

Lummi Island Subarea Plan

A Component of the Whatcom County Comprehensive Plan



Lummi Island, looking south from Pt. Migley, photo courtesy Carl Hanson

May 2009

LUMMI ISLAND SUBAREA PLAN
A Component of the Whatcom County Comprehensive Plan
May 2009

Whatcom County Executive

Pete Kremen

Whatcom County Council

Seth Fleetwood, Chair

Carl Weimer	Sam Crawford
L. Ward Nelson	Bob Kelly
Laurie Caskey-Schreiber	Barbara Brenner

Whatcom County Planning Commission

Ken Mann, Chair

Jean Melious - Vice-Chair	John Belisle
David Hunter	John Lesow
Rabel Burdge	Geoff Menzies
Ron Roosma	John Steensma

Whatcom County Planning and Development Services Department

David Stalheim, Director
Hal Hart, AICP, Past Director
Sylvia Goodwin, AICP, Past Manager
Elizabeth K. Olsen, Planner II, Past Project Manager
Roland Middleton, LEG, Special Projects Manager, Public Works Department

Becky Boxx, Planning Commission Coordinator	Troy Holbrook, Past PDR/TDR Specialist
Mike Pelela, GIS Specialist	Sarah Watts, Senior GIS Specialist

Lummi Island Planning Committee as Appointed by Pete Kremen

Charles Anholt	Victor Armfield	Gwendolyn Bass
Robert Busch	Samya Clumpner	Kent Doughty
Dave Ernst	Bob Fodor	Rich Frye
Pam Gould	Polly Hanson	David Harmony
Earle Jewell	Dana Kershner	Wynne Lee
Al Marshall	Sheila Marshall	Gerald McRorie
Ria Nickerson	Ian O'Callaghan	John Robinson
Steve Schneider	Craig Smith	Art Thomas

Consultant

Mark Personius, AICP, Growth Management Consultant
10223 62nd Ave. South
Seattle, WA 98178

Whatcom County Planning
Northwest Annex, 5280 Northwest Dr.
Bellingham, WA 98226-9094
360-676-6907

Table of Contents

I.	Introduction	
	Major Planning Issues	Page 6
	The Planning Process & Opportunities for Public Involvement	Page 7
II.	Existing Conditions & Issues	
	Population & Housing Characteristics	Page 13
	Land Use	Page 19
	Groundwater Resources	Page 34
	Critical Areas	Page 39
	Shorelines	Page 44
	Recreation	Page 48
	Public Services and Facilities/Utilities	Page 52
	Sewage Disposal	Page 53
	Transportation	Page 54
III.	Growth Management Strategies	
	Growth Management Strategies	Page 58
	Land Use & Zoning Alternatives	Page 59
	Policy or Regulatory Alternatives	Page 63
IV.	Preferred Plan, Policies and Implementation Measures	
	Preferred Plan, Policies and Implementation Measures	Page 74
	Subarea Plan Goal	Page 74
	Land Use Implementation Measures	Page 74
	Shorelines and Critical Areas Implementation Measures	Page 77
	Recreation & Open Space Implementation Measures	Page 80
	Public Services and Facilities Implementation Measures	Page 82
	Transportation Implementation Measures	Page 82
V.	Appendices	
	Appendix A – Lummi Island Planning Survey	
	Appendix B – Growth Management Alternatives Public Evaluation	
	Appendix C – Conceptual Methodology for Evaluating Groundwater Withdrawal Proposals on North Lummi Island	
	Appendix D – North Lummi Island Hydrogeologic Investigation	

Tables

Table 1 – Housing Stock Age Distribution	Page 14
Table 2 – Lummi Island Peak Seasonal Population (1966-2000)	Page 15
Table 3 – Lummi Island Buildout Analysis (Pre-Existing Zoning)	Page 20
Table 4 – Lummi Island Open Space Inventory	Page 25
Table 5 – Lummi Island Economic Activity by Location	Page 30
Table 6 – Lummi Island Commute Trip Patterns	Page 55
Table 7 – Land Use Alternatives Buildout Scenarios	Page 62
Table 8 – Distribution of Vacant Non-conforming Lots	Page 65
Table 9 – Platted Lots of Record Prior to 1978 Not Subject to Lot Consolid.	Page 84

Figures

Figure 1 – Lummi Island Sub Area Planning Process	Page 11
Figure 2 – Lummi Island Resident Population Growth & Housing Growth	Page 14
Figure 3 – Lummi Island Peak Seasonal Population (1966-2000)	Page 15
Figure 4 – Lummi Island Peak Seasonal Population Forecasts (2000-2020)	Page 18
Figure 4A – Lummi Island Dwelling Unit Growth Forecasts (2000-2020)	Page 18
Figure 5 – Existing Zoning	Page 21
Figure 6 – Existing Development Potential	Page 22
Figure 7 – Open Space	Page 26
Figure 8 – Prime Agricultural Soils	Page 29
Figure 9 – Number of Economic Activities by Type	Page 30
Figure 10 – Cultural and Historic Sites	Page 32
Figure 11 – Public Water Systems (Group A & B)	Page 35
Figure 12 – Aquifer Recharge Areas	Page 37
Figure 13 – CAO Articles V & VI Aquifer & Wetlands	Page 42
Figure 14 – CAO Article VII Wildlife HCA's	Page 43
Figure 15 – CAO Articles III & IV Geohazards & FEMA Flood Hazards	Page 46
Figure 16 – Shoreline Designations	Page 47
Figure 17 – Public Tidelands	Page 50
Figure 18 – Non-Conforming Lots	Page 64
Figure 19 – Open Space Design and Clustering	Page 69
Figure 20 – Example Building & Site Design Standards	Page 71

Introduction

Introduction

This plan is intended to guide the physical development of Lummi Island for the twenty-year planning period from 2003-2023. It serves as an update to the Lummi Island Subarea Plan originally adopted in 1979.

Lummi Island is the largest island in Whatcom County. It comprises the easternmost part of the San Juan Island chain in Puget Sound and is located between Bellingham Bay on the east and Rosario Strait on the west. It is separated from the mainland and Lummi Peninsula by Hale Pass. The island is approximately nine miles long and, on average, one mile wide. The island comprises over 5,600 acres, is home to more than 800 full-time residents, and is served by Whatcom County public ferry service from Gooseberry Point on the Lummi Indian Nation.

The island experienced significant growth in the last twenty plus years that led to the call for a new plan to better deal with the impacts of growth. Residents concerned over the growth-related loss of open space and rural character of the island worked with Whatcom County to establish the Lummi Island Planning Committee (LIPC) and began work on revising their comprehensive plan that was over twenty years old. Among many concerns, the preservation of the community's rural character and protection of groundwater resources are of top priority.

The plan discusses the context for growth and its related impacts on the island, identifies potential strategies and techniques to preserve the rural character and mitigate the impacts of growth. It concludes by laying out clear policies to guide the implementation steps necessary to achieve the vision outlined by the community.

Major Planning Issues

Based on LIPC meetings, discussions with individual residents, business and property owners on the island, the survey results, the vision statement, the adopted 1979 Plan and other input, the most significant issues related to future growth on the island can be summarized into several broad themes.

- Natural Resource Sustainability (e.g., protection of water supply, water quality and environmentally sensitive areas)
- Preservation of Island Rural Character (e.g., density of development, protection of open space and rural activities like agriculture, preserving socio-economic diversity in the community, building size and appearance, etc.)
- Protection of Private and Public Property Rights (e.g., fairness in applying existing and new rules to all properties) To be sure, there are other issues of concern to islanders—but they are, in most cases, derivatives of these broader thematic issues. Note that discussion of a new ferry is specifically excluded here, except in the context of transportation infrastructure issues in Chapter II. On

April 15, 2008 the Whatcom County Council decided to not pursue new larger ferry at that time. This 20-year subarea plan assumes ferry service will be limited to the capabilities of the current ferry to provide that service.

The Planning Process & Opportunities for Public Involvement

Lummi Island Planning Committee (2001-2003)

The Lummi Island Planning Committee (LIPC) began to address the need for an updated growth management plan for the island in January 2001. Comprised of more than twenty members and open to all residents, the LIPC meets monthly to foster discussion about growth issues on the island. Several senior members of the LIPC even served on the original steering committee for the 1979 plan. The LIPC coordinated with the Whatcom County Planning and Development Services Department to: develop an on-going dialogue about growth impacts on the island; brief islanders about important growth issues; and to develop a scope of work for a new subarea plan update. In 2001, a budget was approved to fund a new plan and in 2002 a consultant was retained to help develop the plan. To help drive the new plan, an island-wide survey about growth issues was developed, in coordination with the County, and mailed to over 800 resident and non-resident property owners. The results of the survey are reported in the Appendix.

The LIPC met monthly to help coordinate and participate in the plan update process. The committee meetings are advertised, open to the public and contain a public comment period to encourage public involvement.

To help facilitate the plan update and involve LIPC members to the maximum extent possible in the process, the LIPC established subcommittees to address specific elements of the Plan and advise the County and the Consultant about specific issues. Subcommittees helped utilize the expertise of local residents in helping to put together the best plan possible. The subcommittee's main tasks during the process coincided with the appropriate phase of the planning process. These tasks included:

1. Data Collection and Inventory (Define Existing Conditions)
2. Identify Issues and Alternatives (using the Survey and local knowledge)
3. Recommend Solutions (Implementation Strategies)

Subcommittees include:

- *Shorelines and Critical Areas*
- *Public Services and Utilities*
- *Recreation and Open Space*
- *Transportation*
- *Rural Character*
- *Privacy and Property Rights*

Public Involvement (2002-2006)

In addition to the LIPC meetings, public outreach activities included interviews with selected residents, business owners, and large property owners outside of the committee. The interviews were conducted by staff and the consultant to inform and gather as broad and complete a picture of stakeholder interests and concerns about growth and the planning process as possible. Three island-wide public workshops (town meetings) that coincided with major milestones during the planning process were also held to inform the public about the process and gather public input. Many islanders gave additional, unsolicited input to Planning and Development Services staff, Planning Commissioners, County Council members and the County Executive. Additionally, public workshops and public meetings were held to discuss the Groundwater investigation and proposed methodology for groundwater withdrawal.

Visioning

In 2001 the planning process the LIPC developed a “vision statement”. The Vision Statement is intended to look forward into the future, to describe a vision of what islanders would like to see the community look like in the next 20 years. The vision is broken down into specific categories that help provide a clear picture of how the community sees itself and therefore provides guidance in applying growth management tools and techniques to achieve the desired outcomes. The vision statement was presented to the public and validated during a series of public workshops during the planning process. The degree of islanders agreement and disagreement with this statement was obtained in several ways, including:

The Vision Statement

Lummi Island’s natural beauty, its rural character and community, and the tranquility that accompanies them are preserved. Because these highly valued attributes are fragile, the Island is treated with special care and on-going vigilance.

- ***Natural Setting***—*The Island’s natural features are a primary source of satisfaction and feeling of well-being for residents. Large open spaces, wooded areas, wetlands, undeveloped shorelines, wildlife habitat, open vistas, air and water quality, and quietness are preserved. Rustic walking trails and access to the water are available. Islanders are dedicated to sustainable management of the Island’s marine and terrestrial ecosystems.*
- ***Community***—*The Lummi Island community functions as a single neighborhood distinguished by marked levels of interdependence, mutual support, citizen*

involvement, and socioeconomic diversity. Residents share a sense of history, a safe ambiance, a wide range of community activities, neighborliness, belonging and tolerance within their small cohesive community. Islanders embrace community interaction and cultural activities including small-scale public and commercial enterprises.

- ***Rural Character***—*The Island’s natural setting and close-knit rural community, which contribute to the rural character, are enhanced by safe rural roads, an unhurried pace of life, and a sense of privacy. Human activities include small-scale agriculture, cottage, service, and sustainable resource-based industries. Residents are resourceful and self-reliant. They appreciate the calming effect of the rural setting and they understand the effect that their actions have on the island as a whole. Private and public property rights and responsibilities are supported in coordination with sustainable growth management.*

Subarea Planning Process

The island’s subarea planning process was comprised of three main phases (see Figure 1).

1. ***What Do We Have?***— This is the data gathering phase. It identified the current conditions and issues to be addressed by the Plan. The Survey already accomplished much of what this phase is intended to achieve in terms of the public’s involvement. The first phase of the subarea planning process presented the goals underlying the 1979 Island Subarea Plan, discussed existing conditions and issues, presented the vision statement and results of the island-wide survey, identified historic and current growth trends and illustrated “*what if*” scenarios of growth continuing for the next twenty years based on observed trends. These highlights were presented to the public during the first “town meeting” on the plan held in December 2002.
2. ***What Do We Want?***— Based on the issues raised in the Survey and from the LIPC and the public in Phase One, identify and prioritize the major issues to be addressed by the Plan. Analyze those issues and present alternative solutions or strategies to address sustainable growth management—one of the underlying foundations of the vision for the island. These alternatives included: 1) *land use alternatives* (i.e., mapping potential zoning changes); 2) *policy alternatives* such as establishing preferences for changes in the levels of service for public services and facilities and the imposition of new fees to fund needed improvements; or 3) *regulatory alternatives* such as adopting new regulations aimed at consolidation of small non-conforming lots or requiring new conditions on future subdivisions and building construction. Findings of this phase were presented during another island-wide public workshop in March 2003. The nominal small group process was utilized at the conclusion of this workshop to allow opportunity for public

discourse on the alternatives and to characterize the relative preferences of the attending public towards the various alternatives presented. The summary results of this exercise are presented in Appendix B.

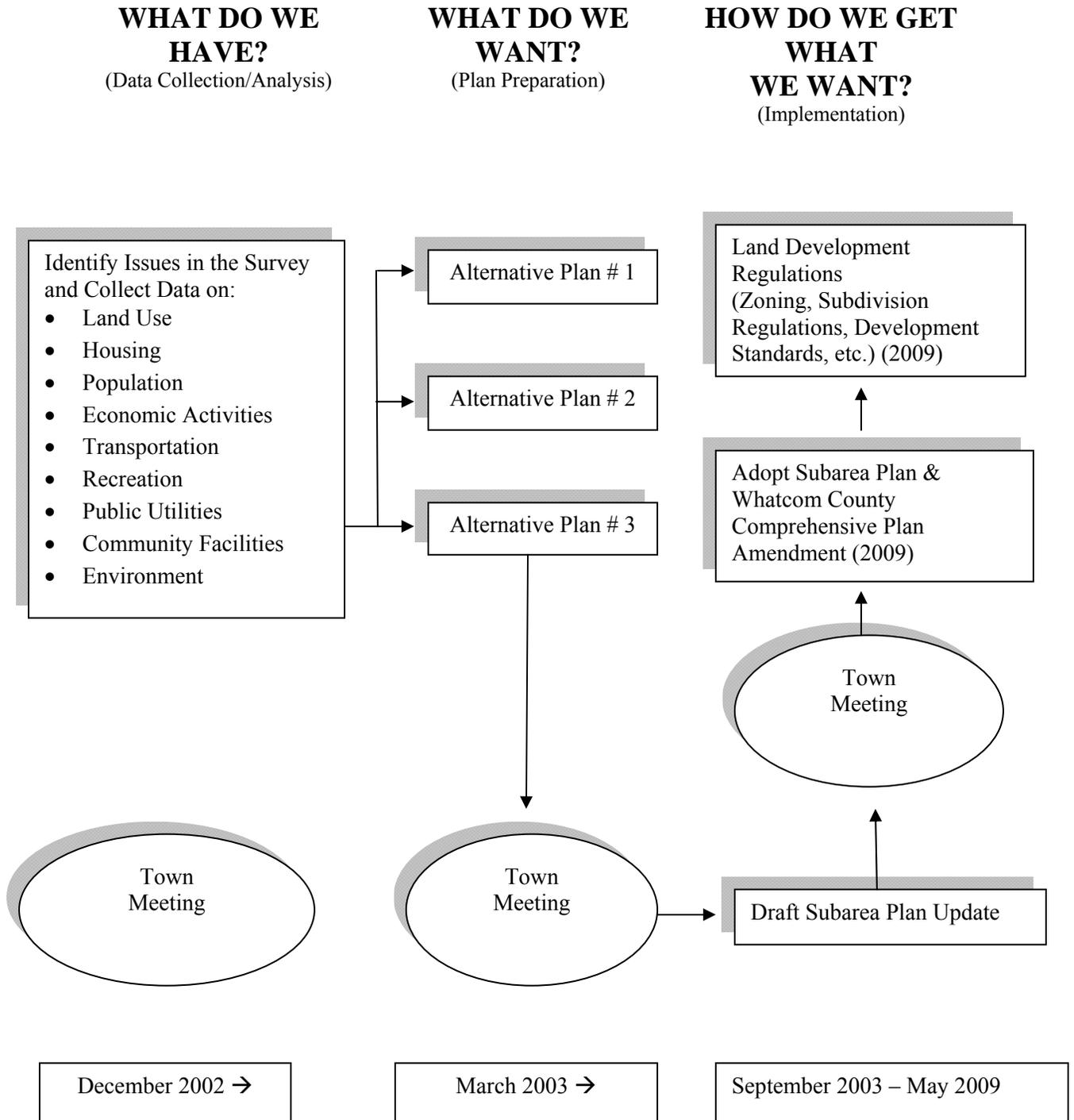
3. ***How Do We Get What We Want?***—This is the implementation phase. It brings informed consent to the Preliminary Draft Plan. It includes identification of preferred alternatives, policy directives and suggested regulatory changes needed to implement the findings of the Plan. The findings and conclusions of the Preliminary Draft Plan were presented for public review and comment during a final island-wide public workshop in September 2003. Public comment and LIPC review and comment was incorporated into a Final Draft Plan prior to submission to the Whatcom County Planning Commission for their review and recommendation to the County Council who have ultimate authority to adopt the Plan.

Additional Data Collection (2004-2006)

During May 2004 the Deputy SEPA Official withdrew the Determination of Nonsignificance based on the requirement for new information on groundwater protection, thus putting the County Council's discussion of the plan on hold.

Aspect Consulting began work on the Groundwater Study on October 26, 2005. On December 31, 2006 Aspect Consulting completed the Groundwater Investigation and proposed a methodology for aquifer protection.

**Figure 1
Lummi Island Subarea Planning Process**



Existing Conditions & Issues

Population & Housing Characteristics

History

The first permanent white settlers arrived on the island in the late 1800s. Early settlers were primarily loggers, fishermen and farmers. By the turn of the century, portions of the north half of the island were logged to create pastures for livestock grazing and fields for early farms that supported grain, potatoes, fruits and vegetables. Legoe Bay supported a plentiful and popular salmon fishery that, during its peak, supported as many as three salmon canneries employing hundreds of workers on the island. Fish traps and a fleet of purse seiners supplied the canneries until the fish traps were banned in 1935. It was then that the reef netting boats were re-established.

In the 1920s the island became a popular recreation and vacation destination for visitors from around the Northwest. Lodges and resort cabins were built to accommodate summer visitors. After World War II, the tourism trend shifted to the construction of second homes, as almost 700 lots were platted in the twenty years following the war. By the advent of the 1970s most of the resorts closed but the number of seasonal homes continued to increase and a large condominium development was built on the north side of the island. The increased rate of growth and density generated the initial concern over the island's rural character and prompted development of the first island land use plan adopted in 1979.

During the 1980s and 1990s the development trend shifted to more permanent residents with many seasonal housing units converted to year round occupancy both by retirees and working-age residents who commuted to work in Ferndale and Bellingham. The increased settlement rate placed even greater strains on the limited ferry service capacity.

In 2000 the island had a resident population of 822 and a potential peak seasonal population almost double that according to the 2000 US Census. A strong commuting population as well as small-scale agricultural industries, forestry, bed-and-breakfast establishments, artisans, a store and other trades currently comprise the economy of the island. There are no major employment-generating industries or businesses located on the island.

Growth Trends

Lummi Island experienced slow resident population growth from WWII up to 1970 even though subdivision activity was extensive during that time. Population growth lagged behind the subdivision and seasonal housing unit market heading into the 1970s. Table 1 indicates the age distribution of the island housing stock. Figure 2 exhibits the population and housing unit growth for almost the past forty years.

The surge in construction of seasonal units during the 1970s brought on the first significant visual impact of growth on the island's rural character and, subsequently, the need for the first subarea plan prepared in 1979. Overall new housing units grew at an

astonishing 3.2% annual average growth rate during the 1970s. The 1980's returned to a period of relatively slow housing unit growth (1.6% average annual growth rate). New housing starts increased again in the 1990's housing boom (2.1% average annual growth rate) as more permanent residents moved to the island which again brought up the concern over loss of rural character and the call for new subarea plan.

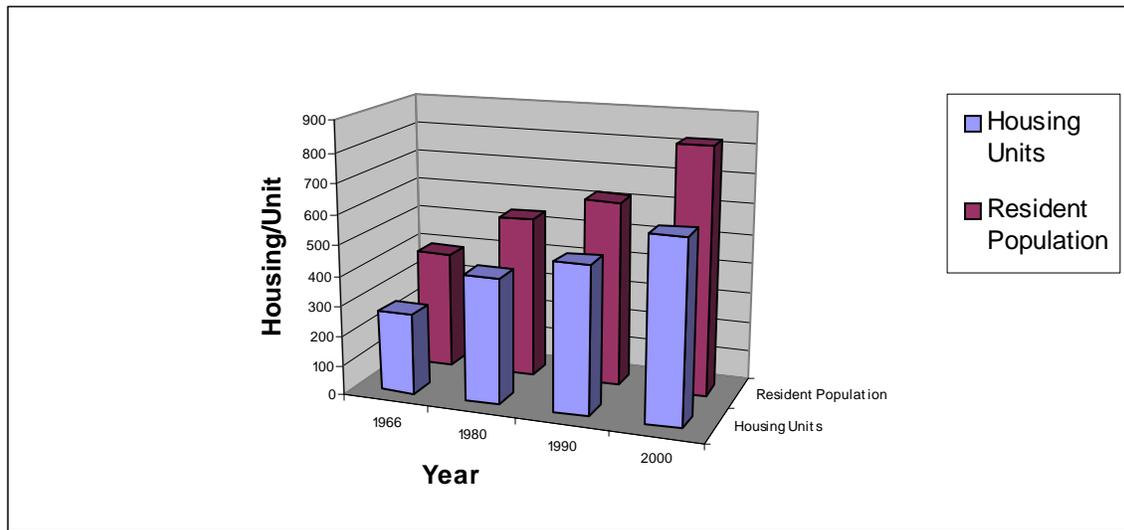
Table 1
Housing Stock Age Distribution

Year Housing Units Built	Percent (%) of Total Housing Stock
1990-2000	28%
1980-1989	12%
1970-1979	22%
1960-1969	14%
1940-1949	12%
Prior to 1940	12%

Source: Whatcom County Assessor 2002

Interestingly, as more and more undeveloped land was consumed for new housing construction, new subdivision platting activity was dropping sharply. The number of new lots created in the 1990s was half that created in the 1970s. The vast majority of new lots created were in short plats that have four or fewer lots compared to long plats having more than four lots. This is indicative both of the shrinking supply of large undeveloped tracts of land not being used for agricultural or forest resource use on the island and by groundwater constraints.

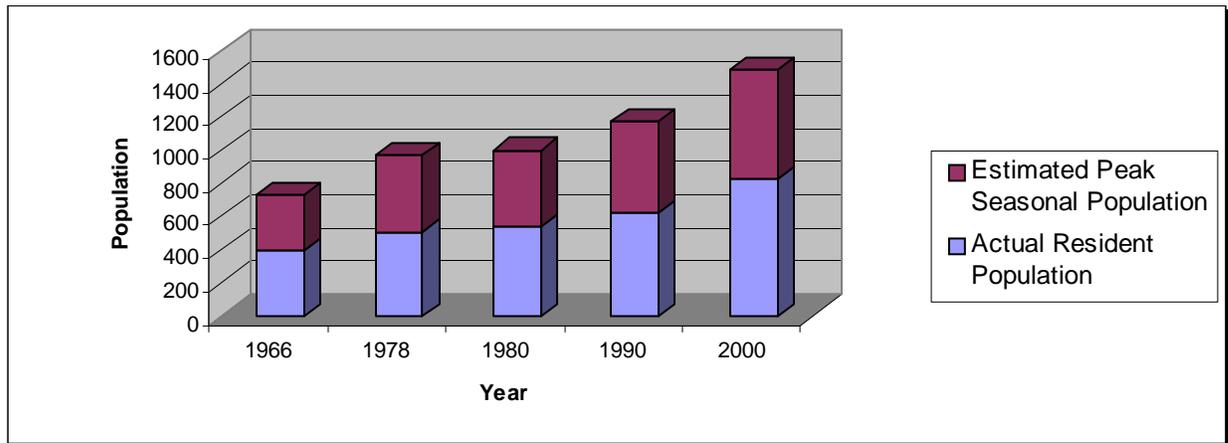
Figure 2
Lummi Island Resident Population Growth & Housing Growth (1966-2000)



The housing stock is heavily influenced by seasonal residency. Over the last thirty years housing units occupied on a seasonal or part-time basis accounted for between one-third and one-half of the total island housing stock. According to the latest year 2000 census, year-round occupied homes comprise only 55% of the total housing stock while seasonally occupied or recreational units account for the remaining 45%. Peak seasonal

occupancy occurs during the summer months (particularly weekends and holidays) when the ferry service demand far exceeds capacity and waits for ferry service can be as much as approximately 1 ½ to 2 hours. For planning purposes, resident and peak seasonal population growth trends are shown in Figure 3 and Table 2.

**Figure 3
Lummi Island Peak Seasonal Population (1966-2000)**



**Table 2
Lummi Island Peak Seasonal Population (1966-2000)**

Year	Actual Resident Population	Estimated Peak Seasonal Population	Estimated Maximum Peak Population
1966	392	335	727
1978	506	458	964
1980	538	460	998
1990	620	550	1,170
2000	822	665	1,487

The average age of island residents is increasing. Residents age 19 and under decreased from 23% of the population in 1990 to 21% today while resident's aged 55 and older increased from 29% of the population in 1990 to 31% today. The average household size is decreasing (2.1 in 2000).

Lummi Island experienced significant in-migration of resident population in last decade. 61% of residents in year 2000 lived in the same house on island in 1995—39% of permanent residents either lived in a different house on island or moved onto the island in last seven years.

In a departure from national and state trends, median incomes on island grew faster than median housing prices during the 1990s. Median home values on the island increased from \$117,300 in 1990 to \$179,900 in 2000—a 4.4% average annual increase. Median household income increased from \$25,500 in 1990 to \$42,279 in 2000—a 5.2% average annual increase.

As housing and land values increase, housing affordability is becoming a more significant problem. The U.S. Department of Housing and Urban Development generally defines housing as being “affordable” if a household spends no more than 30% of its monthly income for housing costs. The number of Lummi Island owner-occupied households who spent more than 30% of their monthly income on housing costs increased from 5% in 1990 to 34% in 2000—a startling increase reflecting the growing housing affordability gap on the island. The numbers for renter-occupied households are even higher. The rental housing market has tightened considerably in the last decade. Of all year-round occupied units, 79% are owner-occupied and 21% are renter-occupied today compared with 72% owner-occupied and 28% renter-occupied in 1990.

Even as the island is becoming more affluent, some lower income residents are leaving due to rising housing costs. 12% of the population earned incomes below the poverty level in 2000 compared with 16% in 1990. The *Lummi Island Community Land Trust* is in the process of developing a cluster housing project as one means to try and provide more affordable housing opportunities on island. The island has a relatively high level of employment self-sufficiency. Nevertheless, a greater share of the labor force works off-island today than did 10 years ago. 21% of employed residents in 2000 are self-employed compared with 29% in 1990. About 33% of residents are retired.

Future Growth Projections

Groundwater:

One of the greatest unknowns to growth on Lummi Island is the availability of groundwater in adequate quantity and quality to serve future residents. The previous subarea plan (1979) was predicated on the conservative assumption that the island’s groundwater aquifer could support a net carrying capacity of approximately 2,380 persons—not including those residents dependent upon surface water supplies (i.e., Scenic Estates). The surface water supply is estimated to be able to support a maximum potential of 1,000 persons. However, due to variations in the island’s physical geography, the availability of groundwater and surface water supplies is not distributed evenly across the island. Essentially the 2,380 capacity estimate applies to the flatter terrain groundwater-dependent north end of the island (the Rural Residential Island zone) while the mountainous southern end of the island (the Rural Forestry zone) is dependent upon surface water supplies (lakes and impoundments). In total, the previous plan estimated a total island-wide population potential at buildout of approximately 3,400 persons.

These carrying capacity estimates were derived from a water budget analysis carried out in 1978 for the island by Dr. Ronald G. Schmidt of Robinson & Noble, Inc. Dr. Schmidt’s findings were reported in *Water Resources of Northern Lummi Island* (Robinson & Noble, Inc, 1978). Dr. Schmidt estimated the amount of recoverable groundwater on a sustained yield basis based on climatic, hydrogeologic and well log data.

Dr. Schmidt's work made several critical assumptions insofar as estimating groundwater demand. Calculations of the sustained yield 2,380 ultimate groundwater-dependent population capacity assumed an average daily requirement of 100 gallons per person—while acknowledging that the national standard for such use was 150 gallons per person per day (gppd). The 2,380 population capacity figure also assumed no implementation of water resource management measures and continuation of a very low density dispersed pattern of private individual wells and only seven water associations, or public wells. At the time of Dr. Schmidt's study in 1978, there were only seven water associations on the island. In 2003 there were twenty six. However, Dr. Schmidt reasoned that the population carrying capacity could be doubled on the island with implementation of “*water resource management and engineering measures*”. Suggested measures included creation of surface water impoundments, storage reservoirs, aquifer interties, more community wells, and formation of a public water (and sewer) utility, among others. However, save for the growing number of small community water systems, there has been no significant implementation of water resource management measures or water metering on the island. *[For further discussion about the hydro-geologic assumptions used by Dr. Schmidt please refer to the Groundwater section of this chapter].*

The 2006 Groundwater Investigation by Aspect Consulting showed a vast complex of aquifers on Lummi Island, thus it is nearly impossible to determine a water budget and defined net carry capacity for the island (Appendix D). Though the water management measures as proposed by Dr. Schmidt would help in recharge of the aquifers, Aspect Consulting concluded that a proscriptive methodology for protecting the aquifers was the best immediate measure.

The 2006 Proposed Methodology by Aspect Consulting addresses both quantity and quality of water. Proscriptive measures are recommended for all new water withdrawals (Appendix C).

If the measures identified by the proposed methodology are put in place, then the aquifers on the island might be sufficient for the population projection of the next 20 years. However, given that the 2006 Groundwater Investigation by Aspect Consulting and previously reported data have determined that there already are existing and increasing problems with water quality and quantity at the present level of development, it is also recommended to immediately develop and adopt a Water Management Plan consisting of Best Available Science (BAS) water retention practices.

Population and Housing Projections (2000-2020)

Total Lummi Island population and housing projections for the period 2000-2020 are shown in Figure 4 and 4A respectively. The projections indicate a 2020 maximum peak seasonal population in excess of 2,500 (assuming full occupancy) and from about 900-1,100 total dwelling units island wide.

Figure 4
Lummi Island Peak Seasonal Population Forecasts 2000-2020

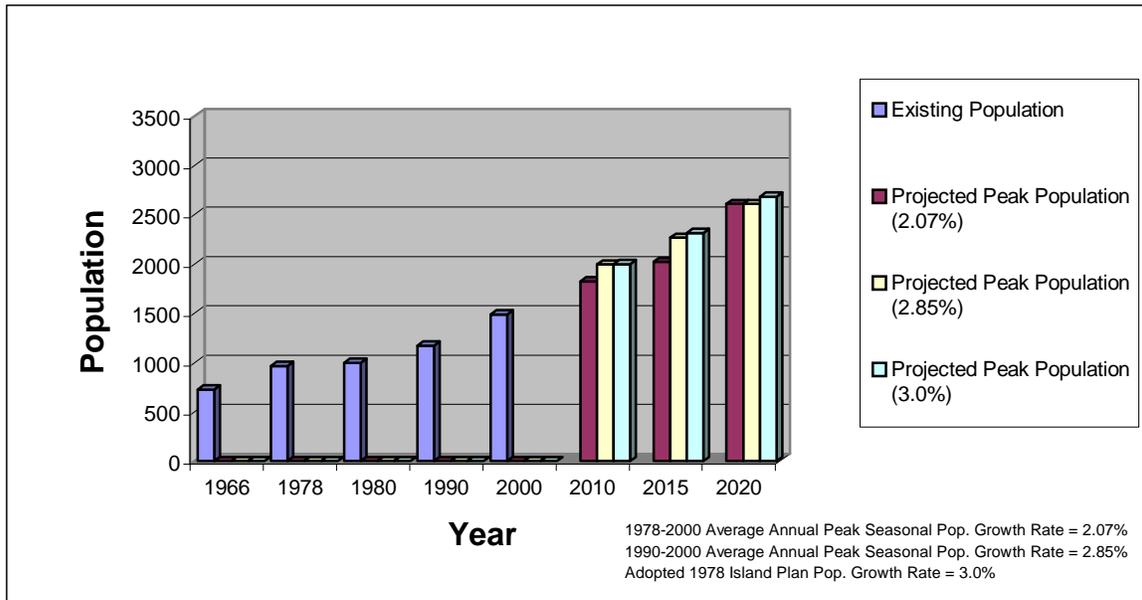
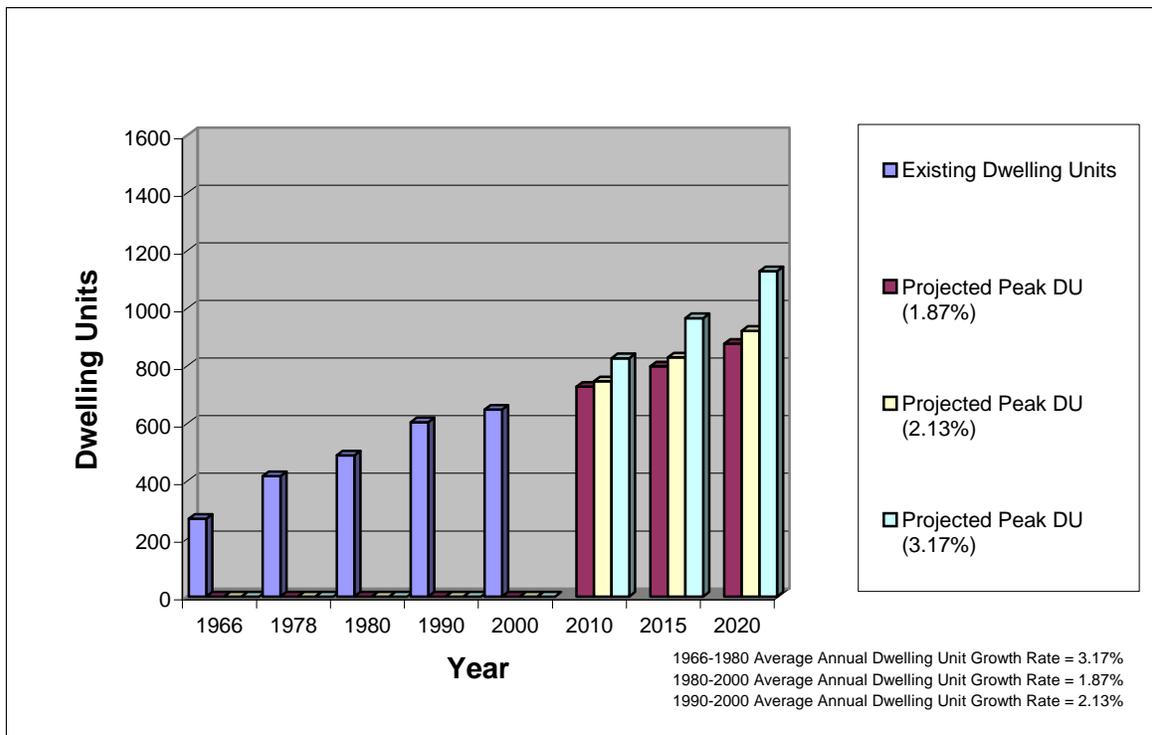


Figure 4A
Lummi Island Dwelling Unit Growth Forecasts (2000-2020)



Ferry Capacity

The ferry capacity and level of service are also important growth variables that could significantly encourage or retard future growth. In 2003 the ferry did not maintain its adopted level-of-service. The Capital Facilities Plan will need to resolve those level-of-service issues.

Nevertheless, the alternative growth projections are intended to provide the public and policy-makers with a better understanding of what future population and housing unit levels might look like in the next twenty years based on historic growth trends as well as look at the potential impacts on groundwater supply and quality, open space and rural character.

Land Use

Existing Conditions

The topography of the island has been a key determinant to its settlement pattern. The northern portion of the island is relatively low-lying and gently rolling, with elevations to 362 feet above sea level. The southern portion is mountainous with a maximum elevation of 1,665 feet. The northern end of the island is zoned Rural Residential Island (RR-I) and the southern end is zoned Rural Forestry (RF) and includes a large portion of land, which is owned by the Department of Natural Resources and the Department of Wildlife. Most of the residential population is located on the north part of the island while most of the southern part of the island is comprised of the undeveloped flanks of Lummi Mountain with the exception of the Scenic Estates subdivision.

The 1979 Plan established the Rural Residential Island (RR-I) zone with a density of one unit per five acres inside identified aquifer recharge areas and one unit per 3 acres in areas outside the aquifer recharge areas. The Rural Forestry designation allows a density of one unit per twenty acres. See Figure 6, Existing Zoning.

The RRI zone is essentially a mixed-use rural zone allowing residential and agricultural uses outright and limited commercial activities by conditional use permit. The Rural Forestry (RF) zone allows forestry practices including the operation of forestry equipment, watershed management, single family dwellings and accessory buildings, home occupations, utilities, mining and living quarters for employees.

Existing land use is predominantly residential with several large tracts still held for agricultural and grazing use and limited forest practices. Significant public land holdings on the southern end of the island are used for wildlife management. Commercial activities are most concentrated close to the Ferry Dock and include the Islander Store, Post Office, Library, Latte Dah, and Beach Café. Other commercial activities are scattered across the island and include a restaurant and inn and bed and breakfast establishments. Although most employed residents commute off-island, there are also a

significant number of self-employed residents, home-based businesses and cottage industries on the island (see Table 5 and Figure 9, page 30).

The Whatcom County Comprehensive Plan (WCCP 1997) recognizes cottage industries, home occupations, small businesses and natural resource-based jobs as the main base for rural resident’s livelihood. These are compatible with the rural lifestyle of the island.

Currently commercial development is allowed as a conditional use, in accordance to the RR-I zoning, on the northern half of Lummi Island. Cottage industries are allowed as an administrative use and are subject to requirements regarding numbers of employees, square footage limitations on the use of existing structures, location, parcel size, materials needed for the business and signage. Commercial development is restricted from being built anywhere on the northern-half of the island where the distance between the ordinary high water mark and the county road right-of-way is less than 100 feet. If the distance is 100 feet or greater, commercial uses are restricted to home occupations only, or cottage industries. All light industrial, commercial and multi-family residential uses are allowed only through conditional use permits. Stand-alone commercial uses are encouraged to locate in close proximity to the Ferry Dock or Legoe Bay.

There are also design and location considerations in the 1979 Plan that apply to commercial development. There is recognition that any form of future development should have *“a positive relationship between man-made structures and the island...and should be an important determinant in preserving the desired character and in enhancing the quality of life.”* These considerations in the conditional use application process ensure applicants are aware of design considerations that complement the current rural character of Lummi Island. Size, scale, visual appearance, view blockage, light and glare, noise, smoke and fumes are all identified as aspects that should be reviewed on proposed commercial projects.

Development Potential

To assess the pre-existing development potential of the island a buildout analysis was prepared. Buildout analysis is a tool to help understand what might happen if everybody developed their property to the maximum density allowed under the current zoning code. The analysis examined developed, undeveloped and underutilized lands on the island to ascertain the remaining development potential. The results are illustrated in Figure 7 and in Table 3.

**Table 3
Lummi Island Buildout Analysis (Pre-Existing Zoning)**

	Existing DU*	Potential Additional DU	Potential Buildout DU
RRI - 3 ac.	427	445	872
RRI - 5 ac.	133	118	251
RF	83	340	423
	643	903	1,546

Notes: *Based upon Assessor Land Use Code and Improvement Value

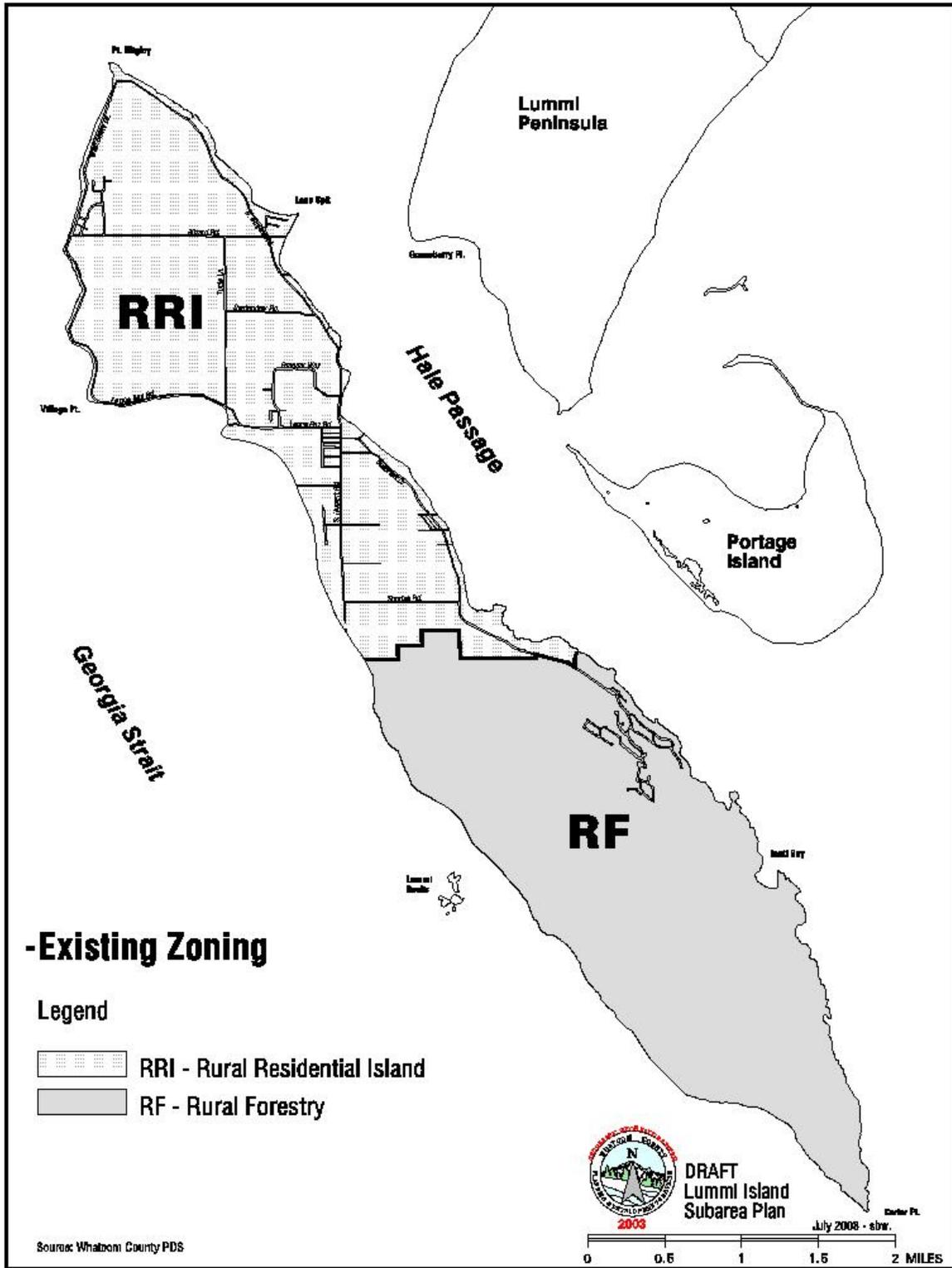


Figure 5 – Existing Zoning

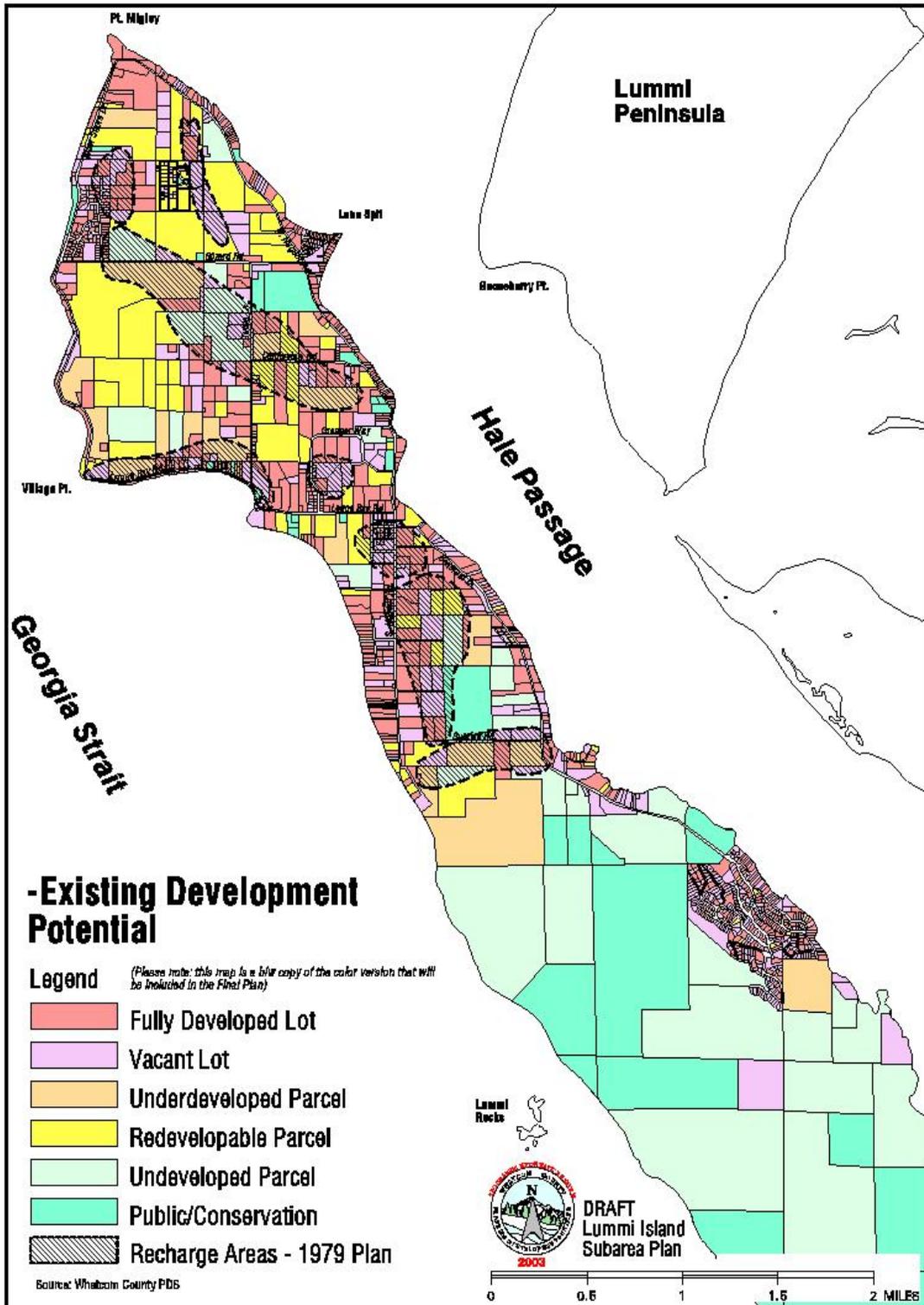


Figure 6 – Existing Development Potential

The analysis indicates that potential buildout under pre-existing zoning is approximately 1,546 dwelling units or about 3,247 residents. Meaning that under current zoning the island could accommodate more than double the number of existing housing units and up to four times the current population. The potential buildout of northern Lummi island alone (based on 1978 groundwater carrying capacity estimates) is 1,123 dwelling units or about 2,358 persons.

In 2003, the entire island was at 42% of zoning buildout potential. The North Island (RR-I zone) was at 49% of potential buildout based upon current zoning. These two buildout scenarios provide a reference point for examining future growth management strategies. Whether one sees the development “glass” as half-empty or half-full, the potential threat to rural character is evident.

Rural Character

Rural character is a sometimes hard to define concept but it is often remarked that “*you know it when you see it*”. The Growth Management Act [at RCW 36.70A.030] defines it this way:

*“**Rural character**’ refers to the patterns of land use and development established by a county in the rural element of its comprehensive plan:*

- (a) In which open space, the natural landscape, and vegetation predominate over the built environment;*
- (b) That foster traditional rural lifestyles, rural-based economies, and opportunities to both live and work in rural areas;*
- (c) That provide visual landscapes that are traditionally found in rural areas and communities;*
- (d) That are compatible with the use of the land by wildlife and for fish and wildlife habitat;*
- (e) That reduce the inappropriate conversion of undeveloped land into sprawling, low-density development;*
- (f) That generally do not require the extension of urban governmental services; and*
- (g) That are consistent with the protection of natural surface water flows and ground water and surface water recharge and discharge areas.”*

Several surveys were conducted leading up to the preparation of this Subarea Plan that specifically looked at the issue of rural character on Lummi Island. The first of these was a *Visual Preference Survey* prepared by planning students from Western Washington University and published in the *Lummi Island Rural Character Study* (2002). The second was the *Lummi Island Planning Survey* conducted in 2002 by the LIPC.

Respondents to the *Visual Preference Survey* indicated very strong preferences for landscapes and roads with open spaces and woods, modest “non-suburban subdivision style” housing set naturally into the environment with small stores and farms, and an absence of suburban “amenities” such as commercial strip malls.

The *Lummi Island Planning Survey* indicated that the majority of residents wanted to see slower growth than that experienced in the 1990s. The Survey also asked several specific questions about rural character; including the following (answers are in percentages of total respondents):

- How valuable to you are the following aspects of the Island's *rural character*?

	<i>Very</i>	<i>Somewhat</i>	<i>Not at all</i>
a. Rural character of roads	68	21	10
b. Small scale of public and commercial enterprises	65	27	8
c. Unhurried pace of life	75	19	6
d. Sustainability of resource-based enterprises	50	38	12
e. Sense of privacy	79	19	2
f. Housing & landscaping appropriate to rural community	61	27	12

- The current 1979 land use plan relies heavily on water availability as the primary tool for managing growth. Which of the following factors do you think should be considered as management tools in forming the *new* land use plan? (*Mark all that you support*)

a. Water quality and quantity.	90
b. Transportation time and costs (roads, ferry, etc.).	52
c. Economic or market forces	13
d. Maintaining rural character of the island.	77
e. Maintaining a strong sense of community.	48
f. Maintaining healthy natural environment and wildlife habitat	78
g. Commercial opportunities	10

Results from these two questions reinforce the importance of protecting the island's rural character. In the first question, respondents overwhelmingly found the attributes of rural character on the island to be of very high value. As seen in the latter question, maintaining that rural character ranks a close third in importance only to protecting water quality and quantity and maintaining a healthy natural environment as the foundation for this Subarea Plan.

Elements of Rural Character

Open Space—Open space areas are used both for human purposes such as agriculture, forestry, and passive recreation, as well as natural purposes such as wildlife habitat, groundwater recharge, and connection of critical areas. According to the *Lummi Island Planning Survey*, loss of open space is perceived by Lummi Islanders as a significant adverse impact to the quality of life. Lummi Island residents value natural landscapes with little development.

Areas suitable for open space include wetlands and ponds, undeveloped shorelines, woodlands, portions of larger lots with little or no built structures, and agricultural lands. Open space provides important habitat for plants and animals. Recreational open space such as trails provide peace of mind and contributes to the rural character of the island.

Many people live on Lummi Island because of open space amenities and want to maintain and protect these areas. Table 4 indicates the existing open space inventory on the island.

A variety of methods act to encourage the retention of open space. These range from regulatory restrictions to incentives and public land purchase. Under the provision of the Open Space Taxation Act (RCW 84.34), Whatcom County provides for an equitable tax climate for rural landowners by designating “Open Space” farms, forests, and beneficial open lands upon request by individuals landowners when such land meets adopted criteria and policies.

Table 4
Lummi Island Open Space Inventory (as of 2003)

Open Space Classification	Acres	% of Total Land Area
<i>Protected Open Space Ownership</i>		
Lummi Island Heritage Trust (LIHT) Owned	48	.84%
Lummi Island Heritage Trust Preserves	106	1.86%
LIHT - Private Conservation Easements	158	2.77%
Salvation Army	32	.56%
WA Dept. of Fish & Wildlife	611	10.73%
WA Dept. of Natural Resources	652	11.45%
United States	50	.88 %
Sub-Total	1,657	29.1%
<i>Current Use Taxation</i>		
Open Space Agriculture	452	7.94%
Open Space/Open Space	189	3.32%
Open Space/Timber	106	1.86%
Designated Forest	1,103	19.37%
Classified Forest	920	16.15%
Sub-Total	2,770	48.6%

Note:* The overlap in Open Space is as follows: LIHT has 144 ac. in current use taxation; LIHT (Conservation Easements) has 104 ac. in current use taxation; WA Dept. of Fish & Wildlife has 114 ac. in current use taxation

Almost one-third of the island has some form of permanent open space protection in the form of either public or non-profit organization ownership (Figure 7). Most of the public lands on the island that comprise the largest blocks of open space (i.e., DNR and WDFW lands) are located on the mountainous southern less-populated end of the island. While most of the conservation easements and *Lummi Island Heritage Trust* owned or managed parcels are found in the more populated northern part of the island. The *Heritage Trust* is a private non-profit conservation organization dedicated to preserving open space on the island. It provides conservation easements and manages donated lands for conservation purposes on the island. Almost one-half of the island land area is enrolled in the county’s open space tax program providing public open space benefits and/or private property tax benefits.

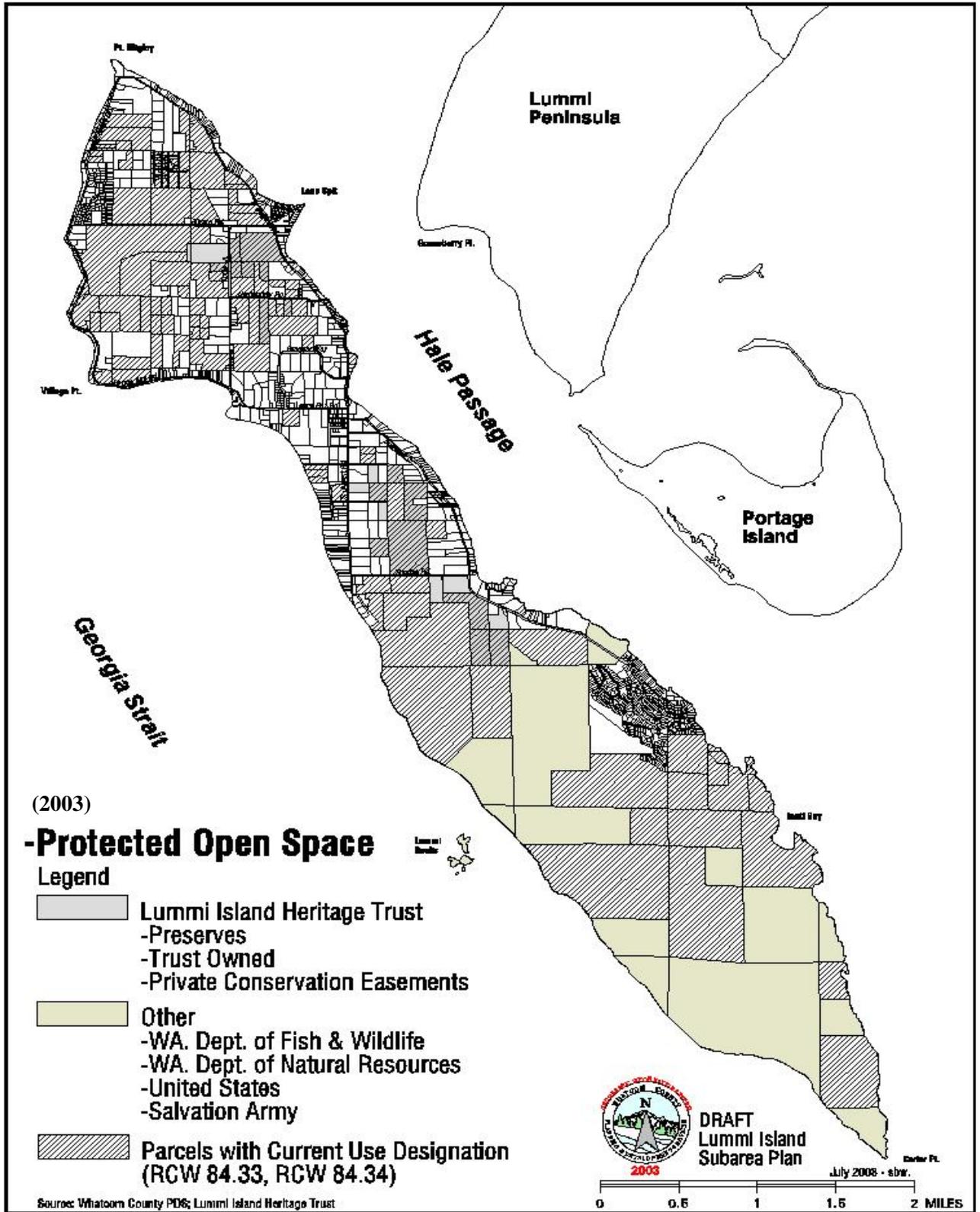


Figure 7 – Open Space

However, this program does not offer permanent open space protection as property owners can always “opt-out” of the beneficial assessment.

Environmentally Sensitive Areas—Freshwater and saltwater wetlands, natural shorelines, groundwater aquifers, steep slopes and geologically hazardous areas, and fish and wildlife habitat areas are all examples of environmentally sensitive areas present on Lummi Island. On Lummi Island most of these lands remain undeveloped and rural in character. The *Lummi Island Planning Survey* reported that 78% of respondents identified maintaining a healthy natural environment and wildlife habitat as an important goal for this Subarea Plan.

Prime Agricultural Soils—Agriculture is practiced on the island and there are extensive areas containing prime agricultural soils. Some of those acres are being actively utilized for agriculture, other areas remain largely undeveloped or subject to residential development, and some have become primarily residential lots. Prime agricultural soils on Lummi Island identified by the U.S. Department of Agriculture are shown on Figure 8.

Agricultural Resource Lands—On the north end of Lummi Island there is a significant amount of high quality agriculture soil. To the fullest possible extent, land with such soil should be preserved for future agricultural uses. Although property values on the island are high, land leased for agricultural use is economically viable.

Agriculture has been an important activity on Lummi Island since the arrival of the first Europeans. Early on, a considerable amount of land was acquired from the Federal Government for the purpose of grazing sheep (in 1875, one farmer reported having 700 head). For several years, fruit production (berries, cherries) was important, a considerable amount of cattle have been run on the land, and several dairies have operated there. For a number of years the raising of chickens for meat and eggs was a very important business for islanders. An idea of the scale of operations can be obtained from a 1937 Lummi Island directory that lists 7 dairies and 10 poultry breeders.

Today, sheep and cattle are being raised on several farms. Eggs can be had from several sources. Two farms produce a considerable amount of produce. A community garden has been established and is progressing well.

Activities that Foster Traditional Rural Lifestyles and Rural-Based Economies—The LIPC conducted an assessment of economic activity on the island to help define the broader aspects of the island’s rural character. A wide range of activities were identified—many traditional some, perhaps, not so traditional—that provide opportunities for rural residents to both live and work on the island. The survey found well over 100 distinct economic activities occurring on island. More than three-quarters of all island-based economic activities were comprised of three main types: home-based businesses; followed by artisans (artists and craftsmen); and building trades (contracting and construction). Many of these activities, however, include off-island business. Most of

the on-island activities occur either in the primary residence or in associated outbuildings, garages, shops, studios or barns.

Areas of traditional small-scale natural resource related agriculture, fishing, mineral resources, and forest practices activities are also found on the island—ranging from animal husbandry and small farms growing specialty crops to commercial fishing operations, rock quarrying, and small logging activities. Limited tourism-based activities are also found on island, including two restaurants, an inn and bed and breakfast establishments.

The *Visual Preference Survey* conducted by Western Washington University indicated that islanders rated small-scale agricultural and fishing activities among the most highly valued rural characteristics on the island. Although the size and quantity of productive farms and farmland may have decreased in the recent past, farmland is still utilized and valued as a major component of the island’s rural character. In 2003, there were about a dozen diverse small-scale farms on the island, that are used for cattle and other livestock, chickens, eggs, grapes, vegetables, and flowers. The seasonal fishing settlement of Legoe Bay includes marine rail haul outs for fishing boats with boats and reef-net fishing gear set close to the beach and an old marina and associated buildings. Legoe Bay is also home to small-scale resident commercial fishing operations.

The broad range and location of island-based economic activity speaks to the independent nature of island residents—as many as one-third of all households were self-employed in 2003, see Table 5 and Figure 9. It also speaks to the need for both business and residential property owner to be “good neighbors” to implement effective yet efficient development regulations to promote harmonious development. Interestingly, neither the *Planning Survey* nor public testimony during the planning process indicated any significant incompatibility issues regarding residential development and island-based economic activities.

Very Low Density Residential Development—Lummi Island is primarily a rural residential community that highly values the independence, privacy and remoteness that comes with living on an island. Most of the north island remains rural with a settlement pattern of one unit per three or five acres; however, there are some areas that have already developed a suburban rather than rural character. These include higher density developments approved prior to the advent of the Growth Management Act such as the Beach Club Condominiums, Scenic Estates, Lane Spit, and Isle Aire. In other areas shorelines have been densely developed on old small non-conforming lots—often less than an acre—with little sensitivity to the natural setting or critical areas. Much of the current planning effort, therefore, focused on maintaining rural character on the remaining larger undeveloped tracts of land. Yet at the same time the potential threat to rural character from incremental buildout of the hundreds of remaining small non-conforming lots remains an important issue. The visual and functional impact of development on rural character is evident too as rural and natural vegetation (e.g., pastures, hedgerows and forests) are being replaced with houses and lawns.

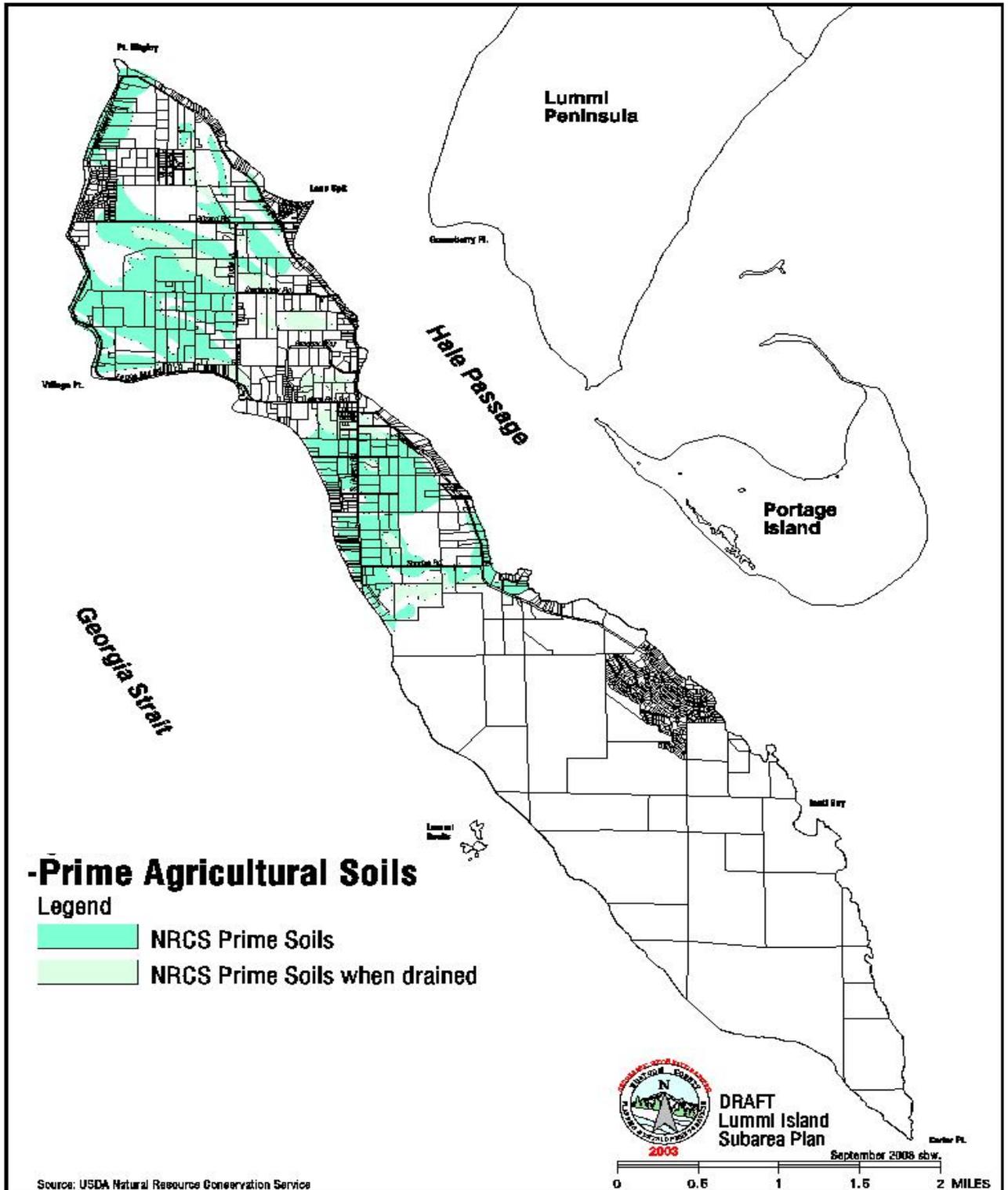
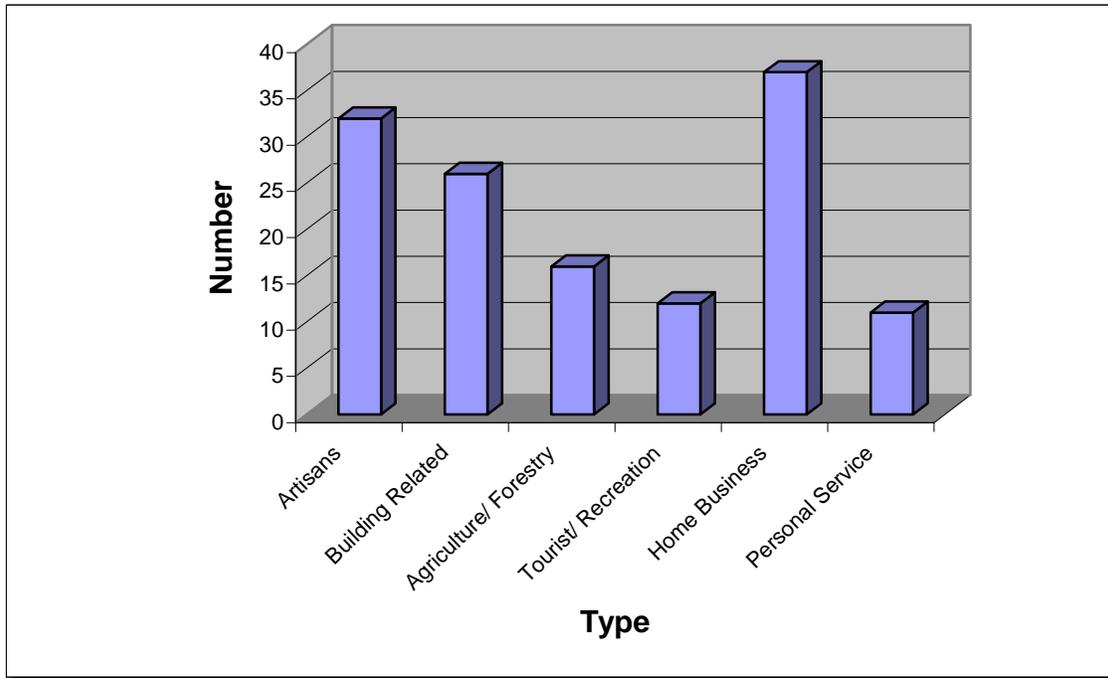


Figure 8 – Prime Agricultural Soils

**Table 5
Lummi Island Economic Activity by Location (2003)**

	Artisans	Building Related	Agriculture/ Forestry	Tourist/ Recreation	Home Business	Personal Service	Total by Area
Centerview Extension	1	1	1				3
Tuttle & Blizzard (dirt)	2	3		2	1		8
Tuttle & Sunny Hill	2	3	2	1	6	1	15
Centerview	1	1	4		2		8
N. Nugent	2	2	1	1	3	1	10
Isle Aire & area	2	2			1	1	6
W. Shore Dr.	1	5	2	2	2		12
Legoe Bay Rd.	4		1	2	4		11
Constitution & area	5	1	2		4		12
S. Nugent & area	7	3	1	3	7	8	29
Granger Way; Orcas	1	2	2		2		7
Seacrest		1			2		3
Scenic Estates	4	2		1	3		10
<i>Totals by Type</i>	32	26	16	12	37	11	134

**Figure 9
Number of Economic Activities by Type (2003)**



Historic and Culturally-Significant Buildings and Sites—The island has a rich and varied history of settlement and economic use. Many of the historic remnants of the past such as canneries, homesteads, lodges, native spiritual and burial sites, and civic buildings remain in some form today, either as structures, sites or places of historical interest. The *Lummi Island Rural Character Study* documents many of these sites as important components of the island’s rural character. Figure 10 indicates the island’s important cultural and historic sites.

Five historical sites are legally recognized on the island. The Beach Store is listed on the Washington State Historic Registry. The Whatcom County Registry includes the Carlisle Cannery, the Coxan House (locally known as the “Rat Palace”), the Beach School, and the Lummi Island Congregational Church. There are no sites on the island currently listed on the National Register of Historic Places.

Rural Roads—The island’s public roads are built to rural standards in most areas—meaning narrow two lane asphalt roads with no shoulders. The road system provides an efficient but scenic transportation network for movement around the island. In many cases, vegetation and trees grow close to the road creating an aesthetic canopy effect. The roads also offer some of the best “public” views of the surrounding shorelines and Puget Sound, especially since there is so little public shoreline access on the island. Speed limits range from 25-35 miles per hour across the island encouraging a slower travel pace that reflects not only the road design but allows residents and visitors to enjoy the surrounding rural landscape. However, localized bursts of speeding traffic are not uncommon. There are safety concerns in some areas due to limited site distances from intersections, erosion, drainage ditches, and obstructions placed on shoulders and rights-of-way, and speeding traffic. In addition, bicyclists must use the vehicle travel lanes due to the lack of shoulders. In the absence of significant public trails on the island, many residents use the roads for walking and jogging trails which can also be a safety issue, especially at night and where the road shoulders are inadequate (width and slope) for walking or even standing. The County still owns right-of-way of a few county “road ends” that could be incorporated into new public beach access points.

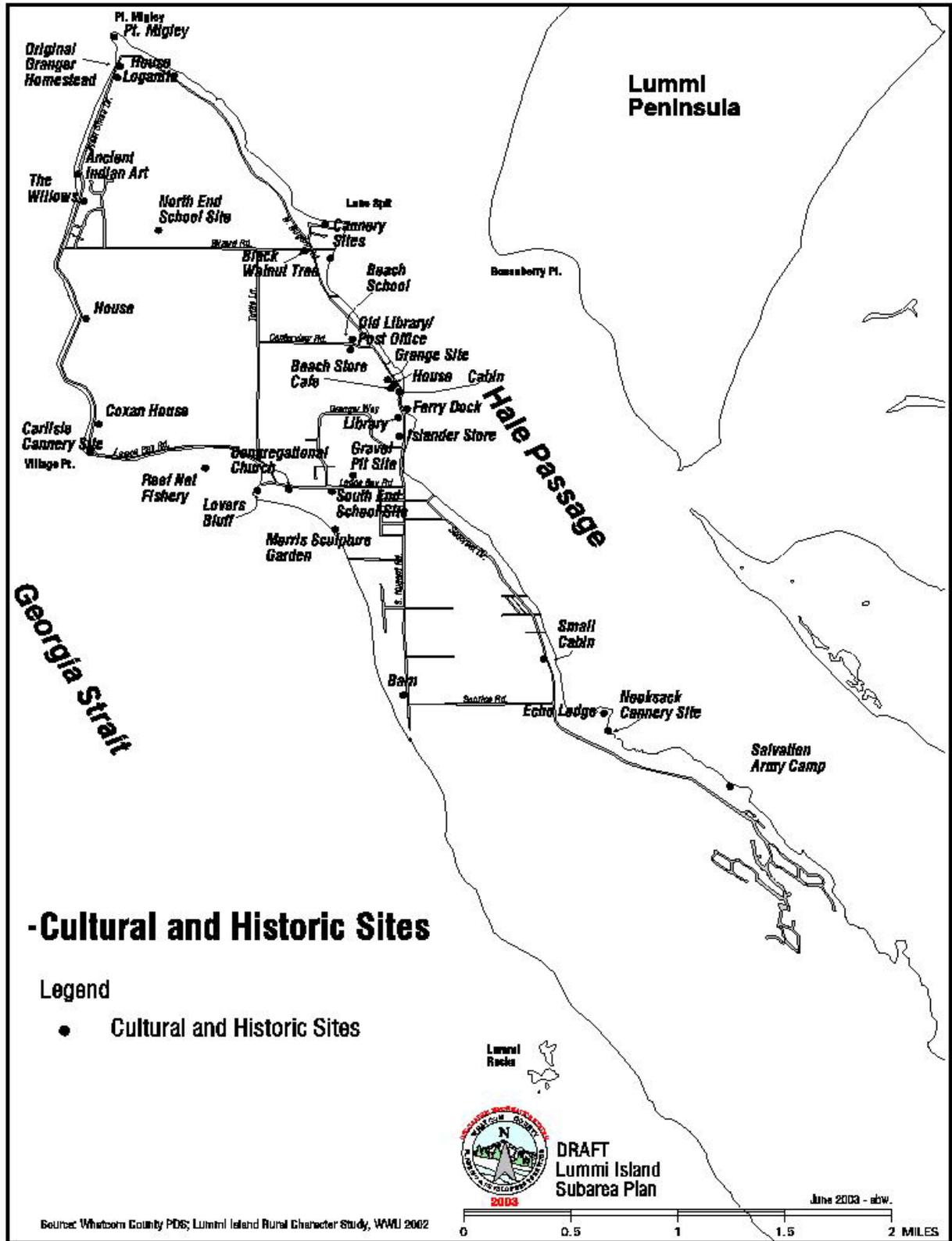


Figure 10 – Cultural & Historic Sites (2003)

The 1979 Plan and Protection of Rural Character

The 1979 Plan was based upon two main goals:

- Preservation of open space and rural character; and
- Protection of groundwater resources

The 1979 Plan and subsequent zoning for the island assumed that the minimum/maximum density of 1 dwelling unit/3 acres outside of aquifer recharge areas and 1 dwelling unit/5 acres inside recharge areas was adequate to protect the rural character of the island. The Plan anticipated the island would be able to maintain its rural character even while accommodating a 3% average annual population growth rate. It also assumed that clustering and shoreline management regulations would serve to preserve the island's rural character.

Development regulations put in place to implement the 1979 plan included:

- 3 acre zoning (outside of mapped aquifer recharge areas) in the RR-I zone which covered the majority of the northern part of the island;
- Density transfer (i.e., density averaging on parcels partially in/out of recharge areas) effectively allowing density bonuses on affected parcels;
- Cluster subdivisions with only 30% required open space outside of recharge areas and 55% open space inside recharge areas and no requirement for permanent dedication of the open space;
- Accessory Dwelling Units (ADU's) allowed subject to underlying density; and
- Pre-1978 platted non-conforming lots—most less than an acre in size—recognized as legal lots of record and exempt from lot consolidation requirements.

In hindsight, some of these implementation measures may have done more to hasten the demise of rural character on the island rather than protect it.

Building new homes visually impacts rural character on a permanent basis—whether those homes are occupied year round or seasonally—but the most significant impacts to groundwater occurs when the seasonal units are occupied during peak periods and when those units are converted to year round homes. This suggests that density alone may be too blunt a tool to protect both rural character and groundwater. The increased resident settlement rate in the 1990's suggests even greater pressures in the future on both rural character and groundwater resources.

Other techniques may be necessary to protect the long-term rural character of the Island. The LIPC considered ideas such as:

- Density reductions (i.e., downzoning)
- Lot consolidation for small non-conforming lots

- Rural design standards as potential means to ensure the long-term rural character of the island
- Purchase/transfer of development rights to preserve open space
- Allocating new development based on a sustainable annual growth rate over the next twenty years

Groundwater Resources

Groundwater recharge areas were originally established in the 1979 Plan based on hydrogeologic studies in the late 1970's (see *Water Resources of Northern Lummi Island* (Robinson & Noble, Inc, 1978). Lower densities were assigned to recharge areas as a means to protect the groundwater quality and quantity. There has been a significant increase in the number of private wells since 1979. However, there has been no analysis of groundwater levels or recharge potential since 1979.

There has been more recent analysis of groundwater quality indicating increasing rates of dry wells (*V. Armfield, personal communication, August 2003*) as well as arsenic contamination and saltwater intrusion in island wells (*P. Chudek, Whatcom Co. Environmental Health, August 2003, Aspect Consulting 2006*). Whatcom County Environmental Health Department has enacted more stringent standards for arsenic treatment in new wells. Whatcom County should pursue research and grants to fund additional groundwater studies including analysis and mapping of individual drainage basins for groundwater levels, recharge potential, threats analysis and protection recommendations.

Public Water Associations serve more than two connections and withdraw significantly more groundwater per well than individual systems but are also subject to higher water treatment standards. Group A systems have 15 or more connections or serve 25 or more persons per day. Group B systems have 3-15 connections and serve less than 25 people per day (Figure 13).

In 1979, there were seven (7) "Public" Water Associations (Group A and Group B systems). In 2002, there were twenty-six (26) "Public" Water Associations (Group A and Group B systems). The island experienced an almost four-fold increase in the number of high capacity wells pumping groundwater out of the aquifer in the last twenty years.

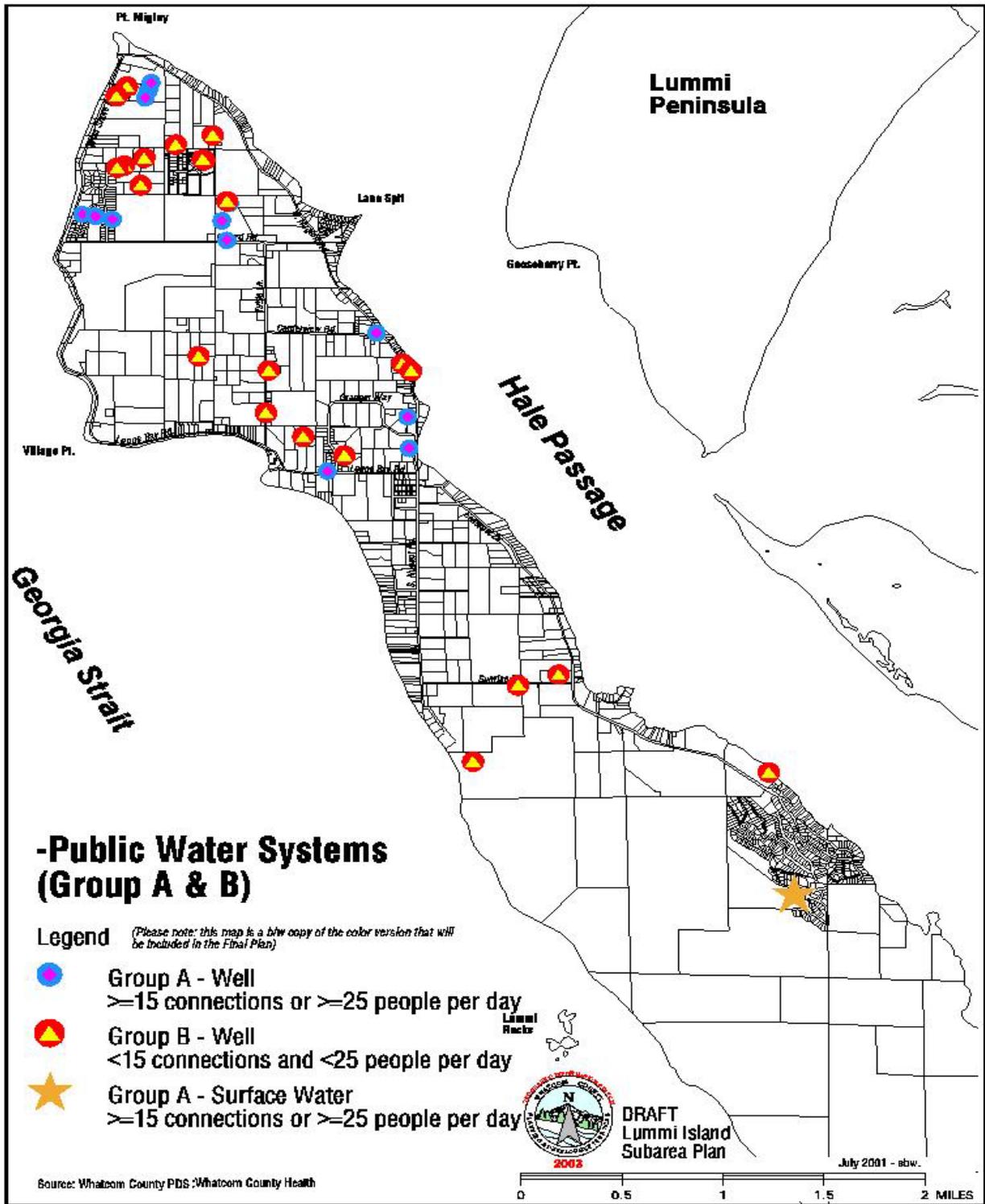


Figure 11 – Public Water Systems (2003)

Groundwater Aquifers and Best Available Science

The original groundwater carrying capacity estimates for the island were developed during hydro-geologic studies conducted in the late 1970s by Dr. Ronald Schmidt of the consulting firm Robinson & Noble. The estimates are contained in the report *The Water Resources of Northern Lummi Island* (1978) and reflect certain assumptions regarding best available science at the time. Lacking comprehensive data, Schmidt himself noted in his study that some of his assumptions regarding the island's water budget were preliminary and should be reevaluated when more comprehensive data became available. Some have noted that Schmidt's estimates of groundwater carrying capacity, for example, do not take into account the effect of drought conditions, and may, in fact, overestimate groundwater carrying capacity. Recent review of Schmidt's 1978 study by geologists from Western Washington University also cast doubt as to the veracity of the conclusions reached regarding designation of aquifer recharge areas and groundwater capacity and recharge rates. A recent analysis of the methodology utilized by Schmidt in his 1978 study was conducted by William Sullivan (WWU) in a report entitled *Overview Lummi Island Groundwater Study* (2003). Sullivan writes:

“Unfortunately, Schmidt was unable to identify hydrostratigraphy, delineate aquifers, or provide reliable static water levels. It appears that Schmidt used a topographic map to estimate well-head and aquifer surface elevations, introducing large errors into his aquifer surface map. [His] mapping of aquifer recharge zones is generalized because he used only data from his aquifer surface map. The water budget conducted by Schmidt is based only on climatic data. Soils, geologic, and land cover data that could be used to better quantify [evapotranspiration], infiltration and runoff were not available.”

It is also interesting to note that the aquifer recharge areas identified by Schmidt in the 1979 subarea plan—that came to form the basis for the 5 acre/3 acre recharge/non-recharge area split zoning on the northern part of the island—are inconsistent with the critical aquifer recharge areas (CARAs) mapped on the island utilizing the criteria established in the Whatcom County Critical Areas Ordinance (CAO). See Figure 12. According to the CAO, designated CARAs may comprise a much larger percentage of the north island than the aquifer recharge areas identified under the 1979 subarea plan.

Some data pertaining to groundwater quality is available from a report entitled *Lummi Island Groundwater Study* (1994) prepared by the Whatcom County Environmental Health Department and the Washington State Department of Ecology. That report indicates an increasing presence of chlorides (at levels in excess of 100mg/l) in some shoreline wells (from seawater intrusion) and naturally-occurring arsenic levels in some wells scattered across the north part of the island. However the 1994 study made no effort to quantify a water budget for the island or aquifer capacity or recharge rates. Analysis by Dr. Schmidt of 1978 well surveys found only one well on the island with high chloride levels at that time.

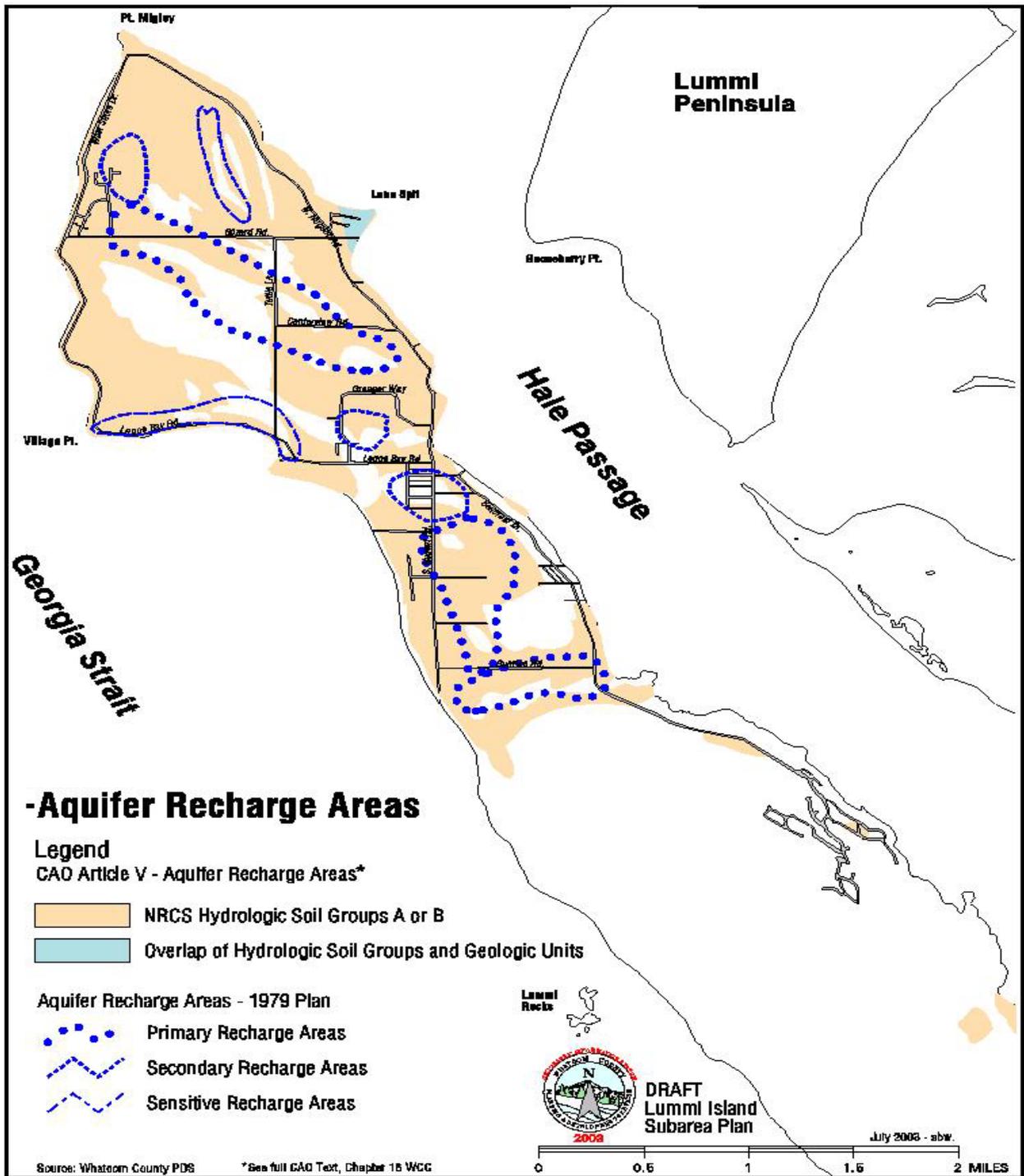


Figure 12 – Out of Date Aquifer Recharge Areas from the 1979 Plan

A similar survey conducted by Whatcom County Environmental Health in 2003 found seventeen (17) wells subject to serious saltwater intrusion.

Further development on the northern half of Lummi Island will result in a declining water supply. Both local residents and the Whatcom County Environmental Health Department have documented increasing numbers of dry and low-producing wells (*personal communication, V. Armfield and P. Chudek, August, 2003*). With increased development comes the addition of new impervious surfaces including roads, driveways, and roofs that replace the vital vegetative cover that helps retain the rainwater for infiltration and aquifer recharge and holds the soil in place. There are also threats to groundwater quality that must be addressed. The ground water is recharged by precipitation and surface water seeping directly into the ground. Contamination of ground water including improper use of pesticides can be a major threat to potable water sources. Septic tanks that are not properly maintained can also contribute to major degradation of ground water quality.

Increased demands on the current water source from development and well pumping are also likely to contribute to increased levels of saltwater intrusion. Seawater intrusion is the movement of seawater into fresh water aquifers. The causes of seawater intrusion are known to be from a decrease in ground water levels. The ground water level can be lowered from reduced precipitation or less ground water recharge due to removal of natural groundcover and more intense development. For example, development projects that include impervious surfaces, such as paved driveways and roads; prevent rainwater from draining directly through the soil into the aquifer. Water generated from impervious surfaces is usually collected in a drainage “ditch” and may discharge directly into the saltwater without having a chance to be fully absorbed on the land. Such activities, can cause a lowering of the groundwater level by reducing the amount of fresh water recharge in lower proportion to the pumping and withdraw rates. Areas closer to saltwater sources, such as shorelines, are at higher risk. Pumping a well or wells can also cause a local decline in the ground water level in the immediate vicinity of the pumped well and may cause local seawater intrusion or affect the quality of the water at nearby well sites. The proposed methodology by Aspect Consulting should lessen the effects of withdrawals by new wells.

Freshwater is a finite resource on Lummi Island. Rainfall—which averages 32” per year—is the only source of water supply for the island. Total rainfall can vary widely across the island, however, and drought years can exacerbate water supply problems. Alternative public water supply sources such as a pipeline from the mainland or a regional seawater desalination plant are not presently feasible. The lack of a reliable and thorough understanding and estimate of current groundwater conditions on the island, the indications of increasing groundwater quality degradation, and the inconsistency between aquifer recharge areas identified on the island under the 1979 plan and in the more recent CAO suggests that a conservative approach be taken to allocating future land use until a more thorough groundwater evaluation can be completed.

On May 12, 2004 the Deputy SEPA Official required a groundwater study to mitigate the impacts of new wells, specifically for seawater intrusion and arsenic concentrations.

Whatcom County hired Aspect Consulting (including William Sullivan) to perform the investigation and make a recommendation as to a methodology for protection of the Lummi Island aquifer system. On December 31, 2006 Aspect Consulting concluded the groundwater study for North Lummi Island. As stated in the Executive Summary:

“The purpose of the Lummi Island Groundwater Study is to develop standards and policies for island groundwater development that are protective of the groundwater resource, natural environment, and human health. This memorandum summarizes conceptually a set of requirements the County can consider implementing to achieve this objective. The methodology stems from a hydrogeologic investigation of Lummi Island (Aspect Consulting, 2006b) and is based on an antidegradation standard for the aquifer. Table 1 summarizes the conceptual methodology for evaluating groundwater withdrawal proposals.”

The December 31, 2006 *Conceptual Methodology for Evaluating Groundwater Withdrawal Proposals on North Lummi Island* by Aspect Consulting is attached as Appendix C. The hydrogeologic investigation completed by Aspect Consulting on December 31, 2006 is attached as Appendix D.

Critical Areas

Environmentally sensitive areas (or critical areas) are usually associated with valuable ecosystems, wildlife habitats or natural hazard areas. The Growth Management Act (GMA) identifies critical areas that include: wetlands; areas with critical recharging effect on aquifers used for potable water; fish and wildlife habitat conservation areas; frequently flooded areas and geological hazardous areas.

The GMA requires Whatcom County to identify and manage critical areas in such a manner as to prevent destruction of the resource and reduce potential losses to property and human life. The Critical Area Ordinance (CAO) (Title 16 WCC) is the primary regulatory tool that implements the critical area protection requirements of the GMA. Balancing private property rights with the need to protect environmentally sensitive areas is an important goal of the Subarea Plan. Land development on and around critical areas should be discouraged. Development should be discouraged in known natural hazard areas and environmentally sensitive areas in order to minimize potential loss of life, damage to property, expenditures of public funds and degradation of natural systems.

Wetlands

Wetlands are an abundant and crucial environmental feature on Lummi Island. Wetlands provide invaluable functions for fish and wildlife habitat, aquifer recharge, groundwater storage, erosion control, and stormwater containment. Growth may significantly reduce

and degrade natural systems like wetlands. For example, development on or around wetlands can cause incremental loss of wetland values and functions over time.

Development that avoids wetland loss altogether is most preferred. Where unavoidable, loss of important wetlands due to development should be contingent upon full mitigation measures that equitably compensate for wetland function lost. Property rights and public services are an essential component of the county's political and economic system. Where such rights and public services are significantly compromised by the goal of wetland preservation, adverse wetland impacts may be permitted through mitigation. This may include restoration, enhancement, creation, or off-site compensation for loss of wetland functions.

Ground Water Recharge Areas

Regulating land use can protect Lummi Island's ground water recharge areas and water supply. Ground water is recharged by precipitation and surface water seeping directly into the ground. Contamination of ground water is a major threat to potable water sources. Potential groundwater contamination threats include, but are not necessarily limited to, over pumping, hazardous chemical spills, agricultural inputs such as fertilizers and improper use of pesticides, and poorly maintained septic tanks and drain fields. All of these factors can contribute to degradation of ground water quality. Identifying and mapping all wells and other areas from which groundwater are drawn will help prevent contamination. Educating residents of Lummi Island about groundwater contamination and prevention is critical.

The *Lummi Island Planning Survey* indicated that groundwater protection was the most highly ranked goal of this Subarea Plan—identified by 90% of respondents as the single most valuable basis for development of the new plan.

The Critical Areas Ordinance seeks to protect aquifer recharge areas from contamination, and to prioritize the management, protection and conservation of groundwater recharge areas that are used or have the potential to be used as a source of potable water. Figure 13 illustrates in a general way the critical wetlands and aquifer recharge areas on Lummi Island.

Fish and Wildlife Habitat Conservation Areas

The island has significant fish and wildlife habitat areas remaining, including woodlands, meadows, wetlands and shorelines, that are host to populations of deer and various small mammals, waterfowl, wading birds, woodpeckers and songbirds, eagles, turkey vultures and falcons, as well as marine mammals such as seals and various types of seabirds. Important off-shore aquatic habitats include shellfish beds and macro-algae and eel grass beds—important spawning areas for pacific herring.

Legoe Bay and its associated wetlands support important local spawning and rearing habitat areas for crab, clams, surf smelt, and pacific sand lance. The Bay is also home to the largest remaining seasonal reef-net salmon fishing fleet in the state. Lummi

Mountain located on the southern tip of the island also provides diverse habitat for birds and mammals, including nesting sites for seabirds, bald eagles and the peregrine falcon.

The CAO identifies wildlife habitat associated with “listed species” and “species of local concern” in the county. *Listed species* refers to those officially designated by the State Department of Fish & Wildlife and/or U.S. Fish & Wildlife Service as endangered, threatened, sensitive or a candidate for such listings. Where a project is proposed within an area where listed species have a primary association, a habitat management plan is required to avoid or mitigate the impact of development on the listed species. *Species of local importance* include vulnerable and recreationally important species susceptible to population decline due to their rarity in the region, limited distribution or special habitat requirements. Where a project is proposed within an area where species of local concern have a primary association, a habitat management plan may be required to avoid or mitigate the impact of development on the listed species. A complete listing of affected species is published in the CAO.

The *Lummi Island Planning Survey* indicated that protection of fish and wildlife habitat necessary to ensure a healthy natural environment was highly ranked—second only to groundwater protection—as a fundamental basis for development of the updated subarea plan. Figure 14 illustrates the fish and wildlife habitat conservation areas on Lummi Island.

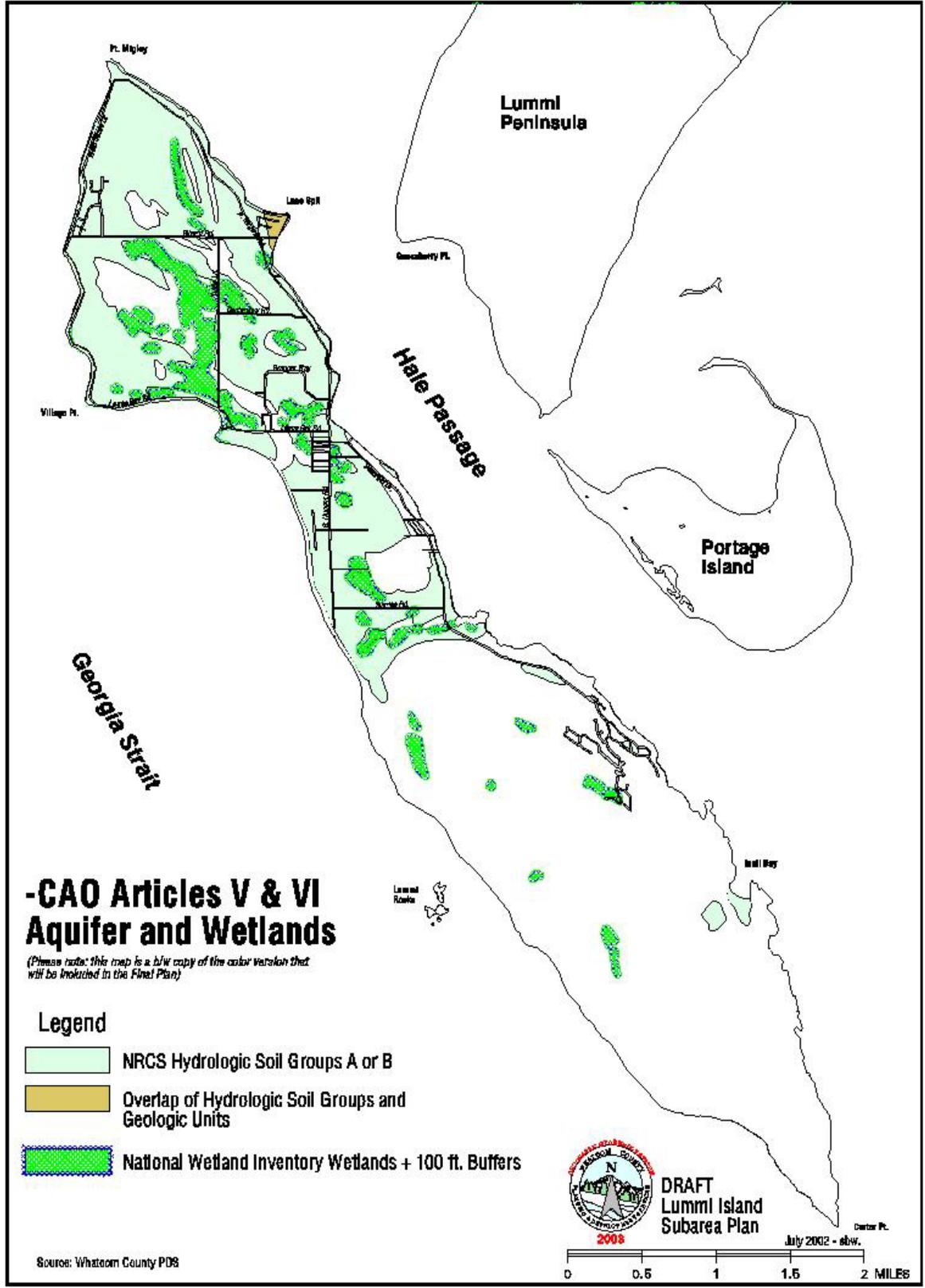


Figure 13 – CAO Articles V & VI – Aquifer and Wetlands

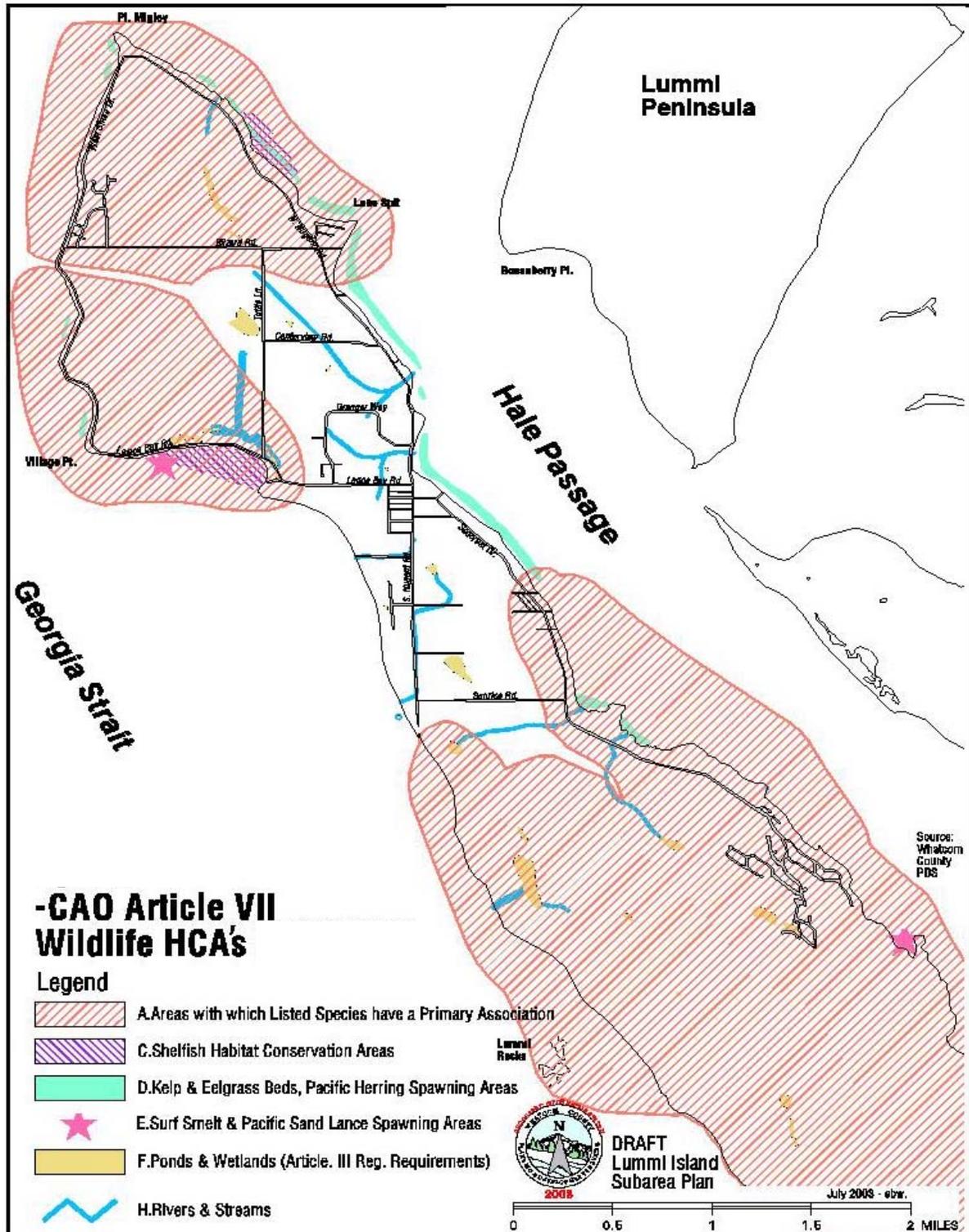


Figure 14 – CAO Article VII – Wildlife HCA's

Areas of Flood (FEMA)

Storms or high tides can cause localized flooding on Lummi Island. Houses built too close to low-bank shorelines are at higher risk during storms or extremely high tides—especially those with eastern, southern or western exposures. The beachfront settlements of Legoe Bay and Lummi Point (Lane Spit) are the most susceptible. Legoe Bay Road at Village Point continues to experience roadbed erosion from southwesterly winter storm wave action. A new concrete barrier was erected to help reduce further impact from flooding, however, erosion continues on the west end of the barrier, impacting the roadway. Tuttle Lane, where it crosses the slough just north of Legoe Bay Road, also usually floods one or more times annually after heavy rains, especially during high tides. The chance for an inland flood on the island, however, is minimal.

Geological Hazardous Areas

The southwestern area of the island along the flanks of Lummi Mountain has steep slopes, which are susceptible to sliding. Development should be avoided or restricted in these areas. Figure 16 illustrates the FEMA 100-year flood and geologically hazardous areas on the island. Coastal Flood Zones are areas that can be expected to experience flooding due to wind/wave action and high tide levels. The degree of flooding is dependent on factors such as the strength and direction of wind, distance of open water (fetch), expected wave height, beach configuration, and atmospheric effects on tidal levels. Similar to the Riverine Flood Zones, Coastal Flood Zones are mapped and regulated according to the 100-Year Flood Event (1% Annual Chance Flood Event).

Shorelines

There are more than 20 miles of saltwater shorelines on Lummi Island ranging from high-bank bluffs to gravel and cobblestone beaches, rocky headlands and steep cliffs, wave-cut rock ledges and tidal flats. Public access to the shorelines is extremely limited on the island due the prevalence of private land ownership (including tidelands).

The Shoreline Management Act (SMA) gives primary authority over shoreline development to local governments by requiring the preparation of a “master program”. The Shoreline Management Program (SMP) (Title 23 WCC) constitutes the master program for Whatcom County and fulfills the need for comprehensive planning and reasonable regulation of shoreline development.

The SMP comprises a separate and distinct plan and zoning regulations just for the limited shoreline areas under its jurisdiction. On Lummi Island, the SMA is only applicable to marine waters and other underlying lands, including “shore lands” which are those areas landward 200 feet from the ordinary high water mark. Although a proposed development may be exempt from substantial development permit requirements of the SMA, it may still require a variance or conditional use permit and must comply

with local Shoreline Management Program (SMP) policies and regulations. The SMP shoreline use designations for the island are shown in Figure 16.

The most developed shorelines on the island include the shore side of West Shore Drive and Nugent Road to the McLean Avenue right-of-way, along Seacrest Drive and Island Drive south to the Rural Forestry (RF) zone designation, and along Legoe Bay Road from Village Point to the northwest corner of Peterson's Addition to Bellingham Bay Cities.

Although there are significant remaining platted but not yet developed small non-conforming shoreline lots, most are on the eastern side of the island.

No new residential or commercial structures may be constructed on any area of a parcel where the distance between the ordinary high water mark and the county road right-of-way is less than 100 feet. On any area of a parcel where the distance between the ordinary high water mark and the county road right-of-way is 100 feet or greater, residential uses are limited to single-family structures and any accessory uses that are clearly single-family residential in character. Commercial uses are limited to home occupations, except on Legoe Bay Road from Road 656 (just north of Lover's Bluff area) to and including Village Point where commercial and light industrial uses other than home occupations may be allowed as conditional uses.

Under the policies of the adopted SMP, only businesses that require shore location or allow a significant number of the general public to enjoy shorelines should be allowed to locate there. Any new businesses should be required to provide shoreline access for customers and the public where feasible and appropriate. Commercial uses should be given preference over other commercial uses if they include boat rentals, marine service stations or fishing piers or if they "*promote physical or visual use of shorelines by the public, including but not limited to resorts, rental campgrounds and restaurants*" (SMP 1998). Commercial development is also encouraged to conserve natural and cultural features on the site. On shorelines with conservancy area designation, commercial resorts, restaurants, bed and breakfast facilities and campgrounds may only be authorized as a conditional use. Along any shorelines with a natural area designation commercial development is prohibited (SMP 1998).

Almost all of the shorelines south from Legoe Bay all the way around the southern tip of the island to Inati Bay on the east side of the island are undeveloped and in pristine natural condition. This shoreline is predominantly characterized by steep rocky slopes and narrow boulder beaches. Most of this area is undeveloped (except for some limited forest practices) and held in very large tracts comprised of both private and public ownership. Although there are significant areas of public tidelands in this area, public access is extremely difficult due to steep slopes and lack of improved access routes. Public ownership includes Washington Department of Natural Resources trust lands and Department of Fish & Wildlife lands managed for wildlife habitat as well as federal lands that include Carter Point and Lummi Rocks managed by the Bureau of Land Management.

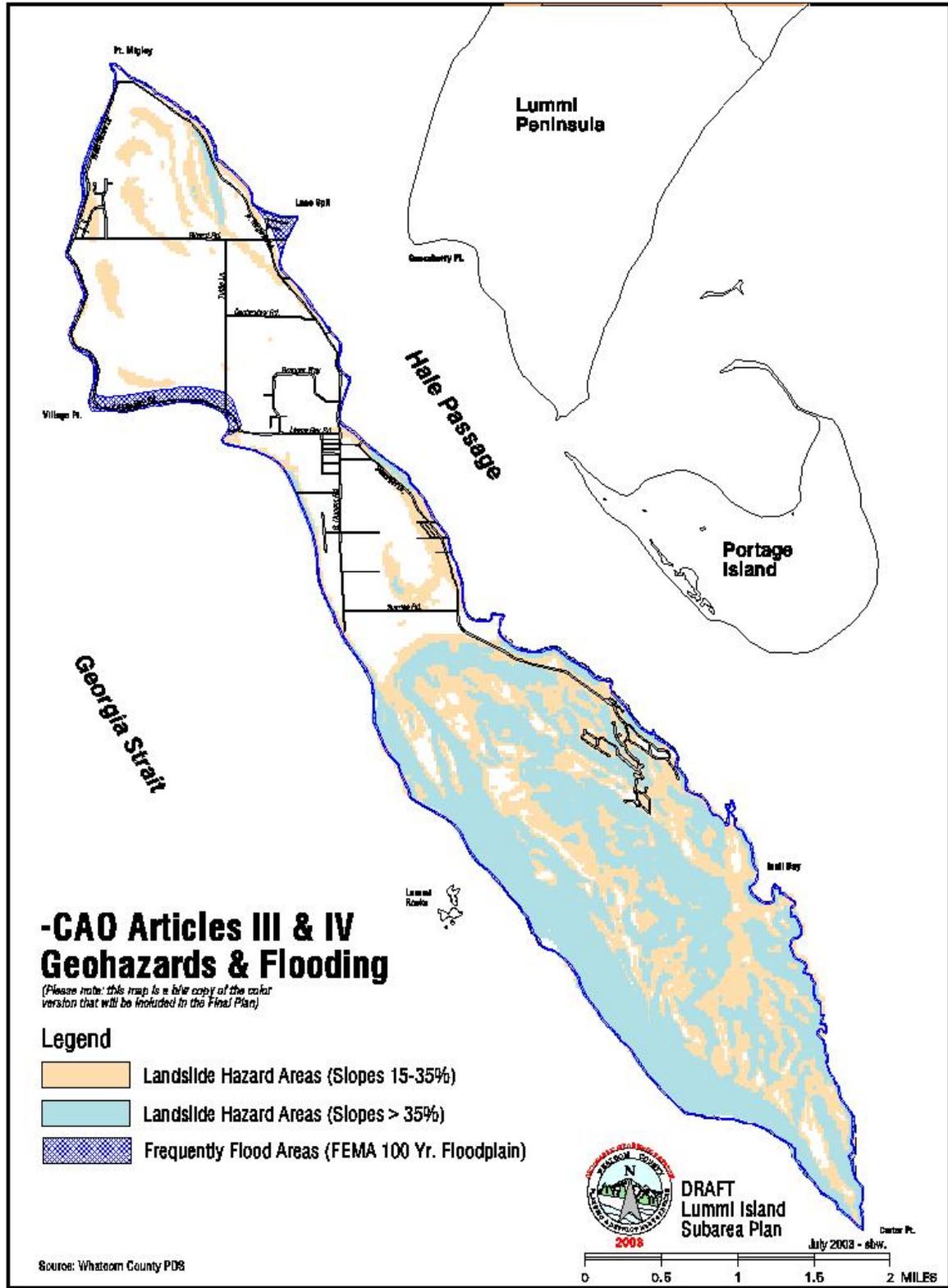
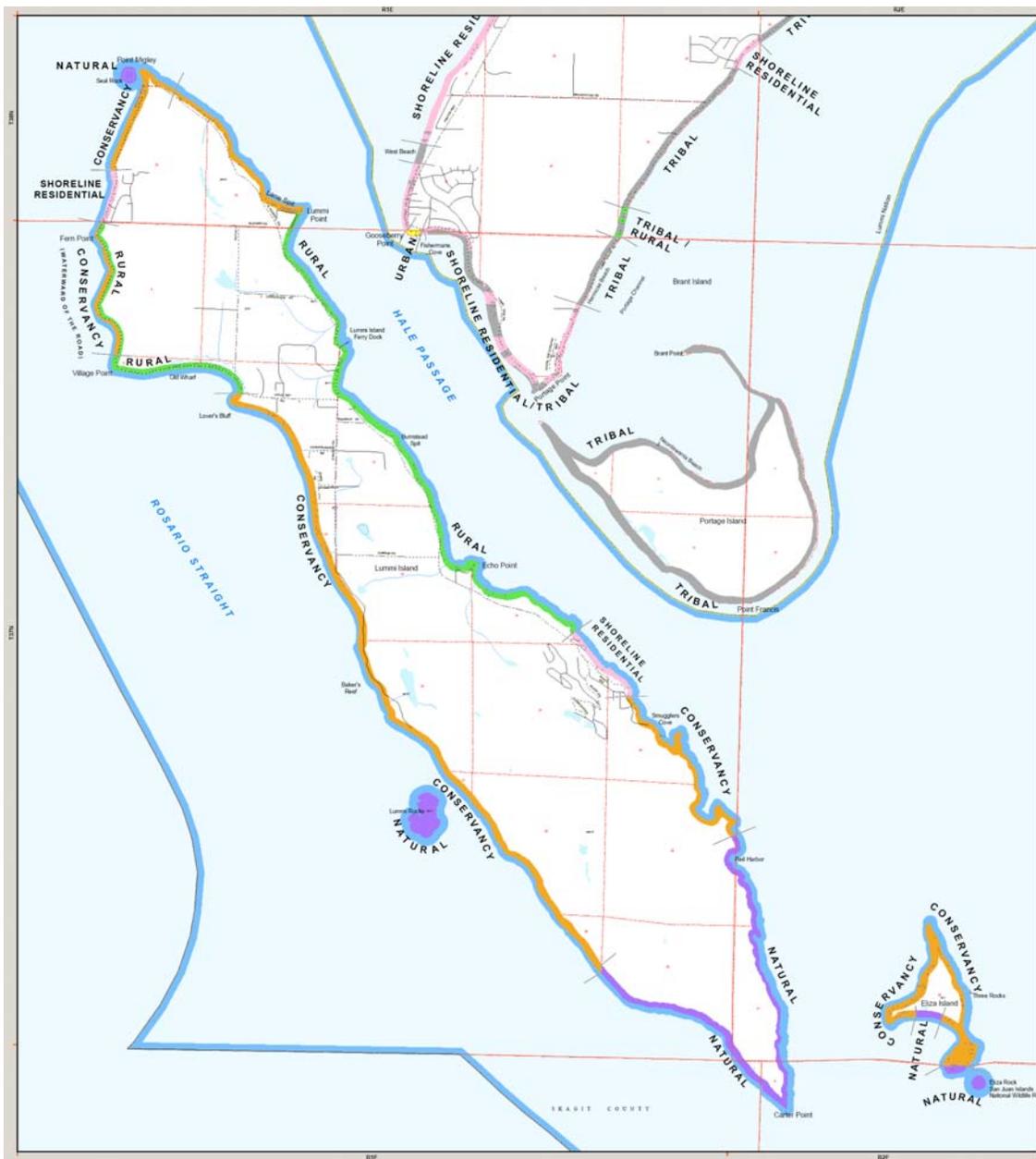


Figure 15 – CAO Articles III & IV Geohazards and Flooding (2003)



Whatcom County Shoreline Master Program Lummi and Portage Islands

T37 - R1E

- Area Designations**
- Urban
 - Urban Resort
 - Urban Conservancy
 - Shoreline Residential
 - Rural
 - Resource
 - Conservancy
 - Natural
 - Tribal
 - Cherry Pt. Management Area
 - Aquatic (Applies to all areas seaward of CHMM on Shorelines of the State)

About this Map:
The information depicted on this map is intended to be used with Title 23, Whatcom County, originally adopted by Whatcom County May 27, 1976. Amended in February 2007 by Whatcom County to comply with new Washington Administrative Code 173-26. Approved by Department of Ecology August 2008.

Shoreline Jurisdiction:
The map shows Shoreline Area Designations subject to this code. The map does not identify or depict the lateral extent of shoreline jurisdiction or associated wetlands. The lateral extent of the shoreline jurisdiction shall be determined on a case-by-case basis based on the location of the ordinary high water mark (CHMM), floodway, and presence of associated wetlands, provided that, exclusive of associated wetlands (not shown on the map), the maps identify the lateral extent of shoreline jurisdiction on the Suras River and the Maresians, North Fork, Middle Fork and South Fork of the Nooksack River. Buffers are defined by Whatcom County Critical Areas Ordinance (Title 16.16).

Data Sources:
Shoreline Jurisdiction and shoreline features come from 2004 oblique imagery. Designations were assigned by shoreline reach breaks and parcel boundaries (VIC Assessor).

USE OF WHATCOM COUNTY'S GIS DATA IMPLIES THE USER'S AGREEMENT WITH THE FOLLOWING STATEMENT:
Whatcom County disclaims any warranty of merchantability or warranty of fitness of this map for any particular purpose, either express or implied. No representation or warranty is made concerning the accuracy, currency, completeness or quality of data depicted on this map. Any user of this map assumes all responsibility for use thereof, and further agrees to hold Whatcom County harmless from and against any damage, loss, or liability arising from any use of this map.

Index Map

Scale is 1:21,000

Whatcom County
NATURAL RESOURCE MANAGEMENT

Figure 16 – Shoreline Designations

Almost all of the shorelines south from Legoe Bay all the way around the southern tip of the island to Inati Bay on the east side of the island are undeveloped and in pristine natural condition. This shoreline is predominantly characterized by steep rocky slopes and narrow boulder beaches. Most of this area is undeveloped (except for some limited forest practices) and held in very large tracts comprised of both private and public ownership. Although there are significant areas of public tidelands in this area, public access is extremely difficult due to steep slopes and lack of improved access routes. Public ownership includes Washington Department of Natural Resources trust lands and Department of Fish & Wildlife lands managed for wildlife habitat as well as federal lands that include Carter Point and Lummi Rocks managed by the Bureau of Land Management.

Public access to the shoreline will be an increasing concern as the island grows. On the more populated northern end of the island, most of the shoreline and tidelands are in private ownership, which further discourages public access. Much of the shoreline on the southern mountainous end of the island is in public ownership but not conducive to easy access or heavy public use. The greatest demand for shoreline use is on the more populated northern end of the island where public tideland ownership is limited to small and non-contiguous stretches at Migley Point, parts of shoreline south of Blizzard Road, and other isolated areas. There are small undeveloped potential “road end” public beach and viewing access areas including but not necessarily limited to the east end of Blizzard Road, the Alf Addition, the west end of Constitution Avenue, and the east end of the McLean Avenue right-of-way. Property rights include public property as well as private property. When considering vacation of public road ends RCW 36.87.130 shall be followed:

“Vacation of roads abutting bodies of water prohibited unless for public purposes or industrial use.

No county shall vacate a county road or part thereof which abuts on a body of salt or fresh water unless the purpose of the vacation is to enable any public authority to acquire the vacated property for port purposes, boat moorage or launching sites, or for park, viewpoint, recreational, educational or other public purposes, or unless the property is zoned for industrial uses.”

Recreation

Public recreational facilities are quite limited on the island. There is one public park located south of Reil Harbor on the southern part of the island and one public (Whatcom County-owned) shoreline access site on the northern end of the island at the old ferry dock site (located just north of the current ferry dock). The Reil Harbor facility is a marine recreation site owned by the Department of Natural Resources—part of the Marine Trail in Puget Sound. It is a primitive camping and picnicking site for kayakers and boaters only accessible from the water. The Ferry Dock park site consists of a viewing deck, picnic table and stairs to the rocky beach that access a very limited amount of public tideland.

September of 2008 Whatcom County received a donation by Harold and Judy Eldred and Essex Family L.L.C. of 64.8 % interest in 1,200 feet of low bank beach and full interest in adjoining second class tidelands for public park use on Lummi Island. The site consists of approximately 3-acres of west facing beach and upland along with 3-acres of second class tidelands. This is a beautiful beach located on the northwest shore of Lummi Island overlooking the Georgia Strait and San Juan Islands. Physical location is due west of the Willows Inn located at 2579 West Shore Drive.

The Beach Elementary School (operated by the Ferndale School District) has recreational facilities that include a playground, tennis/basketball court, soccer and baseball field, and picnic tables.

The public road system on the island is used for scenic driving, bicycling, walking and bird watching. It also includes several County “road end” right-of-way public shoreline access points, for example, the east end of Blizzard Road.

There are also state and federal lands located primarily on the southern end of the island. These include large tracts owned and managed for wildlife habitat conservation purposes by the Washington State Department of Fish and Wildlife and the DNR. Federal lands include the area around Carter Point and Lummi Rocks owned by the Bureau of Land Management (BLM). Most of these lands are also only accessible by water.

There are also areas of state and federal tidelands scattered around the island. Figure 17 indicates the generalized areas of major public tideland ownership on the island according to the *Marine Shorelines Study of Public Access and Recreation Sites in Whatcom County* prepared in 1976. However, the upland areas associated with these tidelands are either in mostly private ownership or in very remote areas—both characteristics that discourage public access.

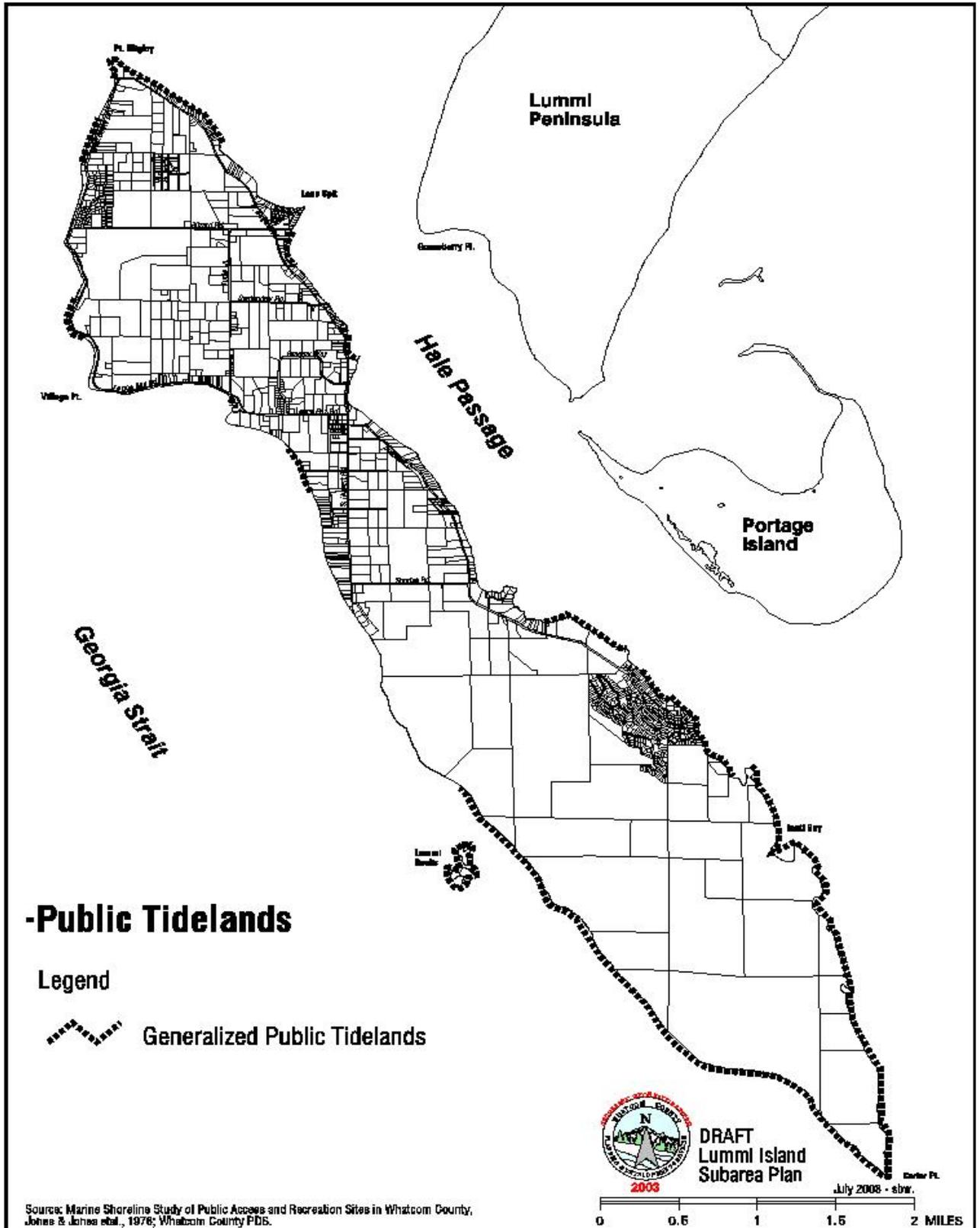


Figure 17 – Public Tidelands

However there are also recreational opportunities available on private lands and shoreline access points that may be utilized by other island residents through payment of fees or certain conditions. In 2003 these included:

- Hiking and wildlife-viewing on the *Lummi Island Heritage Trust* owned and managed lands such as the 42-acre Curry property and the 70-acre Otto Preserve;
- Private “for-members-only” facilities at Inati Bay leased and managed by the Bellingham Yacht Club;
- Village Point boat launching ramp on a pay-per-use or yearly membership basis;
- Private “for-members-only” facilities at Scenic Estates including tennis court, swimming pool, lake, boat launch and dock;
- Shoreline public access occasionally provided by the Lummi Island Congregational Church;
- Boys and Girls Club Building; and
- Salvation Army Youth Camp

The *Whatcom County Comprehensive Park and Recreation Open Space Plan* (1991) noted the increased need for public recreational shoreline access on the island and proposed the development of a small public park and trail system for the island. The various segments, sited appropriately, could include natural beach areas, small boat and kayak launch facility, and a community center (*Whatcom Comprehensive Park and Recreation: Open Space Plan, 1991*). However, a suitable location and funding sources have never been approved.

The LIPC identified the following future recreational needs based on the findings in the *Lummi Island Planning Survey*:

- ***Walking Trails***—many residents like to walk and hike the island to enjoy its natural setting, shorelines and Lummi Mountain. But since most of the island is in private ownership (including large tracts of Lummi Mountain), trespass and loss of privacy is becoming an increasing concern for many private property owners on the island—especially on Lummi Mountain.
- ***Shoreline Access***—new public access is needed to public tidelands from the shoreland or upland portions of the shorelines.
- ***Boat Launch***—primarily for use by island residents since creating a destination launch could induce more tourism adversely affecting the ferry level of service.

Public trail access to Lummi Mountain (and surrounding public lands) could provide wonderful opportunities to see wildlife and the natural beauty of the island. Respect for privacy and private property within and surrounding the Lummi Mountain area, however,

remain paramount considerations. Preservation and management to prevent resource damage to critical habitats and the aesthetics of a natural setting as well as protection of privacy for adjacent properties are important elements when considering access. Trails can also serve to increase mobility. An interior trail system to primary destination such as the ferry dock, Legoe Bay and the *Heritage Trust* preserves, for example, could be accessible by a combination of road rights-of-way and public easements.

As the island continues to grow, increased demand for public access to shorelines and woodlands could result in increased trespass on private property. The community must either work toward some form of public or quasi-public trail system (such as obtaining public access rights through easements) or find workable ways to retain significant amounts of open space in the face of continuing growth. These goals will reduce friction over trespass and privacy concerns.

Public Services and Facilities/Utilities

Public community facilities on island include one school, one post office, a volunteer fire department, a library, a cemetery, and a community grange hall.

The Beach Elementary School is the only school located on Lummi Island and is a part of the Ferndale School District. It serves kindergarten through 6th grade. In general, even though growth is increasing on island, total school enrollment is falling due primarily to the smaller and older average households on the island. The Beach School enrollment declined from 57 students in 1995 to 56 Grade School students in 2002. Approximately 50 El./Junior/High School students go off-island to Ferndale High School daily.

Whatcom County Fire District No. 11—known as the Lummi Island Fire Department—is responsible for providing fire protection from its centrally located fire station on Legoe Bay Road. Personnel include 25 volunteer firefighters. Equipment includes two engines, a water tender and one EMS aid vehicle. During the past several years the number of fire calls has averaged between 10 and 15 calls per year and the number of aid calls averages 25-35 annually. There are 4 island landing areas for emergency helicopter pads - north near the condos, Beach El. School playfield, the Salvation Army property near L. I. Scenic Estates and the Fire Hall.

Water supply is the primary limiting factor in fire insurance ratings with supply limited by the capacity of the equipment. However, the island is also characterized by potential wild land fire hazards from its rural character, including prevalence of wood construction and wood shake roofs, steep and narrow roads, poor access to some remote areas, a limited water supply, and the proximity of woodlands to development (natural fuels located close to homes and structures). The district is increasing its public education efforts to residents about fire hazards, including the creation of “defensible space”—clearing dense underbrush and other volatile vegetation away from structures—in order to reduce the danger of a potential wild land fire.

As one of two special taxing districts on island—the other being the cemetery district—the fire district has the authority to ask voters for additional revenue to fund improvements

needed by growth and/or to replace aging equipment. The district may also require certain development to meet special conditions such as increased water storage capacity and special fire-fighting equipment.

The Whatcom County Sheriff provides public safety protection for the island. The crime rate for the island is consistent with the overall crime rate for the rest of the county. From 1998-2002 there were, on average, 21 reported crimes per year on Lummi Island ranging from trespass to burglary and assault. In years past, one resident deputy was assigned to Lummi Island. Currently, however, there is no active police protection located on Lummi Island. Calls for public safety mean that deputies must utilize the ferry to access the island. For emergency calls, ferry priority is given for emergency vehicles. If the ferry is not running (e.g., late at night) and an emergency call is received, the ferry is called into service. However, non-emergency calls may result in longer response times. As the need for police services increases, additional monies will have to come from county taxes to provide and maintain the higher level-of-service necessary to once again maintain an on-island deputy.

Telephone and internet service is provided by Qwest via submarine cable across Hale Pass from Gooseberry Point on the Lummi Nation. The current cable is able to provide service to the island for the foreseeable future.

Electricity is provided by Puget Sound Energy. PSE operates several cables across Hale Pass from Gooseberry Point. A new cable was installed relatively recently and is expected to be able to accommodate the projected energy demand for the next twenty years on the island. There are currently no plans to bury more cable across the pass.

Sewage Disposal

All development on Lummi Island utilizes on-site sewage disposal systems. Most systems serve single-family residences that both treat sewage and dispose of the effluent on the owner's property. Some systems dispose of effluent off-site on adjacent properties through easements. There are a limited number of community septic systems that serve multiple single-family attached and detached residences (e.g., the Beach Club Condominiums). Most systems use a septic tank and gravity flow drainfield. Systems using newer technology are also in use, including pressure distribution, pressure mounds, sand filters, aerobic treatment and biofilters. Improperly treated effluent from septic systems poses a potential threat to ground water quality.

Whatcom County Public Health Department regulations govern system design and installation (WCC 24.05). Public Health is currently developing updated treatment standards for systems in use along all freshwater and saltwater shorelines in the county. Sewage treatment and disposal regulations are an important factor in determining minimum lot sizes on the island. The Zoning Code establishes overall density provisions, but if new subdivision lots are clustered in close proximity to one another (as encouraged to preserve open space) minimum lot sizes are often determined by public health

regulations. Present public health rules allow for various minimum lot sizes, depending on soil type and water supply type. Lots as small as 12,500 square feet may be allowed with certain soil types and in conjunction with a public well. Even smaller lot sizes could be allowed if overall density requirements are met and if community septic systems are used rather than having each residence construct their own individual system.

The minimum lot size rules only apply to newly platted lots. Sewage disposal systems that meet public health requirements for soils, terrain and setbacks are sometimes allowed on much smaller lots, depending on when the lots were created. In other cases, sewage disposal requirements may prevent building on non-conforming or “grandfathered” lots if the public health rules cannot be met. Potential cumulative development on small grandfathered lots with septic systems in close proximity to marine shorelines is a potential threat to both surface and groundwater quality.

The Public Health Department, depending on available funding, occasionally monitors septic systems in particularly sensitive environments—such as along marine shorelines—in order to identify failing systems and urge owners to take corrective action. Public Health estimates that only about 2% of all septic systems countywide fail annually (mostly older systems). However, there is no regular program for septic system testing or evaluation on Lummi Island. Given the island’s reliance on groundwater for public water supply and the potential threat from malfunctioning septic systems, regular periodic septic system monitoring by the Public Health Department should be encouraged.

Transportation

Lummi Island is a remote rural community. Almost all residents are dependent upon both automobiles and the ferry for access to their homes, jobs, health care, education, mainland transportation (including air) and shopping needs. Since the ferry capacity is fixed—there are no current plans to expand capacity—and demand presently exceeds capacity, mobility for automobiles between the island and the mainland remains static. In the face of continuing population growth and fixed automobile ferry capacity, ferry service is becoming more of a mobility tool for “walk-on” pedestrians going from one automobile parking space (on island) to another (Gooseberry Point) during peak periods. Since 2003, Whatcom County added a new parking lot with 74 spaces on the island. The trend towards more “walk-on” use is likely to continue resulting in increased interest and need for more parking spaces both at Gooseberry Point and perhaps on the island.

Roads

The island’s public roads are primarily two-lane asphalt roads built to rural standards—meaning narrow shoulders. The main travel access roads on island are classified as minor collectors. Traffic volume is very low but, due to the ferry, it often occurs in

spurts. Congestion only occurs around the ferry dock during peak travel times. Vehicle accidents have averaged about two per year for the last three years. Problems occur in some locales where roads narrow even more than usual, (e.g., portions of Nugent Road and Seacrest Drive) or areas where bank erosion or wave action required stabilization (West Shore Drive and Legoe Bay Road). Speed limits range from 25-35 miles per hour although speeding is closely associated with the ferry schedule. Pedestrian safety is a growing concern since many islanders utilize the roadway travel lanes for walking (due to the lack of improved shoulders and public trails). Periodic road maintenance and resurfacing is performed by the Whatcom County Public Works Department.

Islanders rely heavily on automobiles for intra-island and off-island transportation—there is no public bus service on island. Limited bus service from Gooseberry Point to Bellingham is provided by the Whatcom Transit Authority (WTA). Commute trip patterns (shown in Table 6) are indicative of (and contribute to) both transportation constraints and isolation of the island labor force—carpooling decreased and those who drove alone to work increased significantly during the 1990s. The reliance of islanders on automobiles also seems to be growing. Approximately 30% of island households had 3 or more vehicles in 2000; compared to 28% in 1990. While vehicle ownership is increasing it is not necessarily an indicator of increased automobile dependency—if other quality mobility alternatives are available in the community.

**Table 6
Lummi Island Commute Trip Patterns**

Commute Trip to Work	1990 (% of total trips)	2000 (% of total trips)
Single Occupancy Vehicles	64%	70%
Carpool	13%	4%
Walked to Work/ Worked at Home	20%	26%

Source: U.S. Census

The Ferry

The *Whatcom Chief* ferry, operated by the Whatcom County Department of Public Works, provides ferry service to the island across Hale Pass from Gooseberry Point. (The Gooseberry Point dock and associated facilities utilize property leased by Whatcom County from the Lummi Indian Nation). The ferry can carry about 20 vehicles, on average, per trip. It operates from 5:40 AM on weekdays and 7 AM on weekends (and on major holidays) to midnight and makes emergency runs when needed and extra runs whenever vehicles are left at the dock after a scheduled run. The ferry makes the three-quarter mile crossing in less than 10 minutes and has a maximum three round trips per hour, or about 60 cars per hour at peak.

There are no alternative public transportation routes between the island and Gooseberry Point. All islanders (and visitors) use the ferry to access the mainland. Over the last 10 years ferry ridership increased significantly—total trips jumped more than 28% from

1990-2000. Ridership also exhibits strong seasonal variations with July and August the peak months. Mobility, however, is becoming an increasing challenge for island residents. Data suggests that islanders overwhelmingly use automobiles as their preferred mode of transportation mobility. Analysis of ferry ridership data in the *Lummi Island Ferry 20 Year Plan—Phase 1 Charrette Report* (2001) indicate that (in winter) approximately 87% of resident ferry users drive vehicles onto the ferry to get to the mainland while 11% park vehicles at Gooseberry Point and 2% utilize the WTA for mobility. Significant parking constraints at both terminals as well as limited bus service at Gooseberry Point are contributing factors to low pedestrian mobility. However, the sheer number, size and type of vehicles requesting service are overloading the current ferry capacity.

In 2002 the ferry capacity became unable to accommodate the daily vehicle crossing demand for timely service as both morning and evening peak periods are extended. Capacity is also reduced due to large vehicles such as construction trucks, boats and trailers, horse trailers, SUV's and RV's that are heavier and wider. Ferry traffic associated with construction activities (serving new growth) and household service trades as well as visitors also contribute to the congestion. Parking is at a premium at both ferry terminals. There are 26 parking spaces at the Gooseberry Point terminal and 107 spaces at the Lummi Island ferry dock and nearby parking lot. Parking issues peak during the annual two-week ferry dry dock every fall when no car ferry service is available.

The adopted level-of-service (LOS) for the ferry is 513 trips per capita. The ferry level-of-service is determined by a mathematical formula that incorporates total ferry trips (including passenger vehicles, pedestrians, trucks, and motorcycles) in addition to parking space availability, WTA bus service, one-way use, uses for official trips, and other provisions in relation to resident island population.

Amendments to the *Whatcom County Comprehensive Plan, Six Year Capital Improvement Program* in 2002 indicate that the ferry has not been able to meet its adopted level of service since at least the year 2000 and “*it appears that it would be difficult to meet the adopted level of service over the [next] six year planning period.*” The CIP indicates that there are no improvements planned to the ferry in the next six years that would increase ferry capacity. Until such time as ferry capacity improvements can be made to meet the adopted level-of-service, the concurrency requirements of the Whatcom County Code (WCC) require that no further long subdivisions be approved on the island. However, short plats (subdivisions of four lots or less) are exempt from this provision.

On April 15, 2008 the Whatcom County Council decided to not pursue a new ferry at this time. Ferry service will be limited to the capabilities of the current ferry to provide that service.

Growth Management Strategies

Growth Management Strategies

The *Lummi Island Planning Survey* indicates that the majority of residents think the island is growing too fast and they want to slow growth. The analysis of current trends indicates that future growth based on past trends may not be sustainable. Current zoning (i.e. density) would, at buildout, allow a level of development not likely to be consistent with the vision of maintaining the island's rural character. Both groundwater quality and quantity are diminishing at rates that may not be sustainable. The ferry system is overloaded and the adopted level-of-service cannot be maintained under the present schedules.

There are technological solutions to many of these growth-related issues such as: constructing a water pipeline from the mainland; surface water reservoirs or a desalination plant to address water shortages; and building a bigger ferry to accommodate more vehicles. But the challenge islanders must face is how consistent those solutions are with the vision statement.

Growth management strategies include a wide range of techniques that could be applied to manage growth more effectively, mitigate the impacts of new development and help maintain the island's future vision. These strategies are grouped into several different alternatives:

- 1) ***Land use alternatives*** include mapping potential density and zoning changes to preserve rural character and protect groundwater resources;
- 2) ***Policy alternatives*** such as establishing preferences for mechanisms to acquire open space, recreational facilities or shoreline public access; or
- 3) ***Regulatory alternatives*** such as adopting new regulations aimed at consolidation of small non-conforming lots or requiring new conditions on future subdivisions and building construction.

The different alternatives were presented to the *Lummi Island Planning Committee (LIPC)* and the public at a Town Meeting in March 2003. A questionnaire and small group discussion format was utilized to allow islanders to discuss the alternatives and identify their preferred solutions. Following that meeting and associated public comment, the *Committee* was asked to develop a preferred plan or set of preferred solutions—that included land use map and zoning changes, policy and regulatory changes or some combination of both—as the basis for the Subarea Plan.

Land Use & Zoning Alternatives

In 2003, several alternatives were developed to identify the land use or zoning map and density changes that could help to manage growth more effectively on the island. The alternatives were mapped and analyzed using the County's Geographic Information System to determine relative development capacity and buildout potential for easier comparison between and among the alternatives.

The land use and zoning alternatives include:

No Action Alternative—It presumes to make no changes and would keep the current land use and zoning in place as well as other growth management regulations (i.e., maintains the status quo from the 1979 Plan). The rationale for this approach is to establish a baseline against which to measure other alternatives. Small group discussion indicated a distinct lack of significant public support for this alternative.

Northern Island Rural Downzone Alternative—This approach would redefine the RR-I (Rural Residential Island) zoning density. It would eliminate the one unit per three acre density applied to property outside of the groundwater recharge areas identified on the current zoning map. It would equalize allowable density in the RR-I zone throughout the island at one unit per five acres. This is a downzone that would reduce the development capacity of lands currently outside of mapped aquifer recharge areas. It would treat the entire RR-I zone the same from an allowable density standpoint.

The rationale for this approach is that it serves to both protect rural character and water supply—the latter more so from the standpoint of reducing potential future demand for existing water resources. The basis for this approach is that evidence indicates that the groundwater supply is coming under increasing stress (i.e., increased rates of arsenic contamination and saltwater intrusion in local wells). At the same time the rate of groundwater withdrawal has increased four-fold (due more so to population growth rather than agricultural uses) since the original plan was adopted in 1979. In other words, the ability of the aquifer recharge areas alone to absorb and hold adequate groundwater for the entire island at present buildout capacities (excluding Scenic Estates) is in doubt. More so, the rate of development (i.e., consumption of groundwater) is greatest outside of recharge areas—both in terms of density and overall area. Even more importantly, the potential for new development is significantly greater outside of recharge areas suggesting that density changes would be most effective in these areas rather than inside recharge areas. Therefore the nexus, or connection, today between differences in density within and outside of recharge areas is not nearly as cogent as it was when the zoning was originally adopted in 1979.

The present density transfer provisions of the County Code (WCC 20.34.251) currently allow an effective density of one dwelling unit per 1.5 acres on portions of parcels outside of groundwater recharge areas. The *Western Washington Growth Management Hearings Board* has ruled in Whatcom County (and elsewhere) that densities of one unit per acre are not rural and are not in compliance with the Growth Management Act

(GMA). Rezoning the north island to 5 acre minimum density would be more consistent with the GMA and help maintain the island's rural character.

The Scenic Estates subdivision could also be proposed for a density change more consistent with or appropriate for its existing development pattern. The Scenic Estates development is technically included within the Rural Forestry (RF) zone on south Lummi Island and should be corrected and assigned a RR-I zoning designation. Such a rezone would not affect the non-conforming status of most lots within the development but would make them less non-conforming compared to uses and densities allowed under the RF zone. This approach was strongly supported in the *Lummi Island Planning Survey*.

This alternative could also be refined to identify specific and distinct properties for voluntary downzones consistent with the intent of the property owner(s). For example, properties subject to a conservation easement from the *Lummi Island Heritage Trust* could be rezoned to a lower density that more accurately reflects their true development potential such as a resource land density.

Buildout reduction from these alternatives are shown in Table 7. Two additional downzone variation scenarios were examined for the RR-I zone, including 1) density reduction from one unit per 5 acres to one unit per 7.5 acres; and 2) a density reduction to one unit per 10 acres throughout the RR-I zone. Downzone alternatives provide less buildout reduction than one might think due to the large presence of non-conforming lots on the island which are immune to a downzone

Small group discussion of the downzone alternatives indicated greatest preference for the 5 acre alternative. This is consistent with the findings of the *Lummi Island Planning Survey* that indicated stronger support for a 5 acre downzone compared with a 10 acre downzone alternative. One mitigation measure of a downzone should be to designate parcels subject to a loss in zoning density as new eligible "sending areas" in the Whatcom County TDR Program based on their *pre-downzone* density (i.e., affected property owners could sell the net loss in density (development rights) derived from the downzone and still develop at the new lower density on-site.

Village Commercial Alternative—This approach would seek to utilize provisions within the Growth Management Act—specifically RCW 36.70A.070(5)(d) that recognizes *limited areas of more intensive rural development or LAMIRDS*—to establish a rural commercial center around the ferry dock. This would rezone portions of the area around the ferry dock and existing commercial enterprises from RR-I to Rural Commercial. The intent is to create a compact commercial village core that incorporates the existing commercial activities (e.g., from the Islander Store north to the Beach Café and Post Office) and designates some additional limited land for infill development that could accommodate and encourage new commercial, mixed use or higher density housing in close proximity (i.e., within walking distance) to existing commercial activities and the ferry dock. This alternative could promote opportunities for more affordable housing and for more diverse commercial enterprises aimed either to serve islanders or promote small-scale tourism. Care must be taken to ensure that the density and intensity of uses allowed

is consistent with the existing rural character of the island and can be supported on a sustainable basis by available levels of service for water and other infrastructure needs. A new Rural Commercial Island zone could also be created that differentiates uses deemed appropriate only for the island—distinct from other uses allowed in the Rural Commercial zone on the mainland.

Small group discussion indicated a lack of significant public support for this alternative. This is consistent with the findings of the *Lummi Island Planning Survey*.

**Table 7
Land Use Alternatives Buildout Scenarios (2003)**

Zoning	Existing DU	Total Buildout DU	Potential Add. DU	Potential Net New Peak Pop.	Total Buildout Peak Pop.	Groundwater Dependent Peak Buildout Pop. (1)	% of Groundwater Carrying Capacity Utilized @ Buildout
(@100 gppd) See Note (2)							
Scenario #1 - Potential Buildout based upon Current Zoning - RRI/RF							
RRI - 3 ac.	427	872	445	935	1,831	1,831	
RRI - 5 ac.	133	251	118	248	527	527	
RF/Scenic Est.	78	346	268	563	727		
RF/Other	5	77	72	151	162		
Total	643	1,546	903	1,897	3,247	2,358	98%
Scenario #2 - Potential Buildout based upon Potential Zoning - RRI 5 ac./RF (**RECOMMENDED**)							
RRI - 5 ac.	560	1,058	498	1,046	2,222	2,222	
RF/Scenic Est.	78	346	268	563	727		
RF/Other	5	77	72	151	162		
Total	643	1,481	838	1,760	3,111	2,222	93%
Scenario #3 - Potential Buildout based upon Potential Zoning - RRI 7.5 ac./RF							
RRI - 7.5 ac.	560	977	417	876	2,052	2,052	
RF/Scenic Est.	78	346	268	563	727		
RF/Other	5	77	72	151	162		
Total	643	1,400	757	1,590	2,941	2,052	86%
Scenario #4 - Potential Buildout based upon Potential Zoning - RRI 10 ac./RF							
RRI - 10 ac.	560	948	388	815	1,991	1,991	
RF/Scenic Est.	78	346	268	563	727		
RF/Other	5	77	72	151	162		
Total	643	1,371	728	1,529	2,880	1,991	84%

Notes: (1) Groundwater dependent population assumes only the north island area presently zoned RRI; Scenic Estates and remainder of south island (e.g. the Mountain) assumed to rely on surface water supplies. (2) Assumed groundwater carrying capacity (@ 100 gppd) based on the 1979 Lummi Island Subarea Plan = 2,400 persons.

Sources: Includes private vacant and underdeveloped/redevelopable parcels based upon Whatcom County Assessor Land Use Codes and Improvement Value. Factors such as environmental constraints and ROW issues have not been considered. Assumes no additional development potential on Lummi Island Heritage Trust properties (including easements and preserves).

Zoning Designations:

- RRI - 3 ac.** Rural Residential Island (1 unit per 3 acres density)
- RRI - 5 ac.** Rural Residential Island (1 unit per 5 acres density)
- RRI - 7.5 ac.** Rural Residential Island (1 unit per 7.5 acres density)
- RRI - 10 ac.** Rural Residential Island (1 unit per 10 acres density)
- RF/Scenic Estates** Rural Forestry (applied to Scenic Estates)
- RF/Other** Rural Forestry (applied to Lummi Mtn.)

Policy or Regulatory Alternatives

These alternatives represent potential changes to county development regulations or Comprehensive Plan policies insofar as they affect development on Lummi Island. These “alternatives” could be combined with or complement any of the zoning alternatives or they can stand alone.

A variety of different regulatory techniques were examined that address unique aspects of managing growth more effectively on Lummi Island:

- Non-Conforming Lots and Lot Consolidation
- Transfer of Development Rights (TDR), Purchase of Development Rights (PDR) & Land Donation
- Open Space Design and Clustering Provisions for New Subdivisions
- Building and Site Design Standards
- Low Impact Development and Best Management Practices for Groundwater Protection
- Growth Rate Limit and Residential Building Permit Allocation System
- Growth Management Indicators Program

Non-Conforming Lot Consolidation—These types of programs seek to reduce the number of buildable lots by requiring some form of *mandatory* lot consolidation of non-conforming or substandard lots (i.e., those lots created prior to 1979 that are less than 3 acres in size) in order to develop. Upon institution of the RR-I one unit per three acre/one unit per five acre zoning split in the 1979 Subarea Plan, all lots in existence on the island at that time, less than 3 acres in size, were recognized as legal lots of record—meaning that even though they did not meet the new zoning minimum they could still be built upon—provided they could meet all other requirements (e.g., setbacks, environmental health standards for wells and septic systems, critical area requirements, etc.). See WCC 20.34.254.

Today there are more than 500 vacant non-conforming lots on the island—almost 90% of which are less than one acre in size. Which, if built out, would constitute urban development patterns that seriously threaten the island’s rural character. The distribution of vacant non-conforming lots is shown on Figure 18 and potential buildout impacts from vacant non-conforming lots is shown in Table 7. It is not certain how many of these lots are truly developable and could meet all applicable standards necessary to authorize development. Nevertheless, substandard lots could pose problems of potentially excessive development that would further degrade the groundwater carrying capacity and the rural character of the island. Historic growth trends indicate average development of about eight non-conforming lots per year over the past two decades. Many of these lots are concentrated along shorelines in close proximity to marine waters posing special challenges for wastewater treatment and may be a potential threat to water quality if developed to their full potential.

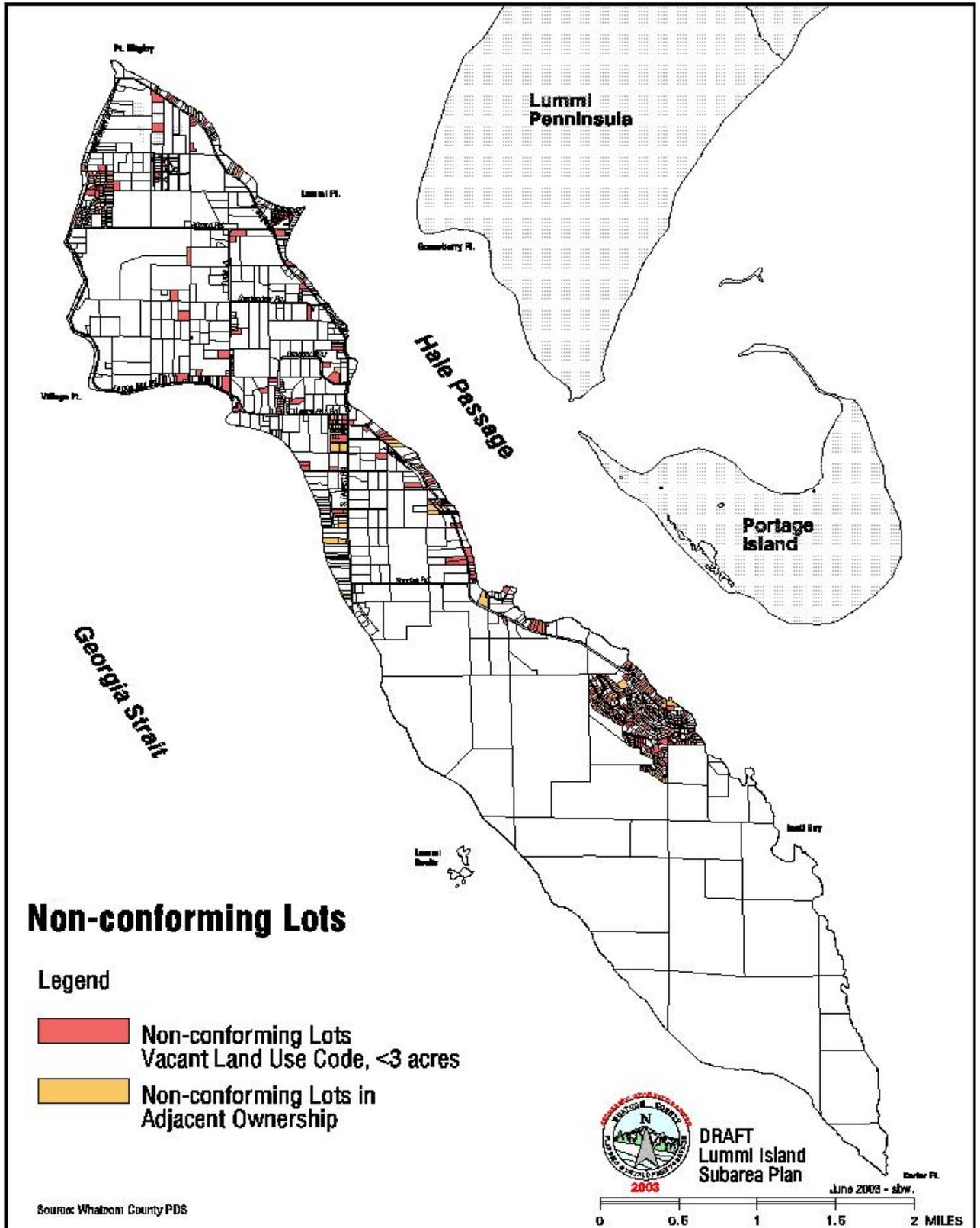


Figure 18 – Non-conforming Lots (2003)

**Table 8
Distribution of Vacant Non-conforming Lots (2003)**

Non-conforming Lots		Zoning Designations	
Total Non-conforming Lots (567)	Scenic Estates (RF)		Rural Residential Island (RRI)
	Total # of Lots	% of Total Island	Total # of Lots % of Total Island
	259	45.7%	308 54.3%
Size of Non-conforming Lots	Total by Zone	% of Total Zone	Total by Zone % of Total Zone
<4.99/3.99 Acres	0	0.0%	15 4.9%
<3.99/2.99 Acres	0	0.0%	13 4.2%
<2.99-1.99 Acres	0	0.0%	16 5.2%
<1.99-0.99 Acres	4	1.5%	26 8.4%
<0.99 Acres	255	98.5%	238 77.3%
Potential Additional DU's	259	76.2%	308 54.7%
	(340 Total RF)		(563 Total RRI)

Source: Whatcom County PDS GIS 2003; Whatcom County Assessor

Current Whatcom County Code (WCC 20.34.254) *exempts* non-conforming lots in common ownership on the island from lot consolidation requirements as expected in other areas of the county (WCC 20.83.079) unless required to meet health department requirements for operation and separation of septic systems and wells. Since these non-conforming lots were recognized as legal lots of record back in the 1979 Plan there may be some legal challenges to overcome in order to institute a *mandatory* lot consolidation program. Legal non-conforming lots are subject to “vested rights” under Washington state law and are immune to a downzone. A *voluntary* program could also offer some incentives for participation. Many counties utilize clustering provisions as an incentive to property owners to consolidate antiquated platted lots—similar to the current clustering provisions in Whatcom County Code. The *Lummi Island Community Land Trust* is currently utilizing such provisions to build a low-income affordable housing development on the island.

There was strong support in the small group discussions of the alternatives for requiring non-conforming lots in adjacent common ownership to consolidate in order to obtain a building permit (to the extent allowed by Washington state vesting law).

Transfer of Development Rights—A Transfer of Development Rights (TDR) program establishes a mechanism to buy and sell development rights without buying and selling the land from which they originate. Generally, TDR programs designate some lands as preservation areas, where development at very low densities is allowed, and other land as growth areas, suitable for high density residential or commercial use. The development rights from the designated preservation area, often referred to as the “*sending*” area, are allowed to be sold and transferred to another piece of property located in designated growth areas referred to as “*receiving*” areas. TDRs recognize that real estate ownership involves the possession of a “bundle of rights,” and any one right (e.g., the right to

develop at a given density) can be separated from the bundle and sold. TDR takes the unused development portion of the “bundle of rights” from one property and transfers them to another property. The development “rights” are usually purchased in open-market transactions by developers and utilized to construct additional units on other parcels. TDR programs are intended to be mutually beneficial—the buyer in the receiving area gains additional density, the landowner in the sending area profits from the sale, and the County benefits by preserving the rural character and lifestyle and lowering its costs to provide public services.

TDRs are a density transfer technique between different properties. This is an important distinction from a regulatory standpoint. For example, density transfers within a single property, or adjoining property, have been fairly widely used in the County (e.g., clustering options) and have served as the jumping-off point for the longer distance transfers proposed under TDR programs. However, TDR programs are far more complex and require much greater public education and understanding in order to be successful. TDR programs can be either voluntary or mandatory. *TDRs are also very market-oriented and, as such, are dependent upon the vagaries of the market for their success or failure.*

The basic approach of most TDR systems involves a density reduction of the areas subject to protection (i.e., sending areas) to a level considered adequate for the resource being protected (e.g., rural lands, agricultural lands, forest lands, scenic open space areas, environmentally sensitive areas, shorelines, etc.). A “conservation easement” is usually required to be included in the deed to the property after a transfer occurs. A conservation easement is a legal agreement between a landowner and a qualified private conservation organization, such as *Lummi Island Heritage Trust*, or government entity that permanently limits a property’s uses in order to protect its conservation values. The value of the development rights “lost” on the property are then determined through a variety of approaches and allowed to be “bought” by another developer and transferred to a receiving area designated for growth or where the higher density gained by the transfer can be accommodated without significant impact on the receiving area (e.g., where adequate public facilities and services can be provided).

TDR has been used as a planning tool to preserve agricultural and environmentally sensitive lands, as well as historic buildings, since the 1970s. The Growth Management Act itself expressly promotes and authorizes the use of “*innovative land use management techniques . . . including the transfer of development rights*” under RCW 36.70A.090. Whatcom County and the City of Bellingham have been working together for several years to create TDR programs that would allow for the transfer of development rights from rural areas of the County into the Bellingham Urban Growth Area (UGA). The County and City initially created a TDR program in the Lake Whatcom watershed—the sole source water supply for the City of Bellingham—several years ago and are currently seeking to expand that program into the Lake Samish watershed and perhaps elsewhere. Lummi Island would be an appropriate “*sending area*” for development rights that could be transferred into the Bellingham UGA (or possibly the Ferndale UGA) to promote higher density and more affordable housing. Potential “sending areas” candidates might be small but “buildable” non-conforming lots on the island and properties affected by downzoning, if implemented. A TDR program on Lummi Island could open up more options for island property owners who might otherwise be forced to sell or develop their

properties for economic reasons, but with a TDR program could still receive compensation for their development rights, remain living on the property and help preserve the rural character of the island. In so doing the development capacity of the island (and the commensurate need for future groundwater withdrawals) would also be reduced.

There was strong support in the small group discussions of the alternatives to institute a TDR Program for the island.

Purchase of Development Rights (PDRs)—Similar to TDRs in that they compensate land owners for the equity of their land in return for a deed restriction which precludes use of the land for development. However, in PDR programs the rights are not sold (transferred) to a receiving area. They are purchased by a public or non-profit entity (e.g., the *Lummi Island Heritage Trust*) and are usually permanently extinguished. This is typically a more expensive approach, which requires either a dedicated public funding source and/or significant private fund raising efforts. The major difference between the two approaches is that where PDR programs usually involve some level of public monies in the purchase of development rights, TDR programs *may* operate exclusively in the private sector (i.e., exclusive of public purchasing of development rights) between a property owner and a developer. Therefore, TDRs can be a more efficient technique in which to preserve rural character, and/or open space via the private real estate market. However, there are many other factors that influence the ability of a TDR program to succeed based on local market conditions. In general, the most important variable being the strength and type of the development market (i.e., demand).

Lummi Island Heritage Trust has used direct acquisitions of land with donated funds (most notably the Otto and Curry properties) as a tool for purchasing and extinguishing development rights. The *Heritage Trust* also has received donated development rights in the form of conservation easements. While the *Trust* has not purchased conservation easements, it could purchase development rights with donated funds (in effect, starting a private PDR program).

Land Donation—Land donation is a growth management strategy property owners can use to maintain their open space land and protect it for future generations outside of any local government-sponsored action. Donating land releases the owner from the responsibility of managing the land and can provide substantial income tax deduction and estate tax benefits. One can still live on the donated property and receive a life income. Another way to donate land is through a bargain sale, in which the property owner sells the land to a qualified organization, like the *Heritage Trust*, for less than its market value. This not only makes it more affordable for the land trust, but offers several landowner benefits including cash, avoidance of some capital gains taxes, and a charitable income tax deduction based on the difference between the land's fair market value and its sale price.

Conservation easements are another way to protect rural character and open space. A conservation easement (or conservation restriction) is a legal agreement between a

landowner and a qualified conservation organization that permanently limits uses of the land in order to protect it. Conservation easements are an excellent way to create a flexible use of land to serve multiple purposes. For example, an owner may give up the right to build additional structures, while retaining the right to grow crops.

Open Space Design and Clustering Provisions for New Subdivisions—Good open space design and clustering incorporates sensitive open space and rural character features into the design and lot layout process. It preserves more functional and better quality open space than traditional subdivisions. It serves to conserve open space, maintain rural character and protect environmentally sensitive areas such as wildlife habitat, wetlands, and critical aquifer recharge areas.

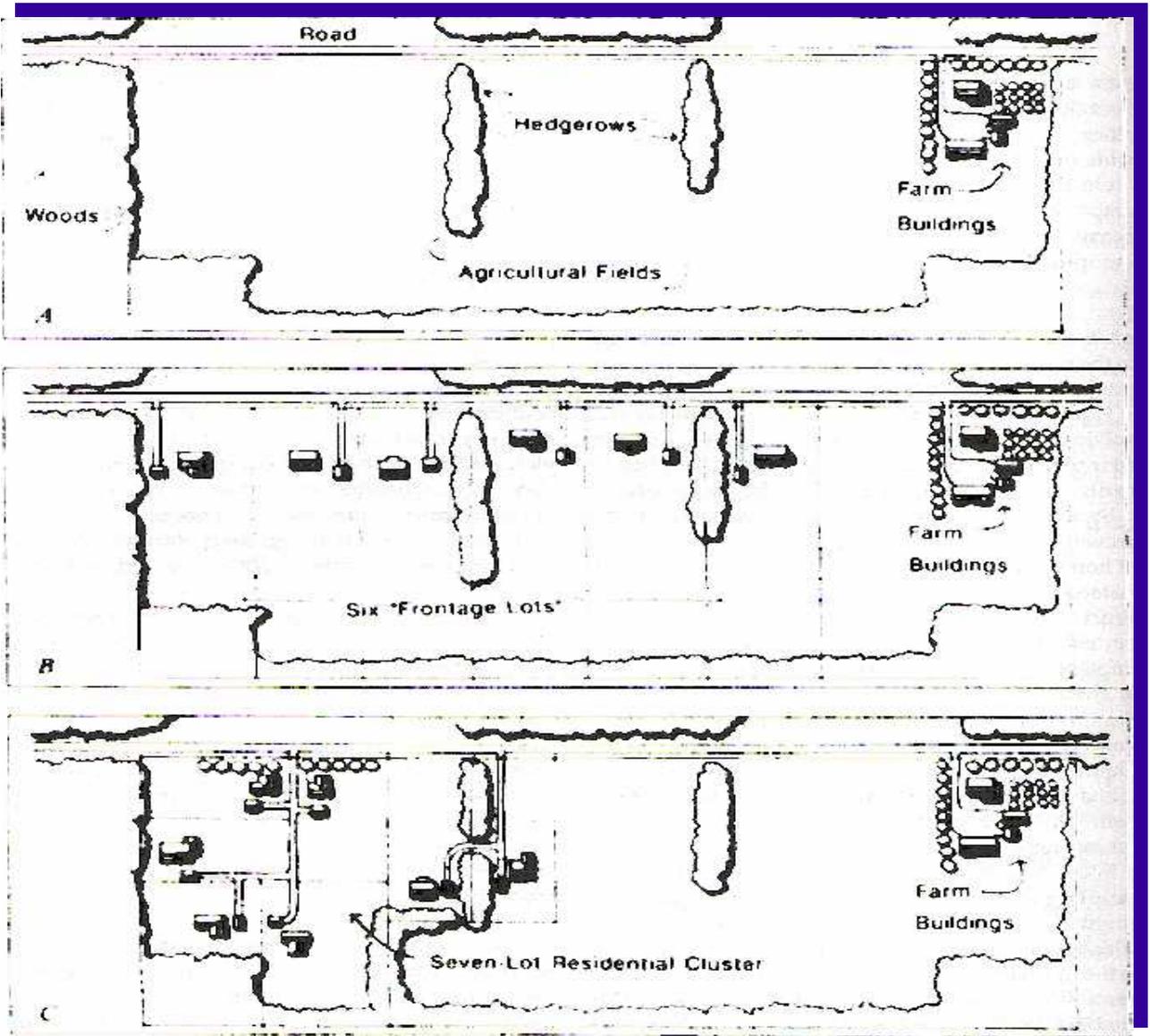
Clustering lots can actually reduce development costs (fewer roads, lower infrastructure costs due to economies of scale, etc). Research in other communities indicates that lots in open space subdivisions incorporating design standards and clustering provisions typically appreciate in value 10-15% more than traditional “large lot” subdivisions.

The current Whatcom County Code allows optional clustering subdivision process (WCC 20.34.305) but—in spite of the policy intent in the 1979 Subarea Plan—contains weak provisions to ensure good design:

- Existing design standards (WCC 20.34.310) provide little guidance on how lots are laid out on the land relative to the open space characteristics & resources intended for protection;
- Code only requires a mere 30% of the total site area to be open space (termed a reserve tract) outside of aquifer recharge areas and 55% inside recharge areas (WCC 20.34.252); and
- Code does not require permanent dedication of open space (e.g., reserve tracts can be developed later in life of the parcel, see WCC 20.34.320) which defeats the purpose of clustering.

Both the *Lummi Island Planning Survey* and the small group discussions of alternative growth management strategies indicated support for increased protection of unique components of the built and natural environment that constitute the island’s rural character, including open fields and woods, hedgerows, farm buildings and old homesteads, open vistas, groundwater recharge areas and environmentally sensitive areas and undeveloped shorelines. Clustering was supported by a majority of respondents on the *Planning Survey*—most notably “*if the reserve tract is legally guaranteed never to be developed*”. Examples of good open space design and clustering principles are shown in Figure 19.

Figure 19
Open Space Design and Clustering



For large remaining undeveloped tracts on the island, “landowner compacts”, or contracts, through the use of GMA-authorized “development agreements” should be encouraged as a means to maintain rural character, preserve open space and sensitive areas and still retain development values for large-scale private property owners. This technique allows adjacent property owners to jointly develop their properties in a coordinated and consistent fashion that can best preserve rural character and unique site characteristics yet still return full value to all property owners subject to the development agreement. It also presents an opportunity to plan for development, critical area protection and open space in a broader and more coordinated fashion.

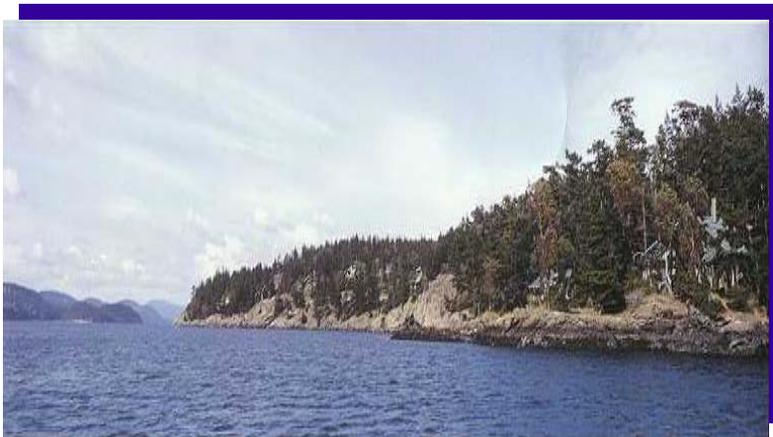
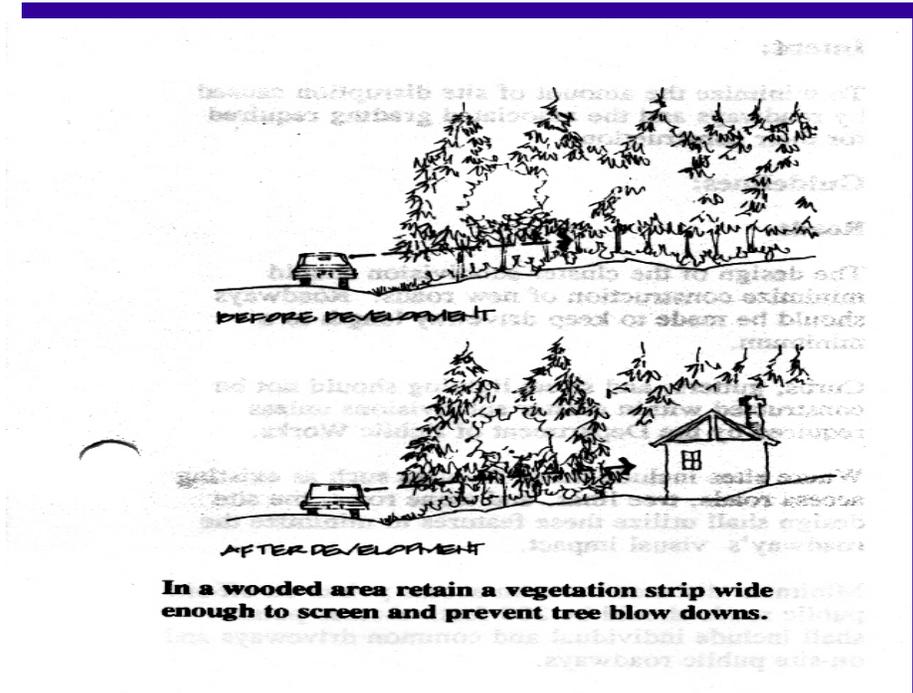
Building and Rural Site Design Standards—Rural design standards are regulations that typically address how development occurs on a piece of property rather than the density or intensity of use allowed. They are usually intended to address the visual impacts of new development on the character of surrounding areas. For example design standards could regulate such things as building setbacks from roads, the size of buildings, the placement of structures on the parcel, the appearance of lights, signs, landscaping, etc.

Design standards may be either voluntary—typically referred to as guidelines for new development—or mandatory—enforced through a more rigid design review process prior to the issuance of permits. These types of standards are most often applied to higher density residential uses or commercial activities since the more intensive developments generally create greater impacts on surrounding properties. Single-family homes are usually exempt from such standards due to the added costs of design review and enforcement of such standards that would be borne by the property owner and the permitting agency. Such standards are often enforced privately, however, in new subdivisions through CC&Rs (Codes, Covenants & Restrictions). Such standards often address building height limits to preserve views of neighboring structures, exterior building materials, color, building mass and size, exterior lights, etc.

A site plan review process that looks at the development of the entire lot at the time of or prior to application for a building permit could be a workable solution for Lummi Island. Under this scenario, such things as the building envelope (where structure(s) can be placed on the lot), clearing and preservation of vegetation and trees, setbacks from roads and adjoining parcels, location of well and septic system, etc. can be laid out in advance of development and aesthetic issues that impact rural character can be addressed. Again, though some of these standards—such as building placement or design—are typically best received as voluntary guidelines rather than strict de rigueur regulations.

Small group discussion of the growth management alternatives and the *Lummi Island Planning Survey* indicated cautious support for such standards provided they are reasonably based and applied. Examples of such measures are shown in Figure 20.

Figure 20
Example Building and Site Design Standards



Low Impact Development and Best Management Practices for Groundwater

Protection—Aquifer protection is a key attribute in land use planning for Lummi Island. Development standards and best management practices (BMPs) for groundwater protection affect on-site development activity such as building, storm water management and other aspects of construction in order to encourage storm water infiltration and aquifer recharge to the maximum extent practical. BMPs are most closely associated with managing storm water and trying to maintain the *pre-development* storm water hydrologic conditions on particular parcels as much as possible *after* development.

The most significant of these standards place limits on the construction of impervious surfaces in new development. Impervious surfaces are those hard surfaces such as roofs, roads, hard-packed gravel or paved driveways, sidewalks, patios, etc. from which rainwater is not readily absorbed back into the ground. Instead storm water runoff from impervious surfaces is often directed off-site and lost to potential aquifer recharge. Another valuable development technique is to retain vegetated buffers and construct “bio-swales” (shallow vegetation lined depressions) to hold and accommodate on-site storm water runoff for eventual recharge. Adopting impervious surface limitations and design standards to ensure that more storm water runoff can percolate back into the ground could help to increase the aquifer recharge rates.

Other effective development measures to protect groundwater can also be implemented after construction by residents such as: utilizing rain barrels or cisterns to harvest rainwater for potable and non-potable use; utilizing “gray water” systems for irrigation and other non-potable water needs (not allowed under current county code); utilizing alternative water supplies such as surface water and saltwater desalination systems; using native vegetation for landscaping that does not require supplemental watering (xeriscaping); and other household water conservation measures.

Small group discussion of the alternative growth management strategies and the *Lummi Island Planning Survey* both indicated support for such standards and practices provided they are reasonably based and applied.

Growth Management Indicators Program—This strategy establishes benchmarks and monitors key public facility service levels, as well as environmental, population growth and other community quality-of-life indicators for the next 20 year planning period. Thresholds for key indicators could be established (say for example the number or rate of contaminated wells, building permits issued, new lots created, etc.) so that when certain thresholds are reached the Subarea Plan could trigger certain actions such as temporary moratoria or review and amendments to the Subarea Plan or County regulations to correct deficiencies or address specific issues of concern, such as water quality and water supply planning.

Small group discussion of the growth management alternatives indicated public support to pursue this strategy in the implementation phase of the Subarea Plan.

Preferred Plan Policies & Implementation Measures

Preferred Plan, Policies and Implementation Measures

The Lummi Island Subarea Plan—a component of the Whatcom County Comprehensive Plan—is a policy plan that is to be used to guide the land use decisions affecting both the private and public sector.

Goals, policies and implementation measures are intended to “make it happen”—to define and identify the steps needed to carryout the recommendations in the Subarea Plan necessary to maintain the long-term future vision for Lummi Island.

Implementation measures are identified for each “element” of the Subarea Plan and a time-frame priority is assigned for each measure based on the following system to define when “action” on the particular policy or implementation measure is needed:

- IMMEDIATE: (action should occur within 1-2 year time-frame of Subarea Plan adoption)
- SHORT-TERM (action should occur within five year time-frame of Subarea Plan adoption)
- LONG-TERM (where implementing action is already adopted, such enforcement should occur on a recurring basis, as applicable to the issue, or where specific action is more likely to occur more than five years after Subarea Plan adoption)

Subarea Plan Goal

The overall goal of this plan is to allow growth within the limits that will preserve the island’s ground water resources, rural character and sense of community. Rural character is understood to mean both the amenities of the natural environment—the open spaces, views, wooded areas and wildlife ,agriculture resource protection —and the lack of urban-scale development, utilities and requirements for government. The term applies to the non-visual aspects of rural life on the island—the self-sufficiency, sense of community and mix of land uses—as much as to the visual appearance of Lummi Island.

Land Use Implementation Measures

IMMEDIATE

- 1.1 Amend the RR-I District zoning regulations and other regulations, as applicable, to establish one unit per five acres as the maximum density throughout the RR-I zone.

- 1.2 For the Lummi Island Scenic Estates subdivision, amend the Whatcom County Comprehensive Plan from Rural Forestry to Rural and the Zoning Map from Rural Forestry to Rural Residential-Island (RR-I) District. This change will not affect the status of the platted lots of L. I. Scenic Estates.
- 1.3 Amend the RR-I District zoning regulations (WCC 20.34.251-253) to eliminate provisions of the code authorizing different density provisions within and outside of groundwater aquifer recharge areas, including elimination of the density transfer provisions contained in WCC 20.34.251 (3) and WCC 20.34.330.
- 1.4 Encourage non-conforming lots (less than one acre in size) in adjacent common ownership to consolidate in order to get a building permit for a new home (to the extent allowed by State vesting law). Consider incentives to promote voluntary lot consolidation. In 2003 vacant non-conforming lots in adjacent common ownership account for about one-quarter of all vacant non-conforming lots on the north island and more than one third of such lots in Scenic Estates.
- 1.5 Pursue a down zone through public support of some properties. Resource and such as those in Designated or Classified Forestry and/or Current Use Taxation lands could be conducive to this approach.

SHORT-TERM

- 1.6 Adopt a Transfer of Development Rights (TDR) Program with downzoned parcels and non-conforming lots as initial density sending areas on Lummi Island consistent with potential receiving areas in the City of Bellingham UGA or Ferndale UGA in order to encourage buildout reduction on the island.
- 1.7 Coordinate with the Department of Planning and Development Services (PDS) to institute a program to identify and monitor key growth indicators on island and establish an annual report from PDS to the Lummi Island community regarding the status of specific community development issues of interest, including, but not necessarily limited to:
 - Ground water quality and quantity;
 - Well monitoring and number of dry wells annually;
 - Voluntary septic system monitoring;
 - Number of new housing units permitted;
 - Affordable housing data;
 - Ferry planning and ferry usage data; and
 - Subarea Plan policy implementation.

Also, under Title 2 of the Whatcom County Code (WCC), establish a standing island committee of island property owners and residents, representative of all island stakeholders whose purpose would be, but not limited to:

- Overall monitoring of the implementation of the updated subarea plan;
- Take the lead in establishment of growth indicators and the initiation and implementation of studies related to the issue areas identified in 1.7 of the revised Lummi Island Subarea Plan; and
- Cooperate with the County's Planning and Development Services.

1.8 Amend the WCC to adopt site and building design standards to maintain existing rural character on Lummi Island, including:

- Determine and use site clearing and grading techniques to maintain existing native vegetation on site and reduce soil compaction to the maximum extent practicable.
- Bright lights should be located and shielded so that their light is directed toward the areas needing illumination, and prevented from casting glare onto neighboring property.

LONG-TERM

Maintain the following shoreline land use regulations in the RR-I zone put in place following adoption of the original 1979 Lummi Island Plan and codified in WCC 20.34.170:

- 1.9 On the shore side of West Shore Drive and Nugent Road to the McLean Avenue right-of-way, along Seacrest Drive and Island Drive south to the Rural Forestry (RF) zone designation and along Legoe Bay Road from Village Point to the northwest corner of Peterson's Addition to Bellingham Bay Cities, land uses are designated as follows: On any area of a parcel where the distance between the ordinary high water mark and the county road right-of-way is less than 100 feet, no residential or commercial structures may be constructed. On any area of a parcel where the distance between the ordinary high water mark and the county road right-of-way is 100 feet or greater, residential uses are limited to single-family structures and commercial uses to home occupations, except along Legoe Bay Road from County Road 656 (just north of Lover's Bluff) to and including Village Point where commercial and light industrial uses other than home occupation may be allowed by conditional use.
- 1.10 Within the remainder of the RR-I zone land uses may include single-family dwellings (including duplexes), farming, forestry and woodlots,

home occupation and cottage industries associated with agriculture, forestry and fishing. Retail commercial activities are encouraged to locate in the vicinity of existing businesses at Legoe Bay and the Ferry Dock to maintain the island's rural character. Commercial, light industrial and multi-family residential uses are not prohibited elsewhere in the RR-I zone but may be allowed subject to the conditional use process in order to ensure compatibility with surrounding land uses.

- 1.11 Conditional use applications for light industrial and commercial uses should be reviewed in terms of size, scale, visual appearance, view blockage, amount of traffic generated, light and glare, noise, smoke and public access to shorelines (as appropriate).
- 1.12 Amend WCC 20.34.310 to include design standards that require clustering that preserves large open spaces, water recharge areas, prime agricultural soils and wildlife habitat. Such standards should require that buildings on open landscape be sited and designed to minimize disruption of views from adjacent property. This refers to building alignment, setback from roadways, variation of building height and bulk, and careful positioning of structures on the site with regard to existing vegetation and topography. Residential structures are encouraged to locate at the perimeter of fields or within woods. Commercial and light industrial structures, where possible, should be sited with ample side and rear yard setbacks to minimize disturbance to adjacent property.
- 1.13 Development approvals should be based, and conditions applied, in part, on the availability and adequacy of water resources, the protection of water quality and control or avoidance of pollution, and the satisfactory management of sewage and storm water.

Shorelines and Critical Areas Implementation Measures

IMMEDIATE

- 2.1 Make the Subarea Plan consistent with the Critical Areas Ordinance (CAO) by revising the existing mapped designation of Critical Aquifer Recharge Areas (CARAs) on island consistent with the designation in the current CAO (WCC 16.16.510) based primarily on soil types.
- 2.2 Assess the feasibility of establishing an Aquifer Protection Area (APA) (under RCW 36.36) as a means to provide funding for the protection, preservation and rehabilitation of ground water resources on Lummi Island. APAs are created by majority vote of property owners residing in the APA (within the proposed area). They impose fees on groundwater users and/or septic system users (with exceptions for low-income persons) in order to fund groundwater protection studies and the costs of

monitoring and inspecting groundwater quality and quantity and on-site sewage disposal systems as well as other implementation measures.

- 2.3 Identify unstable shorelines (i.e., beaches subject to erosion) and develop strategies and plans to address significant beach erosion areas. Continually monitor such shorelines for erosion movement, direction and quantity.
- 2.4 Acquire funding for and complete a more definitive Groundwater Aquifer Study and Groundwater Management Plan for the island to more accurately determine groundwater capacities and recharge rates, current and projected water use and withdrawal rates for residential, commercial and agricultural uses, and recommend measures to protect groundwater quality and avoid aquifer contamination.
- 2.5 The County should initiate a data collection program for all existing public and voluntary participating private wells to collect data on well locations, elevations, use, depth, and size as well as water quantity yield, and water quality (specifically for arsenic contamination and seawater intrusion).
- 2.6 Amend the Whatcom County Critical Areas Ordinance to implement the recommendations of the December 31, 2006 Aspect Consulting: *Conceptual Methodology for Evaluating Groundwater Withdrawal Proposals on North Lummi Island.*
- 2.7 Adopt a Water Management Plan consisting of Best Available Science (BAS) water retention practices.
- 2.8 Consider adding Lummi Island as a Stormwater Special District under Whatcom County Code WCC 20.80.635

SHORT-TERM

- 2.9 Amend the unstable slope regulations in WCC 20.34.656 to be consistent with Article III of the Whatcom County Critical Areas Ordinance (CAO) regarding development restrictions in geologically hazardous areas.
- 2.10 Require “low impact development” standards for new development to protect groundwater resources and increase recharge rates, including:
 - Minimizing impervious surfaces in new development;
 - Require construction techniques that increase storm water retention to the maximum extent practicable on-site; and

- Protect wetlands from being drained due to the impacts of clearing, grading and new construction.
 - Utilizing vegetated buffers and “bio-swales” and “rain gardens” to retain on-site water runoff and aquifer recharge.
 - Require incentives to contractors to implement low impact guidelines.
- 2.11 Allow the development of small-scale surface water sources such as rooftop collection, cistern storage, and grey water systems for non-potable water use on Lummi Island.
- 2.12 In review of all shoreline substantial development or conditional use permits, consideration of public access to public shorelines should be required. Unless the applicant demonstrates that unavoidable health or safety hazards to the public exist or the cost of providing the access is unreasonably disproportionate to the long-term cost of the proposed development.

LONG-TERM

- 2.13 Incorporate “Best Management Practices” (BMPs) in land use, development and building regulations to encourage water conservation, such as:
- Design and operational standards for water suppliers and purveyors, including point-of-use demand management and water meters for new construction;
 - Encouraging new and existing homes to utilize collection systems to capture and recycle rain water;
 - Utilizing water-efficient landscaping that does not require irrigation.
- 2.14 Water system providers should encourage, through education and incentives, the retroactive installation of water conservation measures by their members.
- 2.15 Since higher capacity wells can in some cases reduce the capacity of surrounding wells and also induce saltwater intrusion, a careful testing program should be required for any new well designed to serve more than a single dwelling unit. That program shall provide for regression analysis, removal of tidal effects in neighboring observation wells and for multiple testing for chlorides at the start, during and at the end of the pump test. The County or the Department of Ecology should oversee such testing and

decisions concerning establishment of capacity limits for such wells should be based on this data.

- 2.16 Ensure that appropriate steps are taken to protect groundwater aquifer(s) from potential contamination from the use of pesticides, herbicides, fertilizers and hazardous substances. Prohibit use of pesticides and herbicides on County land, easements and rights-of-way, in order to protect the quality of the island's limited water resources. Require that adequate containment measures are in place for petroleum storage facilities of over 500 gallons and for the storage of over 500 lbs of other hazardous substances on island.
- 2.17 Pursue designation of Lummi Island as a sole source aquifer under the U.S. Environmental Protection Agency (EPA) standards to protect against aquifer degradation from future developments.

Recreation & Open Space Implementation Measures

IMMEDIATE

- 3.1 Amend the RR-I District zoning regulations (WCC 20.34), and other regulations as applicable, to incorporate the following clustering and open space design provisions on Lummi Island:
 - 3.1a Retain at least 60% of the site as permanent open space either in common or single ownership. Amend the "reserve tract" provisions of WCC 20.34.310-320 to state that *"a reserve tract must be created for perpetuity and be unbuildable beyond any building density remaining at the time of land division This is intended to ensure that the reserve tract open space will remain in the same location adjacent to the clustered lot is serves for perpetuity."*
 - 3.1b Establish nonbuildable portions of new parcels contiguous to one another and to contain the most sensitive open space areas (including aquifer recharge areas and other environmentally sensitive areas).
 - 3.1c Encourage open space areas to be held in common ownership and in perpetuity by a conservation organization such as the *Lummi Island Heritage Trust*.
 - 3.1d Retain existing open fields to the maximum extent practicable for use as farmland, pasture, groundwater aquifer recharge areas, etc.

- 3.1e Incorporate existing historic and cultural features (houses, barns, rural roads, pastures, scenic views, public shoreline access points, etc.) into the site design.
- 3.1f Site new buildings and roads to the maximum extent practicable to avoid removal of existing trees, reduce soil erosion and maximize aquifer recharge potential.
- 3.1g Locate new buildings so that they can be screened from view of public rights-of-way to the maximum extent practicable by existing vegetation or terrain (e.g., locate houses behind trees, at forest edges and below ridgelines).
- 3.1h Within cluster housing developments, individual housing clusters shall not exceed six (6) single-family residential units.
- 3.1i Design standards for housing to be developed that will ensure clustering preserves large open spaces, water recharge areas, good agricultural soils, and wildlife habitat.

SHORT-TERM

- 3.2 Advise the County to assess the feasibility and requirements for the island to establish a Recreation Service Area or District (under RCW 36.69) to require that a portion of the property taxes collected from island property owners be dedicated for acquisition of recreational facilities on Lummi Island with the intent to purchase easements or outright properties (including non-conforming lots) for recreational purposes (e.g., for public trails, boat launch, or shoreline public access) on island.
- 3.3 Start a public education campaign to inform residents and visitors alike of the property rights and responsibilities of each party regarding trespass on private property and to educate all parties about the sensitive island environment.
- 3.4 Assess the creation of a Whatcom County Land Bank to help protect open space on Lummi Island.
- 3.5 When considering vacation of road ends, RCW 36.87.130 shall be followed.

LONG-TERM

- 3.6 Work with local landowners, the Whatcom County Parks and Recreation Department, and other agencies to identify potential sites and funding sources for public trail and shoreline access use (including the potential use of County-owned road ends for public trail access).
- 3.7 Pursue dedicated funding sources for a Purchase of Development Rights (PDR) program such as the potential for redirecting all Real Estate Excise Tax (REET) monies generated from the island for expenditure back on island for PDRs that protect open space.

Public Services and Facilities Implementation Measures

SHORT-TERM

- 4.1 Work with Whatcom County Public Health Department to establish a septic tank monitoring program for all septic systems with drain fields located less than 200 feet from shorelines and groundwater aquifers.

LONG-TERM

- 4.2 Coordinate with electrical power and telephone utility providers about the need for improved broadband communication.
- 4.3 Explore the use of utility easements and public rights-of-way for public trails and public access points.
- 4.4 Encourage utility companies to establish a schedule of placing utility lines underground.
- 4.5 Work with the Whatcom County Sheriff to increase public safety on island.
- 4.6 The Lummi Island community supports the continued operation of the Beach School.
- 4.7 Maintain adopted Levels-of-Service per capita (LOSs) for fire protection and emergency medical services.

Transportation Implementation Measures

IMMEDIATE

- 5.1 Continue working with the Whatcom County Public Works Department and the Lummi Nation on improvements to the Lummi Island Ferry

System and associated parking and public transit needs to secure long-term increased mobility for island residents. The first step in the process should be to complete the 20 Year Ferry Plan and determine workable long-range solutions for the Lummi Island Ferry System.

- 5.2 Work with Whatcom County and the Lummi Nation to secure adequate parking as close as practicable to each ferry terminal.

SHORT-TERM

- 5.3 Work with Whatcom County to reduce excessive driving speeds on the island's rural roads (such as the use of information speed signs to alert drivers to their actual vs. posted speeds on specific road segments on island).
- 5.4 Initiate a "smart driving" campaign to promote increased carpooling, park-and-rides, and rideshares for island commuters.

Table 9
Platted Lots of Record Prior to 1978
Not Subject to Lot Consolidation Provisions of WCC 20.83.070

Name	Date	Acres	No. Lots
1800's to 1930's (Dates unknown)			
Alf's Grove Addition		5.5	24
Bonnie Brae Add. To B'ham Bay		5.0	14
Bowden's Add. To B'ham Bay		110.0	20
Hansen's Sportsman's Park		32.4	52
Hunter Park		40.0	50
New World Addition		3.0	15
New Port Add.		20.0	72
North Seacrest Tracts		16.0	20
Petersen's Add. To B'ham Bay Cities		50.0	11
Seacrest		15.0	57
Seeyle Heights Addition		2.5	12
Sunset Addition		5.0	13
SUBTOTALS		304.4	360
POST WWII			
Hansen's Echo Point Tracts	1946	4.0	10
Lummi Bay Plat	1950	12.5	39
Hansen's Echo Point Tracts 1st Add.	1954	8.0	18
Georgia View Addition	1957	10.6	17
Isle Aire Beach	1960	23.4	78
Gramac Hilltop Add. #1 & #2	1962	10.0	26
Sunrise Cove on Lummi Island	1966	3.2	8
SUBTOTALS		71.7	196
Lummi Is. Scenic Estates Total	1959-1965	230.0	479
Division 1	1959		(47)
Divisions 2, 3, 4, 5	1961		(254)
Divisions 7 & 9	1962		(92)
Division 6	1963		(50)
Division 10	1965		(36)
SUBTOTALS		301.7	675
Marine View Estates		5.0	16
Hale's Pass Addition		121.6	21
Brown's Short Plat		2.0	3
Feiselman Short Plat		2.5	3
Irene Thomas Short Plat		8.0	2
Richardson's Short Plat		2.0	4
Pyeatt Short Plat		1.8	2
Beach Short Plat		2.8	2
Oppenheimer Short Plat		9.8	2
Sunset Beach		14.5	31
SUBTOTALS		170.0	86
TOTAL ALL SUBDIVISIONS		847.8	1317

Appendices

Appendix A

Lummi Island Planning Survey

Lummi Island Planning Survey

PRELIMINARY RESULTS

- 1. Numbers listed after each answer choice represent the percentage of all respondents to the question who selected that particular response.*
- 2. Since most percentages have been rounded off to the nearest whole number, sums for each question may differ slightly from 100.*

Questions 1-3 ask about your level of agreement or disagreement with suggested elements of the proposed Lummi Island Vision Statement. (copy attached)

1. Would you prefer to see more or less of the following elements of the Island's *physical environment*?

	<i>Much more</i>	<i>More</i>	<i>About the same</i>	<i>Less</i>	<i>Much less</i>
a. Open Fields	14	16	65	3	1
b. Wooded areas	17	20	58	4	1
c. Roadside and field hedgerows	17	19	50	11	4
d. Wetlands	15	17	62	5	1
e. Undeveloped shoreline	26	20	48	5	1
f. Open vistas	17	23	55	2	3
g. Air and water quality	26	25	48	0	0
h. Quiet	22	26	50	2	0
i. Rustic public walking trails	29	34	28	5	4
j. Public shoreline access for:					
i. walking	36	25	29	4	6
ii. boat launch	25	31	31	5	8
iii. other	16	19	51	6	7
k. Healthy fish and wildlife habitats	36	28	34	1	0

2. How valuable to you are the following attributes of the Island *community*?

	<i>Very</i>	<i>Somewhat</i>	<i>Not at all</i>
a. Mutually supportive environment	60	32	7
b. Strong community involvement	51	40	8
c. Neighborliness	66	29	4
d. Sense of safety	78	19	3
e. Wide range of community activities	30	55	15
f. Sense of belonging	49	41	10
g. Community-based cultural activities	32	52	16
h. Social and economic diversity	37	45	18
i. Influence in County's decisions affecting the island	77	19	5

3. How valuable to you are the following aspects of the Island's *rural character*?

	<i>Very</i>	<i>Somewhat</i>	<i>Not at all</i>
a. Rural character of roads	68	21	10
b. Small scale of public and commercial enterprises	65	27	8
c. Unhurried pace of life	75	19	6
d. Sustainability of resource-based enterprises	50	38	12
e. Sense of privacy	79	19	2
f. Housing & landscaping appropriate to rural community	61	27	12

Questions 4 through 9 ask your general views about growth on Lummi Island.

4. Overall, do you think that development on Lummi Island in the last few years has made it a *more desirable* or *less desirable* place for you to live?

- A. More desirable **10**
- B. About the same **35**
- C. Less desirable **50**
- D. Unsure or no opinion **5**

5. In your view, have the County's land use policies governing development on the Island been:

- A. Too restrictive **12**
- B. About right **47**
- C. Not restrictive enough **41**

6. How satisfied are you with the County's management of growth and development on the Island in the last few years?

- A. Very **3**
- B. Mostly **28**
- C. Somewhat **49**
- D. Not at all **20**

7. Are there reasons associated with growth or land use that would lead you to consider moving away from Lummi Island? (*Mark all that apply*)

A. Not applicable: I don't reside even part-time on Island	10
B. No, I would not consider moving because of growth	25
C. Deterioration of environmental quality	48
D. Loss of sense of community	28
E. Too many people, houses, and traffic	56
F. Loss of sense of safety	50
G. Loss of sense of privacy	48
H. Length of commute times to mainland	25

8. The following are potential outcomes that could accompany growth on the island. How desirable or undesirable is each of the following for you personally?

	<i>Very Desirable</i>	<i>Somewhat Desirable</i>	<i>Neutral</i>	<i>Somewhat Undesirable</i>	<i>Very Undesirable</i>
a. Street lights on all roads	2	5	12	20	62
b. Gas station(s)	16	24	18	16	26
c. Shopping center	3	7	14	15	60
d. Island medical clinic	16	29	32	10	14
e. Public water and sewer treat	10	15	23	15	37
f. All roads hard-surfaced	8	13	27	17	35
g. Stop lights at intersection	2	3	10	17	68
h. Community center	17	29	29	9	16
i. Island bus/van service	20	34	23	7	16
j. Island law enforcement (including traffic laws)	14	17	27	16	26
k. Professional fire protection	14	19	39	12	16
l. Movie theater	2	6	20	14	58
m. Senior assisted living	17	26	33	7	18

9. Please write the names of up to three specific places on the island you would especially like to see preserved: *(Write names in space provided on answer sheet)*

The next questions ask what kind of growth and related issues you would like to see happen on Lummi Island (not what you think is most likely or inevitable).

10. Compared to the current population level (about 1560 residents in peak season), what would you prefer the island population to be?

- A. Smaller **32**
- B. About the same **54**
- C. Somewhat larger **13**
- D. Much larger **1**

11. How fast would you like the population be allowed to increase?

- A. Current growth rate is fine. (Adding about 230 houses by 2010, and 300 more by 2020) **18**
- B. Slower growth than the last 10 years **39**
- C. Faster growth than the last 10 years **3**
- D. Zero or negative growth rate (constant or decreased population) **40**

12. The current 1979 land use plan relies heavily on water availability as the primary tool for managing growth. Which of the following factors do you think should be considered as management tools in forming the *new* land use plan? (*Mark all that you support*)

h. Water quality and quantity.	90
i. Transportation time and costs (roads, ferry, etc.).	52
j. Economic or market forces	13
k. Maintaining rural character of the island.	77
l. Maintaining a strong sense of community.	48
m. Maintaining healthy natural environment and wildlife habitat	78
n. Commercial opportunities	10

13. Would you like to see more or less of each of the following on the Island?

	<i>More</i>	<i>Same</i>	<i>Less</i>	<i>None</i>
a. farming	36	60	4	1
b. forestry	10	50	25	14
c. mining/quarrying	3	31	26	40
d. fishing	40	54	3	2
e. aquaculture	21	39	10	30
f. arts and crafts	34	57	6	3
g. home office/ telecommuting	41	53	5	1
h. bed & breakfasts	18	66	12	4
i. marina	40	33	5	22
j. boat launch	55	28	5	12
k. golf course	11	12	4	73
l. restaurant	22	71	3	4
m. tourism	9	43	25	23
n. stores	11	78	2	8

14. Some residents are concerned about glare from outdoor lighting. Do you support regulation of outdoor lighting to preserve a natural sense of nighttime darkness?

A. Strongly support	51
B. Somewhat support	16
C. Neutral	13
D. Somewhat oppose	8
E. Strongly oppose	12

15. Is noise on the island (e.g., from machinery, pets, traffic) a problem for you?

A. Often	13
B. Occasionally	54
C. Never	33

16. Is smoke a problem in your island neighborhood? (e.g., burn piles, wood stoves)

- A. Often **3**
- B. Occasionally **27**
- C. Never **70**

17. Should construction guidelines for new and remodeling projects be revised to include any of the following? (Mark all that you support)

a. Provide green barrier (not just lawn) between new houses and road.	41
b. Encourage siting building at the edge of fields rather than in center	38
c. Restrict clearing of trees when building	45
d. Restrict construction of impermeable surfaces	54
e. No new restrictions should be imposed	28
f. Limit proportion of lot that can be filled by man-made structures	48
g. No expansion of original foundation footprint in remodeling structures near shorelines or other sensitive areas	45

18. Should Lummi Island consider forming a Park District (to keep a portion of property tax dollars presently sent to mainland) for purchase of land for parks, trails, boat launch, or other public use?

- A. Yes **71**
- B. No **20**
- C. Unsure or don't understand **9**

19. When growth and development come to a community, new infrastructure and services are needed (for example, more roads, fire, police, schools, libraries). In your opinion, who should pay for the expansion of services required by new development?

- A. Current residents should pay these costs. **1**
- B. Developers and new owners should pay. **56**
- C. Both should pay. **44**

20. Would you like to see a moratorium on the issuing of new land subdivision permits on Lummi Island while the Sub-area Plan is being revised?

- A. Yes **67**
- B. No **24**
- C. Unsure or don't understand **10**

Our community will be influenced by the type of development that is permitted by County rules. The next questions ask your views about some County rules for development.

21. Currently, much of Lummi Island is zoned RR-I (Rural Residential-Island) except for the mountain (including Scenic Estates), which is zoned "Rural Forestry." Many in Scenic Estates believe their interests as a community would be better protected (e. g., from logging or quarry impacts) by RR-I zoning. Do you support such a rezone of Scenic Estates (leaving rest of mountain zoned Rural Forestry) ?

- A. Yes **59**
- B. No **19**
- C. Unsure **22**

22. Do you live or own property in Scenic Estates?
- A. Yes **25**
 - B. No **75**
23. The County Comprehensive Plan suggests the possible creation of a commercial zone on the island (perhaps near the ferry dock) where any new high traffic public and commercial activities (stores, restaurants, businesses) would have to locate. Do you support the idea of such a commercial zone on the island?
- A. Yes **40**
 - B. No **44**
 - C. Unsure **16**
24. Presently, County zoning allows 'multiplex' living units (up to four units in one building) on Lummi Island under conditional use permits, which requires a public hearing and notification of neighbors within 300 feet. Should County policy:
- A. Remain the same **38**
 - B. Allow only duplexes (including mother-in-law apartments), and require a public hearing? **27**
 - C. Prohibit multiplex housing **32**
 - D. Unsure or don't understand **4**

Average and minimum lot sizes. For new subdivisions, current law says that minimum allowable size of lots entirely inside designated groundwater recharge areas is 5 acres, and entirely outside water recharge areas is 3 acres. For parcels partially inside and partially outside recharge areas, individual lots can be as small as 1.5 acres as long as the average lot size for the whole parcel is at least 3 acres. The next three questions refer to these rules.

25. I prefer the minimum lot size in new subdivisions *entirely inside* water recharge areas to be:
- A. 5 acres (current law) **59**
 - B. 10 acres **21**
 - C. 20 acres **11**
 - D. Unsure or don't understand **9**
26. I prefer the average lot size in newly platted subdivisions that are *partly or entirely outside* water recharge areas to be:
- A. Less than 3 acres **10**
 - B. 3 acres (current law) **38**
 - C. At least 5 acres **30**
 - D. At least 10 acres **9**
 - E. At least 20 acres **5**
 - F. Unsure or don't understand **8**
27. I prefer the minimum lot size in new subdivisions that are *partly inside and partly outside* water recharge areas to be:
- A. Less than 1.5 acres **8**
 - B. At least 1.5 acres **14**
 - C. At least 3 acres **25**
 - D. At least 5 acres **30**
 - E. 10 or more acres **12**
 - F. Unsure or don't understand **12**

Density transfer is a process by which development rights can be moved from one place to another. Density transfer allows more development in the place density is transferred to, in exchange for less density in the place density is transferred from. Current law allows density to be transferred within Lummi Island's Rural-Residential-Island zone, subject to some restrictions.

28. Should density transfer be allowed on Lummi Island under any circumstances? (Mark all that you support)

a. Yes, from the island to a receiving area <u>off</u> the island	27
b. Yes, from residential zones on island to a possible new commercial zone on island	18
c. Yes, within a residential zone, but not into water recharge, shoreline, or other sensitive areas	23
d. No	37
e. Unsure or don't understand	13

Lot clustering. The current County Comprehensive Plan includes Policy 2FF-2, "Encourage cluster housing and other innovative development techniques on Lummi Island." In lot clustering, a portion of a parcel may be subdivided into lots smaller than otherwise would be permitted, in exchange for the creation of a single, larger 'reserve tract' of undeveloped land that can be used for forestry, open space, or agriculture. Such "reserve tracts" can be subject to further development under some conditions.

29. Which of the following clustering policies do you support?

- A. Current provisions for clustering should be retained. **19**
- B. Clustering should be allowed only under special circumstances (See next question) **49**
- C. Cluster developments should not be allowed on Lummi Island under any circumstances. **28**
- D. Unsure or don't understand **4**

30. If you selected choice "b" in the previous question, under what conditions should clustering be allowed or encouraged? (Mark all that you support)

a. If it preserves rural character better than alternatives	43
b. If the reserve tract is legally guaranteed never to be developed	47
c. If it permits development of affordable housing	15
d. If a reasonable minimum lot size is established	23
e. Unsure or don't understand	3

The next five questions relate to transportation:

31. How should roads and traffic be changed for improved safety? (Mark whether you agree or disagree with each option)

	Agree	Disagree
a. Roads are safe enough now.	65	35
b. Reduce speed limit to 25 mph for entire island	56	44
c. Enforce speed limits on current roads	64	36

d. Widen extra narrow roads minimally where visibility is limited	64	36
e. Widen all roads minimally	18	82
f. Widen all roads substantially	6	94

32. What new protections do you support for pedestrians or bicyclists? (Mark all that you support)

a. No new protections are needed.	37
b. Add new road shoulders for trails along only the most dangerous roads	33
c. Add new road shoulders for trails along all roads	15
d. Add trails buffered from most dangerous roads (as by drainage ditch)	28
e. Add trails buffered from all roads (as by drainage ditch)	10
f. Add special walking and biking trails not necessarily associated with roadways	47

33. What is the average number of ferry round trips you make per week as either a pedestrian or vehicle passenger?

- A. 0-2 **68**
- B. 3-5 **25**
- C. 6-8 **5**
- D. 9 or more **2**

34. What is the average number of round trips a week you make on the ferry as the driver of a vehicle?

- A. 0-2 **60**
- B. 3-5 **33**
- C. 6-8 **7**
- D. 9 or more **1**

35. How much do you support County incentives to increase "walk-on" use of the ferry and decrease "car-and-driver" use?

- A. Strongly **48**
- B. Somewhat **27**
- C. Not at all **25**

It is important to know how well all groups on the Island are represented by those who actually respond to the survey. The following demographic questions are for statistical purposes only; all of your answers will remain completely anonymous. The more of these questions you answer, the better we can tell how well survey results represent the whole range of Islanders' views.

36. How involved are you in community activities or organizations (e.g., Community Club, Fire Hall, Elderberries, Grange, Heritage Trust, Boys and Girls Club, etc.)?

- A. Very **15**
- B. Somewhat **51**
- C. Not at all **34**

37. Do you:

- A. Own home on Lummi Island? **78**
- B. Rent home on Lummi Island? **5**
- C. Own property but do not live on Lummi Island? **15**
- D. Other (e.g., live with a property owner)? **2**

38. How much land do you own on Lummi Island?

- A. None **7**
- B. Less than 1 acre **41**
- C. 1 to less than 6 acres **36**
- D. 6 to 10 acres **7**
- E. More than 10 acres **9**

39. How much of the past year did you reside on Lummi Island?

- A. Essentially full time **59**
- B. More than six months, but not full time **8**
- C. One to six months **21**
- D. Not at all **12**

40. For how many years have you lived on Lummi Island (full or part time)?

- A. None **10**
- B. up to 5 years **22**
- C. 5+ to 10 years **17**
- D. 10+ to 20 years **22**
- E. more than 20 years **28**

41. What is your gender?

- A. Female **50.3**
- B. Male **49.7**

42. What is your age group?

- A. 20 or under **0**
- B. 21-34 **5**
- C. 35-49 **25**
- D. 50-64 **44**
- E. 65 or older **25**

43. What is your highest level of education?

- A. High school or less **5**
- B. Some college or technical school **18**
- C. 2 year degree **8**
- D. 4 year degree **24**
- E. Beyond four-year degree **45**

44. How many children do you have in each school-age category?

	<i>None</i>	<i>One</i>	<i>Two</i>	<i>Three</i>	<i>Four +</i>
a. Preschool	92	5	4	-	-
b. Elementary	87	9	2	1	1
c. Middle school	92	7	1	-	-
d. High School	89	9	2	-	-
e. College	80	13	5	1	1

45. What is your employment status? (*Mark all that apply*)

a. Self-employed	32
b. Full time employee	30
c. Part time employee	13

d. Retired	32
e. Other	5

46. What portion of your income is from work performed on Lummi Island?

- A. None **70**
- B. Less than half **13**
- C. More than half, but not all **5**
- D. All **11**

47. In what sector of the economy are you normally employed? (*Choose only one*)

A. Retired 24	G. Farming 1	M. Technology 5
B. Food service 1	H. Health 8	N. Real estate 2
C. Art, music or writing 4	I. Mining (.4)	O. Tourism 1
D. Homemaker 3	J. Fishing 1	P. Clerical 1
E. Education 12	K. Forestry (.2)	Q. Sales 3
F. Public sector (non-educ) 4	L. Construction 4	R. Other 17

48. What is your household gross annual income?

- A. under \$17,500 **7**
- B. \$17,501 - 32,000 **15**
- C. \$32,001 - 43,000 **15**
- D. \$43,001 - 75,000 **32**
- E. \$75,001 - 120,000 **18**
- F. over \$120,000 **13**

Thank you for completing the Lummi Island Planning Survey. Please transfer your answers to the enclosed answer sheet, using a No. 2 pencil. Fill in each oval completely. Enter any additional comments or concerns on the next page.

PLEASE DO NOT FOLD YOUR ANSWER SHEET!

Return your completed answer sheet and comment sheet in the enclosed postage-paid envelope.

Individual Comments

Please enter on this page any additional comments you would like to make about land use issues important to you personally. What should the next Island land use plan try to protect, preserve, enhance, develop, allow, permit, control, encourage, or discourage? What are your primary concerns or fears? What are your hopes? What is important to you about living on Lummi Island?

Note: *Since the Lummi Island Planning Committee does not have the resources to retype extensive comments, it would be very helpful if you would submit your comments electronically online at either <http://www.lummi-island.com/survey.htm> or <http://www.wvu.edu/~assess/survey.htm> rather than submitting them on this sheet. Thanks!*

If web access is not easily available to you, please write your concerns on this page, and submit it together with your answer sheet in the enclosed envelope. Please be brief and write legibly. Attach additional sheets if necessary. Thanks again for completing the survey.

Comments:

Appendix B

Growth Management Alternatives Public Evaluation

Lummi Island Subarea Plan Update Growth Management Alternatives

Evaluation Summary

As part of the on-going Lummi Island Subarea Plan Update process, a presentation of current growth trends, issues and potential alternative growth management strategies and techniques to address those issues were presented in a slide show to Lummi Island residents and property owners at a Town Meeting at the Beach School on March 22, 2003. In excess of 120 residents and property owners were in attendance at that meeting. A nominal small group consent-building process was utilized following the presentation to give residents and property owners an opportunity to discuss and evaluate those techniques and determine which techniques should be pursued for possible use on Lummi Island. Ten small groups were convened, each with a facilitator and recorder, and an evaluation questionnaire was distributed for each group to complete. The summary responses from those groups are shown in this evaluation summary (date March 24, 2003) prepared by Mark Personius, AICP, Growth Management Consultant.

Consensus Summary Symbols

Majority Viewpoints

- ▲ Majority Recommend to Pursue
[Δ Sub-group majority]
- ▼ Majority Recommend Not to Pursue
- ◀▶ Majority Undecided

Minority Viewpoints

- Minority (Strong)
- Minority (Weak)

	Pursue	Don't Pursue	Can't Decide
1. Residential Zoning Alternatives			
<input type="checkbox"/> No Change (keep the existing zoning pattern)	○	▼	
○ Rezone 1 unit/3 acre zoned parcels to 1 unit/5 acre density	▲	○	
○ Rezone the entire north island to 1 unit/7.5 acres density	△	●	
○ Rezone the entire north island to 1 unit/10 acres density	△	●	●
2. Commercial/Mixed Use Zoning Alternative			
<input type="checkbox"/> Rezone Ferry Dock area to Rural Village Mixed-Use	○	▼	○
3. If some downzone scenario is recommended by the Subarea Plan, identify affected parcels subject to a loss in allowable zoning density as new eligible “sending areas” in the Whatcom County TDR Program.	▲		○
4. Require non-conforming lots in adjacent common ownership to consolidate in order to get a building permit for a new home (to the extent allowed by Washington state “vesting” law).	▲	○	○
5. Incorporate non-conforming lots on Lummi Island as a new eligible “sending areas” in the Whatcom County TDR Program in order to encourage buildout reduction on the island.	▲		
6. Advise the County to assess the feasibility and requirements for the island to establish a Recreation Service Area or District (under RCW 36.69) to assess a property tax levy and collect funds from island property owners with the intent to purchase easements or outright properties (including non-conforming lots) for recreational purposes (e.g., for public trails, boat launches, a park or shoreline public access).	○	▼	

	Pursue	Don't Pursue	Can't Decide
7. Incorporate open space design and clustering provisions for new subdivisions.			
<input type="checkbox"/> Retain at least 60% of the site as open space	▲	○	
<input type="checkbox"/> Establish nonbuildable portions of new parcels to be contiguous with one another and to contain the most sensitive open space features of the site (including critical aquifer recharge areas).	▲	○	
<input type="checkbox"/> Encourage open space areas to be held in common ownership and in perpetuity by a conservation organization such as the Lummi Island Heritage Trust.	▲	○	○
<input type="checkbox"/> Retain existing open fields to the maximum extent practicable for use as farmland, pasture, recreation, groundwater aquifer recharge areas, etc.	▲	○	●
<input type="checkbox"/> Incorporate existing historic and cultural features (houses, barns, rural roads, pastures, scenic views, shoreline access points, etc.) into the site design.	▲	○	
<input type="checkbox"/> Site new buildings and roads to the maximum extent practicable to avoid removal of existing trees, reduce soil erosion and maximize aquifer recharge potential.	▲	○	○
<input type="checkbox"/> Locate new buildings so that they can be screened from view of public rights-of-way to the maximum extent practicable by existing vegetation or terrain (e.g., locate houses behind trees, at forest edges and below ridgelines).	▲	○	○
<input type="checkbox"/> Encourage “landowner compacts” through the use of GMA-authorized “development agreements” as a means to maintain rural character, preserve open space and sensitive areas and still retain development values for large-scale private property owners.	▲		●
8. Utilize site and building design standards to maintain existing rural landscapes and mitigate the impacts of new residential construction on existing lots.			
<input type="checkbox"/> Place limitations on the size of new home construction consistent with typical homes already built on the island.	▲	●	○
<input type="checkbox"/> Limit site clearing and grading to preserve existing vegetation on site and reduce soil compaction to the maximum extent practicable	▲	●	
<input type="checkbox"/> Adopt vegetation protection standards to limit removal of significant trees during (and after) the development process	▲	●	○
<input type="checkbox"/> Increase setbacks for new construction to move new buildings further away from the road and lessen the visual impact of “crowding” often associated with development that fronts on public rights-of-way	●	●	●
<input type="checkbox"/> Require shielding of new outdoor lights to reduce nighttime glare	▲		

	Pursue	Don't Pursue	Can't Decide
9. Incorporate “best management practices” and “low impact development” standards for new development in order to protect groundwater resources:			
<input type="checkbox"/> Minimize impervious surfaces in new development (e.g., roofs, roads and driveways, parking areas, etc.)	▲		
<input type="checkbox"/> Require new home construction to utilize rain barrels or cisterns for non-potable water use.	●	▼	●
<input type="checkbox"/> Require “xeriscaping” with native vegetation that doesn’t require irrigation or watering.		●	◀▶
<input type="checkbox"/> Utilize vegetated buffers and “bio-swales” to accommodate on-site storm water runoff	▲		
<input type="checkbox"/> Other			
10. Adopt a residential building permit allocation system to limit growth on Lummi Island based on a sustainable annual growth rate consistent with the GMA requirement to accommodate 20 years of projected population growth while ensuring the preservation of rural character, conservation of open space, maintenance of adequate ferry service capacity, and protection of groundwater resources (e.g., allow new home construction at a maximum rate of 1.9 % annually or approximately 12 new homes per year for the next 20 years—12 x 20 years=240 total maximum new dwelling units allowed under the Subarea Plan).	▲	●	●
11. Institute a Growth Management Indicators Program for the Island to monitor key public facility, population growth and environmental indicators affecting quality-of-life. Thresholds for key indicators could be established (say for example the number or rate of contaminated wells, ferry levels of service, etc.) so that when certain thresholds are reached the Subarea Plan could trigger certain actions such as temporary moratoria or review and amendments to the Subarea Plan or County regulations to correct deficiencies or address specific issues of concern, such as water quality and water supply planning.	▲		