2. PEL Study and STIP Planning Process

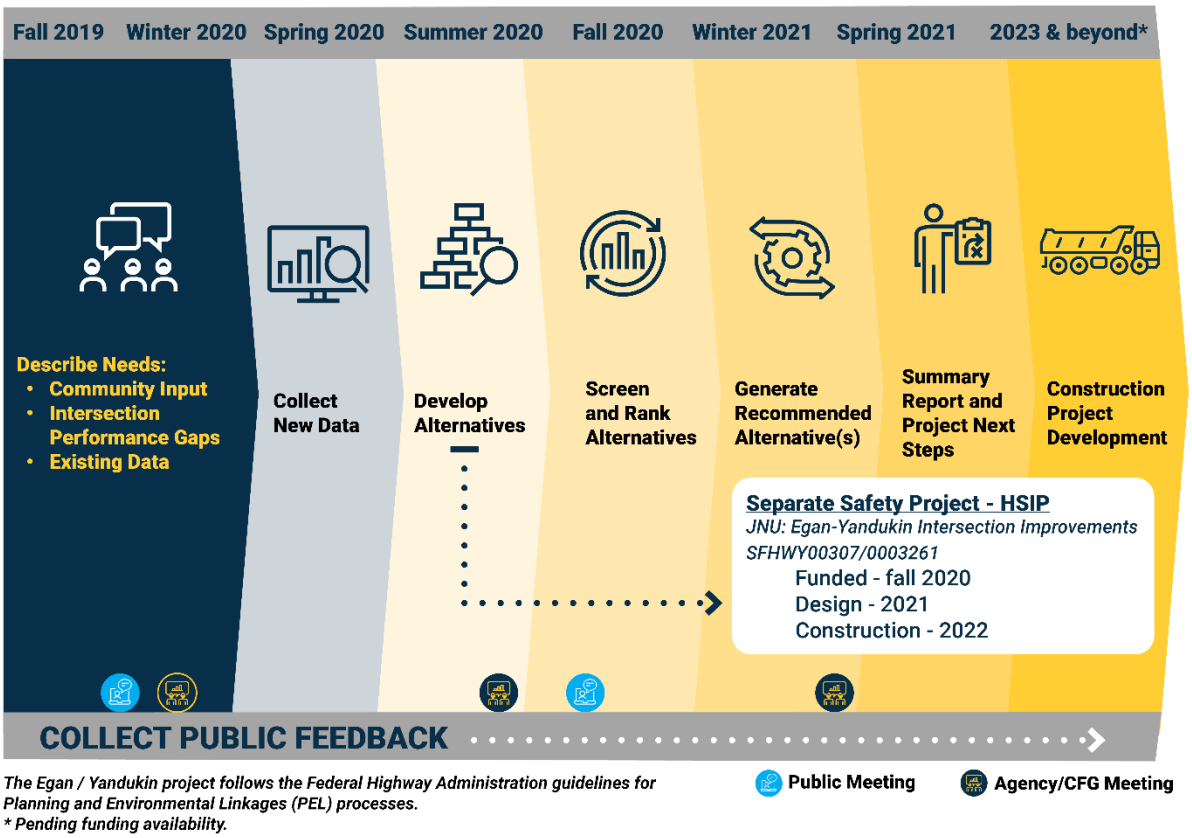


A local bond measure is not likely to be pursued as the State of Alaska would be the owner and operator of all facilities in the Recommended Alternative. However, a partnership with CBJ may be possible for support of certain components or a portion of the project costs. For example, if the community expresses a strong desire for a pedestrian bridge at the E-Y intersection, there may be opportunities for partnering with CBJ for design, construction, and/or maintenance of the facility.

6.5 Schedule

Figure 6-3 shows the timeline for the E-Y Intersection Improvements PEL Study. After this PEL study is concluded, the next step in project development is programming a project in the STIP (see Section 6.4). Table 6-3 depicts the Implementation Options described in Section 6.2 and the potential project development schedule for each component project. As depicted in Figure 6-3 and described in Section 6.1, a separate HSIP project is being forwarded to rapidly implement a safety improvement at the E-Y intersection.

Figure 6-3. E-Y Intersection Improvements PEL Study Timeline



The Egan / Yandukin project follows the Federal Highway Administration guidelines for Planning and Environmental Linkages (PEL) processes.
** Pending funding availability.*

The implementation schedule in Table 6-3 depicts possible delivery schedules for each of the Implementation Options described in Section 6.2. These schedules assume that the projects are approved in the STIP, and funding is immediately available to commence the preliminary design and NEPA phases of project development.

Table 6-3. Implementation Options Possible Schedule

Implementation Option	Project Components	2021	2022	2023	2024	2025	2026	2027+
Option 1 – Program Recommended Alternative as single project	Partial access signalized intersection with protected pedestrian crossing and Glacier Lemon Spur Extension	STIP project nomination	2022–2025 STIP funding approval[a]	Preliminary design; NEPA (begin); geotech survey	NEPA (complete); final design; ROW acquisition	ROW acquisition	ROW acquisition	Bid construction
Option 2 – Program Recommended Alternative components as separate projects	Partial access signalized intersection with at-grade pedestrian crossing	STIP project nomination	2022–2025 STIP funding approval[a]	Preliminary design; NEPA; geotech survey; final design	Bid construction	Construction		
	Glacier Lemon Spur Extension	STIP project nomination	2022–2025 STIP funding approval[a]	Preliminary design; NEPA (begin); geotech survey	NEPA (complete); final design; ROW acquisition	ROW acquisition	ROW acquisition	Bid construction
	Pedestrian bridge	STIP project nomination	2022–2025 STIP funding approval[a]	Preliminary design; NEPA; geotech survey	Final design; ROW acquisition	ROW acquisition; bid construction	Construction	

[a] Assuming funding availability

6.6 Next Steps and Responsibilities

Table 6-4 provides each step of the implementation phase of the project, and which functional group or agency has responsibility for completing the step.

Table 6-4. Steps of Implementation Phase

Step	Responsible Party
1. Decide on Implementation Option	• SR Management • Regional Planning Chief
2. STIP Nomination and Scoring	• Statewide Planning and Program Development
3. STIP Funding Approval and Release of Funds	• Statewide Planning and Program Development • FHWA Alaska Division
4. Preliminary Design	• SR Preliminary Design and Environmental/ Highway Design Group • SR Materials/Geology • SR ROW/Utilities/Survey
5. NEPA	• SR Environmental • SEO
6. Final Design	• SR Preliminary Design and Environmental/ Highway Design Group • SR Construction • SR Maintenance and Operations
7. ROW Acquisition	• SR ROW/Utilities/Survey • USFS (Public Land Order modification) – Glacier Lemon Spur Extension ROW Acquisition
8. Bid Package Certification	• SR Preliminary Design and Environmental/ Highway Design Group
9. Construction	• SR Construction • SR Environmental

6.7 Unresolved Issues

Table 6-5 provides unresolved issues that will remain after completion of this PEL study and that will need to be resolved as the project advances.

Table 6-5. Unresolved Issues

Component	Issue	Action/Information Needed
Protected pedestrian crossing	Determine what type of protected pedestrian crossing should be constructed: at-grade signalized crossings or pedestrian bridge	• Outreach to user groups • Analysis of pedestrian demand • If at-grade constructed first, use monitoring to support future pedestrian bridge
Glacier Lemon Spur Extension	Approval from USFS is required for ROW acquisition	• Modification of Public Land Order likely required • Consultation with USFS required as design progresses • USFS to complete their NEPA process or adopt DOT&PF NEPA document
Glacier Lemon Spur Extension	Geotechnical issues are unknown; slope and soil stability are unknown; hydrology of area is uncertain	• Additional geotechnical and materials data necessary during design • Hydrology and drainage information needed for design to advance