Board of Pilotage Commissioners Tug Escort Rulemaking (Chapter 363-116 WAC)
State Environmental Policy Act Draft Environmental Impact Statement

Visual Resources Discipline Report

Washington State Board of Pilotage Commissioners

Washington State Department of Ecology

Olympia, WA

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Acronyms and Abbreviations

AIS	Automatic Identification System
ATB	Articulated tug barge
BC	British Columbia
BLM	Bureau of Land Management
BPC	Washington State Board of Pilotage Commissioners
CFR	Code of Federal Regulations
COLREGS	International Regulations for Preventing Collisions at Sea (Collision Regulations)
DWT	deadweight tons
Ecology	Washington State Department of Ecology
EIS	Environmental Impact Statement
ESHB	Engrossed Substitute House Bill
FORs	functional and operational requirements
FWHA	Federal Highway Administration
NOAA	National Oceanic and Atmospheric Administration
NPS	United States National Park Service
NRDA	Natural Resources Damages Assessment
OTSC	Oil Transportation Safety Committee
PSHSC	Puget Sound Harbor Safety Committee
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SJCC	San Juan County Code
SOC	Standard of Care
SRKW	Southern Resident killer whale
US	United States of America
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
VIA	visual impact assessment
WAC	Washington Administrative Code

WCC	Whatcom County Code
WCD	worst case discharge
WSDOT	Washington State Department of Transportation

Summary

This Discipline Report is produced by the Washington State Department of Ecology (Ecology) as part of the development of an Environmental Impact Statement (EIS) as required pursuant to the State Environmental Policy Act (SEPA).

The Board of Pilotage Commissioners (BPC), in consultation with Ecology, is conducting a rulemaking to amend Chapter 363-116 of the Washington Administrative Code (WAC), Pilotage Rules. The rulemaking will consider 2019 legislative changes made to Chapter 88.16 of the Revised Code of Washington (RCW) (Pilotage Act) through the passage of Engrossed Substitute House Bill (ESHB) 1578. The rules will be designed to achieve best achievable protection, as defined in RCW 88.46.010, and will be informed by other considerations in ESHB 1578. The BPC and Ecology determined that the rulemaking may have significant adverse impacts on the environment and are developing an EIS.

This Visual Resources Analysis Report describes the existing conditions and potential impacts to visual resources resulting from the four rulemaking alternatives: No Action (Alternative A), Addition of Functional and Operational Requirements (FORs) (Alternative B), Expansion of Tug Escort Requirements (Alternative C), and Removal of Tug Escort Requirements (Alternative D). The study area for the visual resources element includes the EIS Study Area, which encompasses the rulemaking alternative boundaries and the potential areas for tug escort commute to and from the alternative boundaries.

The following visual resources-related topics were analyzed:

- Visual Impacts Assessment
- Local, county, state, and federal regulations and guidance
- Visual impacts of an oil spill

No significant and unavoidable adverse impacts to visual resources were identified under any of the four rulemaking alternatives. Table 1 summarizes the changes in escort tug activity under each alternative, the resulting impacts on visual resources, mitigation measures identified, and determinations of significance

Table 1. Visual resources impact summary.

Change in Activity	Resulting Impact on Visual Resources	Comparison to No Action Alternative	Mitigation	Significant and Unavoidable Adverse Impact?
Alternative A: No Action				
Continued operation of escort tugs throughout EIS Study Area.	Escort tugs remain a small part of the visual landscape of vessel traffic (0.96% of total Automatic Identification System (AIS) traffic).	N/A	Continued adherence to federal and state regulations and safety measures (including lighting); continued implementation of best practices and standards of care.	No
Target vessels continue to have escort tugs within the rulemaking area.	Risk of visual impacts from a target vessel oil spill and clean-up remains very low. Risk of an oil spill from a target vessel drift grounding: 25,546-year event.	N/A	Continued adherence to federal and state regulations and safety measures; continued implementation of best practices and standards of care.	No
	Risk of visual impacts from an escort tug oil spill and clean-up remains low. Risk of an escort tug incident that might result in a spill remains at under 1 event per year (0.86 events per year on average).	N/A	Continued adherence to federal and state regulations and safety measures; continued implementation of best practices and standards of care.	No

Change in Activity	Resulting Impact on Visual Resources	Comparison to No Action Alternative	Mitigation	Significant and Unavoidable Adverse Impact?
Alternative B: Addition of Functional and Operational Requirements (FORs)				
Continued operation of escort tugs throughout EIS Study Area.	Escort tugs remain a small part of the visual landscape of vessel traffic (0.96% of total AIS traffic).	Same as Alternative A	Same as for Alternative A.	No
Target vessels continue to have escort tugs within the rulemaking area, with added FORs.	Risk of visual impacts from a target vessel oil spill and clean-up remains very low. Risk of an oil spill from a target vessel drift grounding: 25,546-year event.	Same as Alternative A	Same as for Alternative A. FORs may further reduce spill risk.	No
	Risk of visual impacts from an escort tug oil spill and clean-up remains low. Risk of an escort tug incident that might result in a spill remains at under 1 event per year (0.86 events per year on average).	Same as Alternative A	Same as for Alternative A. FORs may further reduce spill risk.	No
Alternative C: Expansion of Tug Escort Requirements				
Increase in escort tug underway time (by 2.41%) and	Escort tugs remain a small part of the visual landscape of vessel	Increases in visual presence of tugs in the expansion	Same as for Alternative A.	No

Change in Activity	Resulting Impact on Visual Resources	Comparison to No Action Alternative	Mitigation	Significant and Unavoidable Adverse Impact?
shift in escort tug commute and escort locations.	traffic (0.99% of total AIS traffic). Minor changes in distribution of visual impacts. Increases in tug underway time in expansion areas primarily involve active escort jobs, which are dwarfed by visual presence of target vessels and/or in areas where tugs are an existing part of the visual landscape.	area, minor shifts in locations of escort tug commutes.		
Target vessels have escort tugs within the expanded rulemaking area, with added FORs.	Decrease in risk of a target vessel drift grounding that decreases risk of oil spill. Risk reduction concentrated in the expansion area.	Lower risk of catastrophic spill that would significantly impact visual resources, particularly in the expansion area.	Same as for Alternative A. FORs may further reduce spill risk.	No
	Risk of visual impacts from an escort tug oil spill and clean-up increases slightly but remains low overall. Risk of an escort tug incident that might result in a spill remains at under 1 event	Minor increase in risk of spills from an escort tug.	Same as for Alternative A. FORs may further reduce spill risk.	No

Change in Activity	Resulting Impact on Visual Resources	Comparison to No Action Alternative	Mitigation	Significant and Unavoidable Adverse Impact?
	per year (0.88 events per year on average).			
Alternative D: Removal of Tug Escort Requirements				
Elimination of escort tug activity for target vessels throughout the EIS Study Area.	Removal of visual impact of escort tugs associated with target vessels.	Removal of visual impact of escort tugs associated with target vessels.	None	No
Target vessels no longer have escort tugs within the rulemaking area.	Risk of visual impacts from a target vessel oil spill and clean-up increases but remains low. Risk of an oil spill from a target vessel drift grounding: 22,841-year event.	Increase in oil spill risk from target vessels and associated visual impacts of a spill.	Target vessels will continue to comply with existing oil pollution prevention, preparedness, and response regulations.	No
	Eliminated risk of an incident from an escort tug and associated visual impacts.	Removal of risk from escort tugs and associated visual impacts.	None	No

1.0 Introduction

1.1 Background

The Board of Pilotage Commissioners (BPC), in consultation with the Washington Department of Ecology (Ecology), is conducting a rulemaking to amend Chapter 363-116 of the Washington Administrative Code (WAC), Pilotage Rules. The rulemaking will consider 2019 legislative changes made to Chapter 88.16 of the Revised Code of Washington (RCW) (Pilotage Act) through the passage of Engrossed Substitute House Bill (ESHB) 1578. The rules will be designed to achieve best achievable protection, as defined in RCW 88.46.010, and will be informed by other considerations in ESHB 1578.

The EIS study area includes several protected zones, including the San Juan Islands National Monument and specific shorelines. Several endangered and protected species call the study area their home, such as the tufted puffin, Southern Resident Killer Whales, and chinook salmon. Residents and visitors place a high value on their ability to view wildlife and birds, enjoy maritime pursuits, and visit protected undeveloped areas.

The rulemaking will

- Describe tug escort requirements for the following vessels (referred to as "target vessels" throughout this report) operating in the waters east of the line extending from Discovery Island light south to New Dungeness light and all points in the Puget Sound area:
    - Oil tankers of between 5,000 and 40,000 deadweight tons (DWT).
    - Articulated tug barges (ATBs) and towed waterborne vessels or barges greater than 5,000 deadweight tons that are designed to transport oil in bulk internal to the hull.
- Specify operational requirements for escort tugs, where they are required.
- Specify functionality requirements for escort tugs, where they are required.
- Consider the existing tug escort requirements applicable to Rosario Strait and connected waterways to the east, established in RCW 88.16.190(2)(a)(ii), including adjusting or suspending those requirements, as needed.
- Describe exemptions to tug-escort requirements, including whether certain vessel types or geographic zones should be precluded from the escort requirements.
- Make other changes to clarify language and make any corrections needed.

This rulemaking could potentially increase or decrease tug escort activity and the risk of oil spills in the Puget Sound. Due to this, the BPC and Ecology determined that the rulemaking may have significant adverse impacts on the environment. The BPC and Ecology issued a Determination of Significance on February 22, 2023, which initiated development of an Environmental Impact Statement (EIS) as required under RCW 43.21C.030 (2)(c) pursuant to the State Environmental Policy Act (SEPA). At the same time, Ecology also issued a formal scoping notice as required through the SEPA process. Ecology conducted an EIS Scoping Meeting on March 21, 2023, to invite comments on the scope of the EIS and a comment period was open from February 22 through April 8, 2023.

The BPC and Ecology have agreed to act as co-lead agencies under SEPA and share lead agency responsibility for the EIS. The elements of the environment to be included in the EIS were preliminarily identified in the scoping notice. This Discipline Report serves as the detailed analysis of an element identified for inclusion in the EIS and will serve as supporting documentation to the EIS.

Note: Unless specified otherwise, the following terminology applies throughout this EIS:

- **"Tug escort"** refers to the act of a tug escorting a target vessel that is specifically affected by this rulemaking.
- **"Escort tug"** refers to the tug that conducts escorts of target vessels. Underway time for an escort tug includes active escort time and time spent commuting to and from an escort job.

The BPC is conducting the rulemaking process concurrently with the EIS development and works closely with Ecology to coordinate the outreach process. The rulemaking effort includes regular workshops to share information with stakeholders, Tribal government representatives, and interested parties. The BPC also appointed the Oil Transportation Safety Committee (OTSC) as an advisory committee of subject matter experts representing different areas like the regulated industry, Tribal governments, and environmental groups. The OTSC meets regularly to develop recommendations for the BPC, and the BPC makes the final decisions related to this rulemaking.

1.2 Rulemaking Alternatives

Through the rulemaking public involvement process, the BPC developed rulemaking alternatives for consideration in the EIS. The BPC has proposed four reasonable[1] rulemaking alternatives to be analyzed in the EIS. This discipline report analyzes the impacts associated with the four proposed rulemaking alternatives: No Action (Alternative A), Addition of Functional and Operational Requirements (FORs) (Alternative B), Expansion of Tug Escort Requirements (Alternative C), and Removal of Tug Escort Requirements (Alternative D). The proposed rulemaking alternatives are summarized below and are shown in Figure 1.

Alternative A. No Action. Under Alternative A, the existing tug escort regulations would continue in effect with no changes.

Alternative B. Addition of Functional and Operational Requirements. The existing tug escort regulations would continue with the addition that escort tugs operating under the rule would need to meet the following three functional and operational requirements:

1. Pre-escort conference: Prior to beginning the escort, the escort tug and the target vessel need to coordinate and discuss safety measures and other standard requirements.
2. Minimum horsepower (hp): Escort tugs must meet minimum hp requirements based on the DWT of the escorted vessel:
    - Escort tugs must have 2,000 hp for vessels greater than 5,000 and less than 18,000 DWT

[1] As defined in Chapter 197-11-786 WAC.

- Escort tugs must have 3,000 hp for vessels equal to or greater than 18,000 DWT and less than 40,000 DWT.

3. Propulsion specifications: To ensure sufficient propulsion, escort tugs must have a minimum of twin-screw propulsion.

Alternative C. Expansion of Tug Escort Requirements. This alternative would maintain the geographic scope of the current tug escort regulations and extend them to the northwest (See Figure 1 below). This alternative would add 28.9 square miles (74.9 square kilometers) to the existing geographic extent where tug escort requirements apply. The expansion area would be located at the northern boundary of the existing tug escort requirement. This alternative would include the above-mentioned three functional and operational requirements set forth under Alternative B.

Alternative D. Removal of Tug Escort Requirements. This alternative would remove the current tug escort requirement for the target vessels within the rulemaking boundaries.

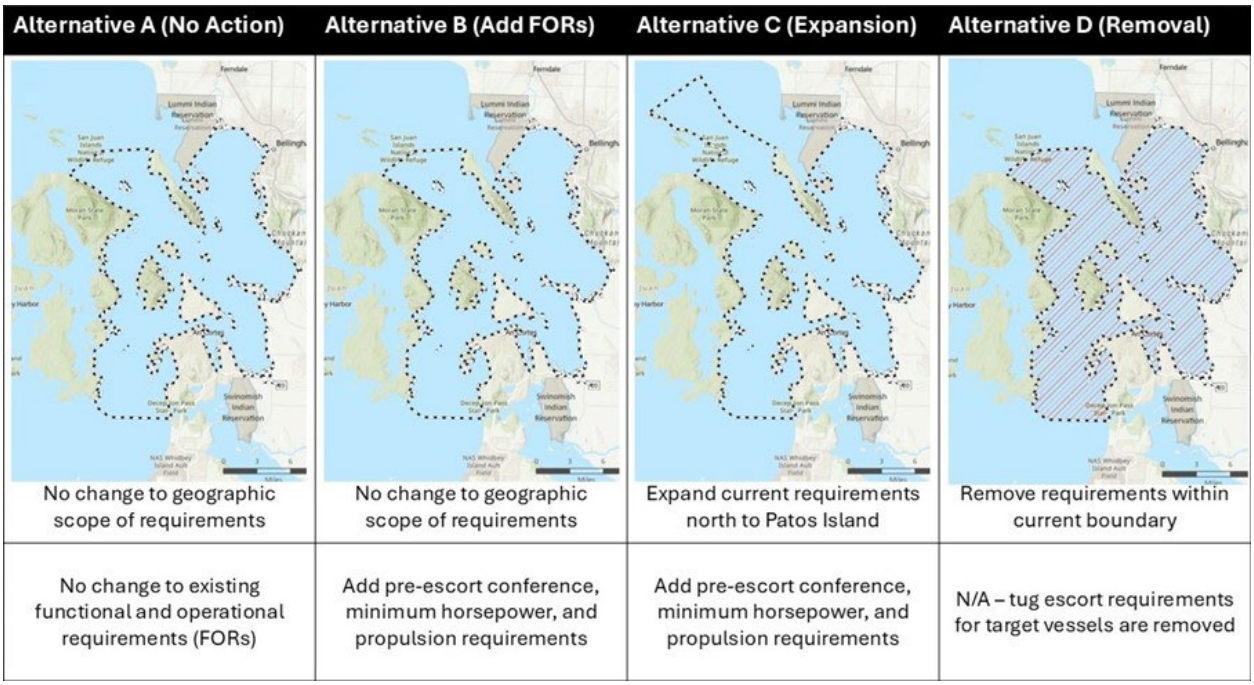

Figure 1. Proposed rulemaking alternatives.

Under ESHB 1578, Ecology developed a model to simulate vessel traffic patterns and oil spill risk, including target vessel escort activity. The model was based on historical automatic identification system (AIS) data from 2015-2019 and was used to inform the 2023 Analysis of Tug Escorts for Tank Vessels. For the current EIS effort, Ecology used the model to 1) simulate the tracks of escort and assist[2] tug traffic, based on 2015-2019 historical AIS data, and 2)

[2] Escort tugs are sometimes referred to as "escort/assist tugs" in this analysis because the same vessels typically perform both escorting and assisting work. Ecology used the model to simulate traffic for both escorting and assisting work; however, only escorting work would be affected by the rulemaking alternatives.

simulate the current volumes of escort and assist tug traffic along these tracks while accounting for tug escort requirements that went into effect in 2020.

The model produced 1,000 annual simulations of escort and assist tug traffic. To represent current conditions and Alternative A, Ecology selected the simulation output with the highest amount of escort tug traffic (i.e., the "worst case scenario") to ensure that the EIS does not undercount potential environmental impacts and to account for other potential near-term growth in vessel traffic (e.g., traffic from the Trans Mountain Expansion). For Alternative C, Ecology modified the Alternative A simulated traffic outputs to account for the proposed changes in tug escort requirements under that alternative.

Ecology used 2023 historical AIS data (i.e., not simulated) to represent all vessel categories other than escort and assist tugs, with some adjustments to account for recreational and fishing vessels that are not equipped with AIS. Traffic for these other vessel categories did not require simulation because it would not change based on the rulemaking alternatives.

The simulation outputs are used here to show the differences in underway time for escort tugs[3,4] under Alternative A and Alternative C. Figure 2 and Figure 3 show the results of these simulations, compiled to indicate the total minutes per year (min per yr) of target vessel escort tug underway time within each one-square-kilometer grid cell. Figure 4 depicts the change in escort tug underway time between Alternatives A and C. Escort tug activity under Alternative B is not expected to be meaningfully different than under Alternative A, while Alternative D would result in zero required escort tugs for target vessels. Refer to Appendix B Transportation: Vessel Traffic Discipline Report for details regarding the vessels activity simulation methodology and results.

[3] Escort tug underway time includes time spent traveling to an escort job, time while escorting a target vessel, and time spent traveling from an escort job.

[4] Unless specified otherwise, the terms “escort tug” and “tug escort” refer to the subset of overall tug escort activity or underway time for target vessels that are specifically affected by this rulemaking.

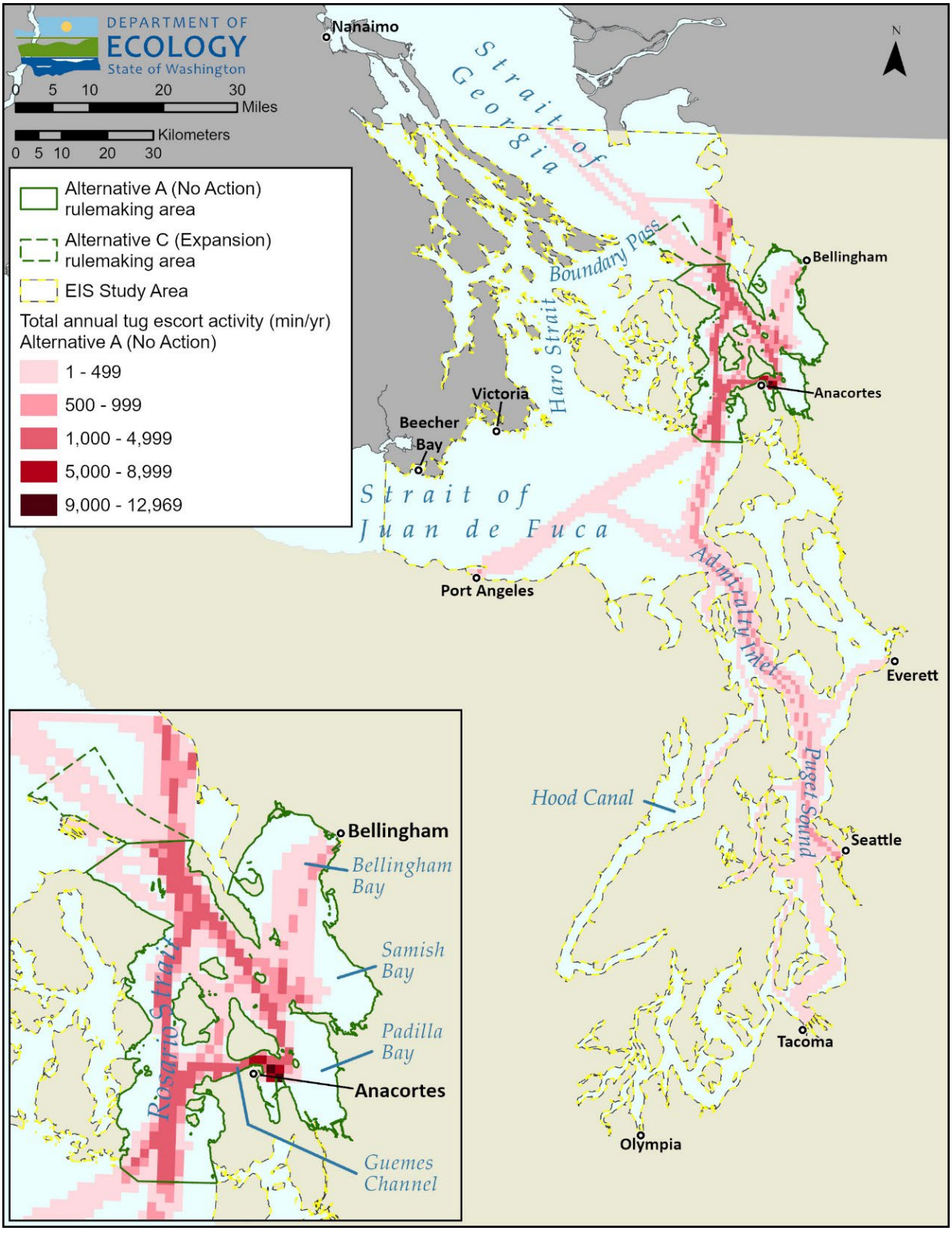

Figure 2. Simulated escort tug underway time under Alternative A and B.

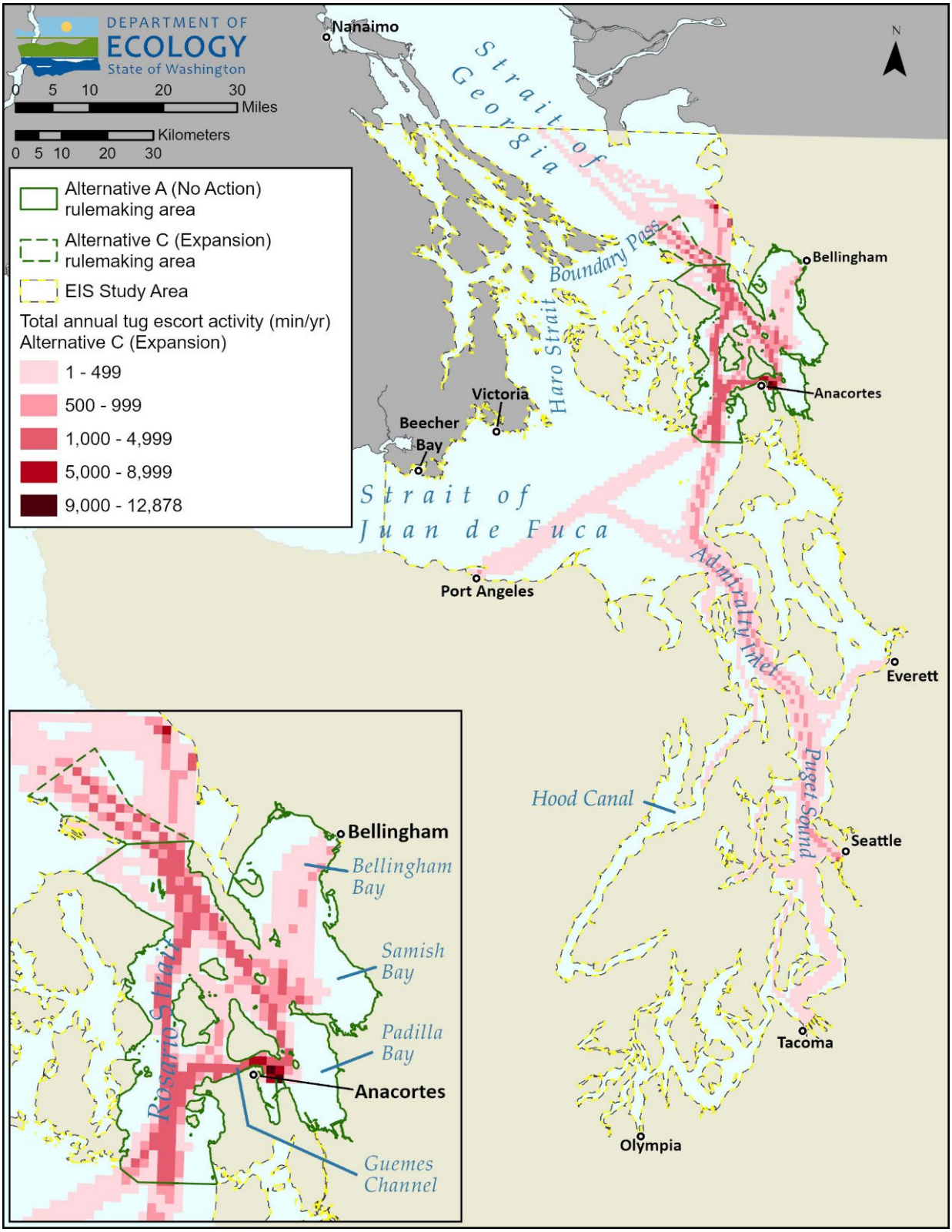

Figure 3. Simulated escort tug underway time under Alternative C.

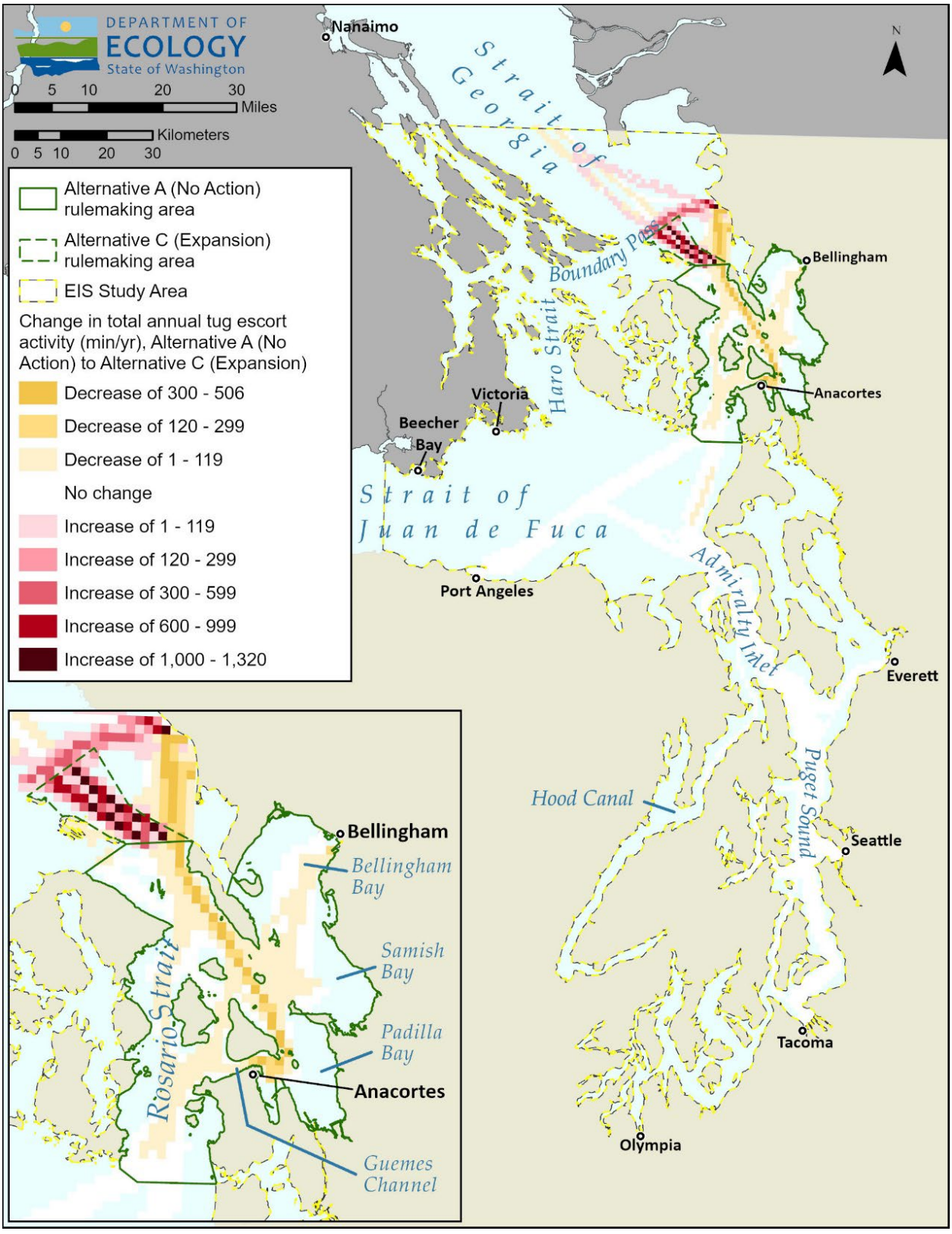

Figure 4. Simulated change in escort tug underway time between Alternative A and Alternative C. An additional accessible version of this map is available in Appendix M.

1.3 Resource Study Area

The EIS Study Area includes the rulemaking alternative boundaries and potential areas for tug escort commutes to and from the alternative boundaries. Specifically, the EIS Study Area includes all connected marine waters in the network of coastal waterways (including Puget Sound), bounded to the north by the 49th Parallel and bounded to the west by a line extending across the Strait of Juan de Fuca from Pike Point to Tongue Point. The EIS Study Area and the rulemaking area boundaries are shown in Figure 5 below.

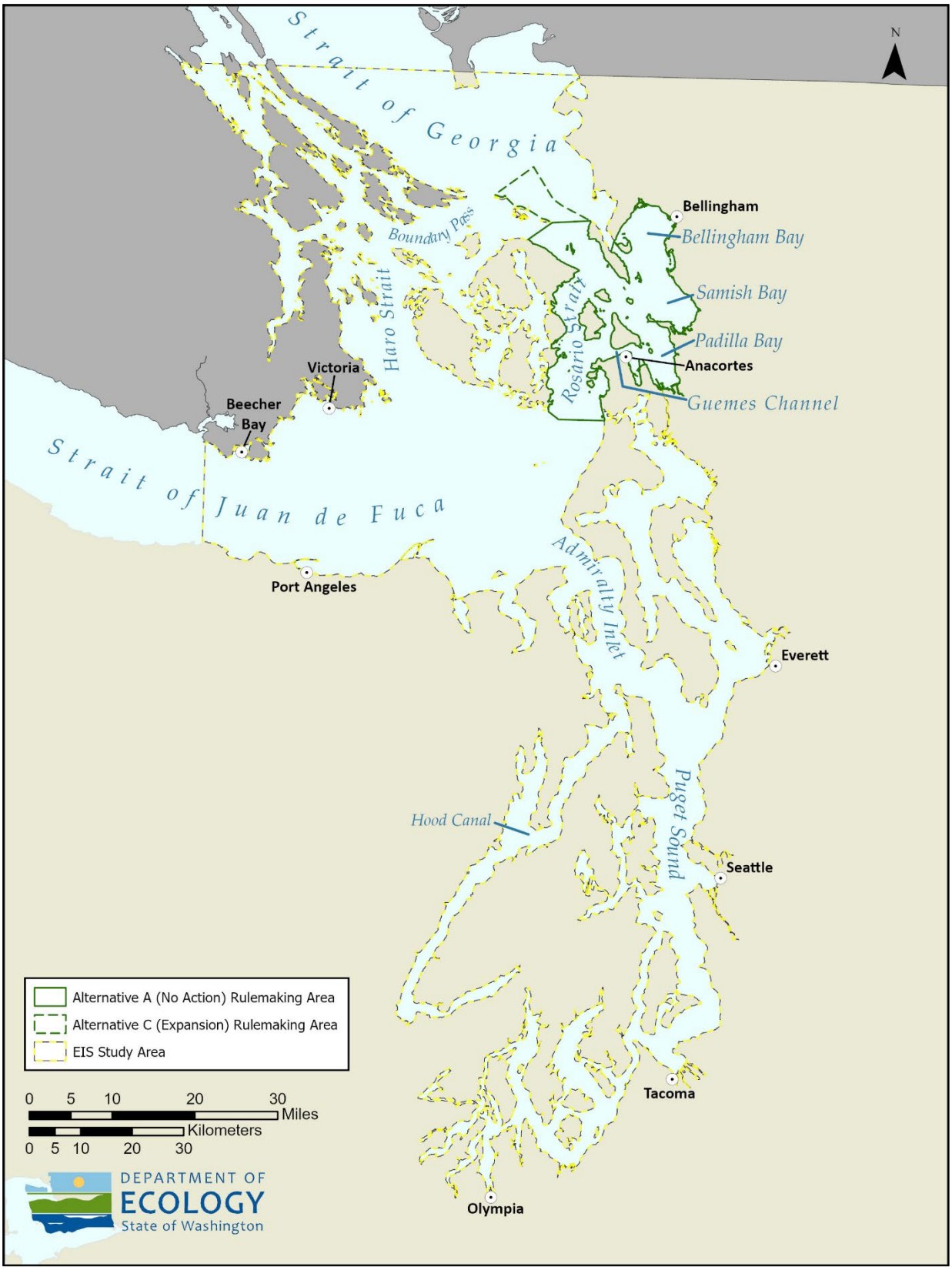

Figure 5. Boundary of the EIS Study Area.

1.4 Resource Description

This Visual Resources Discipline Report describes the existing visual resources in the EIS Study Area and evaluates the potential visual resource impacts of each rulemaking alternative. Visual quality is the value that people place on observing their surrounding environment (FHWA, 2015). Visual quality, or aesthetics, refers to natural and human landscapes and how people perceive them. The study area includes the visual environment along the water, including permanent and transitory visual features. Permanent features include buildings, piers, marinas, lighthouses, parks, and protected areas, and other features that are not intended to move or exist naturally, such as cliffs and mountains. Transitory visual features include features whose position changes regularly over time, such as any vessels that move through the water, or birds flying and foraging in the study area. We also evaluated coastal areas where visual interruptions could be seen in the line of sight.

1.5 Regulatory Framework

Several federal, state, and local laws, plans, and policies apply to visual resources in the EIS Study Area. We discuss these visual resource guidelines to provide a framework for the overall regulatory context of the rulemaking action, but is not necessarily intended to imply applicability or compliance requirements for the four regulatory alternatives evaluated in the EIS.

Table 2 Relevant federal laws, plans, and policies related to visual resources including aesthetics, light, and glare.

Regulatory Program	Lead Agency or Entity	Description
Federal Highway Beautification Act 1965	Federal Highway Administration (FHWA)	Establishes requirements for aesthetics along the U.S.'s highway system, including billboard advertising and placement of junkyards.
United States Coast Guard 33 C.F.R. Part 83, Subpart C—Lights and Shapes (rules 20-31)	United States Coast Guard (USCG)	Establishes requirements for vessel lighting, including vessels that are towing other vessels and while in mooring. Lights are required from sunset to sunrise and at times of restricted visibility. Required lights include a white masthead light, green sidelights, a white stern light, yellow towing light, and others.
Antiquities Act of 1906 (43 C.F.R. Part 3 and 7 C.F.R. Part 3100)	United States National Park Service (NPS)	Establishes requirements to provide protection of cultural and natural resources of historic or scientific interest on federal lands. The Act serves to preserve and protect the resources it covers, meaning that resources are expected to remain visually the same.

Regulatory Program	Lead Agency or Entity	Description
San Juan Islands National Monument Record of Decision	Bureau of Land Management (BLM)	Establishes the protection and restoration of the San Juan Islands National Monument. This action protects the monument area by restoring historic structures, enhancing habitat conditions, and other actions that aid preservation of visual resources in this area.
San Juan Islands National Wildlife Refuge	United States Fish & Wildlife Service (USFWS)	Protects San Juan Islands under the National Wildlife Refuge System.

Table 3 Relevant state laws, plans, and policies related to visual resources including aesthetics, light, and glare.

Regulatory Program	Lead Agency or Entity	Description
Scenic and Recreational Highway Act of 1967 (RCW47.39.020)	Washington State Department of Transportation (WSDOT)	Establishes a scenic and recreational highway system.
Chapter 197-11 WAC	Washington State Department of Ecology	Establishes all possible elements of the environment to be considered for a SEPA EIS. Visual resources include light and glare, scenic resources, and aesthetics.
Puget Sound Harbor Safety Plan	Puget Sound Harbor Safety Committee	Establishes the Puget Sound Harbor Safety Committee and voluntary standards of care (SOCs). SOC Section C includes guidelines for reducing excessive light from vessels anchored within Puget Sound.

Table 4 Relevant county and city laws, plans, and policies related to visual resources including aesthetics, light, and glare.

Regulatory Program	Lead Agency or Entity	Description
Whatcom County Code (WCC) views and aesthetics (WCC 23.20.090)	Whatcom County	Establishes requirements to protect scenic vistas, shorelines with aesthetic value, and minimize impacts from development on views enjoyed by the public.

Regulatory Program	Lead Agency or Entity	Description
WCC 11.08.010 – Lighting	Whatcom County	Establishes requirements for boating and lighting for vessels in Whatcom County. Requirements include visible white lights for boats operating a half hour after sunset through a half hour before sunrise.
Whatcom County: Cherry Point Amendments (Resolution 2018-005)	Whatcom County	Establishes a local mechanism for limiting expansion of fossil fuel business in Whatcom County.
San Juan County Shoreline Master Program (San Juan County Code (SJCC))	San Juan County	Establishes local land-use policies and regulations that guide the use of San Juan County shorelines. Content includes management policies and strategies, along with visual characterizations of San Juan County. Establishes requirements for lighting, with an exception for federal, state, and local safety, or navigation standards.
San Juan Islands Geographic Response Plan	Ecology	Establishes management policies and strategies for oil and hazardous spills response, along with characterization for the San Juan Islands region.
San Juan Islands Scenic Byway	WSDOT	Recognizes historic, scenic, and culturally important roads on the San Juan Islands.
Strait of Juan de Fuca Geographic Response Plan	Ecology	Establishes management policies and strategies for oil and hazardous spills response, along with characterization for the Strait of Juan de Fuca region.
North Puget Sound Geographic Response Plan	Ecology	Establishes strategies for oil and hazardous spills response, along with characterization for the North Puget Sound region.
Cypress Island Comprehensive Management Plan	Washington State Department of Natural Resources (DNR)	Establishes protections and management goals for the Cypress Island Aquatic Reserve. Goal 2 of this plan includes maintaining exceptional scenic landscapes. All management and site development activities need to minimize visual impacts to surrounding areas.
Fidalgo Bay Aquatic Reserve Management Plan	DNR	Establishes protections and management goals for the Fidalgo Bay Aquatic Reserve. Under zoning and land use designations, shorelines designated as high intensity areas should try to

Regulatory Program	Lead Agency or Entity	Description
		provide visual public access. Commercial marine zones should work to not diminish visual access to waterways and the shoreline.
Friday Harbor Shoreline Master Program	Town of Friday Harbor	Establishes local land-use policies and regulations that guide the use of Friday Harbor shorelines. Content includes management policies and strategies, along with visual characterizations of the Friday Harbor area. All projects need to be assessed for their visual impacts and impacts must be minimized. Visual access to the shoreline also needs to be provided, when possible.
Ferndale Shoreline Master Program	City of Ferndale	Establishes local land-use policies and regulations that guide the use of Ferndale shorelines. Content includes management policies and strategies, along with visual characterizations of the Ferndale area. Visual access to shorelines is strongly encouraged.
Anacortes Shoreline Master Program	City of Anacortes	Establishes local land-use policies and regulations that guide the use of Anacortes shorelines. Content includes management policies and strategies, along with visual characterizations of the Anacortes area. Visual access to the water and shoreline must not be blocked or reduced from new developments, activities, and uses.
Blaine Shoreline Master Program	City of Blaine	Establishes local land-use policies and regulations that guide the use of Blaine shorelines. Content includes management policies and strategies, along with visual characterizations of the Blaine area. Visual access to the shoreline must be adequate and maintained.
Bellingham Shoreline Master Program	City of Bellingham	Establishes local land-use policies and regulations that guide the use of Bellingham shorelines. Content includes management policies and strategies, along with visual characterizations of the Bellingham area. Visual access to the water and shoreline must not be blocked or reduced from new developments, activities, and uses.

Regulatory Program	Lead Agency or Entity	Description
Skagit County Shoreline Master Program	Skagit County	Establishes local land-use policies and regulations that guide the use of shorelines in Skagit County. Content includes management policies and strategies, along with visual characterizations of the Skagit County area. Visual access to the water and shoreline must not be blocked or impacts must be reduced from new developments, activities, and uses.

1.5.1 U.S. Coast Guard

The U.S. Coast Guard (USCG) is the primary federal agency responsible for vessel traffic and prevention of and response to oil spills within navigable waters of the United States. The EIS Study Area is located within USCG District 13 and Sector Puget Sound. The USCG mission programs include maritime law enforcement, maritime response, maritime prevention, marine transportation system management, maritime security operations, and defense operations (U.S. Coast Guard, n.d.). The USCG describes requirements for vessels in the International Regulations for Prevention of Collisions at Sea (COLREGS). Further description of applicable COLREGS related to vessel lighting is below.

1.5.1.1 Common International Standards

Vessels navigating in U.S. and Canadian waters follow the same navigational rules of the road known as the COLREGS. This helps prevent collision and ensures predictability across the transboundary waterway. The COLREGS section "Lights and Shapes" describes requirements for when vessel lights should be turned on and where lights should be located. Generally, lights are required sunset to sunrise and only the required lights are allowed. Required lights include masthead lights, stern lights, and towing lights. There are additional requirements when towing a vessel or if a vessel experiences grounding. Part D of the COLREGS, Sound and Light Signals, includes light requirements for vessels maneuvering near other vessels and obstructed views such as bends or narrow channels (33 CFR Part 83 Subpart C).

1.5.1.2 Marine Safety Information Bulletin 003-16

In 2016, the USCG issued a Marine Safety Information Bulletin for vessels anchoring in the Captain of the Port Puget Sound Zone, which contained specific information about minimizing lighting impacts (U.S. Coast Guard, 2016). This bulletin reiterates the COLREGS 30 requirements for lighting and further states that unnecessary lights should not be used. It directs vessel operators to "reduce bright lights, particularly high intensity mast mounted lighting (such as halogen and mercury vapor lights) to a minimum consistent with crew security and safety and compliance with Rule 30" (U.S. Coast Guard, 2016). This information is also included as a Puget Sound Harbor Safety Committee SOC (see below).

1.5.2 Puget Sound Harbor Safety Committee

The Puget Sound Harbor Safety Committee (PSHSC) is a nonprofit organization that promotes marine safety. Its membership includes industry, Tribal government, local government, labor, fishing, environmental, and other advocacy groups interested in marine safety. It is advised by state and federal agencies including, but not limited to, the USCG, the U.S. Army Corps, and Ecology. The PSHSC develops and maintains the Puget Sound Harbor Safety Plan (PSHSP) "to enhance marine safety and environmental stewardship via risk-based decision making" (PSHSC, 2023). As part of the PSHSP, the PSHSC develops and maintains formalized "Standards of Care" (SOC), which are voluntary measures that go beyond regulatory requirements that "experienced and prudent maritime professionals follow to ensure safe, secure, efficient, and environmentally responsible maritime operations" (PSHSC, 2023). The PSHSC SOC on Anchoring reiterates the USCG Marine Safety Bulletin regarding reducing bright lights where possible as part of a good neighbor policy (PSHSC, 2023).

2.0 Methodology Summary

To determine how existing marine vessel and escort tug operations affect visual conditions, Ecology reviewed available literature and data from local, state, and federal agencies, and input from Tribal governments and stakeholders. Besides visual impacts from escort tugs themselves, an oil spill has the potential to alter the visual quality of nearshore environment and shorelines, both in the short- and long-term. Ecology reviewed the changes in escort tug activity simulated under each of the four alternatives and considered how those changes in tug escort activity would impact visual resources. Ecology also reviewed the results of vessel activity simulations, which estimated the existing annual underway minutes for escort tugs and how escort tug underway times are projected to change under the rulemaking alternatives.

In addition, Ecology contacted Tribal governments and stakeholders to improve our understanding of the impact of the presence of escort tugs within the EIS study area. We also contacted the USCG to find out if there have been any visual complaints about escort tugs.

We then evaluated impacts to visual resources qualitatively using the guidance developed by the Washington State Department of Transportation (WSDOT) (WSDOT, 2025) and the Federal Highway Administration's (FHWA) Visual Impacts Assessment (VIA) processes (FHWA, 2015).

This is considered to be a "non-road project" (WSDOT, 2024). A "non-road project" typically possesses visual impacts that are largely transitory rather than associated with a new permanent structure. For example, a non-road project could be related to aviation, ferry, or rail, where traffic in each medium is evaluated.

The first step in the analysis identified the level of VIA required for this assessment using the FHWA VIA Scoping Questionnaire. Our analysis determined that the level of visual impact fell within the 10-14 range, and indicates that the lowest level of analysis should be a VIA Memorandum. The purpose of a VIA Memorandum is to address minor visual issues. It explains the limited nature of any impacts, any necessary mitigation, and an explanation of why no further analysis is required. Our analysis more closely aligns with an Abbreviated VIA to effectively capture all visual impacts. The purpose of an Abbreviated VIA is to briefly describe project features, impacts, and mitigation requirements. Descriptions and characterizations of the visual landscape are based on observation and review of planning and policy documents by local jurisdictions. Ecology also conducted a site visit to the eastern portion of the rulemaking area as part of this assessment.

The analysis assesses the potential direct and indirect visual impacts of the four alternatives. Below describes the research questions used to assess visual resource impacts:

1. Baseline: What are the existing visual resources[5] and visual character[6] of the waterways and coastal areas within the EIS Study Area? How do vessels, specifically tugs, contribute to the typical visual landscape?
2. Assess Alternatives: How do changes in escort requirements impact visual resources? How would they impact light and glare specifically?
3. Assess Alternatives (oil pollution): How do changes in oil spill risk affect visual resources?
4. Describe Impacts: Where are visual impacts likely to be concentrated? What communities would be most affected?
5. Mitigation: How can impacts be reduced or mitigated?

Last, Ecology assessed whether visual impacts assessed would be likely to result in significant adverse environmental impacts, using the significance thresholds outlined below in Table 6. According to WAC 197-11-794, significant "means a reasonable likelihood of more than a moderate adverse impact on environmental quality" and should rely on context (e.g., physical setting) and intensity (e.g., magnitude and duration of impact). Findings of significance were reported for each alternative, where identified.

Table 5. Significance thresholds for visual impacts.

Indicator	Significance Thresholds
Visual impacts as a result of changes in tug escort requirements	• Reasonable likelihood that the qualities of the region's visual character are permanently altered. Important views are blocked, viewers see and are sensitive to view changes, changes in shadow or light levels are obvious, and light and glare could be a safety hazard or interfere with views.
Visual impacts as a result of oil spills	• Reasonable likelihood that an oil spill will result in long-term and/or permanent changes to the region's visual character.

[5] Visual Resources: Components of the natural, cultural, or project environments which are capable of being seen (FHWA, 2015).
[6] Visual Character: The description of the visible attributes of a scene or object typically using artistic terms such as form, line, color, and texture (FHWA, 2015).

3.0 Technical Analysis and Results

This section describes the affected environment for visual resources within the EIS Study Area. It also describes the anticipated qualitative impacts on visual resources from the four alternatives: Alternative A (No Action), Alternative B (Addition of FORs), Alternative C (Expansion), and Alternative D (Removal). This section also identifies mitigation measures that could avoid, minimize, or reduce the potential impacts and determines if there would be significant and unavoidable adverse environmental impacts.

3.1 Affected Environment

The EIS Study Area for visual resources includes all connected marine waters in the Salish Sea network of coastal waterways (including Puget Sound), bounded to the north by the 49th Parallel and bounded to the west by a line extending across the Strait of Juan de Fuca from Pike Point to Tongue Point (see Figure 5 in Section 1.3). The Salish Sea is a geographic area encompassing land and water bodies of southern British Columbia, Canada, and northern Washington state. Major waters that make up the Salish Sea estuarine ecosystem include the Strait of Georgia, Strait of Juan de Fuca, and Puget Sound. Within these major waters are numerous straits, inlets, canals, and bays (Western Washington Institute, 2024).

The rulemaking areas include the marine waters of San Juan, Skagit, and Whatcom counties, as well as a small portion of Island County, Washington. Specific waters include Bellingham Bay, Samish Bay, Rosario Strait, Thatcher Pass, Burrows Bay, and smaller areas such as Boat Harbor, Deepwater Bay, Strawberry Bay, Secret Harbor, and Cooks Cove.

The transboundary waters of the Strait of Juan de Fuca, the Puget Sound, and the Strait of Georgia are diverse bodies of water that are home to many species of importance, including Southern Resident Killer Whales (SRKWs), chinook salmon, and marbled murrelets. Residents and visitors enjoy wildlife and birdwatching, participate in on-land recreation, such as camping and hiking, and marine recreation, such as kayaking and fishing. Large commercial vessels are part of the visual character of this region, as the Strait of Juan de Fuca is the entrance to several large commercial ports on both sides of the US-Canadian border.

3.1.1 Size of escort tugs and target vessels

Visual impacts for escort tug activity associated with target vessels are described in two categories. The first includes escort tugs commuting to or from an escort job and potentially waiting for their target vessel to arrive at a rendezvous location. While commuting, waiting for a target vessel, or at anchor, escort tugs are alone and the visual impact is the sight of a single vessel. In terms of physical size, one of the larger tugs in the escort/assist fleet is approximately 155 feet long. A tug on the smaller end of the fleet is approximately 91.5 feet long.

The second category is the active escort job, where the visual impact of the tug is likely dominated by the visual sight of the escorted vessel. For contrast, the escorted vessel size ranges are much larger:

- Oil Tankers 5,000-40,000 DWT: 520-604 feet

- ATBs over 5,000 DWT: 421-690 feet
- Towed barges over 5,000 DWT: 241-260 feet

See Figures 6 and 7 below for a visual comparison of escort tugs and target vessels within the EIS Study Area.

Figure 6. An oil tanker at the top of the photo is shown with a tug alongside, and one astern. Both of these tugs are the size and character of escort tugs. An ATB is shown in the middle ground with a crew boat alongside. A fishing boat passes in the foreground.

Figure 7. Escort tug transiting to an oil tanker.

3.1.2 United States Coast Guard light requirements

The USCG describes light requirements for all seafaring vessels traveling in the inland waters of the U.S. in 33 C.F.R. Part 83 Subpart C -- Lights and Shapes. Light visibility requirements during sunset to sunrise hours for escort tugs in the EIS Study Area include light range visibility from two to five miles, depending on the exact size of the vessel and type of light (33 C.F.R. Part 83.22(b)). For target vessels, the light visibility requirements range from two to six miles, depending on the size of vessel and type of light (33 C.F.R. Part 83.22(a)). The same light visibility requirements are required from sunrise to sunset during low visibility events. Specific light requirements are mandatory for vessels in transit, that are towing, and with restricted maneuverability.

Target vessels in transit need to include a forward and second masthead light, sidelights, and a stern light. Escort tugs can have the lights described for target vessels in transit or have "an all-around white light and sidelights" (33 C.F.R. Part 83.23). Any anchored vessel must have an all-around white light at the stern and fore of the vessel. Escort vessels and towed barges over 5,000 DWT can have the lights described for all vessels anchored or just one all-around white light where it is most visible. The remaining target vessels at anchor must have their decks illuminated (33 C.F.R. Part 83.30). Lighting impacts are not expected to vary between escort tug transit states.

3.1.3 Current light impacts

Ecology also met with the USCG to discuss any complaints about light from escort tugs. While the USCG does receive complaints about light from vessels sporadically, complaints are typically regarding larger vessels at anchorages, not from tugs. Typical concerns are related to noise (e.g., vessels running generators and creating a noise disturbance) or light (e.g., bright deck lights on). When the USCG follows up, the vessels usually follow the required safety measures and Good Neighbor Standards of Care (SOC).

Ecology also requested feedback from Tribal governments and stakeholders to see if they had concerns with or heard complaints about the presence of tugs, including light impacts. Tribal governments did not have any feedback on this specific topic. Industry stakeholders commented that while escort tugs are in transit, their lights aren't very prominent on the water. They further stated that if there were complaints about lights, this would occur while anchored or waiting at rendezvous points. They were not aware of any complaints regarding lighting and stated that complaints are typically over noise, rather than lighting or the presence of tugs.

3.1.4 Visual landscape of escort tugs and target vessels

To better understand the visual landscape of escort tugs and target vessels, Ecology used simulated data from the Ecology risk model to determine escort and assist time under existing conditions, or the conditions of Alternative A. Under these conditions, Ecology estimates that tugs escorting target vessels have approximately 610,107 minutes of annual underway time per

year.[7] Tugs escorting target vessels account for approximately 0.96 percent of the total underway time for all vessel traffic that carries AIS. In 2023, target vessel underway time made up 1.97 percent of total AIS vessel underway time. The visual impact of these tugs should be considered in the larger context of vessel traffic in the EIS Study Area.

Ecology estimates that tugs escorting target vessels perform 1,537 individual jobs per year. This is between four and five escort jobs of target vessels per day. However, tugs escorting target vessels are not the only time a viewer would see tugs of this size and construction transiting through the EIS Study Area or interacting with larger commercial vessels. On any given day, a viewer could also expect to see between two and three escort jobs of tankers over 40,000 DWT and 24-25 assist jobs, performed by the same type of tug. To the casual viewer, these escort tug-vessel interactions would likely look similar. Escort tug activity associated with this rulemaking would not have a distinct visual impact since the additional escort jobs make up a small portion of the total work tugs perform by comparison.

Under current conditions, Ecology estimates that 36.78 percent of the underway time for escort tugs is the active escort of target vessels (See Figure 6 in Section 3 for a photo of what this looks like), with commutes making up the remaining 63.22 percent of underway time (See Figure 7 in Section 3 for a photo of what this looks like). Visually, escort tugs under this rulemaking likely spend most of their time commuting to and from their escort jobs, so this is the more common visual impact.

Alternative C would increase the geographic extent where tug escort regulations apply by 28.9 square miles at the northern boundary of the existing rulemaking area. The expansion area is the furthest north region of the EIS Study Area and located furthest away from population centers. There are several protected islands within the San Juan Island Monument that would experience more escort tug traffic under this alternative (See Appendix B Transportation: Vessel Traffic Discipline Report for more details).

3.1.5 Visual geography

3.1.5.1 North Puget Sound

The North Puget Sound area consists of marine waters east of Orcas and James Islands to the mainland, and the waters from the US/Canada border to Fidalgo Island in the south. It encompasses a variety of bays, shoreline types, islands, and land masses. The bays consist of tidal flats, marshes, and some sections of exposed rocky headland. The shoreline is diverse and offers many scenic vistas. The region has a diverse array of industrial uses and natural beauty.

[7] This estimate of underway time is from simulated data used to estimate Alternative A. Ecology deliberately selected the model simulation with the highest amount of escort tug underway time to account for inter-annual variation in vessel traffic, unpredictability in tug commute locations, and potential increases in vessel traffic over time. The simulated numbers are likely an over-estimate of total escort tug underway time. See the Transportation: Vessel Traffic Discipline Report for more information on methods.

Like the other regions in the EIS Study Area, it is well known for its beauty, scenic views of multiple mountain ranges, and outdoor recreation opportunities.

This region also includes several urban centers, including Bellingham, Anacortes, and Ferndale. Five major refineries are housed in this region, three in Whatcom County and two in Skagit County, which are drivers of commercial vessel traffic in the region. In addition to vessels carrying fuel and their escort tugs, it is common to see cruise ships and ferries traveling through the area and mooring at marinas in the region.

The shoreline areas of the urban centers generally consist of busy marinas, industrial businesses, and public parks with water access. Some shorelines are protected against further development, with the emphasis for growth in the urban centers (City of Anacortes, 2010; City of Bellingham, 2013; City of Blaine, 2019; City of Ferndale, 2009; Skagit County Planning Department, 2010; Whatcom County Code § 23.20.090. (2009). Views and Aesthetics., 2025). Natural or rural shorelines are habitat for many species and provide year-round interest. Rural shorelines are defined as those that are not heavily populated and often include agricultural land. The rural shoreline designation is intended to protect agricultural land from urban density expansion. Natural shorelines are defined as those that have experienced little to no human alteration and are also generally protected from development (Skagit County Planning Department, 2010).

Ecology staff performed site visits between September 5-6, 2024, at water-adjacent locations within the EIS Study Area that experience regular vessel and tug traffic. On the days of the site visits, Ecology observed three target vessels at two of the sites (out of 13 sites in total): two oil tankers and one articulated tug barge (ATB). Ecology did not observe any escort tugs. Staff remained at each site for approximately a half hour apiece. Most sites were only viewed during daylight hours, except for Squalicum Harbor and the Bellingham Cruise Terminal which were visited during day and night. A list of site visit locations and notes are in Table 7 below.

Table 6 Site visit notes from September 5-6, 2024.

Site visit location	Observations
March Point Road/Fidalgo September 5, 2024 Daytime	• The landscape is industrial with refineries and associated infrastructure. There are views of other shorelines, open water, and islands with little to no development. • Bunkering activity occurs at the refinery docks and has capacity for two tankers. Ecology staff observed two motor tankers bunkering.
Anacortes Marina September 5, 2024 Daytime	• The landscape is heavily industrial with refineries, small vessel marina infrastructure, including a jetty, a dock in Fidalgo Bay, and residential and commercial buildings around the marina. There are views of islands and open water. • This area is being developed for more public use and entertainment.

Site visit location	Observations
	• Ecology staff did not observe tugs or target vessels during the site visit.
Port of Anacortes September 5, 2024 Daytime	• The landscape is industrial with boat docks, barges in for maintenance, a gravel barge, tractor with a crane, and work boats. The area is also residential and includes waterfront homes near the shipyard with views of Guemes Channel and Guemes Island. Guemes Island is mostly forested with some development visible. • No tugs or target vessels were observed during the site visit.
Cap Sante Park + Nearby Residential Viewpoint September 5, 2024 Daytime	• The park is located on a hill and has views of Padilla and Fidalgo Bays, refineries and associated dock infrastructure are visible, there is open waterway with sailboats and yachts moored outside the marina, marina infrastructure and boats are visible along with nearby residential and commercial buildings, and views of forested islands. • Recreational uses include walking, running, biking, and sightseeing. Several vehicles are parked to look at the views. • One small tug was visible during the site visit. It was too small to be a potential escort tug and was likely associated with nearby in-water construction. • No target vessels were visible during the site visit.
Curtis Wharf/Anacortes Ferry Terminal September 5, 2024 Daytime	• The landscape is a working waterfront area with views of Guemes Channel and Guemes Island. Ferry traffic and associated infrastructure is visible. • No target vessels or tugs were visible during the site visit.
Washington Park September 5, 2024 Daytime	• Guemes Island and the San Juan Islands are visible. The islands are mostly forested with minimal visible development from the park. Ferry, small recreational, and commercial vessel traffic was visible. There are no visible industrial features. • The residential neighborhood included a park and playground. Several private neighborhood developments blocked water views and access from the road in the surrounding area. • No tugs or target vessels were visible during the site visit.
Samish Island September 5, 2024	• The landscape included views of Samish Bay and Bellingham Bay, some development in the distance, other forested islands visible, and coastal residential

Site visit location	Observations
Daytime	areas visible from the beach. Agricultural areas are visible as well. • Two large oil tankers were visible at anchor in the distance. • Several small fishing vessels and crab gear were visible from the beach area. • No tugs were visible during the site visit.
Squalicum Marina September 5, 2024 Nighttime	• The landscape is a working waterfront. There are large lights in the parking lot and marina area. • One large ATB was visible from the marina with lights on that were brighter than the marina lights. This was the primary visual impact from the end of the Marina. • No tugs were visible during the site visit.
Cruise Terminal Parking September 5, 2024 Nighttime	• The landscape is a commercial area with a lot of visible nighttime lights on the shoreline and on the water. • No tugs or target vessels were visible during the site visit.
Lummi Sea Ponds September 6, 2024 Daytime	• The landscape is a coastal and estuarine and is largely undeveloped. There is a flat ocean view with nearby coastlines and islands visible. Shoreline development was visible to the northwest (Sandy Point Marina area). No commercial vessel traffic was visible. • No tugs or target vessels were visible during the site visit.
Stomish Grounds September 6, 2024 Daytime	• There is a small amount of coastal development visible, the area is residential with a road running near the shoreline, and a small marina used by Lummi Nation fishers was visible with some associated infrastructure. • Hale's passage is a narrow waterway and while we did not observe vessels during the visit, a member of Lummi Nation indicated that they do use that route. • The Bellingham Bay anchorage is visible from the area. A Lummi Nation staff representative described seeing vessels anchored there for days or weeks at a time with up to three to four vessels. They did not report seeing many tugs in that area. • No tugs or target vessels were visible during the site visit.
Neptune Beach September 6, 2024 Daytime	• The refinery dock to the north is a prominent feature of this area with open water with islands and coastline visible in the distance.

Site visit location	Observations
	• Fishing vessels, kayaks, and a large oil spill response vessel were visible.
Squalicum Marina September 6, 2024 Daytime	• This area is a working waterfront with a commercial area and marina. Shorelines and islands are visible in the distance. • One large ATB was visible and was the same one observed on September 5, 2024 during the nighttime site visit. • No tugs were visible during the site visit.
Boulevard Park/South Bay Trail September 6, 2024 Daytime	• Observations included a refinery, one large ATB (same ATB visible from Squalicum Marina), open ocean space, and a lot of recreational activity (e.g., playground, walking, running, biking, etc.). • No tugs were visible during the site visit.

3.1.5.2 Whatcom County

Whatcom County has a Shoreline Master Program and County Ordinances related to visual impacts. Whatcom County's Shoreline Master Program (Whatcom County Code § 23.20.090. (2009). Views and Aesthetics., 2025) details requirements to ensure new developments do not minimize the public's ability to enjoy views, and scenic vistas and shorelines with visual value are protected from most development. Whatcom County Swimming and Boating Code: Whatcom County Ordinances Title 11.08.010 provides vessel lighting requirements and further require visible white light between a half hour after sunset until a half hour before sunrise.

Bellingham

Bellingham, in Whatcom County, has a largely urban maritime shoreline landscape, with some shoreline areas designated as natural or as an urban conservancy. Marinas will experience the largest amount of waterborne traffic. These trends were also observed during the site visit (Table 7). Areas other than marinas will experience transitory waterborne traffic offshore. Bellingham Bay is designated as a shoreline of statewide significance seaward of extreme low tide (Bellingham Municipal Code 22.04 and 22.11).

During Ecology's site visit, one ATB was observed at Squalicum Marina (see Figure 8). The same ATB was observed during the night site visit (see Figure 9). Staff also conducted a night visit with the USCG Station, Squalicum Harbor, and Bellingham Cruise Ship Terminal observed with associated lights (see Figure 10).

Figure 8 View of Bellingham's Squalicum Harbor during the day. Note the articulated tug barge (ATB) in the circle beyond the jetty in the middle of the photo. See inset for closeup of ATB.

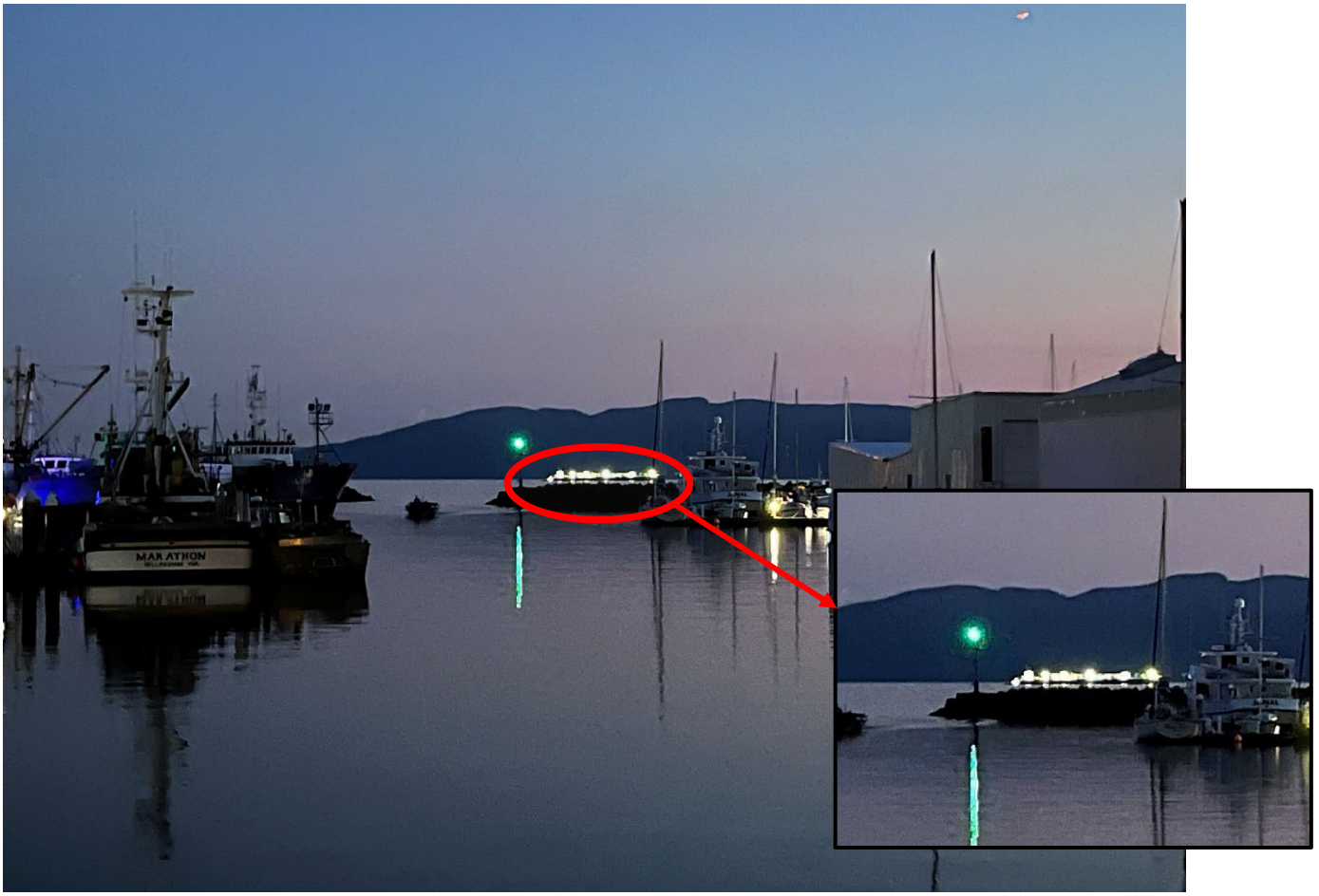

Figure 9 Bellingham's Squalicum Harbor at night. Bright lights are located on the deck of the same ATB as seen in Figure 8 (see circle). See inset for closeup of ATB.

Figure 10 This photo shows the visual character of a portion of the study area at night. It shows Bellingham's USCG Station in the foreground. Bright lights are located at Squalicum harbor (right) and Bellingham Cruise Ship Terminal (left).

Blaine

Blaine is the northernmost urban center of the proposed expansion area. The shoreline consists of marine industrial and mixed-use functions, some of which are considered "high intensity" environments (City of Blaine, 2019). Any shoreline use that would substantially degrade the ecological functions and natural character is prohibited.

Ferndale

Ferndale is north of Bellingham and experiences similar offshore vessel traffic patterns. Ferndale has no shorelines that fall under the "natural designation" category and contains several degraded waterways (City of Ferndale, 2009). Visual access to shorelines is strongly encouraged in the city.

3.1.5.3 Skagit County

Skagit County contains several shorelines of statewide significance, including the marine waters of Skagit Bay (to Fidalgo Island) and Padilla Bay. The county has urban, rural residential, rural,

and conservancy shorelines. Urban shorelines include those with residential, commercial, and/or industrial uses. Two oil refineries operate in Skagit County and it is common to see oil tankers and other large vessels offshore, along with escort tugs. Rural and natural shorelines in the area are protected by local laws and against intensive development in the future. They have high scenic value and their natural state is itself a point of interest. However, due to the placement of marinas and other docks, rural and natural shoreline areas only experience transitory vessel traffic (Skagit County Planning Department, 2010).

Anacortes

Anacortes is within the EIS study area in Skagit County. Its character is that of a working waterfront city and allows marine-related commerce and industry in designated shoreline areas. Chapter 19.72 of the Anacortes Shoreline Master Program (City of Anacortes, 2010) requires visual access to the water and shoreline must not be blocked or reduced during new developments, activities, and uses. During Ecology's site visit, the two oil tankers observed were at March Point (see Figure 11 below). Staff also visited Anacortes' Cap Sante Viewpoint and did not observe target vessels (see Figure 12).

Figure 11 Two oil tankers at the two docks at March Point, Anacortes.

Figure 12 View from Anacortes' Cap Sante Viewpoint to Cap Sante Harbor. No target vessels were observed from this location during the site visit.

Cypress Island

Cypress Island is technically a part of Skagit County but is also considered an island within the San Juan Islands archipelago (WA DNR, 2025). Under the Cypress Island Comprehensive Management Plan (WA DNR, 2007), all developments are required to minimize visual impacts to surrounding areas. The plan also includes maintaining scenic landscapes.

Fidalgo Bay

Fidalgo Bay is located just outside of Anacortes and was established as an environmental reserve in 2000. The Fidalgo Bay Aquatic Reserve Management Plan outlines management goals and describes the current character of the reserve (WA DNR, 2019). The near shore area is largely industrial, but the aquatic region contains high-quality habitat for fish species, birds, and marine invertebrates. Fidalgo Bay experiences significant vessel traffic, from small recreational boats to large oil tankers. Oil spills are an ever-present threat to the marine environment due to the two nearby oil refineries, pipelines, and train transportation.

3.1.5.4 San Juan County and Islands

The San Juan Islands, an archipelago of more than 170 islands, are protected as a National Monument (BLM, 2023). The San Juan Islands National Monument is at the northwestern edge of the proposed expansion area. It consists of 14 recreation management areas located in 29 acres of small islands and 10 acres of rocks (Ecology, 2024). Visitors experience this as an area rich in wildlife. These locations include formally identified marine mammal haul outs,[8] seabird nesting sites, sensitive plant communities, and cultural sites (Jeffries et al., 2000). USCG aids-to-navigation lighting requirements are still required within the National Monument area, however, the management plan does directly minimize light impact within the area.

One visiting the islands can expect to view a wide diversity of shoreline and marine habitats (rocks, reefs, and islands), undisturbed forests and meadows, and views of mountain ranges. Wildlife and birdwatching are some of the region's main draws, where it is common to see tufted puffins, sandhill cranes, SRKWs, humpback whales, and a diverse array of colorful sea stars. Friday Harbor, Eastsound, and Lopez communities are located on the San Juan Islands. The San Juan Islands are an increasingly popular tourist destination where visitors spend over 200 million dollars per year (San Juan Islands Visitors Bureau, 2024).

The San Juan County Shoreline Master Program Section 18.50.200, describes lighting requirements for all shoreline activities and uses (San Juan County, 2021). Federal, state, and local navigation and safety requirements are exempt from these requirements. Some of the requirements under this code include ensuring external lighting fixtures are dark sky-rated, recessed, and shielded. In addition, the Town of Friday Harbor's Master Program, located on San Juan Island, includes providing visual access to shorelines and minimizing visual impacts for new projects (Town of Friday Harbor, 2015).

[8] Defined as pinniped behavior when they leave the water and go to land, such as for mating and resting between periods of foraging activity.

Alternative C would increase the geographic extent where tug escort regulations apply by 28.9 square miles at the northern boundary of the existing rulemaking area in the Strait of Georgia South, extending to the northwest. The expansion area is the furthest north region of the EIS Study Area and is located furthest away from population centers. There are several protected islands within the San Juan Island Monument that would experience more escort tug traffic under this alternative.

Friday Harbor

The marine area surrounding Friday Harbor is considered a fish and wildlife habitat conservation area and critical saltwater habitat. It includes critical saltwater habitat for SRKWs and Chinook salmon. Friday Harbor's urbanized shorelines contain mostly single-family residences. New shoreline development is discouraged and limited. The shoreline consists of private and publicly owned land. Publicly owned shorelines allow for public access and natural shoreline views are valued. Undisturbed shorelines are protected from most future development (Town of Friday Harbor, 2015).

San Juan Islands and expansion area

The expansion area includes the northernmost reaches of the San Juan archipelago, which are within and protected by the San Juan Islands National Monument near the expansion area. These islands are Patos Island (211-acre marine park), the Sucia Islands (group of islands with a total area of 680 acres, southeast of Patos Island), and Matia Island (145 acres, southeast of Sucia Islands) (BLM, 2023). The islands are of particular ecological importance within the San Juan Islands and their pristine environments drive tourism. Visitors to the islands enjoy an environment mostly without visible human intervention, views of mountain ranges, clear marine water, forested land, meadows, and remote wildlife areas.

3.1.6 Oil pollution risk

Under the conditions of Alternative A, tug escort requirements within the Alternative A boundary provide an additional protective measure against a major spill from a target vessel drift grounding. Compared to Alternative D, a drift grounding from target vessels is 11.84 percent less likely to occur under the conditions of Alternative A within the EIS Study Area. These benefits for oil spill risk reduction are concentrated in the area where escort tugs are required. See Appendix C Environmental Health: Releases Discipline Report for additional details.

Three target vessel worst case spills from origin points within the boundary of Alternative A were modeled using NOAA trajectory modeling tools. These included a drift grounding and worst case discharge (WCD) spill at James Island, the Peapod Islands, and Hat Island, with spill trajectories potentially reaching north into the Strait of Georgia, west to Victoria, South to Whidby Island, and covering most of Rosario Strait, Bellingham, Samish, and Padilla Bays, depending on the specific origin point. The current tug escort requirement regime decreases the likelihood of a WCD spill originating from these locations and the associated impacts to people and the environment. Alternative A provides a benefit to the environment both within the Alternative A boundary and in other areas that could be oiled during a WCD.

Multiple visual impacts could result from a major oil spill. The most common oil types transported by the target vessels and escort tugs include crude oils, gasoline and ethanol, bunker fuels, and diesel. Depending on the type of oil and the amount spilled, a layer of oil could be seen extending over a large surface area of the water. There are five main colors of oil visible on the surface of the water, depending on the thickness of the oil. These colors include silver ($4x10^{-6}$ cm thick), rainbow ($3x10^{-5}$ cm thick), metallic (0.0005 cm thick), transitional dark (0.005 cm thick), and dark (0.02 cm). The transitional dark and dark layers of oil are much thicker and are more likely to be recoverable. The silver, rainbow, and metallic oil layers tend not to be recoverable and are considered sheens. A sheen is a thin layer of oil and is usually observed during the later stages of a response or if a smaller amount of oil spilled (NOAA Emergency Response Division, 2016).

The full extent of an oil spill may not be visible from nearby shorelines, depending on the location and size of the spill as well as the current weather conditions. Most oil spills need to be observed aerially to determine the full extent and location. Depending on wind direction and currents, the oil may reach the shoreline, leave a visible line at the high tide mark, and leave oil residue along the beach. There are many different types of shorelines present within the EIS study area. Regardless of the type of shoreline that is oiled, if the area is visible from residential neighborhoods or nearby parks, oil on rocks, plants, and other material could be observed.

Once an oil spill response is underway, there may be multiple oil spill response vessels, other response equipment, and personnel on the water deploying boom and skimming oil. The amount, type, and duration of vessels on the water depends on the type of incident. Response vessels could be observed for days, weeks, or even months depending on the complexity of the spill. To deploy response equipment, a staging area is established by Unified Command at a local marina, park, or other area close to shore with easy access to the water. Those nearby will observe multiple personnel, response equipment, lights, and more impacts for the duration of the response (NOAA, 2024).

After a response, visual impacts may include oil still visible on the shoreline and physical disturbances to the shoreline from the response, such as disturbed vegetation, removed rocks and other debris, and a change in the wildlife in that area. For example, the Exxon Valdez spill in Alaska occurred in 1989, yet the affected area has not completely recovered and one can still find oil on the shoreline (NOAA, 2025). Additionally, the 2010 Deepwater Horizon Oil Spill in the Gulf of Mexico has also caused long-lasting effects. The natural resources damage assessment (NRDA) led to a plan to allocate up to $8.8 billion for restoration under a settlement with BP (Deepwater Horizon Trustee Council, n.d.). There are 378 active projects working to study the spill, continue cleanup, and help with increasing populations of many species of birds, turtles, fish, and other affected wildlife (Deepwater Horizon Trustee Council, n.d.).

3.2 Alternative A: No Action

3.2.1 Impacts from Implementation

Alternative A represents the most likely future conditions if we make no changes to existing tug escort requirements for target vessels. Tug escort requirements for target vessels would remain

in place in the current rulemaking area as established by RCW 88.16.190(2)(a)(ii). Under Alternative A, there would be no change to the current visual landscape in the EIS Study Area compared to what is described above.

Tug traffic is transitory in nature, but transitory impacts also occur while tugs are moored at a marina or while waiting at a rendezvous point. When escorting vessels, tugs are largely dwarfed by the target vessel they are assigned to, with the vessel being the dominant feature of the visual landscape. This rulemaking does not affect target vessels, so the visual impact of the larger vessels is unchanged by the alternatives. The highest concentration of escort tug traffic for target vessels would continue within Alternative A boundaries (Rosario Strait and connected waterways to the east and in Figure 1). Current escort and assist tug traffic account for 0.96 percent of historical AIS traffic, or 3,252,896 underway minutes per year. A viewer watching vessel traffic within the Alternative A boundary would see escort and assist tugs interacting with larger vessels for various job types. Because the same group of tugs typically performs both escort of target vessels, escort of larger vessels, and assist work, the visual impact of these tugs would be largely the same to a casual viewer.

Under Alternative A, active escorting of target vessels makes up an estimated 36.78 percent of escort tug underway time, with the remainder transiting or waiting alone. While escorting a vessel, the vessel is the dominant feature of the landscape. It is more common to see escort tugs commuting (63.22 percent) to and from their escort jobs, but their small size would not inhibit any views (See Figures 17 and 18). Active escorting occurs only within the boundaries of Alternative A, but commuting occurs throughout the EIS Study Area. As visible in Figure 2, commuting occurs from as far away as Port Angeles, Seattle, Tacoma, Everett, and Ferndale. This means that while escort tugs are visible from more locations, the visual impact of the commuting tugs is dispersed through a larger area and is lower from any single viewer location.

Viewers observing vessel traffic from any location in the EIS Study Area are likely to see some escort and assist tug activity as part of the vessel traffic landscape. Despite this, escort tug traffic is not uniformly distributed across the EIS Study Area. Concentrations of tug escort traffic exist around major ports and refineries (See Figure 2 in Section 1.3). These areas are already highly industrialized and experience higher levels of vessel traffic in general, so the visual impact of the escort tugs is likely to be negligible. Figure 13 below shows the distribution of target vessel underway time and escort and assist tug traffic using historical data from 2023. These maps clearly show the concentrations of tug and target vessel traffic in these areas. Higher concentrations of escort tug underway time associated with this rulemaking are consistent with the existing visual character of these areas.

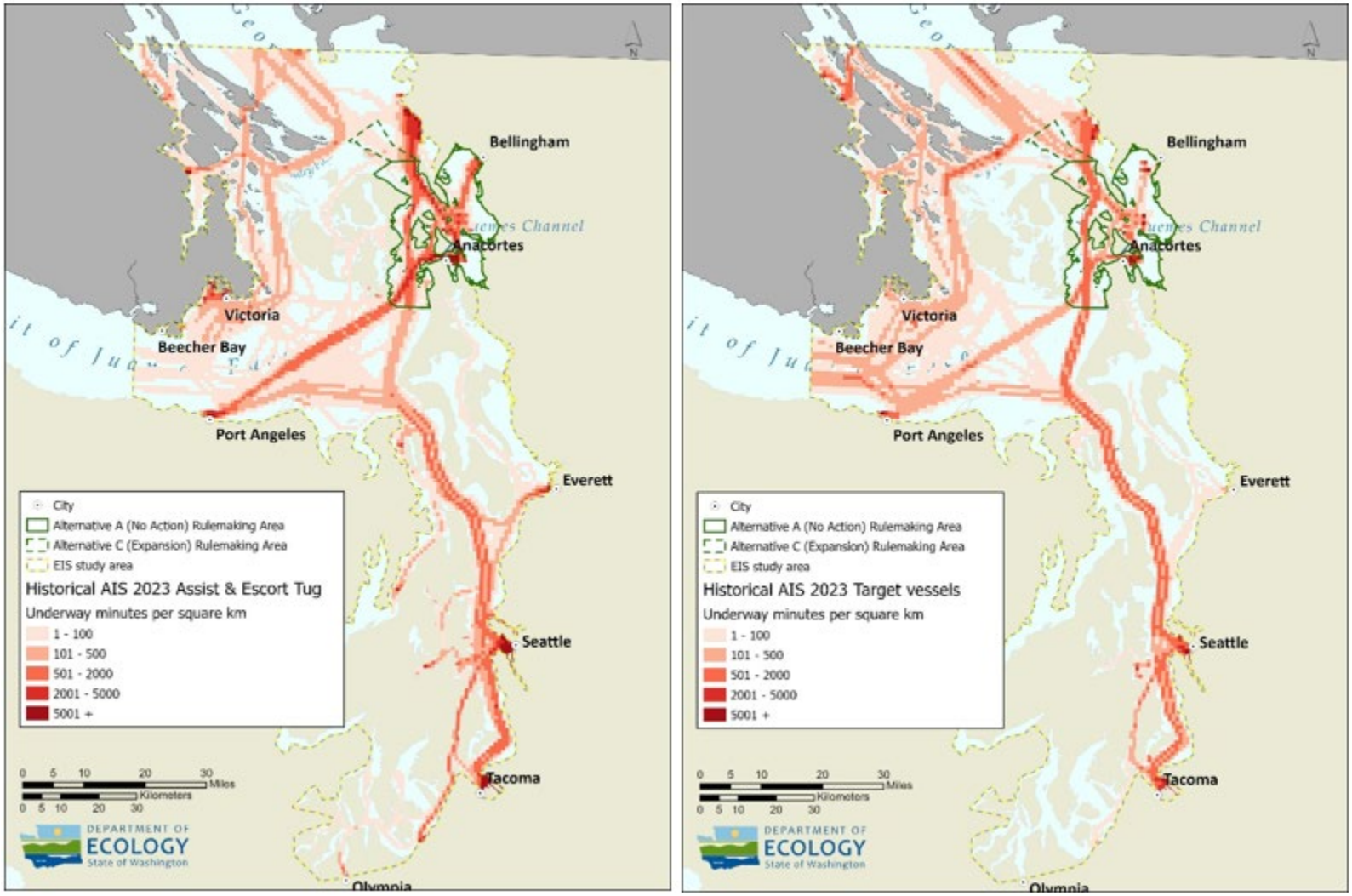

Figure 13 These two maps show the distribution of target vessel underway time and escort and assist tug traffic using historical data from 2023.

We expect that tugs will continue to spend some time waiting at the northern and southern boundaries of Alternative A to rendezvous with target vessels. When tugs are transiting at night, the required lights would be visible. If escorting a vessel at night, the lights of the tug would be minimal in comparison to the lights of the larger vessel. Lights would be seen mostly in the region defined by the 2020 requirements and near the north and south boundaries of the current rulemaking area.

An oil spill can cause visual changes to the affected area. Escort tugs provide a service that generally reduces the risk of drift groundings that could result in a significant and highly visible oil spill. Loss of propulsion events and drift groundings are rare, but have the capacity to cause large oil spill events. Under Alternative A conditions, a target vessel experiencing a loss of propulsion in the EIS Study Area is a five-year event, meaning that there is a one in five chance that this occurs in any given year. A target vessel experiencing a drift grounding is a 186-year event within the EIS Study Area, meaning there is a one in 186 chance that a drift grounding occurs in any given year throughout the EIS study area. An oil spill from a drift grounding in the EIS study area under Alternative A is a 25,546-year event.

Within the Alternative A boundary, oil spills from drift groundings are even more rare due to increased safety provided by the escort tugs (see Appendix C Environmental Health: Releases Discipline Report for more details on the risk of oil spills under each alternative). While very rare, an oil spill and associated clean up would have a visual impact in the event of a spill. However, the current tug escort requirements further reduce this risk, so visual impacts from a spill are less likely to occur under Alternative A than Alternative D.

3.2.2 Proposed Mitigation Measures

Implementation of the required and/or recommended mitigation measures described in this subsection would further reduce the potential impacts to visual resources under Alternative A.

Required Mitigation (Rulemaking or Other Existing Regulations)

Escort tugs are required to comply with all relevant U.S. Coast Guard vessel traffic safety measures. Of particular relevance to visual impacts are the COLREGS 30 requirements for lighting outlined in Section 1.5 above, as well as the Marine Safety Bulletin from 2016. Other required safety measures, such as adherence to shipping lanes, help minimize visual impact by clarifying where large vessels should transit.

Recommended Mitigation Measures

Ecology also recommends that escort tugs continue to implement the Puget Sound Harbor Safety Committee's Standards of Care, and specifically the light recommendations in the Anchorage SOC. Implementing these measures will help minimize visual impacts from the escort tugs under Alternative A.

3.2.3 Significant and Unavoidable Adverse Impacts

Although existing tug escort activities may result in localized and transitory visual impacts, they represent less than 1 percent of total AIS traffic in the EIS study area. Additionally, Alternative A would not increase the existing risk of spills due to vessel groundings. Continued adherence to

federal standards for light use and vessel traffic safety, as well as the continued voluntary participation with the Puget Sound Harbor Safety Committee's Standards of Care, ensure that visual impacts from escort tugs under Alternative A remain minimal. While some minor and transitory visual impacts are possible, Alternative A would not permanently alter the visual character of the region. Alternative A would not have significant or unavoidable adverse impacts on visual resources.

3.3 Alternative B: Addition of Functional and Operational Requirements (FORs)

3.3.1 Impacts from Implementation

Alternative B adds functional and operational requirements intended to increase safety and formalize existing best practices. It makes no change to the geographic boundaries described in Alternative A. These functional and operational requirements of 1) minimum either 2,000 or 3,000 hp requirements for the escort tugs based on the DWT of the escorted vessel, 2) minimum of twin-screw propulsion, and 3) a pre-escort conference between the tug and the escorted vessel.

Of the 18 tugs identified in the 2021 Vessel Traffic Trend Study (BPC & Ecology, 2021) as performing target vessel escort work, two are between 2,000 and 3,000 hp. Ecology reviewed the data used in this report and found that the escort tugs between 2,000 and 3,000 were only escorting target vessels under 18,000 DWT. The horsepower requirement codifies existing industry practices and ensures that tugs have sufficient power to intervene to prevent a drift grounding (and potential subsequent spill). Additionally, all 18 of the identified tugs meet the minimum twin screw propulsion requirement. These two requirements reflect today's industry practices and are therefore unlikely to result in changes to the distribution of escort tugs and their associated impacts. The FORs are intended to increase safety and formalize existing best practices. Alternative B would not be anticipated to have any impact on the type, quantity or frequency of escort tug visual impacts relative to Alternative A.

Under Alternative B, the FORs could result in a minor but unquantified decrease in the risk of oil spills from target vessels due to drift groundings, but would not be expected to change the existing risk of a diesel fuel spill from escort tug incidents.

3.3.2 Proposed Mitigation Measures

Escort tugs under Alternative B would be required to adhere to the same federal vessel traffic safety and lighting requirements and recommended mitigation measures as those identified for Alternative A in Section 3.2.2. Significant and Unavoidable Adverse Impacts

As stated in Section 4.2.1 (Impacts), the addition of the FORs would not meaningfully change the visual impacts relative to Alternative A. Alternative B would not have significant or unavoidable adverse impacts on visual resources.

3.4 Alternative C: Expansion of Tug Escort Requirements

3.4.1 Impacts from Implementation

Alternative C maintains the tug escort requirements outlined in Alternative A and expands them northwest towards Patos Island. Alternative C would result in a 2.41 percent increase in escort tug underway time. The net increase in escort tug underway time would occur primarily within and near the expansion area (i.e., in the Strait of Georgia and the Strait of Georgia South Zones). Under Alternative C, there would be a shift in potential visual impacts with more vessel traffic in the expansion area. Escort tug underway time in the rest of the EIS Study Area would decrease slightly or remain the same (see Figure 4). Alternative C also includes the FORs included in Alternative B. We assume that the functional and operational requirements will not meaningfully affect the metrics being analyzed under the direct impacts section of this analysis.

Under Alternative C, escort tugs associated with this rulemaking account for approximately 0.99 percent of total underway time for all AIS vessel traffic. While this is an increase over Alternative A (0.96 percent of total traffic), escort tugs associated with this rulemaking are a small contribution to the visual landscape of vessel traffic in the EIS Study Area.

Changes in escort tug underway time vary across the EIS Study Area. The zones that would experience the highest increases are the Strait of Georgia South Zone and the Strait of Georgia Zones. In the Strait of Georgia South Zone, escort tug underway time would increase from 0.02 hours to 1.11 hours per day due to the expansion. In the Strait of Georgia Zone, escort tug underway time would increase from 1.88 hours to 2.24 hours per day (See Figure 4 in Section 1.3 for a map of changes in underway time). The Strait of Georgia South Zone is also more remote and further from permanent residential areas, so the experience of these visual increases is also likely to be transitory. The increase in the Strait of Georgia Zone is smaller and there is a higher volume of other tug traffic in this region.

Alternative C could also affect waiting at rendezvous locations and behavior at the northern end of the expansion area, resulting in some changes to visual impacts. As shown in Figure 3, there are two places where target vessels could enter the expanded regulatory area. One is at the northwestern boundary of the expansion area, and the second is at the northern end of Rosario Strait. The OTSC Pilot representative suggested that it is more likely that tugs would wait in nearby, but more protected areas (near Neptune Beach or in coves like Echo Bay on Sucia Island) until closer to when the target vessels arrive. While some could still be waiting at the northern boundary, it would be temporary. This means there may be minor increases in the visual presence of escort tugs in more protected areas. There may also be a decrease in the frequency and duration of escort tugs waiting at rendezvous areas closer to the shipping lane. We do not expect Alternative C to meaningfully affect rendezvous behavior or visual impacts at the southern end of the rulemaking area. Other zones would see some slight decreases as commute patterns shift northwards (See Appendix B Transportation: Vessel Traffic Discipline Report for more details).

Approximately 39 percent of escort tug underway time under Alternative C is active escorting of existing target vessels. Because the escort tugs are so much smaller than the target vessels and are close to them while escorting, this is unlikely to represent an additional visual impact.

Potential new visual impacts in the expansion area would occur when the tugs are transiting alone (commuting to and from escort jobs). Tugs transiting alone are much smaller than the target vessels, but some minor to moderate visual impacts are possible. Under Alternative C, the proportion of time spent commuting vs. actively escorting also shifts. We see an increase of 9.3 percent in active escort time and a 1.61 percent decrease in commute time. The visual impact of an additional escort tug is dwarfed by that of a target vessel, and is primarily visible when the much smaller tug is commuting on its own. Because the proportion of time tugs spend actively escorting is higher under Alternative C, the proportion of time when their visual impact would be negligible in comparison to the target vessel also increases.

Because Alternative C maintains the requirements outlined in Alternative A, the spill scenarios described above (Section 4.1.2) remain a risk in this alternative. However, additional risk reduction benefits would be experienced in the expansion area as a result of the expanded tug escort requirements under Alternative C.

This alternative slightly reduces the risk of a target vessel drift grounding within the EIS study area and provides risk reduction benefits to the expansion area. The addition of the expansion area reduces the risk of a target vessel drift grounding within the EIS Study Area from a recurrence interval of 186 years to a recurrence interval of 189 years, a decrease of 1.6 percent. Within the Strait of Georgia South Zone, adding tug escort requirements for target vessels reduces the modeled risk of a target vessel drift grounding and oil spill to zero. In the Strait of Georgia Zone, drift groundings are reduced from a 7,180-year event to an 8,024-year event. While the visual impacts of an oil spill could be significant, Alternative C reduces the likelihood of one occurring, so visual impacts resulting from a spill are unlikely to occur under this alternative.

In Alternative C, escort tugs have an incident rate of 0.88 per year, compared to 0.86 per year in Alternative A. Potential incident types included in this rate range from equipment malfunctions and small fueling spills to collisions and groundings. These incidents generally have a lower spill potential than a catastrophic target vessel spill because the volume of oil on tugs (fuel) is much less than the volume carried by target vessels (fuel and cargo). Oil spills from an escort tug are also unlikely under this alternative.

3.4.2 Proposed Mitigation Measures

No additional mitigation measures other than those included for Alternative A in Section 4.1.3 (Proposed Mitigation Measures) have been identified for Alternative C.

3.4.3 Significant and Unavoidable Adverse Impacts

Expanding the tug escort requirements under Alternative C may result in increased localized and transitory visual impacts in the expansion area. Alternative Calso offers additional protection against the potential visual impacts of an oil spill from a target vessel in the expansion area. Even under Alternative C, escort tug underway time represents less than 1 percent of total AIS traffic in the EIS Study Area. Continued adherence to federal standards for light use and vessel traffic safety, as well as the continued voluntary participation with the Puget Sound Harbor Safety Committee's Standards of Care ensure that visual impacts from escort tugs under Alternative C remain minimal. Although Alternative C could have minor and

transitory visual impacts from the tugs themselves, including in more remote areas, it would not permanently alter the visual character of the region. Alternative C would not have significant or unavoidable adverse impacts on visual resources.

3.5 Alternative D: Removal of Tug Escort Requirements

3.5.1 Impacts from Implementation

Alternative D removes the existing tug escort requirements for target vessels, eliminating escort tug underway time associated with this proposed rule. We can reasonably assume that most or all of the 18 identified escort tugs would remain within the EIS Study Area but shift to other assisting and/or escort work for larger vessels. While the individual tugs may continue to have visual impacts, they would be unrelated to this rulemaking and are not considered in this EIS. While a viewer watching vessel traffic from Alternative D boundary would still see between two and three escort jobs of tankers over 40,000 DWT per day and 24 to 25 assist jobs per day. They would not see the four to five escort jobs of target vessels per day. This is a reduction of -0.96 percent of all AIS traffic.

Removing existing tug escort requirements for target vessels in the EIS study area increases the probability of a drift grounding, and potential oil spill, from a target vessel. Target vessel drift grounding probability increases by 11.84 percent over Alternative A across the EIS study area.

Because the change in risk is limited to just three zones, the rate of change for each of those zones is much higher when assessed individually. For the Bellingham Channel Zone, target vessel drift grounding frequency increases by 112.5 percent over Alternative A with the removal of all target vessel tug escort requirements. In Guemes Channel and Saddlebags Zone, target vessel drift grounding frequency increases by 52.7 percent with the removal of all target vessel tug escort requirements. In Rosario Strait Zone, target vessel drift grounding frequency increases by 204 percent with the removal of all target vessel tug escort requirements. While these increases are significant, oil spills from drift groundings in any of these individual zones are still incredibly rare under Alternative D. A drift grounding in Rosario Strait Zone is still a 5,569-year event under this alternative. While the visual impact of an oil spill would be significant, permanent visual impacts as a result of a spill are unlikely to occur under Alternative D.

3.5.2 Proposed Mitigation Measures

Alternative D eliminates the need to mitigate the impacts of the escort tugs themselves. Target vessels would continue to comply with existing vessel traffic safety and oil prevention, preparedness, and response measures at the federal and state level that currently. They are also encouraged to continue to implement voluntary best practices and standards of care.

3.5.3 Significant and Unavoidable Adverse Impacts

Under Alternative D, the visual impact of the escort tugs associated with the escort of target vessels would be eliminated. This represents a minor reduction in the visual impact of vessel traffic across the EIS Study Area and in the expansion area in particular. As discussed in section 3.1 (Affected Environment), an oil spill and associated clean up can have visual impacts. Under

Alternative D, the probability of a target vessel drift grounding increases by 11.84 percent in the EIS Study Area and 90.5 percent in the rulemaking area (although the absolute risk remains low). While there would be some moderate short to medium-term visual impacts from a major spill and associated clean-up, oil spills of this magnitude are rare and visual impacts would not be long lasting. Depending on the type of oil spilled, ocean and weather conditions, and location, oil may or may not be readily visible from the shoreline. Evaporation and weathering would further reduce the visual impact of a spill. Spill response activities would be visible during the clean-up phase of the response, but these activities would conclude when the response was demobilized. None of these visual impacts are expected to permanently change the region's visual character. Alternative D would not result in significant and unavoidable adverse impacts to visual resources in the EIS Study Area.

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