

**GUEMES ISLAND FERRY SERVICE
SCHEDULE CHANGES:**

**ENVIRONMENTAL ASSESSMENT &
SEPA NON-PROJECT CHECKLIST**

FINAL REPORT

Submitted: May 6, 2008

**Skagit County
Planning & Development Services Department
1800 Continental Place
Mount Vernon, Washington 98273**

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1.0 Fact Sheet

GUEMES ISLAND FERRY SERVICE SCHEDULE CHANGES ENVIRONMENTAL ASSESSMENT

Title: Guemes Island Ferry Service Schedule Changes

Description of the Proposal: The proposal is to adopt permanent changes to the scheduled ferry service between Anacortes and Guemes Island, Washington. On May 30, 2006, Skagit County adopted Resolution Number R20060184. The resolution amended the schedule of the Skagit County owned and operated Guemes Island Ferry, which runs between Anacortes and Guemes Island by adding five (5) additional runs (at 6:30 p.m., 7:00 p.m., 8:30 p.m., 9:00 p.m. and 10:00 p.m.) on Mondays through Thursdays. The pre-existing scheduled runs on Mondays through Thursdays (from 6:30 a.m. to 6:00 p.m.), Fridays and Saturdays (from 6:30 a.m. to 12:00 midnight), and Sundays and holidays (from 7:00 a.m. to 10:00 p.m.) were essentially unchanged. The resolution only approved a two-year trial period for the expanded service, which expires on June 30, 2008. The proposal would seek to make some form of modified and expanded service permanent.

Relationship to SEPA Process: This document is an Environmental Assessment (EA) prepared to assist Skagit County's SEPA Responsible Official in evaluating the environmental impacts of the proposed changes to the ferry service schedule. It is being submitted to the Responsible Official, in conjunction with a SEPA Checklist prepared under WAC 197-11-310, to help inform the Threshold Determination process required under WAC 197-11-310. As an optional document under SEPA, this EA adds information and analysis that supplements the SEPA Threshold Determination process. Upon review of this EA and the SEPA Checklist, the Responsible Official will issue a Threshold Determination as follows:

- If the Responsible Official concludes that the proposed ferry service schedule changes are likely to have a significant adverse environmental impact, a Determination of Significance (DS) will be issued requiring Skagit County to prepare an Environmental Impact Statement prior to implementing the new schedule; or
- If the Responsible Official concludes that the proposed ferry service schedule changes are likely to have a significant adverse environmental impact, but that the proposal may be modified or mitigating conditions may be applied to the proposal to reduce identified impacts to a level of nonsignificance, a Mitigated Determination of Nonsignificance (MDNS) may be issued allowing Skagit County to proceed with permanent schedule modifications, as conditioned by the Responsible Official; or
- If the Responsible Official concludes that the proposed schedule changes are not likely to have a significant adverse environmental impact, a

Determination of Nonsignificance (DNS) will be issued and Skagit County may then proceed with the proposed permanent schedule modifications.

Location: Guemes Island is situated in the northern part of Puget Sound. It is roughly triangular in shape and covers about eight (8) square miles or approximately 5,136 acres. It is separated from Anacortes on Fidalgo Island by the Guemes Channel and is served by the Skagit County public ferry service from Anacortes ferry dock at 6th Avenue and I Street.

Proponent:

Skagit County Department of Public Works, Ferry Division
1800 Continental Place
Mount Vernon, Washington 98273

Lead Agency: Skagit County Planning & Development Services Department

SEPA Responsible Official: Gary R. Christensen, Director, Skagit County Planning & Development Services Department

EA Contact Person: Kirk Johnson, Senior Planner, Skagit County Planning & Development Services Department

Permits & Approvals Required: Environmental review under SEPA; Board of Commissioners adoption and approval of a new ferry service schedule by way of ordinance or resolution, as appropriate.

Date EA & Checklist Submitted to Responsible Official: May 6, 2008.

Location of Review Copies of EA & Background Materials:

Skagit County Planning & Development Services Department
1800 Continental Place
Mount Vernon, Washington 98273

Skagit County Website: www.skagitcounty.net

Guemes Island Library
7549 Guemes Island Road
Guemes Island, Washington 98221

Subsequent SEPA Threshold Determinations: The proposed action relates only to permanent changes to the Guemes Island Ferry Service Schedule. No project-related actions to improve terminal facilities and/or docks are associated with, or made necessary, by the proposal. SEPA review will be required for any future project actions related to the Guemes Island Ferry (e.g., construction or

modification of existing facilities) that exceed the categorical exemption thresholds set forth in §197-11-800 WAC.

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2.0 Introduction

2.1 Purpose

The purpose of this Environmental Assessment (EA) is to consider the environmental impacts of adopting a new and expanded Guemes Island Ferry Service Schedule. The EA consists of the following documents:

- This document, including the following appendices set forth in Section 5.0:
 - Appendix A - Public Comments on the Proposed Guemes Ferry Service Schedule Changes and Environmental Review;
 - Appendix B - Guemes Island Ferry Capital Facilities Plan 2006-2020 (adopted via County Resolution #R20060419, December 5, 2006);
 - Appendix C - Guemes Island Ferry Annual Report 2007 (Skagit County Department of Public Works);
 - Appendix D - Final Report: Skagit County Department of Public Works Guemes Island Ferry Operations Management Analysis (Berk & Associates, March 2003);
 - Appendix E - Skagit County Demography 2007 (Skagit County Public Health Department, August 2007);
 - Appendix F - The Draft Guemes Island Sub-Area Plan (Guemes Island Planning Advisory Committee, July 2007);
 - Appendix G - Hydrogeology & Quality of Ground Water on Guemes Island, Skagit County, Washington (USGS, 1995);
 - Appendix H - Paquette, Shawn M. 1997. Use of a three-dimensional flow model to simulate the position and shape of a saltwater interface. M.S. Thesis, Rice University, Houston, Texas; and
 - Appendix I - Well Chloride Levels – Comparison of USGS (1991) with 2007 Data (Kooiman, February 2007); and
- A Completed SEPA Checklist (including supplemental sheet for non-project actions).

The EA is intended to assist Skagit County's SEPA Responsible Official in making a Threshold Determination regarding the probable environmental impacts of the proposed ferry service schedule changes. The EA includes an analysis, at the non-project level, of the environmental impacts of three ferry service schedule alternatives, consistent with §197-11-060(3)(ii) and (iii) WAC. The three alternatives analyzed are as follows:

- Alternative 1 - No Action (Pre-Existing Ferry Service Schedule (i.e., prior to the passage of County Resolution No. R20060184));
- Alternative 2 – Modestly Expanded Service; and
- Alternative 3 – Currently Expanded Service (i.e., substantially as now exists under the schedule established under County Resolution No. R20060184).

The key portion of this document is contained in Section 4.0, which contains the Environmental Assessment of the Alternatives.

2.2 Context

On May 30, 2006, Skagit County adopted Resolution Number R20060184. The resolution amended the schedule of the Skagit County owned and operated Guemes Island Ferry, which runs between Anacortes and Guemes Island by adding five (5) additional runs (at 6:30 p.m., 7:00 p.m., 8:30 p.m., 9:00 p.m. and 10:00 p.m.) on Mondays through Thursdays. The pre-existing scheduled runs on Mondays through Thursdays (from 6:30 a.m. to 6:00 p.m.), Fridays and Saturdays (from 6:30 a.m. to 12:00 midnight), and Sundays and holidays (from 7:00 a.m. to 10:00 p.m.) were essentially unchanged. The resolution only approved a two-year trial period for the expanded service, which expires on June 30, 2008. Because the action addresses existing and future demand for ferry service and is not expected to result in a need for additional terminal space, dock improvements, parking, or road improvements, it has been determined to be a non-project action under the State Environmental Policy Act (SEPA).

In 1997 Skagit County adopted its Growth Management Act (GMA) Comprehensive Land Use Plan (the Plan). An environmental impact statement (EIS) was prepared in conjunction with this document. The Plan underwent major updates and associated environmental review in 2000 and 2007 (i.e., with the adoption of the County's seven-year plan and development regulation update required under the GMA). The Plan, as amended, establishes the land use designations and zoning that currently apply on Guemes Island. These designations are predominately low-density resource and rural, with over 99% of the land base of the island designated Rural Intermediate (RI, 1 d.u. per 2.5 acres), Rural Reserve (RRv, 1 d.u. per 10 acres) and Rural Resource NRL (RRc-NRL 1 d.u. per 40 acres).

Previous environmental analyses conducted by Skagit County have not specifically addressed the potential relationship between expanded ferry service and the rate and timing of growth on the island under the adopted land use plan, or the direct, indirect and cumulative impacts such growth may or may not have on land use and ground water quantity and quality. To ensure an informed SEPA and substantive decision-making process, this Environmental Assessment is intended to supplement Skagit County's environmental and legislative record prior to reaching a final decision on whether or how to permanently adjust the Guemes Island Ferry Service Schedule and hours of operation.

2.3 Process Preceding EA Preparation

In January of 2008, County staff and the consultant team met to identify and discuss key environmental issues, and to develop potential ferry service schedule alternatives for review and consideration. Both of the "action"

alternatives were based upon a desire by the County to better meet existing and projected ferry ridership demand and need, and to more efficiently allocate ferry staff resources. Both action alternatives were tailored to provide a level of ferry service commensurate with historic and anticipated future development permissible under the Skagit County Comprehensive Plan's GMA-compliant rural and resource land use designations and zoning for Guemes Island. Accordingly, the service schedule alternatives were expressly intended to be consistent with and support the adopted land use plan, rather than to induce growth beyond that authorized under the plan. After the staff and consultant team reached general agreement as to the characteristics of the alternatives to be considered, an Environmental Assessment (EA) "Background & Overview" document was prepared which described the objectives, key issues, assumptions and proposed approach to be used in formulating the EA.

On January 22, 2008, the County published a public notice and invitation to comment on the proposed EA/SEPA process. On February 10, 2008, the County's SEPA Responsible Official, along with other County staff and the consultant, hosted a Community Workshop at the Guemes Island Community Hall. The workshop provided an opportunity for interested citizens to obtain information on the process, and to provide feedback to the Responsible Official on the range of ferry service schedule alternatives to be assessed, and the scope of key environmental issues to be examined. Citizens were also encouraged to submit written comments on the alternatives and scope of issues to be examined through February 15, 2008.

2.4 Key Themes of Public Concern

The SEPA Responsible Official, based on the comments received determined that no significant modifications to the proposed scope of the EA were necessary. However, in 61 different letters totaling some 997 pages of public comment (i.e., including attachments), a number of recurrent themes were raised, which are addressed in Section 4.0 of this document. While this document provides information that addresses many of the themes of citizen concern, it does not attempt to provide individualized responses to each commentator or each subject raised by the public. The key comment themes are summarized below (note: Appendix A sets forth all comment letters received by the County and made available to the Responsible Official prior to issuance of the Threshold Determination).

Overarching Concern – Guemes Island is at a crossroads: *The aquifer underlying Guemes Island is, or may be, at a "tipping point." Expanded ferry service to the island could induce additional population growth and development, which in turn, will lead to additional aquifer withdrawals, seawater intrusion and contamination of wells, and an erosion of rural character and quality of life.*

Comment Theme #1 - Expanded ferry service may lead to unsustainable ground water withdrawals. Examples of public comments concerning this theme include the following:

1. *Increased growth facilitated by expanded ferry service will lead to increased ground water withdrawals.*
2. *A substantial number of the test wells on the island are subject to significant seawater intrusion; some of these contaminated wells are up to one-half mile from the coastline all around the island. Since the mid-1990s, a number of additional wells have failed due to seawater intrusion.*
3. *The island's aquifer is being over-pumped and seawater is moving inland. The HongWest study prepared for Potlach Beach finds that even the central part of the island would not be free from saltwater intrusion problems in the long-term.*
4. *The impacts of seawater intrusion caused by additional aquifer withdrawals could take years or even decades to remedy.*

Comment Theme #2 – Existing ground water information is inadequate. Examples of public comments concerning this them include the following:

1. *The carrying capacity of the aquifer underlying the island is unknown. In the face of this uncertainty, taking a legislative decision that is likely to lead to some level of increased occupancy and development on the island is unwise, and the potential impacts significant.*
2. *Has the County mapped aquifer recharge areas and determined the capacity of the ground water system so that growth can be managed to protect quantity and quality?*
3. *Additional hydrological study is necessary to update and expand the scope of the USGS study, see if seawater intrusion is worsening at existing pumping levels, and to determine the best location for a new centralized water system that can be used to serve all new development without negatively impacting existing wells.*

Comment Theme #3 – Existing Skagit County policies, regulations and implementation efforts are inadequate to protect ground water resources on the island. Examples of public comments concerning this theme include the following:

1. *The County has not identified and regulated to protect critical aquifer recharge areas on Guemes Island using best available science.*

2. *The County's interim seawater intrusion policy has yet to be adequately implemented and enforced.*
3. *The existing regulations contain no requirement that a cumulative impact analysis be completed prior to authorizing new wells. Thus, the impacts to existing wells and water quality are unknown.*
4. *Overall, existing policies and regulations are inadequate to protect critical aquifer recharge areas particularly given the fact that ground water is the sole source of potable water for the island.*
5. *The County has paid insufficient attention to ground water issues and has not engaged in the resource planning necessary to develop strategies to ensure sufficient water for existing and future anticipated populations.*
6. *The nitrate levels recorded in island wells indicate that septic systems are contaminating potable water and that increased population, in the absence of a sewer system, will have adverse impacts on the health of island residents and marine habitat.*
7. *What will the impacts to surface waters (i.e., wetlands and the one island stream) be from increased ground water withdrawals? How will this impact aquatic and terrestrial wildlife? Could it pose adverse impacts to wildlife (including bird-nesting areas)?*

3.0 Proposal & Summary of Alternatives

3.1 Introduction

3.1.1 Description of the Proposal

As noted in the Fact Sheet, *infra*, the proposal is to adopt permanent changes to the scheduled ferry service between Anacortes and Guemes Island, Washington. On May 30, 2006, Skagit County adopted Resolution Number R20060184. The resolution amended the schedule of the Skagit County owned and operated Guemes Island Ferry, which runs between Anacortes and Guemes Island by adding five (5) additional runs (at 6:30 p.m., 7:00 p.m., 8:30 p.m., 9:00 p.m. and 10:00 p.m.) on Mondays through Thursdays. The pre-existing scheduled runs on Mondays through Thursdays (from 6:30 a.m. to 6:00 p.m.), Fridays and Saturdays (from 6:30 a.m. to 12:00 midnight), and Sundays and holidays (from 7:00 a.m. to 10:00 p.m.) were essentially unchanged. The resolution only approved a two-year trial period for the expanded service, which expires on June 30, 2008. The proposal would seek to make some form of modified and expanded service permanent.

3.1.2 Relationship to SEPA Process

This document is an optional Environmental Assessment (EA) report prepared to assist Skagit County's SEPA Responsible Official in evaluating the environmental impacts of the proposed changes to the ferry service schedule. It has been submitted to the Responsible Official, in conjunction with a SEPA Checklist prepared under WAC 197-11-310, to help inform the Threshold Determination process required under WAC 197-11-310. As an optional EA, this document adds information and analysis that supplements the SEPA Threshold Determination process. Upon review of this EA and the SEPA Checklist, the Responsible Official will issue a Threshold Determination that the proposed action is, or is not likely to have a significant adverse environmental impact, as follows:

- If the Responsible Official concludes that the proposed ferry service schedule changes are likely to have a significant adverse environmental impact, a Determination of Significance (DS) will be issued requiring Skagit County to prepare an Environmental Impact Statement prior to implementing the new schedule; or
- If the Responsible Official concludes that the proposed ferry service schedule changes are likely to have a significant adverse environmental impact, but that the proposal may be modified or mitigating conditions may be applied to the proposal to reduce identified impacts to a level of nonsignificance, a Mitigated Determination of Nonsignificance (MDNS) may be issued allowing Skagit County to proceed with permanent schedule modifications, as conditioned by the Responsible Official; or

- If the Responsible Official concludes that the proposed schedule changes are not likely to have a significant adverse environmental impact, a Determination of Nonsignificance (DNS) will be issued and Skagit County may then proceed with the proposed permanent schedule modifications.

3.1.3 Non-Project SEPA Review

As previously noted, this is a non-project Environmental Assessment (EA). The proposed action relates only to permanent changes to the Guemes Island Ferry Service Schedule. No project-related actions to improve terminal facilities and/or docks are associated with the proposal. SEPA review will be required for any future project actions related to the Guemes Island Ferry (e.g., construction or modification of existing facilities) that exceed the categorical exemption thresholds set forth in §197-11-800 WAC.

Because the proposal to expand the ferry service schedule is non-project in nature, there is less detailed information available than would be the case with a site-specific project action. Accordingly, this EA discusses the general “island-wide” impacts of providing expanded ferry service. Additionally this EA seeks to describe the general nature of the indirect and cumulative impacts expected to occur on Guemes Island as a result of adopting an expanded ferry service schedule.

Future project actions implementing the Guemes Island Ferry Capital Facilities Plan (see Appendix B) will be more specific in nature and may have impacts that can be more definitively described and analyzed. These future actions will also be reviewed for potential environmental impacts using the SEPA process. In sum, this environmental review does not make unnecessary the need for SEPA review of future projects and programs related to the Guemes Island Ferry service or development actions undertaken by private landowners. Skagit County retains the authority and responsibility to conduct environmental review and to require specific mitigation measures to address probable significant adverse environmental impacts posed by future projects.

3.2 Ferry Service Schedule Alternatives

3.2.1 Introduction

The analysis set forth in §4.3 of Chapter 4.0 of the Guemes Island Ferry Capital Facilities Plan (see Appendix B) indicates that if the trend in ferry ridership growth experienced over the past 24 years continues, then the ferry will experience 29% growth in total ridership over the 15 years ending in 2020. The analysis concludes that if neither the number of scheduled ferry crossings nor the vehicle carrying capacity of the M/V Guemes (i.e., 22 standard size vehicles) is increased, that the V/C ratio will approach 100% by the year 2014. Thus, ferry customers and County decision-makers are faced with the following choice:

- Accept a diminishing level of ferry service likely culminating in ridership demand surpassing the capacity of the service within the near future; or
- Expand total vehicle carrying capacity to meet projected trends in ferry ridership.

The expansion of the ferry service and ridership demand is summarized in Table 3.1, below.

Table 3.1: Ferry Ridership Growth – 1990 to 2004				
Year	Number of Scheduled Crossings	Total Vehicle Carrying Capacity*	Actual Vehicle Crossings	Volume to Capacity (V/C) Ratio**
1990	6,214	136,708	71,574	52%
2000	6,500	143,000	106,410	74%
2004	6,760	148,720	124,574	84%

(Source: Guemes Island Ferry Capital Facilities Plan – 2006 – 2020).

* The M/V Guemes has a capacity of 22 standard size vehicles.

** V/C is calculated as follows: number of actual vehicle crossings divided by number of scheduled ferry crossings = A; A divided by the 22 vehicle capacity of the M/V Guemes = V/C ratio.

The Washington State Growth Management Act of 1990 (the GMA, codified at Chapter 36.70A. RCW) requires that transportation systems be coordinated with county comprehensive plans (RCW 36.70A.020(3)). The Skagit County Comprehensive Plan (the comprehensive plan) establishes a rural and resource land use and zoning regime for Guemes Island, consistent with RCW 36.70A.070((1) and (5)). The GMA requires that the transportation chapter of the comprehensive plan be consistent with, and implement, the adopted land use plan. As discussed in greater detail hereafter, the land use and zoning regime adopted for the island under the comprehensive plan allows for continued residential development of Guemes Island at rural densities. At present, less than one-half of the total dwelling units allowed under the adopted zoning regime have been built. While future development decisions will undoubtedly be affected by environmental constraints (e.g., critical areas, water availability, etc.), market factors, and individual landowner preferences, there nevertheless remains a considerable potential for continued rural residential growth on Guemes Island. As has been the case historically, this rural residential growth and development is likely to fuel increased demand for ferry service to the island.

Accordingly, two (2) “action” alternatives are evaluated in this EA so the responsible official, county decision-makers and the public can weigh the tradeoffs inherent in the choices about whether or not, or how much, the island’s ferry service should be expanded. The alternatives are differentiated by their respective vehicle carrying capacities and the ending times for the last scheduled

ferry crossing. Table 3.2, on page 17, provides a brief overview and comparison of the alternatives considered in this EA.

3.2.2 Description of the Alternatives

A. Alternative 1: No Action (Pre-Existing Ferry Schedule)

Though provided chiefly for baseline comparison purposes, Alternative 1 remains a viable policy option for the community and Board of Commissioners. Under this option, ferry service would not be expanded, and instead, the level of service would revert to the level provided prior to the temporarily expanded service authorized under County Resolution Number R20060184. Alternative 1 has the following characteristics:

- Scheduled ferry crossings would total approximately 6,760 annually;
- Total annual vehicle carrying capacity would total 148,720 standard size vehicles;
- The last scheduled sailing on Mondays through Thursdays would be 6:00 p.m.;
- The last scheduled sailing on Fridays and Saturdays would be 12:00 midnight;
- The last scheduled sailing on Sundays and holidays would be 10:00 p.m.; and
- Those in the ferry queue in time for the last scheduled sailing on Mondays through Thursdays would be guaranteed passage to the island.

Like the other alternatives, Alternative 1 assumes that the current land use and zoning regime applied to Guemes Island would remain unchanged. This land use and zoning allows a theoretical dwelling unit capacity of 1,584, and a theoretical population holding capacity of 4,118 persons. Because of this latent, unused dwelling unit and population holding capacity, as well as Guemes Island's attractiveness as a place to live or own a vacation home, some level of residential growth and development would be expected to continue, with or without modifications to the ferry schedule.

If adopted, and if historic patterns of growth in ferry ridership continue, the no action alternative is likely to result in a diminishing level of ferry service, potentially culminating in ridership demand surpassing ferry capacity by 2014.

B. Alternative 2: Modestly Expanded Ferry Service

This alternative anticipates that approximately three (3) scheduled crossings would be added over the no action alternative, during evening hours on Mondays through Thursdays, concluding by 9:00 p.m. The current level of service offered on Fridays, Saturdays, Sundays and holidays would remain essentially unchanged. Alternative 2 has the following characteristics:

- Scheduled ferry crossings would total approximately 7,384 annually, an increase of 624 scheduled runs over baseline conditions under Alternative 1;
- Total annual vehicle carrying capacity would total 162,448 standard size vehicles, an increase of 13,728 vehicles (or 9%) over baseline conditions under Alternative 1;
- The last scheduled sailing on Mondays through Thursdays would be 9:00 p.m.;
- Like Alternatives 1 and 3, the last scheduled sailing on Fridays and Saturdays would be 12:00 midnight;
- Like Alternatives 1 and 3, the last scheduled sailing on Sundays and holidays would be 10:00 p.m.; and
- Unlike Alternative 1, there would be no unscheduled crossings; thus, those in the ferry queue in time for the last scheduled sailing on Mondays through Thursdays would not be guaranteed passage to the island.

Like Alternatives 1 and 3, Alternative 2 assumes that the current land use and zoning regime applied to Guemes Island would remain unchanged. Thus, some level of residential growth and development would be expected to continue consistent with the adopted zoning, irrespective of changes to the ferry schedule.

If adopted, Alternative 2 would modestly increase the level of ferry service to the island. Under this alternative, ridership demand could still exceed capacity over time. If past trends in ridership growth persist into the future under this alternative, demand could surpass capacity by 2020.

C. Alternative 3: Currently Expanded Service

This alternative anticipates that approximately five (5) scheduled ferry crossings would be added over the no action alternative, during evening hours on Mondays through Thursdays, concluding by 10:00 p.m. The current level of service offered on Fridays, Saturdays, Sundays and holidays would remain essentially unchanged. This alternative is most similar to the level of service currently being provided on a trial basis under Board Resolution Number R20060184.

Alternative 3 has the following characteristics:

- Scheduled ferry crossings would total approximately 7,800 annually, an increase of 1,040 scheduled runs over baseline conditions under Alternative 1;
- Total annual vehicle carrying capacity would total 171,600 standard size vehicles, an increase of 22,880 vehicles (or 15%) over baseline conditions under Alternative 1;
- The last scheduled sailing on Mondays through Thursdays would be 10:00 p.m.;
- Like Alternatives 1 and 2, the last scheduled sailing on Fridays and Saturdays would be 12:00 midnight;

- Like Alternatives 1 and 3, the last scheduled sailing on Sundays and holidays would be 10:00 p.m.; and
- Unlike Alternative 1, there would be no unscheduled crossings; thus, those in the ferry queue in time for the last scheduled sailing on Mondays through Thursdays would not be guaranteed passage to the island.

Like Alternatives 1 and 2, Alternative 3 assumes that the current land use and zoning regime applied to Guemes Island would remain unchanged. Thus, residential growth and development would be expected to continue consistent with the adopted zoning, irrespective of changes to the ferry schedule.

If adopted, Alternative 3 would appreciably increase the level of ferry service to the island. Nevertheless, if past trends in ridership growth persist into the future under this alternative, ridership demand could reach nearly 95% of available capacity by 2020.

Table 3.2: Overview of the Ferry Service Schedule Alternatives			
Characteristics	Alternative 1: No Action (Pre-Existing Ferry Schedule)	Alternative 2: Modestly Expanded Service	Alternative 3: Currently Expanded Service (i.e., under R20060184)
Number of Scheduled Crossings Annually	6,760	7,384	7,800
Number of Additional Annual Runs Over Baseline Conditions	0	624	1,040
Total Vehicle Carrying Capacity Annually	148,720	162,448 (+13,728)	171,600 (+22,880)
Total Additional Vehicle Carrying Capacity Per Day (Mon. – Thurs.)	0	66	110
Percentage Increase in Carrying Capacity Over Baseline Conditions	0%	9%	15%
Number of Additional Daily Crossings on Sundays & Holidays	0	0	0
Number of Additional Daily Crossings on Fridays & Saturdays	0	0	0
Number of Additional Daily Crossings – Mondays to Thursdays	0	3	5

Table 3.2, continued: Overview of the Ferry Service Schedule Alternatives

Characteristics	Alternative 1: No Action (Pre-Existing Ferry Schedule)	Alternative 2: Modestly Expanded Service	Alternative 3: Currently Expanded Service (i.e., under R20060184)
Time of Last Scheduled Crossing on Sundays & Holidays	10:00 p.m.	10:00 p.m.	10:00 p.m.
Time of Last Scheduled Crossing on Fridays & Saturdays	12:00 midnight	12:00 midnight	12:00 midnight
Time of Last Schedule Crossing on Mondays thru Thursdays	6:00 p.m.	9:00 p.m.	10:00 p.m.
Last in Line for Last Scheduled Sailing Guaranteed Passage?	Yes	No	No

4.0 Environmental Assessment of the Alternatives

4.1 Human Systems/Built Environment

4.1.1 Land Use & Growth

A. Existing Conditions

Historic Development Patterns & Current Land Use Designations

The current development pattern for significant areas of Guemes Island was set by platting activity that largely occurred prior to the passage of the Washington State Growth Management Act of 1990. Significant stretches of the northeastern, southeastern, southwestern and central western shorelines of the island were platted into relatively small lots prior to the adoption of lower density rural residential zoning in the mid-1990s. A considerable number of these shoreline lots are smaller than the minimum lot size currently required under the Rural Intermediate designation (i.e., one (1) dwelling unit per two and one-half (2.5) acres).

According to Skagit County Assessor's data, Guemes Island comprises less than one-half percent (0.5%) of Skagit County's total land area, and is home to about 1% of the County's total population. Three (3) land use and zoning designations are applied to more than 99% of the island's total land area: the Rural Resource-Natural Resource Lands (RR-NRL) designation; the Rural Reserve (RRv) designation; and the Rural Intermediate (RI) designation. The remaining one percent (1%) of the island's land area is encompassed within the Rural Center (RC), Small Scale Recreational and Tourism (SRT) and Rural Business (RB) designations.

The greatest potential for future development exists within the Rural Intermediate (RI) and Rural Reserve (RRv) land use designations. The RI designation has been applied predominately to those portions of the northeastern, southeastern, southwestern and central western shorelines of the island that were platted at non-rural densities prior to the advent of GMA. Although there is some modest potential for new lot creation within this designation (i.e., notionally, 21 additional lots could be platted), 422 of the previously platted 922 lots within this designation remain undeveloped and theoretically available for new residential dwellings. Within the RRv designation there is also a modest potential for new lot creation by subdivision (i.e., up to 31 additional lots). However, the vast majority of future development would be expected to occur on the 396 existing and vacant lots within the RRv designation. Table 4.1 on the following page summarizes the acreage and percentage of land area in each of the Comprehensive Plan land use and zoning designations.

Table 4.1: Guemes Island Land Use & Zoning Designations Summary			
Land Use/Zoning Designation	Maximum Permissible Density for New Subdivisions	Total Acres	Percentage of Total Land Base
Rural Resource – Natural Resource Lands (RR-NRL)	1 Dwelling Unit per 40 Acres	492	9.6%
Rural Reserve (RRv)	1 Dwelling Unit per 10 Acres	3,888	75.7%
Rural Intermediate (RI)	1 Dwelling Unit per 2.5 Acres	722	14.1%
Rural Center (RC)	Inapplicable	4	0.077%
Small Scale Recreation & Tourism (SRT)	Inapplicable	16	0.31%
Rural Business (RB)	Inapplicable	14	0.27%
Totals		5,136	100%

(Sources: July 2007 Draft Guemes Island Sub-Area Plan; Skagit County Assessor's & GIS Data).

Theoretical Dwelling Unit & Population Holding Capacity

Tables 4.2 and 4.3 summarize the theoretical dwelling unit and population holding capacity of Guemes Island.

Table 4.2: Maximum Theoretical Dwelling Unit Capacity			
Current Zoning Designation	Current Number of Dwelling Units	Potential Future Dwelling Units	Total Theoretical Dwelling Units
Rural Resource	1	14	15
Rural Reserve, P.C.*	7	2	9
Rural Reserve	192	425	617
Rural Intermediate	427	516	943
TOTALS	627**	957	1,584

(Sources: July 2007 Draft Guemes Island Sub-Area Plan; Skagit County Assessor's and GIS Data).

*Parks and conservation easements. ** Data current as of May 2005.

Table 4.2 indicates that some 957 total additional dwelling units might theoretically be constructed under the existing land use and zoning designations. Of these, 905 parcels presently exist, while some 52 lots could be created through future subdivision activity (i.e., 31 potential future lots within Rural Reserve areas (1 d.u. per 10 acres) and 21 lots within Rural Intermediate areas (1 d.u. per 2.5 acres)).

It must be emphasized that these figures are estimates of theoretical holding capacity, and are not growth projections. Development constraints (e.g., water availability, critical areas, the County’s lot certification requirements, etc.), market conditions and individual landowner decisions would likely prevent development of some potential dwelling units. In most circumstances, actual density yields would be expected to be lower. Nevertheless, even if it is conservatively assumed that only fifty percent (50%) of the theoretical dwelling units will be developed over time, Guemes Island still could see the development of 479 additional dwelling units.

In sum, Skagit County’s Comprehensive Plan rural and resource zoning has substantially reduced Guemes Island’s pre-GMA potential for new lot creation through subdivisions, but the latent potential for future dwelling unit development and population growth remains considerable. Table 4.3, below, provides information on the theoretical population holding capacity of Guemes Island at build-out, using the countywide average household size of 2.6 persons. It is important to stress once more that this is a theoretical population holding capacity; actual density yields at build-out would likely be considerably lower.

Table 4.2: Maximum Theoretical Population Holding Capacity		
Current Zoning Designation	Total Theoretical Dwelling Units by Zone	Total Theoretical Population Holding Capacity
Rural Resource	15	39
Rural Reserve, P.C.*	9	23
Rural Reserve	617	1,604
Rural Intermediate	943	2,452
TOTALS	1,584	4,118

(Sources: Skagit County GIS; Draft Guemes Island Sub-Area Plan).
 *Parks and conservation easements

Population Growth Since 1990

With the 2000 U.S. Census, Skagit County reached 102,979 persons. This represents a 29% increase over the 1990 population of 79,545, and an average annual growth rate for the same period of over 2.9%. Skagit County was the

ninth (9th) fastest growing county in the State during the period 1990 to 2000. Population estimates from the Washington State Office of Financial Management (OFM) indicate that Skagit County's population grew to approximately 113,900 persons by 2006, an increase of some 43% over the 1990 population, and an average annual growth rate of 2.7% for the same 16-year period.

By way of comparison, the 2000 U.S. Census indicated the census tract including Guemes Island (CT 9501) had a population of 839 persons.¹ This represented an 11.4% increase over the 1990 population of 753, and an average annual growth rate for the same period of approximately 1.14%. Recent population estimates from the Washington State Office of Financial Management (OFM) and the Skagit County Public Health Department indicate that the population of CT 9501 grew to some 948 persons by 2006, an increase of some 26% over the 1990 population, and an average annual growth rate of 1.6% for the same 16-year period.

Skagit County's rapid growth has continued during the period 2000 to 2006, with annual growth averaging nearly 1.8%. This growth has been driven primarily by a strong economy. CT 9501, including Guemes Island, grew at approximately a 2.0% rate over this same period.

An emerging characteristic in Skagit County's population is the growth in the aging population. This growth is due to continued increases in life expectancy and an environment that attracts retirees who are largely concentrated in the Anacortes area (see Appendix E).

Development & Building Activity Data

Table 4.3, on the following page, shows building activity data on Guemes Island for the period between January 1997 and the end of 2007. The data indicate that a net total of 104 new dwelling units were approved and constructed, or have been approved and permitted, but not yet completed through this 10-year period (i.e., an average of 10.4 new units annually). New single-family dwelling units and manufactured homes made up 76 and 23 units of this total, respectively. The remaining five (5) units were accessory to a principal dwelling unit.

Table 4.4, on page 24, shows Guemes Island building activity data for the period during which the interim expanded ferry service schedule has been in place (i.e., the schedule adopted under Skagit County Resolution Number R20060184, May 30, 2006). The quarterly data for this period indicate that a net total of 15 new dwelling units were approved and constructed, or have been permitted but are not yet completed, through this one and three quarter (1.75) year period. These units were comprised of 10 new single-family dwelling units and five (5) manufactured homes. No accessory dwelling units (ADUs) were constructed during this period. Although the interim schedule has been in place for a

¹ Block data show that the Guemes Island's population comprised about 67% of this total, or 563 of 839 persons.

comparatively brief period, data collected for this period actually show a slight decrease in development permit activity compared with previous years, perhaps reflecting the nationwide housing and economic downturn.

Table 4.3: Guemes Island Building Activity Data – 1997 to 2007								
Permit Types – Approved & Pending								
Year	New Single Family DUs	Manu- factured Homes	ADUs	Total Net New DUs	Replac- ment Units	Res- idential Re- Models	On-Site Septic Permits	Plats (new lots)
1997	5	0	1	6	2	3	11	4
1998	9	1	0	10	1	7	7	0
1999	5	1	1	7	1	8	9	0
2000	12	2	0	14	1	5	7	6
2001	10	3	0	13	0	2	3	0
2002	0	2	0	2	0	4	1	3
2003	3	2	0	5	2	5	8	0
2004	10	4	1	15	2	6	4	0
2005	13	1	2	16	1	5	2	0
2006	5	4	0	9	1	6	6	2
2007	4	3	0	7	2	3	4	6
Totals	76	23	5	104	13	54	62	21

(Sources: Skagit County Planning & Development Services; Mark Personius AICP, Growth Management Consultant).
 Notes: New Single Family DUs = NSFD Permit Types; Manufactured Homes = Manufactured/Mobile Home (MOBL Permit Types); ADU = Accessory Dwelling Unit such as guest cabins, cottages, living quarters over garages or shops, etc.; Replacement Unit = NSFD or new Manufactured Home replacing an existing mobile home or single family dwelling; Residential Remodels = Single Family Unit Additions, Decks, etc. (ASFD Permit Types); On-site Septic Permits = Septic Permits issued for new drainfields or modifications to existing drainfields and treatment systems (NEW Permit Types); Plats = New lots created through Short Plat or Short CaRD process (SPLT & CARD Permit Types).

Table 4.5, on the following page, is derived from data contained in the Guemes Island Ferry Capital Facilities Plan 2006 – 2020 (see Appendix B, pages 18 and 23). It depicts the increase of primary single-family residences by decade between 1951 and 2004. These data show that Guemes Island experienced an annual residential dwelling unit growth rate of approximately 5.1% from 1980 to 2000, and a 1.1% growth rate from 2001 to 2004. For the period spanning 1990 to 2004, the average annual growth rate in single-family units was 3.4%, well in excess of the population growth rate for CT 9501 over a similar period. This may indicate that a significant percentage of the new residential units are second homes.

**Table 4.4: Guemes Island Quarterly Building Activity Data
Period of Extended Ferry Service Schedule – July 2006 through March 2008**

Permit Types – Approved & Pending								
Year & Quarter	New Single Family DUs	Manu- factured Homes	ADUs	Total Net New DUs	Replace- ment Units	Res- idential Re- Models	On-Site Septic Permits	Plats (new lots)
2006 3 rd	3	0	0	3	0	1	1	0
4 th	0	1	0	1	0	3	1	2
Subtotal	3	1	0	4	0	4	2	2
2007 1 st	2	1	0	3	0	1	1	0
2 nd	2	1	0	3	1	1	0	0
3 rd	0	1	0	1	1	1	1	4
4 th	0	0	0	0	0	0	2	2
Subtotal	4	3	0	7	2	3	4	6
2008 1 st	3	1	0	4	1	1	3	0
Totals	10	5	0	15	3	8	9	8

(Sources: Skagit County Planning & Development Services; Mark Personius AICP, Growth Management Consultant).
Notes: New Single Family DUs = NSFD Permit Types; Manufactured Homes = Manufactured/Mobile Home (MOBL Permit Types); ADU = Accessory Dwelling Unit such as guest cabins, cottages, living quarters over garages or shops, etc.; Replacement Unit = NSFD or new Manufactured Home replacing an existing mobile home or single family dwelling; Residential Remodels = Single Family Unit Additions, Decks, etc. (ASFD Permit Types); On-site Septic Permits = Septic Permits issued for new drainfields or modifications to existing drainfields and treatment systems (NEW Permit Types); Plats = New lots created through Short Plat or Short CaRD process (SPLT & CARD Permit Types).

**Table 4.5: Increase of Primary Single-Family Residences (SFR) by Decade
1951 to 2004**

Decade	New SFR	Average per Year	Total SFRs	Percentage Increase	Average Annual Percentage Increase
1951-1960	+67	6.79	101	197.1%	19.7%
1961-1970	+74	7.4	178	72.6%	4.4%
1971-1980	+146	14.6	329	84.8%	4.5%
1981-1990	+136	13.6	472	43.5%	3.2%
1991-2000	+178	17.8	666	41.1%	2.9%
2001-2004	+28	7.0	695	4.4%	1.1%

(Source: Guemes Island Ferry Capital Facilities Plan 2006-2020, pages 18 and 23).

B. Land Use & Growth Impacts

Introduction

Adoption of an expanded ferry service schedule to Guemes Island will pose minor direct environmental impacts in the form of increased ferry fuel use and emissions. Minor direct impacts would likely also include noise noticeable in proximity to the ferry landings occasioned by ferry docking and vehicle loading and unloading during the extended hours of operation. However, no direct land use or population growth impacts are anticipated, nor are significant indirect or cumulative land use or population impacts.

The proposal relates only to permanent changes to the Guemes Island Ferry Service Schedule. As such, it does not entail project-related actions to improve terminal facilities and/or docks. Furthermore, the proposal does not seek to modify the policy and regulatory framework that guides growth and development on the island. The types and intensities of land use that may occur on Guemes Island have been established through the Skagit County Comprehensive Plan; these land use designations provide the basis for planning the provision of ferry service to the island. Recent and ongoing sub-area planning efforts have not, thus far, sought to revisit any of the current land use designations or further reduce the residential carrying capacity of the island. Thus, Skagit County remains obligated under adopted policy to provide “*safe and adequate*” ferry service between Anacortes and Guemes Island (see Comprehensive Plan Transportation Policy 9A-8.5) consistent with the adopted land use designations.

Over time, project actions undertaken by private landowners and non-project as well as project actions carried out by Skagit County implement the Comprehensive Plan. The adoption of a modified ferry schedule is one such implementation action. It is being proposed in direct response to growth trends that are occurring independent of expanding the ferry service schedule, and is intended to serve the current and future needs of island residents and visitors in a manner consistent with the approved land use plan.

Common Land Use Impacts

Land use impacts are generally categorized as direct, indirect, and cumulative. “Direct impacts” are caused immediately by a specific development proposal and are relatively proximate in time and place (e.g., conversion of land to a different or more intensive land use; displacement of existing activities; and incompatibilities or conflicts between various land uses and activities). In contrast, “indirect impacts” are generally more remote in time and place. Indirect actions frequently involve the actions of other parties and are typically experienced at a later time. For example, significantly over-sizing ferry carrying capacity to Guemes Island in relation to the adopted land use plan and historic growth trends could cause an unanticipated increase in the rate of growth

inconsistent with historic trends. Finally, “cumulative impacts” are those that are generated by an action in conjunction or combination with the actions of other parties (e.g., changes to the general character of an area resulting from the combined effects of numerous development projects over time).

Direct Land Use Impacts

Because the proposed action is the adoption of an expanded ferry service schedule (adding up to five (5) additional crossings to Guemes Island on Mondays through Thursdays), it is not a project action, and no direct land use impacts would be expected from the proposal.

Indirect Land Use Impacts

The proposal is tailored to provide expanded ferry service concurrent with expanding demand and need and is therefore unlikely to result in significant adverse indirect land use impacts. This expanding demand and need is largely as a result of continuing rural residential development that is consistent with the adopted land use designations, and which would be anticipated to continue with or without an extended ferry schedule. Continuing development has manifested itself, in part, in the form of increasing ferry ridership and decreasing ferry volume to carrying capacity ratios over recent years. To the extent that any indirect impacts may be attributed to the proposed action, they would likely be minor, rather than significant.

Cumulative Land Use Impacts

The addition of 12 to 20 evening ferry crossings per week would not be anticipated to cause significant adverse cumulative land use impacts. The possibility that expanded evening crossings might make Guemes Island more attractive as a place to live for individuals employed off island and contribute cumulatively to an accelerated and aberrant growth rate is not supported by available data. Building activity data collected during the period of the interim extended ferry schedule authorized by Skagit County Resolution Number R20060184 show permit activity consistent with, or below, that which has been observed historically.

With or without the expansion of the Guemes Island ferry service schedule, the island is likely to become incrementally more densely populated and developed over time, though the allowable rural densities on the island will likely help to maintain essential elements of the existing rural character. Some of the undeveloped parcels on the island will be developed for rural residential use, and the vacant, wooded character of these parcels will be changed. Some increases in traffic, noise, and other effects associated with a larger housing and population base are inevitable as development continues consistent with the adopted rural land use designations. These impacts are anticipated to occur as a

consequence of continuing development under the GMA compliant rural residential land use scheme, and not as a result of the addition of 12 to 20 weekly ferry crossings.

Land Use & Growth Impacts of the Alternatives

Overview

As noted in the previous section, none of the alternatives is anticipated to pose significant adverse land use impacts, whether direct, indirect, or cumulative. None of the alternatives seeks to modify the existing land use pattern of Guemes Island, or the ultimate population or holding capacity of the island. Instead, all the alternatives represent different means to accommodate existing ferry users and anticipated growth in ferry ridership occasioned by the previously adopted Skagit County Comprehensive Plan Land Use designations.

That said, if any of the alternatives was to create significant excess carrying capacity, the rate and timing of new residential growth and development on the island might in theory occur more rapidly and in a more compressed span of years than has been the case historically. While this would not alter the fundamental land use pattern or capacity of the island, a rapid and unintended surge of new residential development or permanent occupancy of existing vacation homes could make it more difficult to effectively monitor changes in the island's overall environmental health, and to respond to unanticipated impacts should they occur. However, neither of the proposed action alternatives would appear to create significant excess carrying capacity in relation to past, present or projected future ridership demand generated by ongoing development under the adopted land use plan.

Impacts to Population & Development Patterns

The existing conditions discussion set forth in section 4.2.1A, *infra*, describes the estimated dwelling unit and population holding capacity of Guemes Island, as well as existing development patterns and land use designations. None of the alternatives for review would seek to change this pattern. Instead, the alternatives attempt to respond to increases in ferry ridership demand created by ongoing growth and development under the adopted land use scheme.

Thus, no direct, indirect, or cumulative impacts are anticipated as a result of the proposal.

Impacts to the Rate & Timing of Growth Under the Adopted Land Use Plan

The data set forth in section 4.2.1A, *infra*, indicate that the population of CT 9501, which includes Guemes Island, grew to some 948 persons by 2006, an increase of some 26% over the 1990 population, and an average annual growth rate of 1.6% for the same 16-year period. Importantly, dwelling unit growth

significantly outpaced population growth during a similar timeframe, 1990 to 2004. During this 14-year period, single-family dwelling units grew from 472 to 695, an increase of over 47%, and an average annual growth rate of 3.4% (i.e., nearly 16 new units annually). Again, this trend may indicate that a significant percentage of the new residential units are second homes.

In contrast, the number of ferry crossings and total vehicle carrying capacity to the island increased by only 8.8% during the period 1990 to 2004, while the total number of vehicle crossings increased by some 74%. Moreover, throughout this period, the ferry's available vehicle volume in relation to total carrying capacity was steadily decreasing, from 48% available capacity in 1990 to only 16% in 2004.

Collectively, these data do not suggest that prior expansions in the number of ferry crossings and carrying capacity have been a significant factor in inducing growth and development. Instead, these data show that increases in ferry capacity (in the form of additional crossings) have lagged well behind a broader trend of population, dwelling unit, and ferry ridership growth, suggesting that expansions in service capacity have been in response to growth, not driving it.

This conclusion is corroborated by permit data gathered over the one and three-quarter (1.75) years since the interim expanded ferry service has been in place. These data show a slight decrease in the average number of new dwelling units annually, as well as overall development permit activity. Fifteen (15) net new units have been applied for and approved or are pending approval since adoption of the interim expanded schedule (an average of 8.6 units annually). While the duration of the sample period is admittedly small, and the sample period coincided with a nationwide downturn in the economy and housing market, the data do not indicate a correlation between expanded service and increases in development permit activity.

Based upon this information, a 9% to 15% increase in the total number of crossings and vehicle carrying capacity would not be expected to materially affect historic growth trends, or induce additional and unanticipated population growth and development. To the extent that any impacts might occur, they would not be expected to be significant. Instead, population growth and development would likely continue at levels roughly commensurate with regional and national population growth and housing trends, with or without the additional ferry crossings.

Impacts to Housing

As set forth in existing conditions discussion in section 4.2.1A, *infra*, the theoretical dwelling unit and housing capacity of Guemes Island at build-out is 1,584 units. The current estimated number of dwelling units is 652. If past trends continue, at least 10 to 15 dwelling units would likely be constructed annually. This pattern would be expected to continue, consistent with trends in

the broader regional and national housing market and economy, until the supply of available and easily developed lots diminishes substantially.

Regardless, none of the proposed alternatives would alter the underlying dwelling unit and housing capacity of the island. Instead, population growth and development would likely continue at levels roughly commensurate with regional and national population growth and housing trends, with or without the additional ferry crossings.

Vehicular Traffic & Noise Impacts

Alternative 1, no action, would not create noise or traffic impacts above baseline conditions. It must be emphasized that the M/V Guemes has a capacity of only 22 standard size vehicles. Thus, alternatives 2 and 3 would be likely to cause minor to moderate traffic and noise impacts, for short periods of time, coinciding with ferry loading and unloading. However, these impacts would be expected to be localized in proximity to the ferry landings (both on Guemes and in Anacortes), and would likely be rapidly attenuated as vehicular traffic disperses on Guemes Island's rural road network.

Consistency with Adopted Land Use Plans & Regulations

The policies governing Guemes Island Ferry planning, service delivery and funding are found within the Transportation Element of the Comprehensive Plan (Chapter 9). The following policies appear particularly relevant to this inquiry:

9A-8.2 To meet future increases in demand, the County shall increase service capacity of the Guemes Island Ferry by: (a) encouraging car-pooling and walk-on passengers; (b) increasing the frequency of Ferry runs based on demand; and (c) considering additional Ferry capacity if the aforementioned procedures fail to accommodate demand.

9A-8.5 The County shall continue to provide safe and adequate Ferry service between Anacortes and Guemes Island, and a fare structure designed to recover as much operating cost as practical from the users.

Policy 9A-8.2(b) and (c) seeks to distinguish between capacity expansions that are accomplished via adding to the total number and frequency of ferry crossings (subsection (b)), versus capacity expansions accomplished by adding to the size or number of ferry vessels employed (subsection (c)). Because none of the proposed alternatives would increase the size or number of vessels in service, all would appear consistent with this policy.

The County has not adopted a formal level of service standard for the Guemes Island Ferry. In the absence of such a standard, the County has monitored

vehicle carrying capacity in relationship to ridership demand to assess whether the service to the island is “adequate” as required under Policy 9A-8.5. As has been discussed previously, if past ridership growth trends continue, demand is anticipated to exceed the capacity of Alternative 1 by the year 2014. Alternative 2, which would increase capacity by nine percent (9%), would likely be at capacity by the year 2020. Alternative 3, which would increase capacity by 15%, would likely reach 95% capacity by 2020. Because the term “adequate” is indefinite in the absence of a formally adopted level of service standard, it is perhaps most accurate to conclude that none of the alternatives creates a clear inconsistency with this policy.

Finally, the basic GMA requirements regarding transportation plan and land use plan consistency should be restated. The GMA requires that transportation systems be coordinated with county comprehensive plans (RCW 36.70A.020(3)). The Skagit County Comprehensive Plan (the comprehensive plan) has established a rural and resource land use and zoning regime for Guemes Island, consistent with RCW 36.70A.070((1) and (5)). The GMA requires that the transportation chapter of the comprehensive plan be consistent with, and implement, the adopted land use plan. Currently, less than one-half of the total dwelling units permissible under the adopted land use and zoning regime have been constructed. Thus, considerable potential for continued infill growth and development exists. With this as context, none of the alternatives proposes a ferry carrying capacity that would encourage growth and development beyond that authorized under the adopted zoning. In this sense then, all of the alternatives are in some measure coordinated with the level of current and future island development permissible under the Comprehensive Plan.

C. Strategies to Further Reduce the Potential for Impacts

The foregoing information and analysis does not indicate that probable significant adverse land use impacts would be likely as a result of adoption of any of the ferry service schedule alternatives. Nevertheless, this section describes some of the measures that Skagit County might employ to further reduce the possibility of impacts, however remote or unlikely. The following measures might be employed under any or all of the proposed alternatives.

1. Consider further downzones and adoption of a lot consolidation code requirement to reduce the potential for future subdivisions and to aggregate previously platted nonconforming size lots in common ownership. This approach could reduce the dwelling unit and population holding capacity of the island by 52 or more units, with notable reductions possible in the Rural Intermediate (RI) and Rural Reserve (RRv) zones.
2. As a means to ensure that accessory dwelling units (ADUs) do not proliferate and result in an unintended and unnecessary increase in dwelling unit capacity, consider their prohibition on Guemes Island.

3. Consider adopting a building permit metering system that caps the number of permits issued for new residential dwelling units to a level proportional to, or less than, historic growth dwelling unit growth patterns (e.g., 10 to 15 units annually).
4. In order to ensure that the land use and growth concerns of islanders are adequately addressed, delay implementation of a permanently expanded ferry schedule until the Guemes Island Sub-Area Plan is formally adopted and implemented by the County.

D. Significant Unavoidable Adverse Impacts

None have been identified.

4.2 The Natural Environment

4.2.1 Surface Water

A. Existing Conditions

Surface Water Bodies & Wetlands

The following information is drawn from information set forth in the Draft Guemes Island Sub-Area Plan, July 2007. A general inventory of the wetlands and surface water features of Guemes Island can be found in figures 4.2, 4.3, and 4.4 of the Draft Sub-Area Plan (see Section 5.0, Appendix F, supra). An extensive wetland complex is found in the valley near the eastern end of Edens Road. It runs from north to south and serves an important function in regulating surface water runoff through Cayou Creek into the Guemes Channel. It may also contribute to the recharge of the ground water and allow infiltration of potentially contaminated runoff into the underlying aquifer complex. Other wetlands and surface water bodies include Veal Pond just north of the western end of Edens Road and the wetland at North Beach. Runoff from these two wetlands flows through drainage channels and tide gates to the Bellingham Channel and Padilla Bay, respectively.

Frequently Flooded Areas

The following information is drawn from information set forth in the Draft Guemes Island Sub-Area Plan, July 2007. The shoreline area west of Veal Pond and the North Beach area northeast of the wetland there are susceptible to flooding during winter storm conditions combined with high tides. These two areas are depicted on figure 4.9 of the Draft Sub-Area Plan (see Section 5.0, Appendix F, supra). This figure also depicts several other relatively confined areas subject to coastal flooding.

During heavy rain events, Cayou Creek and its wetland overflows the culvert under Edens Road, three-quarters (3/4) of a mile east of Guemes Island Road, creating a hazard for motorists during these periods. At present, there is no storm water plan for Guemes Island, and the storm and surface water impacts occasioned by new development are reviewed and mitigated on-site, via application of the Department of Ecology's Stormwater Management Manual for Western Washington.

B. Impacts to Surface Water

As described in the discussion of land use and population growth set forth in section 4.2.1B, *infra*, the proposed action is non-project in nature, and would not pose any direct impacts to surface water resources on Guemes Island. Additionally, because none of the proposed alternatives would be likely to induce growth and development above historic population and dwelling unit growth rates, indirect and cumulative surface water impacts are not likely to occur as a result of the proposal. Although both action alternatives (i.e., alternatives 2 and 3) seek to expand the number of ferry crossings to meet existing and projected ridership demand and need, this expanding ridership is a consequence of continuing housing growth and development authorized under the adopted land use plan, not the ferry service itself.

C. Strategies to Further Reduce the Potential for Impacts

The foregoing information and analysis does not indicate that probable significant adverse surface water impacts would be likely as a result of adoption of any of the ferry service schedule alternatives. Nevertheless, Skagit County might undertake the following measure to further reduce the possibility of impacts, however remote or unlikely:

Delay implementation of a permanently expanded ferry schedule until the policy framework of the Environment Element of the Guemes Island Sub-Area Plan is formally adopted and implemented by the County.

D. Significant Unavoidable Adverse Impacts

None have been identified.

4.2.2 Ground Water

A. Existing Conditions

Hydrogeology - Overview

Detailed existing conditions information regarding Guemes Island hydrogeology, seawater intrusion issues, and ground water quality is contained in section 5.0,

Appendix G of this report (Hydrogeology and Quality of Ground Water on Guemes Island, Skagit County, Washington, USGS, 1995). The information in this section is drawn from that document, as well as the Environment Element of the July 2007 Draft Guemes Island Sub-Area Plan (see Section 5.0, Appendix F).

Though 13 years have passed since its completion, the 1995 USGS study remains an accurate, useful and comprehensive assessment of the hydrogeology and ground water chemistry of Guemes Island (source: In person conversation with Gary Stoyka, Hydrogeologist/Environmental Scientist, Skagit County Public Works Department, March 6, 2008).

The ground water resource of Guemes Island is the principal source of fresh water used by permanent and seasonal residents. In 1997 the United States Environmental Protection Agency (EPA) designated the Guemes Island Aquifer System as a Sole Source Aquifer which if contaminated would create a significant hazard to public health.

The Double Bluff aquifer complex, which generally is located at or below sea level, is the most extensive water-bearing unit and many wells are completed in this unit. It underlies all but the rocky eastern part of the island. The Vashon aquifer complex, located above the Double Bluff aquifer, occurs in two separate areas rather than under the entire island. It is of variable thickness and productivity. See Figure 4.5 contained in section 5.0, Appendix F.

Recharge of fresh water to the ground-water system is primarily from infiltration of precipitation. Most of the recharge occurs in the wet winter months from November through February, when the precipitation greatly exceeds the evapotranspiration. Recharge from septic drain-fields and irrigation is relatively small. Precipitation recharges through all permeable surfaces on the island except where groundwater is discharging, such as from springs. Some areas contribute more to the recharge than others, depending upon the vertical hydraulic conductivity of the underlying geological units (penetration to the lower strata).

Ground Water Quantity

An approximate water budget of the island (see section 5.0, Appendix G, pages 28 and 54) indicates that of the 21 to 29 inches of precipitation falling on the island in a typical year, 0 to 4 inches runs off, 12 to 22 inches evapotranspires, and 2 to 10 inches recharges the ground water system. According to the USGS, only 0.1 to 0.3 inch of the recharge was being withdrawn (i.e., discharges) from wells in 1992. Discharge to springs and the sea was not quantified.

Ground Water Quality - Generally

Overall, ground water quality on Guemes Island is suitable for domestic use (USGS, 1995). The USGS study set forth in section 5.0, Appendix G, indicates that no maximum contaminant levels (MCLs) for applicable United States Environmental Protection Agency (EPA) drinking water regulations were exceeded during the course of the study. The secondary maximum contaminant level (SMCL) for dissolved solids was exceeded in four (4) samples, and two (2) of those samples also had chloride concentrations larger than the SMCL of 250 ppm, suggesting seawater intrusion conditions. SMCLs were also exceeded in some samples for manganese, iron, and pH. All other applicable drinking water standards were met.

Seawater Intrusion

Seawater intrusion affects some public and private water wells on Guemes Island, and can render ground water unfit for human consumption. Fresh water, being less dense than seawater, will float as a lens on top of seawater. The lens of freshwater is thinnest at the coastal edges and thickens landward. Fluctuations occur depending upon seasonal rainfall (aquifer recharge), soil characteristics and tidal movement. Over-pumping sensitive areas, which are under the influence of seawater intrusion, will further degrade the aquifers and pull in more seawater.

Although the USGS study found only two (2) samples where chloride concentrations rendered well water unfit for domestic use, the potential for seawater intrusion is real for wells located in close proximity to the marine shoreline. Veal Pond and the wetland at North Beach are connected by a low stretch of land, close to sea level. The tip of Guemes Island north of this stretch is the area most susceptible to seawater intrusion. From a combination of water well reports and accurate land elevation measurements for wells that have been completed in the Double Bluff aquifer in this area, it is known that the head of fresh water in the wells is shallow, lying between 0.5 and 1 foot above mean sea level. Although some seawater intrusion was found in wells in the Vashon aquifer unit, it generally is not a problem for wells completed in this unit because most of it is situated above sea level. See Figures 1.1 and 4.6 contained in section 5.0, Appendix F.

Due to severe seawater intrusion in its two (2) wells, one West Shore system is now served by a reverse osmosis (RO) system, owned and operated by the Skagit County Public Utility District (PUD). This system uses seawater as its intake and discharges the saline effluent away from the shore into the channel. For seawater, the recovery of potable water may be up to 30%. Several private property owners have installed individual RO systems, which are not regulated by the County. These systems use well water as their source, which has only a

slightly higher recovery rate. Accordingly, these systems cause additional stress on the aquifer, particularly if the salty effluent is discharged to a septic system. Despite isolated seawater intrusion problems, available data do not indicate that the island's aquifer has reached a "tipping point" that could portend significant widespread contamination of wells. Instead, seawater intrusion appears to be a problem in a few isolated island locales (e.g., the North Beach Area). Seawater intrusion in these areas is a result of the development of several very small lots with wells located near sea level and directly adjacent to the shoreline. In many cases the problems have been exacerbated by poor well design (i.e., wells drilled too deep) and poor pump management (i.e., pumping at a rate that lowers the water level in the well below sea level). (Sources: in person conversation with Gary Stoyka, Hydrogeologist/Environmental Scientist, Skagit County Public Works Department, and Lorna Parent, Environmental Health Specialist, Skagit County Health Department, March 6, 2008).

These conclusions are substantiated by well chloride level data gathered by Ms. Marianne Kooiman on behalf of the Skagit County Health Department, and summarized in Table 4.6, below. These data, which compare 1991 and 2007 chloride levels in 52 Guemes Island wells, show that the number of wells exceeding the secondary maximum contaminant level (SMCL) of 250 ppm has actually decreased from five (5) to three (3) over the intervening 16 years. Ms. Kooiman's data is set forth in full in section 5.0, Appendix I of this EA, along with a description of her background and past and present involvement in Guemes Island ground water issues.

PPM Range	1991 – Number of Wells	2007 – Number of Wells
0-24 ppm	34	33
25-99 ppm	5	10
100-249 ppm	5	5
250 or greater ppm	5	3

(Source: Well sample data compiled by Ms. Marianne Kooiman on behalf of the Skagit County Health Department, February 27, 2007).

In 1995 the Skagit County Board of Commissioners adopted an Interim Seawater Intrusion Policy that regulates new wells in coastal locations whenever a landowner requests a building permit or a land division. While this policy has not been formally codified, it has nevertheless been consistently applied to all building permits and land divisions falling within its scope since its adoption in January of 1995. The efficacy of the policy would appear to be supported by the above-cited well chloride data. The applicability, requirements, and the County's approach to implementation of the Interim Seawater Intrusion Policy are discussed in greater detail, below.

Groundwater Use

Approximately 20 public water systems serve localities on the island. These range from Class B systems with up to 15 connections to the Class A Holiday Hideaway Water Company, which presently has 134 connections and has been approved for a total of 267 connections. This system has wellhead protection areas designated for its two well fields. See Figure 4.8 contained in section 5.0, Appendix F. As indicated previously, of the 2 to 10 inches of precipitation recharging the ground water system annually, approximately 0.1 to 0.3 inch was withdrawn (i.e., discharges) from wells in 1992. This equated to approximately 64.6 acre-feet in 1992. A significant portion of the water withdrawn from wells is returned to the aquifer system via septic system drainfields. (Sources: USGS; Gary Stoyka, Hydrogeologist/Environmental Scientist, Skagit County Public Works Department).

Policy & Regulatory Framework Governing Aquifer Recharge Areas

Critical Areas Regulations

Guemes Island is designated as a Category I Aquifer Recharge Area under the County's critical areas regulations (codified at SCC 14.24). These areas are designated because of the need to provide special protection due to specific preexisting land uses, or because the County, State or Federal Government has determined the aquifer needs protection from future land uses that pose a risk to the quality or quantity of ground water (see SCC 14.24.310(1)(a)). Category I areas include areas designated as sole source aquifers under the Federal Safe Drinking Water Act, areas designated as well-head protection areas under WAC 246-290-135(4), and groundwater contribution areas defined under WAC 246-291-100(2)(e).

Section 14.24.340 of the Skagit County Code requires that an aquifer impact assessment be performed prior to approval of any new development within a Category I critical aquifer recharge area. The code requires that the assessment include the identification of appropriate mitigation measures and a description of how implementation of such measures will prevent degradation of the underlying aquifer. (SCC §14.24.340(3)(b)). The scope of an assessment may only be reduced by using appropriate mitigation measures, or if the water quality or quantity issues are already known. (SCC §14.24.340(1)).

Interim Seawater Intrusion Policy

Background & History:

The Guemes Island Environmental Trust (GEIT) was instrumental in creating the framework for the development of a science-based local seawater intrusion policy for Skagit County. GEIT was influential in identifying the need for an

island-wide USGS ground water study, and was responsible (largely through the efforts of Ms. Marianne Kooiman) for writing the grant submitted to the Washington State Department of Ecology to obtain the funding necessary for the study. GEIT later played a leading role in securing the USEPA Sole Source Aquifer designation for the island. Both during and following the USGS study, GEIT provided critical assistance to the Skagit County Health Department in the on-going annual monitoring that made the Seawater Intrusion Policy possible. Because the human and budgetary resources of the Skagit County Health Department are small, none of the above-described accomplishments would have been possible without GEIT's assistance.

Objectives of the Policy:

Skagit County has applied the Seawater Intrusion Policy to all applicable building permits and land divisions since its inception, January 1, 1995. This was to be the first step toward monitoring the health of aquifers that are potentially impacted by seawater intrusion throughout Skagit County, including those on Guemes Island. The primary goals of this policy as it pertains to new development are as follows:

- To direct new wells away from the coast and as far inland as possible;
- To reduce pumping rates on fragile aquifers; and
- To deny land divisions where the chloride levels are 200 ppm chlorides or higher.

The policy also aims to further public education and notification of seawater intrusion issues through the following means:

- By requiring the preparation and recording of "Seawater Intrusion Drinking Water Status Reports" that:
 - Apprise plat and building permit applicants and future purchasers of the characteristics of the applicable well;
 - Record observed chloride and sodium levels;
 - Explain state maximum contaminant levels;
 - Document that the well was drilled as far inland as possible, and that it is subject to pumping limitations and wellhead source metering requirements; and
- By gathering and monitoring data and engaging in public education and outreach efforts pertaining to seawater intrusion issues.

Even though on-going monitoring and testing are required by the policy, the primary objective for this monitoring and testing is to ensure that well owners are aware of their impact on the aquifer and to note trends in their drinking water without fear of enforcement. Overall, the County has been successful in accomplishing these objectives.

Public Water System Jurisdiction:

As noted in the policy, Group A public water system sources (WAC 246-290) are fully under the jurisdiction of the Washington State Department of Health and not the Skagit County Health Department. Group B public systems (WAC 246-291) have shared jurisdiction with the lead being the State Department of Health and the Skagit County Health Department taking on specific tasks only. The County Health Department may handle small simple systems, while more complex systems are handled by the Washington State Department of Health.

Well-Driller Notification:

Originally, well drillers were required to notify the Health Department prior to drilling in certain locations on Guemes Island. However, in May of 1998, well drillers were required to notify the Skagit County Health Department prior to the drilling of all wells throughout the County making that piece of the policy obsolete.

Interim Seawater Intrusion Policy Implementation:

All new wells for building permits and land divisions are reviewed as described below.

Building Permits:

For building permits utilizing wells that are within ½ mile from the coast, the policy specifies three chloride ranges: 0-24 parts per million (ppm); 25-99 ppm; and 100 ppm or higher. These three seawater intrusion categories specify requirements pertaining to the following: maximum pumping rate of the well; the static water level measurement; wellhead meter readings; conservation; annual chloride testing; and status reports that are filed for the property. In all three categories, the well must be located as far inland as possible and both a wellhead source meter and a sounding tube for measuring the static level are required to be installed.

For a well producing a chloride level of 24 ppm or less, the policy specifies a maximum pumping rate of 5 gallons per minute (gpm) and that the wellhead source meter will be read annually. Further, it is recommended that the owners measure the static water level once a year and that water conservation measures be employed.

For a well producing a chloride level of 25 through 99 ppm, the policy requires as follows: a maximum pumping rate of 5 gpm; that the static water level be measured once a year in September; that the wellhead source meter be read quarterly the first year and annually thereafter; that water conservation measures

be employed; that the chloride level be tested annually in September; and that a status report be filed with the County Auditor for the property.

For a well producing a chloride level of 100 ppm or higher, the policy requires as follows: a maximum pumping rate of 3 gpm; that the static water level be measured quarterly the first year and in September thereafter; that the wellhead source meter be read monthly the first year and annually thereafter; that water conservation measures be employed; that the chloride level be tested twice a year once in September and again in March; and that a status report with a health note be filed with the County Auditor for the property.

Wells associated with building permits outside the ½ mile distance, and with a low level of chloride, may have a maximum pumping rate of 8 gpm. It is still recommended that a wellhead source meter and sounding tube be installed, and that water conservation techniques be employed. If the chloride level is 25 ppm or more, the more conservative restrictions noted above apply.

Land Divisions:

For land divisions utilizing individual wells that are within ½ mile from the coast, the policy specifies three monitoring ranges: 0-24 ppm; 25-99 ppm; and 100 ppm or higher. These three seawater intrusion categories specify requirements pertaining to the maximum pumping rate of the well, plat notes, conservation, and well siting. In all cases, the well(s) are required to be located as far inland as possible and appropriate plat notes describing applicable conditions (e.g., the installation of both wellhead source meters and sounding tubes) are noted on the face of the plat. In addition, the plat will note the elevation for a benchmark for each proposed well site. Land division proposals with test results of 200 ppm chlorides or greater are denied.

For land divisions with well(s) producing a chloride level of 24 ppm or less, the maximum pumping rate is 5 gpm and water conservation measures are recommended.

For land divisions with well(s) producing a chloride level of 25 through 99 ppm, the maximum pumping rate is 5 gpm and water conservation measures are required.

For land divisions with well(s) producing a chloride level of 100 through 199 ppm, the maximum pumping rate is 3 gpm, the plat note will include a sodium health note and water conservation measures are required.

For land divisions with wells located greater than one-half (1/2) mile from the coast and with a low level of chloride, the maximum pumping rate is 8 gpm. It is recommended that a wellhead source meter and a sounding tube be installed,

and that water conservation techniques be employed. If the chloride level is 25 ppm or more, the more conservative restrictions noted above apply.

B. Impacts to Ground Water

As described in the discussion of land use and population growth set forth in section 4.2.1B, *infra*, the proposed action is non-project in nature, and would not pose any direct impacts to ground water resources on Guemes Island.

Additionally, because none of the proposed alternatives would be likely to induce growth and development above historic population and dwelling unit growth rates, indirect and cumulative ground water impacts are not likely to occur as a result of the proposal. Although both action alternatives (i.e., alternatives 2 and 3) seek to expand the number of ferry crossings to meet existing and projected ridership demand and need, this expanding ridership is a consequence of continuing housing growth and development authorized under the adopted land use plan, not the ferry service itself.

C. Strategies to Further Reduce the Potential for Impacts

The foregoing information and analysis does not indicate that probable significant adverse ground water impacts would be likely as a result of adoption of any of the ferry service schedule alternatives. Nevertheless, this section describes some of the measures that Skagit County might employ to further reduce the possibility of such impacts, however remote or unlikely. The following measures might be employed under any or all of the proposed alternatives.

1. Consider further downzones and adoption of a lot consolidation code requirement to reduce the potential for future subdivisions and to aggregate previously platted nonconforming size lots in common ownership. This approach could reduce the dwelling unit and population holding capacity of the island by 52 or more units, with notable reductions possible in the Rural Intermediate (RI) and Rural Reserve (RRv) zones. Reducing the number of potential future development units would reduce the total amount of potential future ground water withdrawals.
2. As a means to ensure that accessory dwelling units (ADUs) do not proliferate and result in an unintended and unnecessary increase in island population and ground water withdrawals, consider their prohibition on Guemes Island.
3. Consider adopting a building permit metering system that caps the number of permits issued for new residential dwelling units to a level proportional to, or less than, historic dwelling unit growth patterns (e.g., 10 to 15 units annually).

4. In order to ensure that the land use and growth concerns of islanders are adequately addressed, delay implementation of a permanently expanded ferry schedule until the policy framework of the Environment Element of the Guemes Island Sub-Area Plan is formally adopted and implemented by the County.
5. Expedite the development, implementation, and funding of a long-term ground water monitoring program for Guemes Island. Historically, resident volunteers, supplied with equipment by the Skagit County Health Department, have conducted ground water monitoring. A formalized and fully funded monitoring program, guided by a ground water flow model, would help to provide the information necessary to adapt land use and ground water protection policies and regulations if needed.
6. Consider contracting with the Skagit County Public Utility District to investigate the feasibility of developing a centralized water supply and distribution system for all or portions of the island.
7. Consider amending the Skagit County Code to severely restrict or prohibit the development of lots in areas where the drilling of new wells would exacerbate existing seawater intrusion contamination.

D. Significant Unavoidable Adverse Impacts

None have been identified.

4.3 Summary of Environmental Impacts

Table 4.7 provides a summary comparison of the impacts anticipated under the three alternatives. As the table shows, and as the foregoing information and analyses indicate, none of the alternatives would be expected to result in probable significant adverse environmental impacts.

Table 4.7: Summary of Environmental Impacts			
ISSUE	Alternative 1: No Action (Pre-Existing Schedule)	Alternative 2: Modestly Expanded Service	Alternative 3: Currently Expanded Service
BUILT ENVIRONMENT:			
Land Use			
Population & Development Patterns	Estimated theoretical population holding capacity of Guemes Island at build-out is 4,118*	Alternative 2 would not alter the population holding capacity of the island.	Alternative 3 would not alter the population holding capacity of the island.

Table 4.7: Summary of Environmental Impacts, continued

ISSUE	Alternative 1: No Action (Pre-Existing Schedule)	Alternative 2: Modestly Expanded Service	Alternative 3: Currently Expanded Service
BUILT ENVIRONMENT:			
Land Use			
Rate & Timing of Population Growth Under the Adopted Land Use Plan	The average annual growth rate for Census Tract (CT) 9501 (which includes Guemes Island**) was 1.62% between 1990 & 2006; overall, CT 9501 grew by 25.95% during the same period. This historic trend would be expected to continue under Alternative 1.	The addition of 624 ferry crossings annually over baseline conditions under Alternative 1 represents a 9% increase in vehicle carrying capacity. This increase would not be expected to materially affect the historic average annual growth rate of 1.62%. Instead, population growth and development would be expected to continue at roughly historic levels with or without the additional ferry crossings.	The addition of 1,040 ferry crossings annually over baseline conditions under Alternative 1 represents a 15% increase in vehicle carrying capacity. This increase would not be expected to materially affect the historic average annual growth rate of 1.62%. To the extent that any impacts could occur, they would not be expected to be significant. Instead, population growth and development would likely continue at levels roughly commensurate with regional and national population growth and housing trends, with or without the additional ferry crossings.
Housing	Estimated theoretical dwelling unit capacity of Guemes Island at build-out is 1,584 and would not be altered under Alternative 1. The current estimated number of dwelling units is 652. If trends from the past decade continue, at least 10 new dwelling units would be expected annually.	Same as Alternatives 1 and 3.	Same as Alternatives 1 and 2.

Table 4.7: Summary of Environmental Impacts, continued

ISSUE	Alternative 1: No Action (Pre-Existing Schedule)	Alternative 2: Modestly Expanded Service	Alternative 3: Currently Expanded Service
BUILT ENVIRONMENT:			
Land Use			
Vehicular Traffic & Noise	No impacts would be expected over baseline conditions.	Vehicles disembarking the ferry at three (3) times in the evening between 6:00 p.m. and 9:00 p.m. and traveling upon island roadways en route to permanent or vacation homes could cause minor increases in vehicular traffic noise for short periods of time.	Vehicles disembarking the ferry at five (5) times in the evening between 6:00 p.m. and 10:00 p.m. and traveling upon island roadways en route to permanent or vacation homes could moderately increase vehicular traffic noise for short periods of time.
Consistency with Adopted Land Use Plans & Regulations	Alternative 1 would not appear to create any obvious inconsistency with the GMA Comprehensive Plan as it relates to land use; however, opting not to increase the frequency of ferry crossings under this alternative may eventually result in inadequate ferry service, and a prospective inconsistency with Policy 9A-8.5 of the Transportation Element.	Like Alternatives 1 and 3, Alternative 2 would not appear to create any obvious inconsistency with the GMA Comprehensive Plan as it relates to land use; this option would also appear to be consistent with Policy 9A-8.2 of the Transportation Element by increasing the number and frequency of ferry crossings in response to ridership demand.	Same as option 2.

Table 4.7: Summary of Environmental Impacts, continued

ISSUE	Alternative 1: No Action (Pre-Existing Schedule)	Alternative 2: Modestly Expanded Service	Alternative 3: Currently Expanded Service
NATURAL ENVIRONMENT:			
Water			
Surface Water	<p>No direct impacts are anticipated; indirect and cumulative impacts of continued development under the adopted rural and resource zoning would be anticipated under Alternative 1, even with no additional evening ferry crossings. This development could lead to minor increases in impervious surfaces. Future development at rural densities would continue to be mitigated in a manner consistent with the Department of Ecology's Stormwater Management Manual for Western Washington.</p>	<p>No direct impacts are anticipated; indirect and cumulative impacts of continued development under the adopted rural and resource zoning would be anticipated under Alternative 2. Because this alternative does not change the underlying land use designations and zoning, the ultimate cumulative impacts would be the same as those expected to occur under Alternatives 1 and 3. While any new development could lead to minor increases in impervious surfaces, all development would continue to be mitigated in a manner consistent with the Department of Ecology's Stormwater Management Manual for Western Washington.</p>	<p>Impacts under Alternative 3 would be expected to be comparable to those under Alternatives 1 and 2.</p>

Table 4.7: Summary of Environmental Impacts, continued

ISSUE	Alternative 1: No Action (Pre-Existing Schedule)	Alternative 2: Modestly Expanded Service	Alternative 3: Currently Expanded Service
NATURAL ENVIRONMENT:			
Water			
Ground Water Movement, Quantity & Quality	Potential ground water impacts would be the result of new rural residential development, not ferry service to the island; such development would likely continue with or without changes to the ferry schedule. Available data do not support the conclusion that the island's aquifer is at a "tipping point" with regard to ground water; failing wells are limited to specific locations and due principally to poor design.	Like Alternative 1, ground water impacts under Alternative 2 would be due to new rural residential development, not ferry service to the island per se; such development would likely continue with or without ferry schedule changes, though the expanded service might bear a slight relationship to the timing of that growth. Available data do not support the conclusion that the island's aquifer is at a "tipping point"; failing wells are in specific locations and due principally to poor design.	Impacts under Alternative 3 would be expected to be comparable to those occurring under Alternatives 1 and 2.

* This estimate is based upon the total theoretical dwelling unit capacity of 1,584 identified in the July 2007 Draft Guemes Island Sub-Area Plan multiplied by the average household size employed in the Skagit County Comprehensive Plan of 2.6 persons. Due to Guemes Island's present character as a vacation and weekend getaway destination for many property owners, the average household size of the permanent resident population is likely to be considerably lower; additionally, County lot certification requirements may render some lots of record incapable of development, reducing the theoretical dwelling unit capacity of the island.

** CT 9501 includes Guemes Island, Cypress Island, Sinclair Island and Vendovi Island. In 2000, Guemes Island accounted for approximately 67% of the population in CT 9501 (i.e., 563 of 839 permanent residents).

4.4 Conclusion & Recommendation

Based upon a review of the information contained in the appendices attached to this EA, the completed SEPA non-project checklist, as well as the analysis set forth above, the proposal to permanently modify the Guemes Island ferry service schedule to include up to five (5) additional crossings on Mondays through Thursdays would be unlikely to result in probable significant environmental impacts as defined under WAC §§197-11-782, 197-11-794, and 197-11-330. Accordingly, it is recommended that the SEPA Responsible Official issue a Determination of Non-Significance for the proposed action.

5.0 Appendices

Appendix A
Public Comments on the Proposed Guemes Ferry Service
Schedule Changes and Environmental Review

Appendix B
Guemes Island Ferry Capital Facilities Plan 2006-2020
(adopted via County Resolution #R20060419, December 5, 2006)

Appendix C
Guemes Island Ferry Annual Report 2007
(Skagit County Department of Public Works)

Appendix D
Final Report: Skagit County Department of Public Works
Guemes Island Ferry Operations Management Analysis
(Berk & Associates, March 2003)

Appendix E
Skagit County Demography 2007
(Skagit County Public Health Department, August 2007)

Appendix F
The Draft Guemes Island Sub-Area Plan
(Guemes Island Planning Advisory Committee, July 2007)

Appendix G
Hydrogeology & Quality of Ground Water on Guemes Island,
Skagit County, Washington (USGS, 1995)

Appendix H

Paquette, Shawn M. 1997. Use of a three-dimensional flow model to simulate the position and shape of a saltwater interface. M.S. Thesis, Rice University, Houston, Texas

Appendix I
Well Chloride Levels – Comparison of USGS (1991) with 2007
Data (Kooiman, February 2007); Kooiman Background &
Involvement in Guemes Island Ground Water Issues

Ms. Marianne Kooiman
March 17, 2008

In 1990, Ms. Marianne Kooiman and Mr. Joseph Miller met with the Skagit County Health Department. They represented both the Guemes Island Environmental Trust (GIET) and the Guemes Island Property Owners Association (GIPOA). GIET and GIPOA had identified a need for an aquifer study on Guemes Island. Ms. Kooiman was the principal grant writer for the submittal to the Washington State Department of Ecology that was sponsored by the Skagit Conservation District. This effort resulted in the United States Geological Survey (USGS) Guemes Island Aquifer Study (94-4236). During the study, Ms. Kooiman worked for the USGS measuring water levels in 20 wells and collecting water samples on a monthly basis. After completion of the study, Ms. Kooiman, along with others, collected precipitation data from 5 stations on the island and monitored the static water level in a number of wells.

In 1994, Ms. Kooiman, on behalf of the GIPOA, wrote an application to EPA and was successful in obtaining the Sole Source Aquifer designation for Guemes Island.

In January 1995, when the Seawater Intrusion Policy was implemented, Ms. Kooiman, along with two other Guemes Island residents, became part of the Skagit County Seawater Intrusion Advisory Committee along with an engineer, a hydrogeologist, well drillers and County staff. Over the intervening years, the Guemes monitoring network has centered on the work of Ms. Kooiman and other volunteers under her direction.

Ms. Kooiman is an active member of the current water committee, GIET-Waterworks. Their goals include collecting water-related data on the island, educating islanders on water conservation, rainwater collection, and the importance of the use of water meters.

Ms. Kooiman is a retired scientist and lives on the Island. She holds Bachelors and Masters Degrees in scientific fields and has broad scientific career experience.