Land use Impacts of the
GUEMES ISLAND FERRY SCHEDULE EXTENSION

Prepared for

FRIENDS OF GUEMES ISLAND

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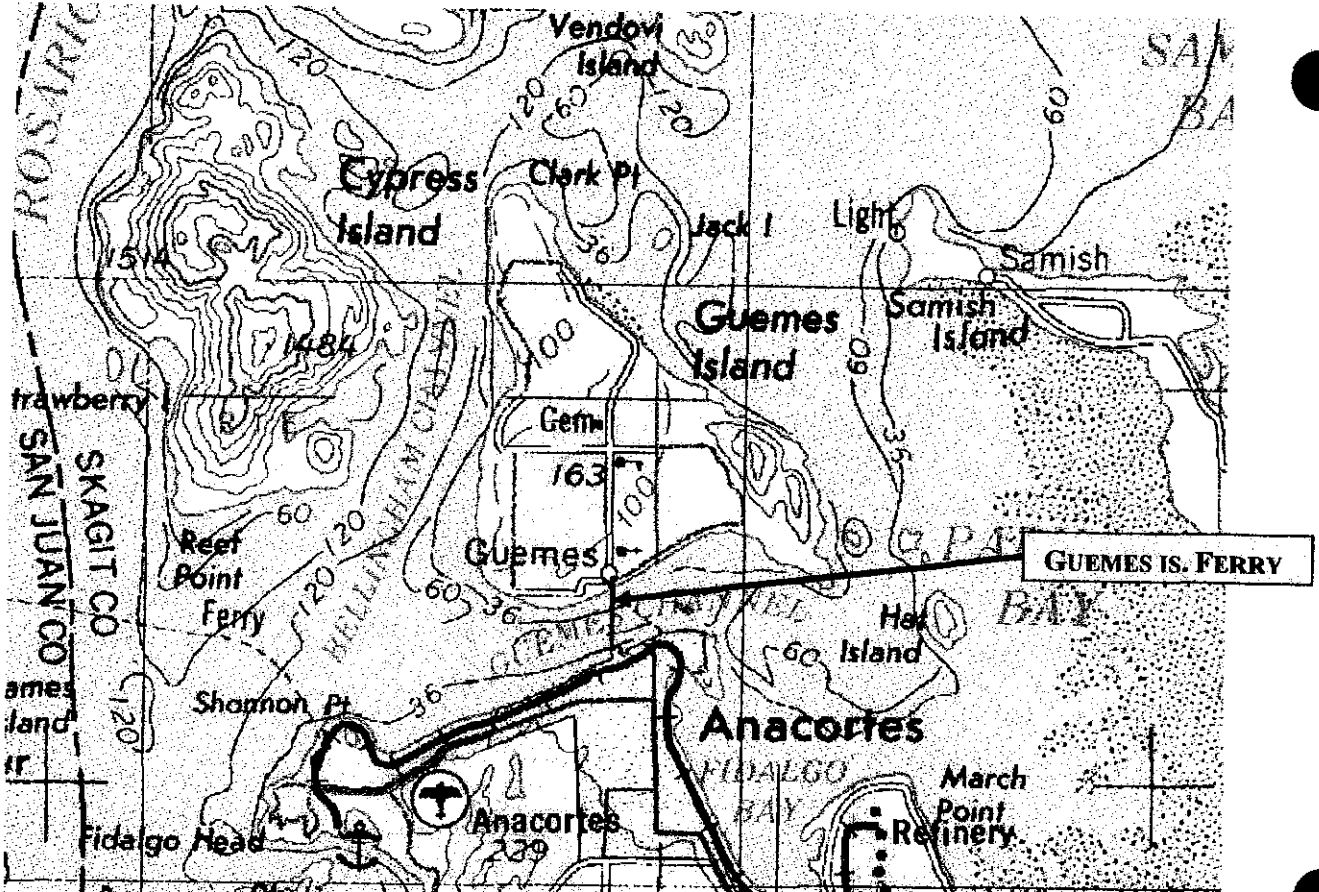
CONTENTS

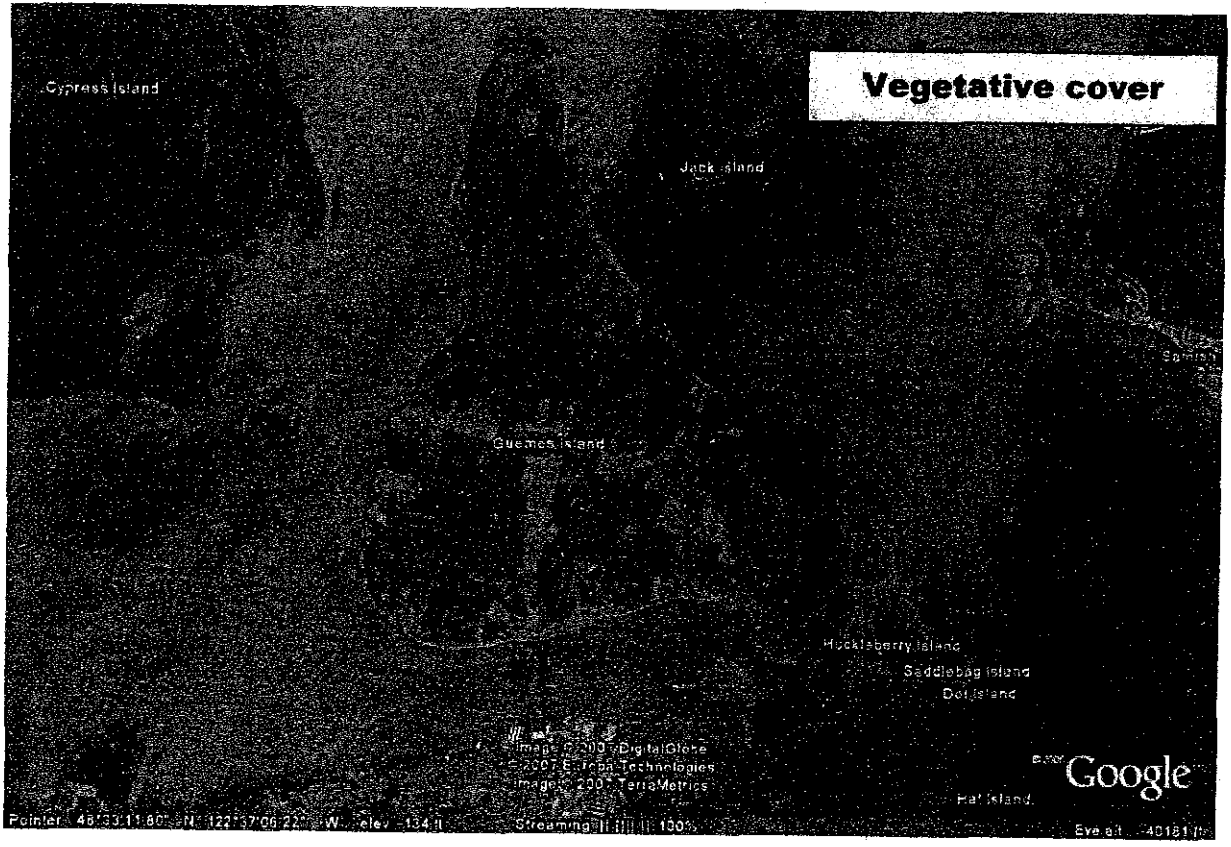
SECTION IV- IMPACTS TO NATURAL AND BUILT ENVIRONMENT

WATER RELATED ADVERSE IMPACTS

OTHER ADVERSE IMPACTS

ATTACHMENTS


Vendovi Island
Cypress Island
Clark Pt
Jack I
Light
Samish
Samish Island
Guemes Island
Strawberry I
Gem
163
Guemes
GUEMES IS. FERRY
Reef Point Ferry
SAN JUAN CO
SKAGIT CO
Hat Island
Shannon Pt
Anacortes
March Point
Refinery
Anacortes
239
Fidalgo Head
1514
1484
120
60
100
36


Vegetative cover
Cypress Island
Jack Island
Guemes Island
Huckleberry Island
Saddlebag Island
Dot Island
Hat Island
Google

Land use Impacts of the
GUEMES ISLAND FERRY SCHEDULE EXTENSION

Executive Summary of Adverse Impacts to Natural and Built Environment

Probable Significant Adverse Impacts

1. Transportation induced growth causing significant effects to Guemes Island land and shoreline use (including population, housing, vegetative cover, impermeable surfaces, and existing agriculture.)

2. Long term and potentially irreversible damage to the Guemes Island Sole Source Aquifer, a sensitive resource and public health necessity.

3. Cumulative effects resulting in a significant adverse impact from the following additional adverse impacts:
   a) Population and housing growth is likely to exacerbate existing nitrate pollution of ground water serving public and private water sources.
   b) Lowered ground water levels are likely to result in dehydration of wetlands and streams connected with ground water resulting in indirect impact to island wildlife.
   c) Increased reliance on desalination technology is likely to have detrimental effects

on sensitive marine environment and habitat of *Threatened* and *Endangered* species surrounding the island.

d) Extended hours of Ferry operation will result in new nighttime traffic, noise and glare on residential streets from vehicles accessing ferry landings from 6 PM to 10 PM.

e) Growth will likely result in need for currently unavailable island-based public services such as sewer, public water, professional fire protection, police protection, commercial services, cell phone towers, recreational facilities/youth programs and senior daycare.

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SECTION I

SKAGIT COUNTY ACTIONS TAKEN ON GUEMES ISLAND FERRY SCHEDULE EXTENSION

On May 30, 2006- Skagit County adopts an extension to the Guemes Island Ferry schedule.

On July 27, 2006 – Three months after having taken the action, The County decides to make a threshold determination. They issue a DNS for a "non-project" action.[1]

On April 9, 2007- The SEPA responsible official, represented by Brandon Black, released an *Addendum to SEPA Threshold Determination.* Attached to this document is an undated *Addendum to the Checklist (AC)* with no author identified. In this, after the fact justification of County actions, released nearly a year after issuance of the DNS, the county asserts that the ferry schedule extension will "have no impact on county land use plans or decisions" but the addendum does not discuss the impact the ferry extension will have on island land use.

They assert that under WAC 197- 11-442(3) they are not required to do *site specific* analysis even though they admit that the area of environmental impact is the whole of Guemes Island and a portion of Fidalgo Island. As WAC197-11-442 pertains to the preparation of an Environmental Impact Statement, not a Threshold Determination, this WAC is not applicable to the situation, nor does it release the lead agency from doing environmental analysis to determine if there is a probable significant adverse impact from an action it proposes to take.

The *AC* states that county's action was intended "to address existing and future demand for ferry service and is not expected to impact future land use *decisions.*" It asserts that the schedule extension addresses a growing operating and labor problem, pointing to growth on the island and congestion at the ferry. Even if the *AC* were released prior to their original action and threshold determination issuance, it would not provide adequate evidence that environmental analysis was ever done to determine if growth impacts from the action are likely to have probable significant adverse impacts to population, housing and land use on the island. It neither mentions other alternatives that were considered nor does it provide a comparison of impacts of possible alternatives, such as the Ferry Task Force recommended rescheduling within existing hours of 6 AM to 6 PM, previously adopted by the County Commissioners but never implemented. [2] There is no mention of the probable impacts of what increased access to the island during commute hours will have on ferry traffic shifts, population growth and demographics, occupancy of existing dwellings, future development, public services, water supplies or induced traffic on both sides of the channel.

In the *AC,* Section F, the County cites numerous polices from the Transportation Element of the County Comprehensive Plan but they fail to cite one very important and applicable policy:

> "Policy 9A-6.1 -Skagit County supports expansion of public transportation into unincorporated areas only with public support."

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[1] In my expert opinion, the action does meet the definition of a non-project action. WAC197-11-704 defines nonproject actions as "decisions on policies, plans, and programs" and lists road, street and highway *plans*. This decision is not merely a road, street or highway plan; it is a change similar to building a new bridge to be used in specific hours and therefore is a project action that "involves a decision on a specific project."

[2] Resolution R20040051

The *AC* reports on data and anecdotal comments gathered from a 2002 Skagit County sponsored survey conducted by Berk and Associates. The *AC* fails to mention how the survey was conducted or that survey results clearly show that a large majority of the residents of the island were against ferry hour extension.

The survey was mailed to 925 property owners and hand distributed at the ferry terminals and Anderson's General Store to 150-175 ferry riders. No specific hours were proposed for the extension of ferry service past 6 PM; respondents were given a choice of hours for the proposed extension from 7 PM to 12 midnight. The overall result from all respondents was a majority (53%) were against extending the schedule later than 6 PM. The survey showed that 54% of *all* property owners and 60.6% of the *resident* property owners responding to the survey were against the extension. Only 85 resident property owners were favorable to schedule extension. Non-resident property owners were evenly split on the question, indicating that many non-resident property owners may want longer hours of ferry operation in order to live on the island and commute or that owners of undeveloped property may want extended service in order to increase the attractiveness of their property and its market value.

The *AC* did not report on 2 other surveys dealing with ferry hour extension conducted by Guemes Island Citizens groups.

In January 2006, Guemes Island Property Owners Association (GIPOA) mailed surveys to all property owners, resident and non-resident, asking:

"Do you favor extended ferry hours during the week?"

Of the 437 responses to the question, 57% said no. Results also show clear support (62%) of both completion of the Guemes Sub-area Plan and a Environmental Impact Analysis prior to making any change in ferry hours.

On February 22, 2006, right before the County Commissioners adopted the schedule extension, the Ferry Committee sent an advisory ballot to all 578 registered voters in the Guemes precinct asking:

"Should ferry service, Monday through Thursday, be extended from 6 PM to 10 PM."

Of the 383 votes returned, 289 (75%) were against extension.

Not only did all 3 surveys clearly show that a majority of property owners and registered voters were opposed to the ferry schedule extension, survey results also indicated that opposition had increased from 2002 to 2006, perhaps as property owners became more educated on the issues involved. The surveys do not provide Skagit County with any evidence that there is public support for expansion of this public transportation into the unincorporated area of Guemes Island.

In its 1977 Environmental Impact Statement analyzing the introduction of a new, larger ferry, the Skagit County Planning Department predicted that ferry size would "not have significant effect on population, housing and land use. Ferry scheduling, however, will." [3]

So Skagit County adopted the ferry schedule extension in the face of and without consideration of its previous 1977 environmental analysis that concluded that ferry scheduling

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[3] Skagit County, *Guemes Island Ferry DEIS*, Dec 1977

would significantly effect population, housing, and land use, and its own policy against expansion of public transportation without public support.

SECTION II

GROWTH INDUCING IMPACT OF TRANSPORTATION

Issue 1- The Ferry schedule extension is a transportation improvement that will be growth inducing to Guemes Island.

Transportation mechanisms provide access and that access stimulates growth. "New transportation infrastructure can help shape land uses by increasing the accessibility of the site and the mobility of the site's users."[4] Public policy and investment in transportation capacity that increases accessibility to a location, or decreases the cost of reaching that destination, either in time or money, will stimulate growth.

Such is the case with Guemes Island. If the growth was desired and planned, transportation could be a useful tool to stimulate wanted investment. But in this case, transportation improvements are being introduced to an island where the County has not planned how new growth will be accommodated given its limitations such as salt water intrusion in wells, high

infiltrate loads in ground water, and lack of sewer and other public services. Local officials have proceeded with this growth inducing transportation improvement without adequate assessment of the potential land use consequences. The resultant growth is unanticipated, reshapes the community in unexpected ways and plays havoc with necessary services.

Issue 2- Improvements to transportation links have a history of adverse impacts to land uses.

Over the last century, the introduction of a variety of transportation mechanisms has had unforeseen consequences. New transportation links have stimulated the decentralization of tight core cities and caused them to spread out farther and farther. Street cars and commuter trains near the turn of the 19th century allowed people to work in the city and live in distant small towns. In 1902, the Seattle-Tacoma Interurban Railway, built through what is now known as Kent Valley "greatly suburbanized the area by allowing commuters a chance to have a home in the country and a job in the city."[5]

Later, the personal car and public investment in an ever increasing road system, allowed greater mobility and personal choice in where to live. Wherever traffic congestion built up, the community would cry for transportation improvements and modifications to "fix" the problem. Bypasses and loop roads were intended to provide a way around congested areas.

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[4] US Environmental Protection Agency, *Our Built and Natural Environment: A technical Review of the Interactions Between Land Use, Transportation, and Air Quality,* Washington D.C. Jan 2003, p 9.

[5] History Link, Washington State History.

But without fail, laissez faire officials would permit new growth along the new corridor, and eventually the bypass would become just as congested as the original road. The building of I- 405 as a rural bypass around the City of Seattle, is a case in point. It was intended to provide a fast route around the congested city, but since its completion in 1964, it has spurred enormous growth. I-405 is now a clogged artery though major cities.

Another local example of a "fix" gone awry is the rerouting of SR 2 (the Stevens Pass Highway) to "bypass" the City of Monroe. Built to allow travelers to avoid the bottleneck of stop lights going though this small town, local officials allowed the bypass to become lined with fast food outlets and major stores, necessitating new stoplights to allow throngs of customers the opportunity to cross the highway. Today, the highway "bypass" traffic crawls along from one light to the next and it actually takes less time to travel the original route through "downtown" Monroe because business has deserted it. The "bypass" has become the major business corridor.

Issue 3- Ferries, like roads and bridges, promote growth.

As with all transportation mechanisms, ferries have a long history of shaping transportation networks and development. Car ferries are considered extensions of the road system as they provide the means of passage of vehicles the same as a road or bridge; passenger-only ferries are considered extensions of public transit.

Ferry locations helped to determine the layout of the transportation network and pattern of

habitation in the United States. Ferry landings grew to settlements, transportation hubs and large cities, such as St Louis. The growth of many of the cities of the Puget Sound was spurred by ferry transportation. Most of the current locations of population density were once served by ferries which allowed them to grow initially. In some locations bridges have replaced ferry service but many densely developed communities still rely on ferry service to reach other metropolitan areas.

Ferry service in the Sound began in1888 with service between Seattle and West Seattle. San Francisco developers, the *West Seattle Land and Improvement Company,* subsidized the ferry and it attracted people to move to their residential development in the Admiral District of West Seattle.[6]

In the 1870's, the first settlers of Mercer Island traveled by rowboats to Seattle to pick up necessities. An occasional tramp steamer would drop off items that were too large to transport by rowboat. C.C. Calkins platted the town of East Seattle on the island and in 1891 he built a luxurious resort on the western side of Mercer. This spurred the building of a ferry dock and small steamers began to make regular trips. New access to the island attracted more residents. Ferry travel continued until July 2, 1940, when the floating bridge from Mercer Island to Seattle was opened.[7]

As an early mill town, Kirkland relied on the *Leschi,* the first auto ferry in Washington State, which began running in 1913 to Madison Park in Seattle. Residents and business relied on

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[6] History Link, West Seattle, Washington State History

[7] Mercer Island Historical Society

the ferry for access to Seattle and the world market until the Evergreen Point Floating bridge was built in 1940.

Before the Peninsula with its thick forest and few roads became Kitsap County, the early residents of mill towns such as Port Madison, Port Orchard, Port Blakely and Port Gamble depended upon water transportation. The Mosquito Fleet, as its small steam ferries were called, stopped at over 40 landings on the peninsula and allowed the county to grow. "Just as the lumber cut in the mills needed ships to reach their markets, people needed canoes, then steamships, then ferries to reach metropolitan centers in Seattle and Tacoma.[8] Until the Agate Pass Bridge was built in 1950, residents of communities on the Olympic Peninsula, such as Port Angeles and Port Townsend could travel to Bainbridge Island by a car ferry that began service in 1920. From there they could reach Seattle by ferry.

Whether they are used as roads or public transit, it is evident that from the current maps of Washington State Ferry routes [9] and the U. S. Census population density map of the Puget Sound [10], there is a close correlation between Puget Sound population density and ferry landing sites. In the north Sound, the Washington State ferry landings determine which islands in the San Juan chain have developed. Those that have no ferry service remain nearly uninhabited. [11] Since the first ferry was introduced to Puget Sound in 1888, the ferry has served as a major component of the transportation system and promoted growth at ferry landings and beyond, throughout northwest Washington.

Issue 4- Environmental analysis of the San Francisco Ferry System expansion confirms

a ferry extension is growth inducing.

San Francisco has a long history of ferry service which was largely abandoned when its bridges were built. Many of the early ferries used in the Puget Sound were bought from San Francisco. However, as the highways and bridges have become gridlocked, the Bay Area has reintroduced and steadily expanded a new passenger-only ferry system. Both ferry routes and terminal expansion projects have been analyzed for environmental impact. Based on the information gathered in the impact statements routes were refined and landings in rural locations were dropped as being too growth inducing.

The impact of proposed expansion of routes was assessed in June 2003 in an Environmental Impact Report (EIR), conducted under the Calif. Environmental Quality Act by URS Corp. In the final draft EIR, URS found that growth inducement of the expansion of ferry service is considered significant.

> "Changes at the local level as a result of providing new or enhanced ferry service could occur by making local communities more accessible. The benefits of ferry service may be perceived by many as an improvement to their current quality of life, making these communities attractive for commuters to live in. This effect is primarily of concern at terminal locations in relatively undeveloped or less accessible areas."

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[8] Kitsap Peninsula Visitors and Convention Bureau

[9] Map A-23

[10] Map A-24, A-25, A-26

[11] Map A-21, A-22

"Implementation of the Proposed Project could increase demand for public services, housing, and other services. *Specifically, people may move into areas due to a* perceived increase in quality of life or job opportunities afforded by the proposed increase in ferry services."

"Without proper planning, cumulative growth associated with the Proposed Project and other currently unplanned development could lead to potentially significant impacts on communities, public services, or open space resources, depending on the location."[12]

In the Environmental Assessment, the San Francisco Water Transit Authority notes that growth can be induced in a number of ways, including removal of an obstacle to growth. If the project removes an impediment to growth, such as providing a new public service or new access to an area, the project may promote spatial, economic or population growth in a geographic area.[13]

Issue 5- Kitsap County voters reject a proposed ferry to rural landings due to acknowledged growth inducing impacts to rural areas.

Kitsap County continues to rely on the ferry system for service to Seattle across four heavily used routes." In its 2002 Regional Growth Centers Report, the Puget Sound Regional Council relates that the Bremerton Comprehensive Plan counts on ferry service promoting desired growth. While much of the land in the Bremerton Regional Growth Center is

underdeveloped or vacant, the City Comprehensive Plan and studies conducted indicate that improved ferry service will stimulate development of a mix of housing and employment opportunities. [14]

However, Kitsap Transit has been working to add new fast passenger-only ferry service (POF) for several years, without voter support. In Feb 2007, Kitsap county voters rejected the POF proposal for the second time. The cost of a proposed tax and growth inducement potential were not welcome. As a small county that is the 2nd most densely populated in the state, Kitsap voters may favor infill growth in Bremerton, but they don't support the introduction of residential growth in outlying rural areas promoted by terminals in small communities like Southworth and Port Orchard, as predicted by the POF Land Use Compatibility Assessment. [15]

Issue 6- The Anderson Island Ferry schedule extension failed to alleviate congested traffic as predicted and produced dramatic adverse impacts to the island and its population.

The land use impacts of extending ferry service into evening commute hours is well demonstrated by ferry service between Steilacoom and Anderson Island, in Pierce County, WA. The demographics of Anderson Island, which was heavily used for retirement and vacation homes, had begun to show changes between 1990 and 2000. The number of people

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12 URS Corp, , *Final Draft EIR, San Francisco Ferry Expansion Project* Sec 4, , Growth Inducement, 2003,

13 San Francisco Bay Area Water Transit Authority, *South San Francisco Ferry Terminal Project, EIR/EA*

14 Puget Sound Regional Council, *2002 Regional Growth Centers Report.*

15 Cascadia Community Planning Services , *Port Orchard/ Southworth POF Land use Compatibility Assessment,* Jan 2, 2007

between 45 and 64 was up, bringing the median age of residents down from 58 to 52; the number of families with children was up 39%, and the number of occupied houses (as opposed to seasonal use houses) was up 72%. The ferry service, which ran from 6AM to 6 PM, was being impacted by commuters traveling to and from work on the mainland. Commuters were being left behind at the dock during commute hours.

Pierce County commissioned IBI Group to thoroughly study the ferry service and in their Waterborne Transportation Study, it was recommended that Pierce County reorganize the ferry routes, increase fares, and add one new run extending service so that the last run to the island from the mainland would be at 7:30 PM. The consultant made this recommendation to "provide greater convenience for commuters living on the island, residents who are shopping or conducting other activities on the mainland, and students who wish to participate in after-school activities."[16] It was also recommended that the system buy a new ferry to replace the 70 year old backup ferry and be used to alternate with the existing *Christine Anderson* a 54-car, 250-passenger ferry to avoid downtime for servicing. The Study stated that the implementation of these recommendations would provide "sufficient capacity to meet projected peak period demands until the year 2025."

The new schedule took effect in January, 2004. Unfortunately, the ferry study did not accurately predict the results. Within one year of the schedule extension, Debbie Lowe, Chair of the Anderson Island Citizens' Advisory Board, says that the change to the island had been dramatic.[17] There was a significant increase in property values and more diverse population, which she felt was a positive, but she also said crime was up and new construction removed

green spaces and was likely impacting the island aquifer.[16] Home sales increased by 20%, vacant lots were being bought up, and full-time occupancy of former vacation homes was continuing to increase. The trend toward a population shift from predominantly retirees to families with children, who commute to work daily, increased greatly. Residents reported more traffic, more noise, and lots of visitors looking for property on the island.

The extension of operating hours has not had the expected congestion relieving effects on the ferry predicted by IBI. In fact, Ms. Lowe reports that there has been a noticeable increase in vehicles using the ferry. The Anderson Island Ferry schedule bears out Ms Lowe's perception that the extension has done little to reduce ferry congestion. It warns travelers that:

> "Traffic volumes vary greatly. To avoid the heaviest weekday traffic, tourists should not travel during weekday commute periods- from Anderson Island in the morning and to Anderson Island in the early evening."

In Feb 2007, Pierce County put into service the *Steilacoom II,* a new 54-car, 300- passenger ferry at a cost of $11.2 million dollars. The new boat is said to be a mirror image of the existing *Christine Anderson.* Pierce County is currently operating the craft alternately to extend their life. Don Peterson, Ferry Manager at Pierce County Public Works reports that congestion in the evening is not so bad during evening hours but morning congestion has become a real problem. He says that the county is anticipating that it will soon have to operate the two ferries in tandem to accommodate the growing ferry traffic at commuter

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[16] IBI, *Waterborne Transportation Study*, Oct, 2003 p ii

[17] Anderson Island Citizens Advisory Board, *Anderson Island Effect*

hours. He states that if Pierce County were to eliminate midday runs it would probably have little or no effect because the primary user is now the commuter.

Issue 7- The Ferry schedule extension will remove an obstacle to access and will increase *demand* for property on Guemes Island.

"Transportation investment cannot produce growth absent demand. That demand, and the land use policies that affect it, drive land use and resulting impacts."[18] Extending the hours of ferry operation is like opening a previously closed bridge. Now commuters arriving from jobs after 6 PM have new access to the island.

Accessibility reflects "both the attractiveness of potential destinations and the ease of reaching them."[19] In choosing a place to live, people balance the desirability of the place in terms of cost of housing and aesthetics (community residents, schools, size of lot, view, quality of life, recreational opportunities), against the need for access to a job, goods and services. The more desirable the mix of these elements, the more demand is created for housing in that location. People can and do commute long distances to get to a home in what they deem to be a desirable location. But even if they would like to live in a place due to its cost and amenities, they are barred from living there if it has *no* access to their work, due to the absence of any transportation link during commute hours. Providing access by removing an obstacle, such as providing new ferry service during evening hours, opens the door to commuters to live in that location.

SECTION III

DEMAND AND GROWTH

Issue 1 -Current Washington State growth rates indicate strong demand for homes in Skagit County.

Washington State Department of Transportation reports that "Demand is up" in the Puget Sound region.[20] Population will increase by 2 million or 35% by 2030 and Vehicle Miles Traveled (VMT) will increase by 45%. Ferry ridership will increase by 62%, which means the number of people taking ferries to distant locations from urban core cities will be double the population growth rate.

Despite Washington's Growth Management Act, which is designed to direct urban growth to urban areas, suburban counties adjacent to high density urban Puget Sound counties are experiencing the highest growth rates in the State. The 2007 *State of the Sound Report*[21]

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[18] American Association of State Highway and Transportation Officials, *Handbook on Integrating Land Use Considerations into Transportation Projects to Address Induced Growth.*

[19] Handy, S. L., *"Regional Versus Local Accessibility: Implications for Nonwork Travel."* Transportation Research Record 1400, Washington, DC, TRB, National Research Council (1993) pp. 58-66.

[20] WSDOT. *Washington Transportation Update*

[21] 2007 State of the Sound Report, Governors Office, p 15

(Office of the Governor) projects that during the six years from 2000 to 2006, Thurston County had the highest growth rate at 62%, with San Juan County and Skagit County tying for second at 60% growth. That is substantially up from the 29% growth Skagit County experienced during the previous *ten* year period from1990 -2000.

This may be partially due to the cost of housing rising over 100% in both King and Snohomish Counties, from 2000 to 2007. In King County, the single family house median price was up from $225,000 in 2000 to $454,000 in April 2007. Snohomish County saw a similar increase in median price, from $185,000 in 2000 to $382,500 in April 2007.[22] By comparison, the Skagit County median single family home price in the fourth quarter of 2006 was $260,000. [23] With a median house price at only 57% of that in King County, many people have chosen to live in Skagit County and commute to work in King, Snohomish, and Whatcom counties. In 2000, 9,863 workers (20%) living in Skagit County commuted to out-of-county to work. While the average commute time in Skagit County is 25 minutes, 8,081 workers (17%) drove from 40 minutes to 90 minutes or more each way daily.[24]

Issue 2- Despite limited resources and no plan for accommodating new growth without significant adverse impacts to island water supply, existing lots and zoning allow for significant growth on Guemes Island.

Despite progressively restrictive zoning cited by Skagit County in its *Addendum Checklist,* the county admits "it is clear there is great potential for additional residential development on Guemes Island."

Skagit County reports in the *AC* that 2000 Assessors data showed a total of 1,589 parcels, 908 of which are undeveloped and 681 developed. Based on Census data which showed there were 592 houses in 2000, and there have been 35 permits issued to date, in 2007 there are 627 housing units on the island so the 54 remaining "developed" lots must not contain a housing unit. Therefore, without any further subdivision 962 homes could be built on existing parcels. However, local residents report that approximately 39 parcels are affected by conservation easements limiting or reducing their development potential.

There are approximately 450 very small lots located in 7 development areas lining the shoreline, where about 100 small lots remain. Holiday Hills development on the east tip of the island has very small lots approximately half of which are undeveloped.

Under current zoning, even with the restriction on CaRD development imposed by SCC 14.18.310 and 14.24.350, additional division is possible in the Rural Reserve and Rural Intermediate zones creating 52 additional building lots. [25]

Despite the "history of increasingly restrictive zoning" cited by Skagit County in its *AC*, based on the County Assessor's parcel count, under current zoning, 1016 additional homes could be added for a total build-out 1643 housing units. At the average Skagit County

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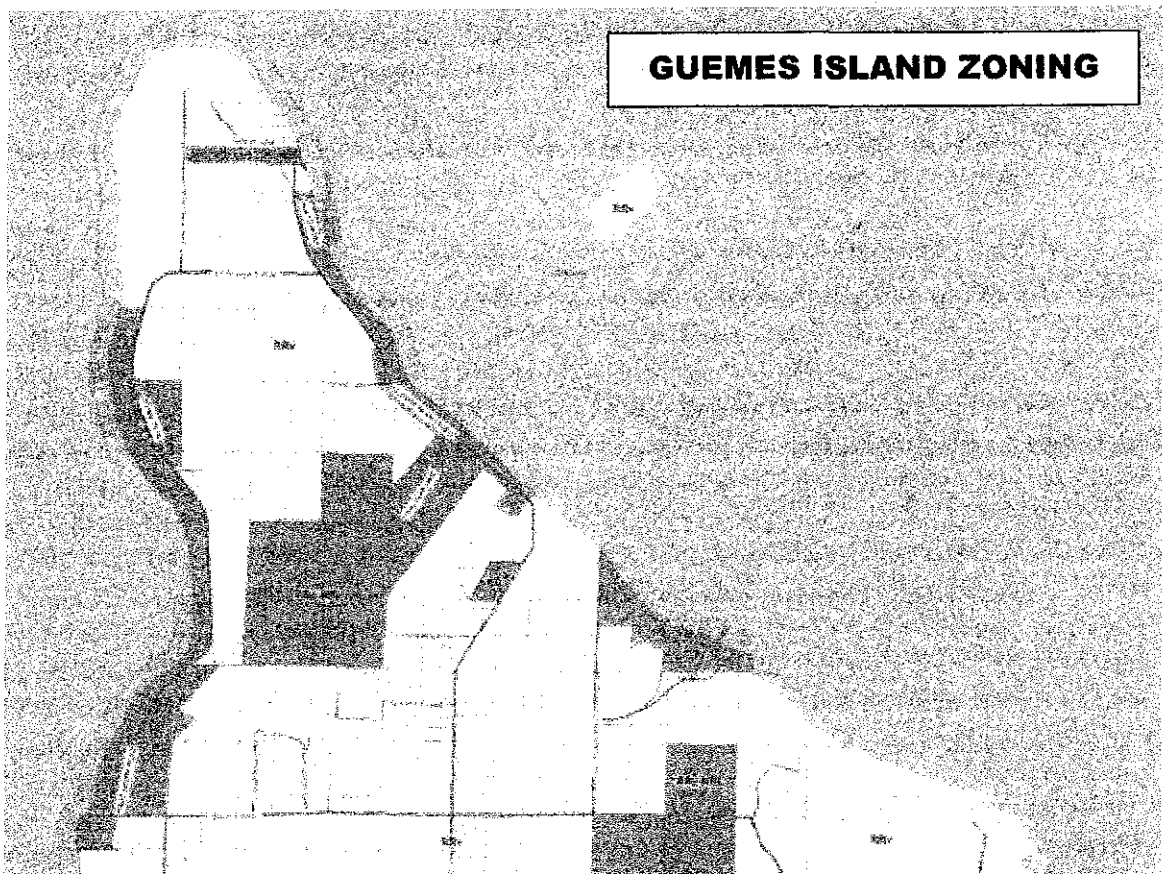
[22] Snohomish County, *Snohomish County Tomorrow 2000 Growth Monitoring Report, Housing Sales Market*

[23] Washington Center for Real Estate Research, *Housing Market Snapshot*

[24] State of Washington OFM, *Common County –to- County Commutes 2000 Census*

[25] Resident calculation of division potential from Assessors parcel lists showing acreage, zone and development.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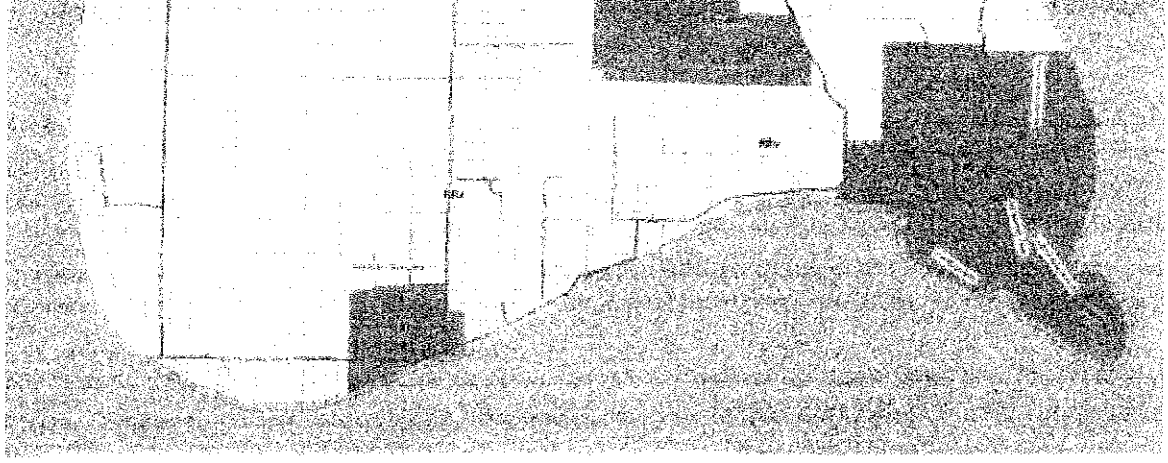

occupancy rate of 2.6 persons per unit, these new homes would add 2642 people to the island's population.

If all 1643 potential units were occupied, the island would increase from a current population of 563 to 4,272 people, a 659% increase.

Issue 3- If the county were to adopt a complete moratorium on building permits, island population could easily triple if vacant units were fully occupied.

The number of housing units on Guemes Island has increased from 592 in the year 2000 to a current count of 627 housing units. In 2000, 272 of the existing units were vacant most of the year, used for vacation and part-time occupancy. If the Guemes Island Ferry extension makes it possible for current owners to move to their vacation or retirement home and commute to work daily, the existing vacant houses could become occupied very quickly and multiply the population without a single building permit being issued or a new well being dug. If all the existing units were fully occupied at the average person per unit in Skagit County, the population would increase from 563 to 1630 people, a 189% increase that would triple the year 2000 resident population. In 1994, the USGS estimated that peak population during summer months, including 535 full time residents and 1605 seasonal residents and visitors, was 2,140, so the 1,630 figure may well be an underestimate. This would triple the demand for potable water on the already failing water system. Many of the units that are vacant now are on small shoreline lots where salt water intrusion is greatest.

Issue 4- A waterfront or island home available on Guemes Island is in high demand among home buyers.

The high demand for an island home is demonstrated by high growth in San Juan County. Despite a median house price of $620,000, by far the highest in the state, this all island county, next to the Guemes/ Cypress island group, had a 60% growth rate from 2000 to 2006.[26]

- Scott Price, a real estate professional, states; "waterfront is always more desirable and tends to be a better investment than non-waterfront real estate. And if a down market ever occurs in the future, waterfront will still be the most desirable and first to sell if priced appropriately."
- Price's calculation of waterfront prices for Seattle area communities revealed just how much more people are willing to pay for the desirable waterfront house. He found the Average price for a waterfront home on a lake or saltwater in the Seattle vicinity was $1,806,860 and the Median price was $1,187,000, over 2.6 times the median price for all housing in King County.[27]
- Real Estate agents are advertising small waterfront communities, accessible by ferry as being great places to get that serene lifestyle and great views at half the price.[28]
- A real estate search for Guemes Island property revealed 11 waterfront homes listed from $250,000 to $950,000, making it an attractive alternative for the buyer eager to own waterfront.

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[26] Office of the Governor, *State of the Sound Report*, page 15, 2007.

[27] Scott Price, Waterhavens, *2006 Waterfront Market in Review*, Jan 11,2007

[28] MCR City Report, *Realty Times*, August 15, 2003

SECTION IV

IMPACTS TO NATURAL AND BUILT ENVIRONMENT

WATER RELATED ADVERSE IMPACTS

Issue 1- Growth will have probable significant adverse impact on the failing Guemes Island water system and remediation of damage to island aquifers would take years or decades to take effect.

The water supply on Guemes is tenuous with the current population and increased population drawing water from the aquifer system is likely to create a crisis situation. The condition of the aquifer layers under the island was studied most extensively by the U.S. Geological Survey in 1994, in its Hydrogeology and Quality of Ground Water on Guemes Island.[29] In its Addendum to Checklist, the county references the USGS Study at C.(2) but makes no comment as to how the ferry schedule extension will exacerbate the progressively worse potable water situation or how the county plans to handle the issue of potable water as island population is increased by their growth inducing action. From the *AC* it is clear that the County has not even considered, let alone completed an adequate environmental analysis to make a threshold determination on this probable significant adverse impact on Guemes Island.

Guemes Island, an 8.2 sq. mi island, depends entirely on ground water for all drinking water, except for small catchment systems and the Skagit PUD Potlatch Desalination plant which

serves 34 homes. In 1997, the island aquifer system was designated a sole source aquifer, meaning it is bounded and limited, by the U. S. Environmental Protection Agency. Recharge to aquifers is low due to low average rainfall and low permeability of island geology. Of the average 25 inches of rain, it is estimated that only 6 inches reaches the identified aquifers that supply island wells.

The inventory phase of the study in 1991 sampled 83 wells, and 24 wells were sampled in 1992. They found that while soils in the area near the shores have higher permeability than interior areas, the freshwater aquifer is thin and rests in a layer above the salt water layer that intrudes under the island.[30] When wells pump water from shore areas, the freshwater layer gets thinner and soon saltwater is being drawn into wells. Most of the developed housing and the majority of wells are confined to small lots lying along the shoreline, about half of which are considered vacant due to their occasional use for vacations.[31]

Of wells sampled, those near shorelines and the low lying interior were experiencing the highest levels of sodium chlorides. In some of the wells near shorelines the chloride content varied seasonally but in others there was no variation. The sampled contaminated wells were not drawing from only one aquifer, but three of the main aquifers supplying the island indicating that the problem cannot be cured by drilling a new well into a different aquifer. The USGS stated, "Once seawater intrudes a coastal aquifer, control or reversal of the condition can be difficult and expensive. Because ground water moves slowly, remedial measures may require years or decades to take effect."

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[29] U.S Geological Survey, Hydrogeology and Quality of Ground Water on Guemes Island, Skagit County, WA. Report 94-4236

[30] USGS Conceptual Diagram Saltwater intrusion

[31] Skagit County, map of Buildings 2005 and Owners Zip Code.

The worst cases of salt water intrusion were at Indian Village, West Beach and North Beach at the north end of the island. By 1994, the two Potlatch Beach Water Association wells at North Beach were so contaminated that another sampling conducted by Hong West Associates found one well marginal and the other clearly exceeding the allowable chloride standard of 250 ppm[32] (the level at which a salty taste is discernible) and even significant pumping reductions were not likely to improve water quality in the short run. The Hong West study stated that "at current (1992) rates of withdrawal, most of the existing wells on the north end of the island will likely experience significant seawater intrusion. Additional development will exacerbate this trend." Skagit County has since required well drillers to apply to the health department before drilling new wells on the north end. Hong West suggested that "Based on available data, the most likely location to obtain acceptable quality ground water supplies which would not experience seawater intrusion problems *in the short term*, would be in the central part of the island." The Study did not make a recommendation on a long term supply source able to accommodate existing population, let alone new growth.

The USGS study did not inventory all wells, and the water budget and ground water levels were only estimated due to insufficient data. The study found that while ground-water withdrawals from wells account for a small part of the annual recharge to the water system, increased withdrawals could have significant impacts to the system due to loss of fresh water storage capacity. It concluded that it is possible that a significant portion of the water that would recharge the Double Bluff aquifer is being pumped out at upper levels before it can percolate to the deeper aquifer. They called for future monitoring, because in 1992, ground water levels and quality data were "sparse." They said the "effects of additional ground water

development on the island's ground water system cannot be accurately quantified at present" and they suggested the development of a ground-water model could help determine the effects of increased ground-water withdrawals.

Issue 2- Potlatch Desalination Plant- a solution with a high cost to residents and a potentially adverse impact to the shoreline "critical areas" of the island.

Due to levels of salt exceeding the allowable amount in the two wells of the Potlatch water system, in 1996, Skagit PUD #1 built a reverse osmosis (RO) desalination plant at a cost of $490,000 to serve 34 homes. Table I, a cost comparison between water supplied by the desalination plant and water service to other residential customers of Skagit PUD, shows that Potlatch water is 4 times as expensive as water delivered by the pipe throughout Skagit County.

The plant processes 80 gallons of seawater into 20 gallons of potable water returning the remaining 60 gallons of brine to the sea. The RO process, especially if it were used on a larger scale to serve more residents on the island, would have probable significant adverse environmental impact on the marine environment surrounding the island. The California Coastal Zone Commission has studied the adverse impacts of existing and proposed desalination plants in coastal areas of California.[33] The Commission found that discharges from desalination plants may have the following types of potentially adverse constituents and qualities: 130 % Higher salt concentrations than those of receiving waters, temperatures and

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[32] Parts per million

[33] California Coastal Zone Commission, Seawater Desalination in California, Oct 1993

turbidity above those of receiving waters; chemicals[34] from pretreatment of the feedwater and flushing of pipelines and membranes, preserving membranes, and metals that are picked up by the brine in contact with plant components and pipelines. The highly concentrated brine has been found to affect migration patterns of fish along the coast, while particles damage kelp beds and chemicals and metals have been found to be damaging to phytoplankton, cause red tide and may be toxic to fish. If the discharge is to an area of great flushing like the Pacific Coast, the impact is diluted. However, discharge to the calmer waters of the Puget Sound where high salinity water would sink and may accumulate, the impact could have significant adverse impact to Guemes' sensitive marine ecology that includes spawning areas and eel grass beds.

Desalination Plants are also seen as growth inducing if located in areas of scarce water supply. "Limited water is often the major constraint to development in many parts of the coast. Therefore, new desalination projects in coastal areas could lead directly to new development and a resulting increase in population migration to coastal areas."[35]

Issue 3 – Draw down of ground water, may result in lowering or disappearance of existing island wetlands and the one stream. This would have a probable adverse impact on island wildlife, including bird nesting areas.

The USGS Hydrogeology Report indicates that water is in continuous circulation from the ocean, the atmosphere, and to the earth's surface. This hydrologic cycle means that surface water, such as wetlands and streams are affected by precipitation, sea levels, and ground water

levels. Removal of water from the ground by well pumping pulls water from the sea and from the surface. This can cause saltwater intrusion. It can also cause wetlands to dry up and shorten the annual presence of intermittent streams. As these areas may be the only source of fresh water for wildlife on the island, loss of these water resources would likely have a significant impact on existing species, some of which are threatened or endangered.

Issue 4- New development will result in loss of green open space, increased impermeable surfaces, increased runoff, and the need for surface water collection facilities.

Vegetation, particularly forest, absorbs precipitation and slows runoff, allowing it to collect in natural depressions and recharge ground water. As land is cleared for development, new roofs, driveways and roads all create surfaces that increase the amount of runoff and allow it to move quickly, reducing absorption and recharge. Typical suburban housing allows 90% less water to permeate into soils than existing forested vegetation. This will reduce the small amount of recharge that the island has today and will be a probable significant adverse impact.

Issue 5- Skagit County has failed to do State required watershed resource planning and assessments for Guemes Island and they have developed no strategies to provide sufficient water for existing and future residential populations on the island.

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[34] sulfur dioxide, coagulants (e.g., ferric chloride), carbon dioxide, polyelectrolytes, anti-scalants (e.g., polyacrylic acid), sodium bisulfite, antifoam agents, and polymers; propylene glycol, glycerine, or sodium bisulfite; sodium compounds, hydrochloric acid, citric acid, alkalines, polyphosphate, biocides, copper sulfate, and acrolein

[35] California Coastal Zone Commission, Seawater Desalination in California, Oct 1993

0714

In 1997 the Legislature adopted RCW 90.82 which called for wathershed plans to manage, develop and protect vital local water resources. The act called for the development of implementation plans for each WRIA which "must contain strategies to provide sufficient water for: 1)Production agriculture, 2)commercial, industrial and residential use, and 3)instream flows. Each plan must contain timelines to achieve these strategies and interim milestones to measure progress. The act allows for grant funding from the state to complete local plans.

Guemes Island is included in the Lower Skagit Watershed Resource Inventory Area (WRIA 3). WRIA 3 is an area of 472,912 acres which includes all of the lower Skagit River, east to Hamilton, north into a small area of Whatcom County and south to Snohomish County. [36]

Skagit County began planning for the Samish sub-basin of WRIA 3 but, according to the Department of Ecology's *2006 Report to the Legislature*, Skagit County spent $1,039,000 in grants to complete a level 1 and 2 assessment and a draft watershed plan for the Samish sub-basin only , then terminated the process due to inability to reach concensus on the draft plan. As of May 18th 2007 the Department of Ecology which adminsters the planning process reports no further work on watershed planning for WRIA 3. Skagit County has not even begun to do watershed planning for the remainder of the WRIA, including the island areas of WRIA 3. Of the 17 DOE monitoring stations in WRIA 3, not one is located on or near Guemes or any other island. Of the104 documents, dating back to 1971, written by public agencies or private individuals, associated with WRIA 3, listed at the Department of

Ecology's website, not one involves study, monitoring or planning for Guemes Island.

As a sole source aquifer, a bounded and limited watershed, Guemes Island, though included in the same watershed for inventory and planning purposes, has no physical connection to WRIA 3 water resources. Assessments, studies, and plans for the mainland areas of the WRIA 3 will have no benefit to Guemes Island. At this point, while they are fully aware of the water quantity and quality problems on Guemes Island, Skagit County has made no effort to complete its state mandated responsibility to develop a plan that contains "strategies to provide sufficient water" for existing and future residential populations on the island.

OTHER ADVERSE IMPACTS

Issue 1- 1992 Nitrate levels in wells indicate that septic systems are contaminating potable water and that increased population without a sewer system will have a probable significant adverse impact on the health of marine habitat and residents.

High nitrate levels were also found in island wells however, the wells with high concentrations were widely spread and found both in shallow and deep wells over 100'. While it is generally assumed that shallow wells are contaminated directly by septic systems and lawn fertilizers, it is thought that deep wells have been contaminated by poor sealing of the well casing. The USGS found that "Overall, there was no strong correlation of nitrate concentration with a hydrogeologic unit (aquifer layers) or well depth on the island."[37]

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[36] WRIA3 map

[37] U.S Geological Survey, Hydrogeology and Quality of Ground Water on Guemes Island, Skagit County, WA. Report 94-4236

If current homes on very small lots become occupied year-round, it is likely that septic system failure will occur. Sensitive marine habitat areas along the shoreline will be adversely impacted and given current nitrate levels in wells, it follows that further contamination would occur and health concerns would necessitate the installation of a waste treatment system. The introduction of a sewer system to the island would be highly growth inducing. The cycle of new growth will exacerbate the potable water problem unless a new source of water becomes available or the County determines that Guemes cannot support growth and amends current zoning to prohibit new development.

Issue 2- Nightly traffic and parking on residential streets creates an adverse impact to local residential areas.

Until the ferry schedule was extended, residents living on the local Anacortes streets leading to the ferry terminal could expect that ferry traffic would cease shortly after 6 PM on weeknights. The same was true for residents living on Guemes Island Road and South Shore Drive on the Guemes side. The very small parking area on the Anacortes side would generally empty out by 6 PM and Guemes Island Road would no longer hold a line of waiting cars.

After the ferry schedule extension, the traffic continues until 10 PM on weeknights. The people and cars create noise on previously quiet streets, at night when children are supposed to be sleeping, and headlights glare into windows. As new Guemes Island commuters increase, so too will this nightly traffic and resultant noise and glare. In order to avoid

blocking the streets, the City of Anacortes may find it necessary to expand the parking area along the street, creating large expanses of new impermeable surface. Without careful mitigation measures, currently not planned or mentioned in the County *AC,* increased oil from parking areas will leach into the Guemes Channel.

Issue 3- Increased population from induced growth will increase demand for commercial and public services now unavailable on Guemes Island.

The ferry landing is a desirable location for commercial expansion, just the same as a freeway exit. Several years ago, the argument was made that Guemes needed a convenience store so that residents would not have to travel across the channel to get a loaf of bread or a bottle of milk. The proponent who asked for a rezone to allow his proposed store, choose the property next to the ferry landing because it would allow him the opportunity to sell snacks to people waiting in line at the ferry.

Today the "general store" operates daily from 8 AM to 7 PM, and until 8 PM Friday and Saturday. It has expanded to include a restaurant which serves Breakfast, Lunch and Dinner during the same hours and on Friday nights it offers musical entertainment until 9 PM. It typifies the evolution of commercial expansion over time.

As the ferry operates later hours on weekdays, it may become desirable to the owner of this commercial enterprise to extend operating hours again, which would impact neighboring properties. While the Guemes Island Planning survey (distributed by GIPOA) shows that 69.5% of the property owners were against additional commercial zoning on the island, over time, with increased population, it is likely that there will be pressure to expand the

commercial operations adjacent to the ferry landing similar to landings on Orcas and San Juan Island.

Fire protection is supplied by volunteer residents operating fairly old equipment and there is no police protection provided on the island. With increased population comes the need for professional fire and police protection and expensive equipment. With public service workers, as with the existing ferry workers, come labor disputes and negotiations. The cost and difficulties associated with these new "services," are likely to be a significant adverse impact on residents who live the quiet rural existence available on Guemes Island today.

SECTION V

ENVIRONMENTAL ANALYSIS OF THE IMPACTS TO LAND USE OF A TRANSPORTATION PROJECT

"Local governments affect the supply of developable land through land use regulations that specify where and under what conditions development can occur and through the provision of infrastructure, such as water, sewer, and transportation systems." [38]

In *Land Use Impacts of Transportation: A Guidebook*, prepared for the National Cooperative

Highway Research Program by Parsons Brinckerhoff, they point out:

"When assessing the impact of a transportation improvement or modification, local government must determine the "differences in land use patterns between a future with the transportation project and one without it." "This comparison distinguishes between land use changes that would have occurred anyway and those related to the transportation project. Two forecasts of future land uses--one with and one without the project--are needed to make this comparison."

Land Use Impacts of Transportation: A Guidebook suggests that Skagit County should have undertaken the following environmental analysis:

1. Understand existing conditions and trends.
2. Establish governmental policy assumptions.
3. Measure the transportation outcomes with and without the project. The county should have answered the following questions:

- How will accessibility to, from, and within the study area change with and without the project?
- How much and where will access to jobs change?
- How much will access to other major destinations change?
- What differences will the project make in travel behavior?
- How will the number of trips in the study area change?
- How much and more will the distribution of trips by time of day change?

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[38] Parsons Brinckerhoff, *Land Use Impacts of Transportation: A Guidebook*, prepared for the National Cooperative Highway Research Program Oct, 1998

- How much and where will be congestion levels be changed?

4. Estimate total study area population and employment growth with and without project. This step will produce an estimate of the number of people and jobs expected in the study area at the end of the planning period with and without the transportation project.
   - Will the transportation change cause any shift in population to the study area?
   - Will transportation change induce households to move from other parts of the region to the study area?
   - Will the transportation project induce any increases (or decreases) in population or jobs in the study area over what would occur anyway?
5. Inventory land with development potential.
6. Estimate how the project will change the location and types of residential and business development within the study area.

SECTION VI

EXISTING RESIDENT PROFILE FROM 2000 CENSUS DATA[39]

The following demographic information should be used to perform the Impact Assessment.

Population and housing

Population and housing

- In 2000, there were 563 full time residents on Guemes Island, up from 546 residents in 1990, a 3% increase.
- There were 592 housing units in 2000, up 15% from 514 units in 1990. However, only 287 were occupied and 272 (49%) were used for vacation and part-time occupancy.
- 35 new units have been built since 2000, bringing the current number of dwellings to 627.
- If all 35 units built since 2000 were occupied by full time residents, based on the 2000 Guemes Island occupancy rate of 1.96 persons per unit, the current population would be 630 people, a 12 % increase in 6 years.
- If all existing housing units on the island were occupied by full-time residents at the 2000 Skagit County average of 2.6 persons per household, the existing 627 houses could accommodate 1630 people, a 189% increase or triple the year 2000 resident population.

Age

- The population of Guemes Island has been steadily aging. The median age of residents in 2000 was 53 years old. [40]
- In 2000, 239 people were over age 55 (42%).
- In 2000, children were only 12% of the population. There were only 69 children under age 18 living in 29 resident families. There were 54 school age children, 23 of whom were high school age.

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[39] 2000 US Census Tract 9501 Blocks 1002-1024 & 1038-1042

[40] 2000 US Census Tract 9501, Block 1

- In 1990 there were 92 residents in the 20 – 40 age group, but by year 2000 that number was down to 36 people, representing only 6% of the resident population.

Income and Commute

- In 2000, 50% of the resident households were collecting Social Security, 151 households had no wage or salary income, and 57 households had self employment income.
- Of the 187 people that reported that they "commute to work," 58 spent less than 20 minutes in travel time. As taking the ferry to Anacortes, with loading and crossing, as reported by the County's Annual Ferry report takes more than 20 minutes, these "commuters" were either inaccurate in their estimation of travel time or work somewhere on the island itself, leaving 129 "commuters" who left the island to work.
- While 89 commuters said their commute lasted between 15 and 34 minutes, there were 40 who traveled 40 to 90 minutes or more each way to work daily.

SECTION VII

SUMMARY AND CONCLUSIONS

Guemes Island is a small, 8.2 sq. mi island with public access only by a 22 car, 99 passenger ferry. After ferry operation hours, people who needed to access the island had to provide

ferry. After ferry operation hours, people who needed to access the island had to provide private transportation. There are 627 houses, of which approximately 50% are vacant, used seasonally. Limited access has shaped the resident population of only 563 people, which is largely comprised of retirees, and the self employed, including a fairly substantial group of artists, and a few farmers. Census data reports that the population has been steadily aging, with 42 percent over the age of 55. There are only 69 children in 23 families. With 50% of the households collecting Social Security, the average occupancy per dwelling unit is only 1.96 persons, substantially lower than that 2.6 persons per dwelling unit average in the whole of Skagit County. The 2000 U.S. Census indicates that only 187 people left home to go to work, some of whom likely worked somewhere on the island. Those who did cross the channel to Anacortes to go to work had to return by 6 PM to catch the last ferry to the island. Forty people traveled 40 to 90 minutes or more each way daily.

On May 30, 2006, Skagit County extended ferry service to10 PM on weekdays over the objections of the full time residents. The County asserts that the changes were made to improve ferry operations, improve labor conditions and better handle heavy traffic loads at the last run at 6PM. They did not show any evidence of having done environmental analysis of the impact of this change in ferry schedule on Guemes Island land uses.

Though intended to decrease traffic congestion and increase mobility, transportation improvements and expansion, provide increased access which may make a location more attractive to home buyers, inducing growth to occur. The extension of ferry service is known to be growth inducing, particularly in rural areas. Many Puget Sound communities owe their existence and growth to ferry service. Removing an impediment or obstacle to growth, like adding ferry service during evening commute hours, provides new access and will promote growth. Without proper planning, growth from a transportation improvement can lead to

significant impacts on the community, public services and open space resources. But a transportation improvement, like extension of ferry service, will only induce growth if there is demand for the location.

The significant impact of extension of ferry service to evening commuter hours is clearly illustrated by Anderson Island in Pierce County. It is a small island which had similar demographics to Guemes Island; a population of 900 mostly retirees, a lot of vacant vacation homes. It had a larger 54-car, 250-passenger ferry with a similar ferry schedule ending at 6 PM. In 2000, demand for the location was already having an effect on population and housing. Families with children were moving in and vacant vacation homes were becoming occupied by full-time residents. The ferry was crowded at peak commute hours and new residents complained about congestion. In 2004, Pierce County extended ferry hours by one run only to 7:30 PM. Their consultant said with rerouting and the new schedule, the 162-car capacity at peak hours would be enough to handle demand until 2025. They replaced their old 30 car back-up ferry with another 54-car ferry that could handle 300 passengers at a cost of $11.2 million and began alternating ferry use to extend ferry life and avoid downtime for maintenance.

Within one year, the growth inducing effects of the new access were very evident. Residents of the island reported the trend toward more families with children and full-time occupancy of former vacation homes was continuing at an increased pace; home sales, lot sales, and new construction were up; noise, traffic and crime were up, and green space was disappearing fast. The new schedule did not improve ferry traffic congestion as predicted. Peak commuter

hours are so crowded that tourists are warned not to plan to use the ferry during commute hours. The schedule change caused a traffic congestion shift. While evening traffic was previously the most congested, morning peak hours have now become the problem hours. Pierce County Public Works predicts that soon it will have to begin running both ferries in tandem.

IMPACTS

Induced growth from the ferry schedule extension is likely to take three forms: 1) New larger families replacing older homeowners with one or two persons in the household; 2) New full-time residents moving into vacant vacation homes; 3) new development of existing and new parcels.

As the Guemes Island population ages, it can be expected that the current residents will gradually leave their houses due to the need to reduce maintenance responsibilities, health care issues or death. Their homes will either be retained by younger members of the family or will be sold to new people. The population on Guemes Island would likely grow younger, even without the Ferry schedule being extended into evening hours. However, when homes become available for sale, with new commuter access to the island, younger families with children are very likely to find Guemes an attractive place to live. Demand for a home in Skagit County and San Juan County is high as indicated by a 60% growth rate between 2000 and 2006, the second highest growth rate in the Puget Sound. The demand for an island home is extremely high as demonstrated by the median house price in San Juan County at $620,000, by far the highest in the state. The prices of property available on Guemes

compares attractively with a waterfront home in King County, which in Jan 2007 had an average price over $1.8 million.

Now that they are able to commute to work and have access they never had before, owners of houses currently used seasonally may decide to move to their island home. Skagit County reports in their *AC* that while full-time residents were against extending the ferry schedule to evening hours, part-time residents/property owners favored extension, a possible indication that they wanted later service to enable them to move to the island and commute to work. Even without new development, at full occupancy of all existing homes, island resident population could triple to a population of 1630 in a very short time, with no new building or well permits issued.

Under current zoning, 1016 new homes can be built on Guemes Island for a total of 1643 homes. At full occupancy, at the average Skagit County occupancy rate, the total population would be 4,272 people, a 659% increase over current population.

Induced growth from the ferry schedule extension will inevitably have a significant adverse impact on the already ailing water supply on Guemes. Existing problems with salt water intrusion in shoreline development areas are likely to become worse as vacant shoreline homes become occupied and as the approximately 100 vacant small lots are developed. If well water-levels go down, it will negatively impact wetlands and the one stream. New development will remove vegetation and replace it with impermeable surfaces that will increase quantity and speed of runoff and reduce recharge. If the County were to expand the

existing desalination which currently only serves 36 families, the cost and environmental effects on the sensitive marine environment would also be negative. Nitrate problems caused by septic systems will be exacerbated. Residential streets leading to the ferry landings on both sides of the channel, would experience increased night time traffic, noise and glare. New growth would encourage commercial growth and increase the need for currently unavailable public services such as sewer, public water, professional fire protection, police protection, commercial services, cell phone towers, recreational facilities/youth programs and senior daycare.

In trying to improve ferry operation, Skagit County neglected its responsibility to adequately assess the environmental impact of its actions. The County initially made the decision to expand ferry service without making any threshold determination. Then it issued a Determination of Non-significance months after the schedule change without doing an adequate environmental assessment of the land use impacts. It ignored its policy not to expand transportation without public support and its own 1977 EIS on Guemes Island Ferry Service that determined that ferry scheduling would have a significant effect on population, housing and land use. One year later it has tried to justify its DNS with an addendum that still fails to address the significant impacts of the project. It has done no watershed planning for the island so when population growth occurs, there will be no plans or strategies to deal with basic needs like potable water and waste management.

Skagit County has chosen to take a similar course as Pierce County did with the Anderson Island Ferry; a course that Anderson Island residents report only resulted in an increased rate of growth, more ferry congestion, and greater expense. There are other possible solutions to

Guemes Island ferry operations problems that will not require new ferry service during commute hours.

Given the gravity of probable significant adverse impacts from ferry schedule extension, Skagit County must complete a full analysis of probable land use impacts in an Environmental Impact Statement so that impacts may be fully understood, alternatives examined and mitigations can be developed. Skagit County's extension of the ferry schedule must be rescinded while there is still an opportunity to avoid significant and irreversible adverse impacts to Guemes Island.

ATTACHMENTS

GLEN VEAL

DRAFT ENVIRONMENTAL IMPACT STATEMENT

GUEMES ISLAND FERRY SYSTEM
SKAGIT COUNTY, WASHINGTON

Prepared by the Skagit County
Planning Department

December, 1977

0724

A-1

Transportation

1. Direct and Indirect Impacts - As our previous evaluations have shown changes in ferry sizing will not have a significant effect on population, housing and land use. Ferry scheduling, however, will. Similarly direct and indirect impacts to the existing transportation system are related more to the schedule of the proposed ferry than its size. Under the present situation, a 9 car ferry, the Almar, is making 130 or more runs a week to meet the user demand while a 16 or 18 car ferry can make fewer runs to meet existing and planned needs while not incurring cost overruns experienced with the existing system. Table G presents a comparison of operating costs for 9, 18, and 27 car ferries at three different levels of scheduled crossings: 75, 100 and 125 trips per week. The larger 27 car ferry is included for alternative comparison purposes. Cost evaluations are based upon known, current operating costs and do not reflect future contingencies such as inflation. This table capsulates the presentation of direct cost impacts to the transportation system as it now exists. Note that an additional crew member may be necessary at a higher operating schedule.

Table H presents cost and revenue comparisons for 9, 18, and 27 car ferries operating at 100%, 66% (2/3), and 33% (1/3) of capacity or utility. 1975 is used as the base year for costs and revenues since these revenues have remained the same today.

Examination of the Total Cost Per Trip (Table G) shows a one dollar higher cost per trip for the 18 car ferry due to the difference in fuel consumption. However, the cost per car is reduced well below that of a 9 car ferry, indicating a more favorable recovery of revenues to meet operating costs which is not the current situation as shown in Table H, 1975 Cost vs. Revenues. As indicated in that table, Profit or Loss Per Trip, the proposed action (18 car ferry), will generate a slight profit per trip at 100% capacity, slight loss at 66% (2/3) capacity, and a greater loss at 33% (1/3) capacity using the current rate structure.

Judged on a transportation system cost and operation/maintenance basis against revenues generated, the proposed action of replacing the Almar with an 18 car ferry creates no significant adverse direct or indirect impacts to the transportation system.

Handbook on Integrating Land Use Considerations into Transportation Projects to Address Induced Growth

Requested by:
American Association of State Highway
and Transportation Officials (AASHTO)
Standing Committee on the Environment

Prepared by:
ICF Consulting
Fairfax, Virginia

March, 2005

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The work was guided by a task group chaired by Mary Kay Bailey which included Lamar Smith, Susan Fox, David Scott, and Gail Grimes. The project was managed by Christopher Hedges, NCHRP Senior Program Officer.

Table of Contents

1 Introduction

Transportation improvements make land more accessible and so increase the likelihood that it will be developed or redeveloped. In response, transportation providers are increasingly being asked to *assess* the likely development impacts, and to *mitigate* negative impacts. To provide departments of transportation with assistance in responding to these requests, the National Cooperative Highway Research Project commissioned Project 25-25 (3) "Assessment and Mitigation Strategies for Land Development: Impacts of Transportation Improvements." The product of Project 25-25 (3) is this Handbook, whose goal is to provide assistance in assessing whether a project is likely to produce new development (including dispersed development), and, if the use or its impacts are deemed inconsistent with goals[1], how to mitigate them.

The material and examples in this Handbook are drawn from interviews with a wide variety of state Departments of Transportation, state land use and other resource agencies, and metropolitan planning organizations, as well as review of planning and project documents, including numerous Environmental Impact Statements. The lessons and useful practices from those interviews and documents are the basis for this Guidebook.

1.1 About This Handbook

This Handbook describes concepts and provides resources on the methods and approaches that state and local transportation agencies can use to understand the link

between transportation investment and land development, and respond appropriately to the forces at work in that link, particularly by planning for and then mitigating negative impacts. More and more, transportation agencies are recognizing induced land development as an impact of transportation capacity projects. These impacts are being recognized both during analysis done under the National Environmental Policy Act (NEPA) and in system or other planning activities.

Development, especially that which is dispersed, can contribute to serious environmental problems. Dispersed development, characterized by lower densities, few transportation options, and rigid separation of residences, jobs, and shops, can exacerbate air and water pollution, habitat loss, and a decline in ecosystem functions. It can also increase the demands on the transportation system and reduce the efficiency of the system, as the same number of people and same level of economic activity generates more and longer trips.[2] Managing these challenges is particularly demanding when transportation and land use are planned separately, as they are in most localities.

[1] This handbook does not tackle the determination of what uses or impacts are 'desirable' or 'undesirable'. Rather, this document presents ways to analyze impacts of investment to support determination of desirability in a given context. A desire for mitigation may arise because project impacts would otherwise be inconsistent with federal, state, or local laws and regulations, or with stakeholder goals for an area.

[2] Environmental Protection Agency. *Our Built and Natural Environment: A Technical Review of the Interactions Between Land Use, Transportation, and Air Quality* (Washington, D.C.: January 2001).

The research that supported development of this Handbook, including interviews with state DOTs and other state agencies, found that assessment and mitigation of land use impacts works best when transportation planning and delivery is *integrated* with land use planning and community goal-setting. As a result, this Handbook presents ways to better analyze and then avoid or mitigate impacts within a framework of integrated transportation and land use planning.

Potential land use impacts of transportation investments must be assessed as part of NEPA review. However, both interviews with agency staff and review of NEPA documents produced for transportation projects suggest that the NEPA process, as generally executed, is not an ideal place to integrate land use and transportation considerations. Among other reasons, land use and transportation planning should be integrated at a broader scale than is usually used for NEPA analysis, and begun earlier than is generally done for NEPA project-level analysis. As a result, this Handbook discusses not only project analysis within NEPA, but also discusses integration efforts that can be undertaken without direct ties to NEPA project analysis.

Discussion on important aspects of integrated consideration of transportation and land use is organized under three key topics:

1. integrated transportation and land use planning;

2. analysis methods for land use; and

3. mitigation strategies.

Once engaged with land use planning processes, transportation agencies are able to employ methods to better understand interactions between transportation and land use, and use mitigation strategies to ensure that land use policies and transportation projects work together to meet economic, environmental, and social goals.

1.2 Land Use and Transportation Interactions

Land use and transportation are inextricably linked. Agencies often struggle to understand and respond to this linkage in a way that fulfills natural resource and quality-of-life objectives while fulfilling community economic objectives.

New transportation infrastructure can help shape land uses by increasing the accessibility of sites and the mobility of site users.[3] For example, on a highway corridor through undeveloped land, a new interchange increases the accessibility of sites in the vicinity, enabling their development. In addition, the new interchange offers some existing users of the highway network time savings over their current routes and destinations, thereby increasing demand for new development on these sites. These pressures can result in land development, often at quite a distance from the interchange. While the new interchange may represent a transportation agency's good-faith effort to fulfill its charge of improving

[3] US Environmental Protection Agency, *Our Built and Natural Environment: A Technical Review of the Interactions Between Land Use, Transportation, and Air Quality* (Washington, D.C.: January 2001), p. 9.

mobility, it also produces powerful effects on land use. Other transportation investments produce "induced growth" in similar ways.[4]

That growth can then contribute to undesired environmental outcomes. If not managed properly, habitat loss from new greenfield development can interfere with ecosystem functions, including support of fish and wildlife populations. Impervious surface can quickly grow to the point of degrading surface and ground water quality. Losses in open space, increases in the heat-island effect, and greater air pollution from higher amounts of vehicle travel can all degrade human and environmental health and community quality.[5]

Of course transportation investment cannot produce growth absent demand. That demand, and the land use policies that affect it, drive land use and resulting impacts. Local policies may produce new development, creating new travel demand and taxing the existing transportation network. As a result, the transportation agency may be unable to maintain its level of service standards, leading users and the locality to call for expanded capacity. Thus begins again the cycle of new transportation projects that encounter environmental issues.

Thus the importance of coordination between transportation and land use agencies, as decisions by each can affect the other's ability to carry out its responsibilities. To understand how to achieve real coordination, it is useful to first revisit briefly the institutional contexts in which land use and transportation planning take place. The traditional context in which transportation projects are selected and developed, and the

separate context in which land use concerns are addressed, pose challenges for integrated evaluation. Attempts at better coordination, then, need to respond to these challenges.

1.3 Brief Overview of Transportation and Land Use Planning

The institutional contexts and planning processes in which transportation projects are conceived and carried out present particular challenges to addressing land use impacts. Transportation agencies are generally charged with improving safety, and providing or enabling mobility, but their success requires coordination between those doing system planning and those implementing projects. With a few exceptions, transportation project implementation remains a function of state Departments of Transportation (DOTs), while responsibility for advance transportation systems planning has been de-centralized to local Metropolitan Planning Organizations (MPOs).

MPOs, whose membership derives from local decision-makers such as city councils, are charged with building regional consensus on investment priorities for the regional transportation system, including where to place new capacity.

State DOTs are then called upon to implement projects from those plans. In close coordination with USDOT, state DOTs perform the work necessary to take projects from

4 A recent comprehensive examination is Robert Cervero, "Road Expansion, Urban Growth, and Induced Travel: A Path Analysis," *Journal of the American Planning Association*, Vol. 69, No. 2, Spring 2003.
5 EPA, pp. 12-13, 25-33.

A two-pronged approach is needed, one that includes attention to the environmental and community impacts of growth before transportation projects are readied for implementation, as well as attention to the impacts of particular projects as they are implemented. By devoting attention to analysis of growth impacts before specific projects are selected, undertaking capacity solutions as well as non-capacity solutions, and following through with actions to minimize undesirable land use impacts of projects, transportation agencies can become active partners in efforts to manage growth in ways that address multiple community objectives. They also position them-selves to more quickly perform NEPA-mandated analyses, and are likely to encounter fewer challenges (and certainly fewer unexpected challenges) if those analyses are extensions of analyses done as part of larger planning and growth management efforts.

1.5 A Response in Three Parts: Integrating Transport and Land Use Considerations

Although transportation and land use are planned in separate contexts, transportation agencies can support easier and faster implementation of transportation projects and avoid the problems the separation inevitably creates by considering the land use impacts of projects earlier and producing initiatives that truly address those impacts. Doing so does not require transportation agencies to abandon the goals of improving mobility and accessibility, but rather to employ new means to achieve those goals.

Three kinds of responses can help strengthen linkages between transportation and land use:

Engagement in Local Land Planning. Transportation agencies can develop mechanisms to engage with local land planning processes as a way to bridge the divides created by divisions of responsibility for transportation and land use. Through this engagement with land planning, more holistic solutions can realistically be considered and implemented. In fact, mitigation strategies often depend on advance planning work in order to be implemented. This engagement can also provide a political environment that is more conducive to good-faith dialogue about how transportation agencies, land use agencies, and the community at-large can work together to address growth issues.

Analysis Methods. As previously discussed, transportation and land use interactions are complex. Many current analysis methods have proved insufficient for capturing these interactions. Agencies can work to improve the methods used to predict the land use effects of transportation projects, and the methods to help convey these effects to broad audiences, especially visually.

Mitigation Strategies. Ultimately, strategies are necessary for implementing land use growth and development management visions and goals. Agencies can employ such strategies in connection with transportation projects, or as general initiatives unconnected with particular projects. Some of these strategies involve land use regulations, underscoring the importance of close coordination and partnerships with land use jurisdictions. Others transportation agencies themselves can undertake.

By engaging with and supporting land use planning, transportation agencies can build partnerships and help form a regional consensus on managing growth and its effects. In many areas, new analysis methods are needed to improve the understanding of land use and transportation interactions. And finally, mitigation strategies are needed to help implement these regional strategies to manage growth. The nature of these responses highlights the need for successful coordination with land use at all stages of decisionmaking, from system planning to project implementation. Success lies in determining the most effective kinds of analysis and actions to be undertaken at each stage. The remainder of this Handbook is structured to provide more detail on these three types of responses.

3 Methods for Analyzing Land Use Changes

This section describes how to analyze indirect land use changes from transportation investments and summarizes methods for doing so. It also discusses some of the major tools used for predicting such changes. Some of these methods are straightforward and can be achieved through common survey techniques, comparisons, or basic quantitative analysis. Other methods are complex and require specialized software and training. The goal of this section is to provide a general sense of approaches and tools that are available. The examples below are loosely grouped into qualitative and quantitative tools. In reality, most components of land use impact analysis combine both quantitative and qualitative techniques. Several more detailed resources are listed at the end of this chapter to provide more in depth discussion of these analysis tools.

3.1 General Approach [9]

Land use impact analysis uses a wide range of analysis tools and strategies. Different tools and strategies are suitable for different stages in the analysis process. Selecting the most appropriate tools and strategies depends on specifics such as the quality and availability of data. This section briefly describes general steps in the assessment process.

Assessments of land use changes are necessary in three different areas:

1) Baseline land use forecasts, i.e., what future land use would be expected in the

1) Baseline land use forecasts, i.e., what future land use patterns will be in the absence of any investments or policy changes.

2) Impact assessment, i.e., land use changes attributable to specific infrastructure construction or expansion.

3) Policy assessments, i.e., land use impacts attributable to changes in transportation policy changes (e.g., pricing or parking policies) or technology (e.g., intelligent transportation systems efficiencies).

In each of these three categories of land use analysis, several steps are required to determine the degree and character of likely land use change. While the sequence of analysis steps depends on each circumstance, the following steps generally describe the analysis process.

A) *Understand existing conditions and trends.* This principally involves assembling data that will be necessary to conduct the analysis. Existing databases, surveys, statistical trend analysis, remote sensing technology, and GIS are likely to be required for this stage of analysis.

9 A more detailed discussion of the approach outlined in this section can be found in *Land Use Impacts of Transportation: A Guidebook*, NCHRP Project 8-32(3), prepared by Parsons Brinckerhoff Quade & Douglas, Inc. October 1998. See also the Federal Highway Administration's on-line "Toolbox for Regional Policy Analysis", at http://www.fhwa.dot.gov/planning/toolbox/index.htm.

B) *Establish policy assumptions*. This step involves determining currently anticipated changes in regulatory or economic policies. When comparing future scenarios, this may also require defining different policy assumptions for various scenarios. Examples of areas where policy assumptions must be clearly defined include zoning, environmental regulations, and impact fees. This step generally requires discussions with regulatory practitioners and policy makers.

C) *Estimate regional population and employment growth resulting from change in accessibility*. This step uses local population and employment trends; broader state and national economic industry trends; and economic forecasting models in order to establish future population and employment trends for various scenarios. Regional economic and demographic models are the key tools.

D) *Inventory land with development potential.* This step identifies undeveloped and underdeveloped land and, in combination with environmental restrictions and zoning regulations, quantifies land available to absorb growth. This typically involves surveys and interviews as well as GIS analysis. The environmental restrictions can be either statutory (a required stream setback) or based in the goals of the planning process (avoid highly erodible lands).

E) *Assign population and employment to specific locations.* This step uses land availability, the cost of development, and the attractiveness of various areas to estimate the amount and type of growth that will occur in each zone. This stage can

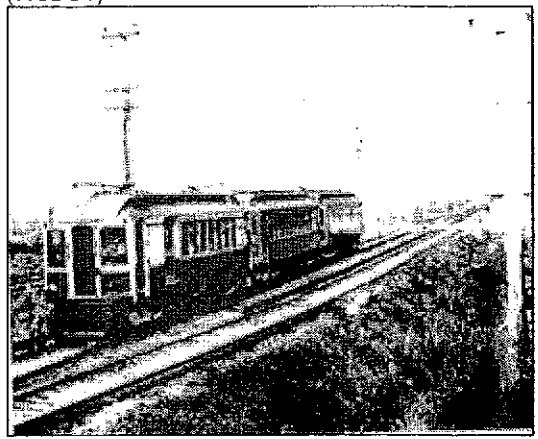
use expert interviews and panels (including Delphi panels), statistical trend analysis, and/or integrated transportation and land use models. Ideally, there is a feedback process from step E to step B until equilibrium is achieved.

Interurban rail service between Seattle and Tacoma begins on September 25, 1902.

HistoryLink.org Essay 5340

On September 25, 1902, the Seattle-Tacoma Interurban Railway inaugurates electric rail service between Seattle (from a Pioneer Square terminal at Yesler Way and Occidental Street) and downtown Tacoma, with a branch line to Renton. Wooden cars manufactured by the Brill Co. depart approximately once every hour with the typical run taking 100 minutes. Limited service is 70 minutes. One-way fare costs 60 cents and a round trip one dollar.

Later named the Puget Sound Electric Railway, the line was part of a system that also owned the Tacoma City Railway. The line ran on tracks



Interurban to Tacoma
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along city streets in Seattle and Tacoma receiving its power from overhead wires, but most of the line ran on private, fenced right of way with an electrified third rail providing power. The carbarns and base of operations were in Kent.

The Issaquah Independent reported on January 25, 1900 (when the construction of the line was announced), that Issaquah residents would be able to leave town at 9 o'clock in the morning, travel by road to Renton, take the interurban to Seattle, conduct business there during the day, and return to Issaquah by 9 o'clock that night.

In 1919, the line carried three million passengers, but competition from automobiles speeding over paved roads pushed the interurban to bankruptcy in 1927. The lines were abandoned in 1928.

0736

A-13

Remembering When We Rode On Light Rail -- Video Traces History Of The Interurban

ncy Bartley
attle Times South Bureau

Interurban on tape

A videotape of "The Seattle-Tacoma Interurban Railway" is being sold for $24.95, in part to benefit the Tukwila Historical Society. For more information, call 448-7568.

It was the first rapid transit, its big green cars trundling along a track from Seattle to Tacoma, linking the rural communities with a web of steel.

Today, the rail system - regarded by historians as the most significant development of its time in the region - is the topic of a 45-minute documentary, "The Seattle-Tacoma Interurban Railway."

Funded by an $8,000 grant from the King County Landmarks and Heritage Commission, the film is the creation of Stephen Sadis and Dan Fields, who wrote and produced it for Perpetual Motion Pictures, and Tukwila Historical Society President Wendy Morgan, who coordinated the project. It will be presented at 2 p.m. tomorrow at Tukwila City Hall.

As the latest Regional Transit Authority proposal for **light rail** heads for the polls this fall, historians and transit planners alike have had a renewed interest in the Puget Sound Electric Railway, first called the Seattle-Tacoma 'erurban when it opened in 1902.

Sadis said he was intrigued by the major role rapid transit had in the lives of the community just after the turn of the century, and the sophisticated **light-rail** system offered.

The argument that Northwesterners are too "independent-minded" for mass transit doesn't jibe with the region's history, he said.

For Warren Wing, author of "Tacoma By Trolley: The Puget Sound Electric Railway" (released this week by Pacific Fast Mail, Edmonds, $39.50) **light rail** brings back fond memories.

Wing, who is interviewed in the film, was a small boy when he took his first trip on the Interurban. Fishing poles in hand, he and his father took the train from the ticket office and waiting room at Occidental and Yesler to Riverton, a community along the Green River, for an afternoon of fishing.

He recalls perching at the edge of the train's rattan seats, listening to the hum of well-oiled motors, the hiss of air brakes and a conductor in dark blue calling out destinations.

There were 38 miles of track with stops to rural communities such as Argo, Georgetown, Meadows, Duwamish, Foster and Allentown - all between Seattle and Tukwila.

The train ran every 30 minutes most days for 26 years. It traveled through the then-White River Valley, stopping in Kent, where the railway headquarters and car barn were. It continued into Auburn and south to Pacific City (now just Pacific), through a tunnel and up a steep grade along

0737

A-14

what is now Jovita Boulevard, near Federal Way, then through Edgewood, Milton and into Tacoma.

[redacted]hard to imagine what the coming of the Interurban railway meant to [redacted]dents of the valley, Wing said. While there were steam railroads carrying freight on the Great Northern and Milwaukee tracks through the valley, there was no affordable and easily accessible railway to handle commuters or carry freight short distances.

One newspaper called the Interurban an "opium dream." It made it possible for workers in Kent to hold jobs in Seattle, for children in rural areas to attend school, for dairies to bring milk to the creamery in Kent, for farmers to bring produce into the city, for early businesses in Renton Junction to ship coal and bricks, and for newspapers in the city to send their product to the country.

Farmers' markets - the largest being the Pike Place Market - sprang up. Small communities turned into booming suburbs because Seattle was now only 30 minutes, and at the most, a 50-cent ticket away.

Electricity came to homes along the line, too, as communities tapped into the railway's electric system. The peak year was 1919, when 3 million people rode the Interurban - among them many soldiers returning from Fort Lewis at the end of World War I.

Despite the Interurban's popularity, the automobile was catching on. Between 1916 and the 1920s, dirt, gravel and brick roads were covered [redacted]ith asphalt, among them the East and West Valley roads, making driving

other. And car prices, too, had dropped. A Ford sold for about $250.

Wing wonders whether Tacoma businessman Henry Busey and his associates, who built the railway, would have proceeded with the project had they known cars would shortly become a household staple.

In July 1928, Highway 99 opened, making it easier than ever to drive from Seattle to Tacoma. Facing decreased ridership and profits, the railway folded that December.

Now that **light rail** is again under consideration, its advocates hope for liberation - not from the isolation of farmlands, but from congested freeways. Wing is philosophical.

"If they have convenient service - you have to go where people want to go, and it has to be affordable - then that tells you people will ride," he said.

0738

A-15

Ferry service begins between Seattle and West Seattle on December 24, 1888.

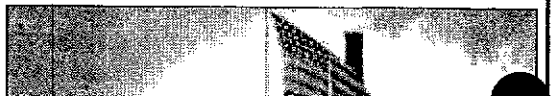
HistoryLink.org Essay 1968

Printer-Friendly Format

On December 24, 1888, the ferry *City of Seattle* makes its first run from Seattle to Duwamish Head at West Seattle. *City of Seattle* is the first regularly scheduled ferry on Puget Sound.

The ferry carried passengers, wagons, cattle, and buggies, and ran from the foot of Marion Street in downtown Seattle to the foot of Grand and Cascade avenues (later Cascade Way and Ferry Avenue) in about eight minutes. The *City of Seattle,* a sidewheeler steamboat 121 feet long and 33 feet wide, was built in Portland, Oregon, for $35,000. (A sidewheeler had a large paddle

City of Seattle landing at Harbor Avenue ferry slip in West Seattle, ca. 1900



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wheel on each side of the vessel.)

The ferry served the residential development of the West Seattle Land and Improvement Company, the future Admiral District of West Seattle. San Francisco capitalists financed the development and subsidized the ferry service that provided West Seattle-Seattle transportation.

In 1907 trolley car service started running from Seattle to West Seattle. The *City of Seattle* ran for 25 years, until 1913.

City of Seattle, 1902-1903

Sources:

West Side Story ed. by Clay Eals (Seattle: West Seattle Herald, 1987), 27, 94, 97.

By Alan J. Stein, January 01, 2000

Brief History

over five miles long and two miles wide, Mercer Island lies in Lake Washington east of the City of Seattle and west of the of Bellevue. About 21,000 people make it their home. Settlement of the island by non-Native Americans began in the late 1870's. The island was named after one of the three pioneering Mercer brothers from Illinois, all of whom had great influence in the Seattle area. Although none of the brothers lived on Mercer Island, they would often hunt and explore throughout the island's secluded forests. The early settlers traveled by rowboats to the neighboring community of Seattle to pick up necessities. An occasional tramp steamer would drop off items that were too large to transport by rowboat.

Because of the inconveniences of island living, settlement lagged until C.C. Calkins platted the town of East Seattle, having purchased 22,000 acres. That's nearly three percent of the island's total acreage. In 1891 he built a luxurious resort on the western side of the island. This spurred the building of a ferry dock and small streamers began to make regular trips. This availability of transportation attracted more residents. Ferry travel continued until July 2, 1940 when the floating bridge from Mercer Island to Seattle was opened.

Today eight lanes of Interstate 90 connect Mercer Island with Seattle and Bellevue. It includes two side-by-side floating bridges that link Seattle and Mercer Island, a boon for commuters and shoppers.

Mercer Island is primarily a single-family residential community. A commercial business district and multi-family dwellings are concentrated at the northern end. However, the northern end on the other side of Interstate 90 is also a single-family residential community as well as being the site of Luther Burbank Park, which is county-owned.

Shortcuts

Washington State History

- Search Encyclopedia
- Cybertours
- Slide Shows
- Washington Milestones
- Frequently Asked Questions
- Washington Counties
- Cities and Communities
- Transportation
- State Ferries
- Forests
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- Seattle Neighborhoods
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Timeline Library
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Leschi, first auto ferry in Western Washington, begins operating on Lake Washington on December 27, 1913.

HistoryLink.org Essay 2040

Printer-Friendly Format

On December 27, 1913, the wooden ferry *Leschi* makes her maiden trial run-on Lake Washington. The *Leschi* begins as a steam-powered sidewheeler. Built by the Port of Seattle, she is operated by Captain John Anderson, and is the first boat built in Western Washington to carry automobiles.

In 1931 *Leschi* was converted into a diesel-powered vessel with a propeller. Until 1950 she carried out regularly scheduled passenger service on Lake Washington between Eastside

This file made possible by:
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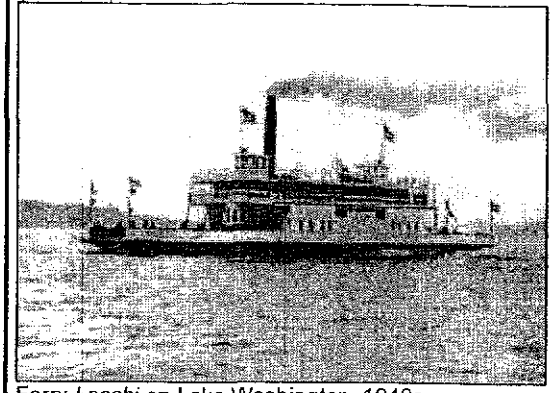

Ferry *Leschi* on Lake Washington, 1940s

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communities and Madison Park. In 1950 Washington State Ferries acquired her and put her into service on Puget Sound. In 1968, after 55 years of service, *Leschi* was sold for use as a cannery in Alaska.

Sources:

Paul Dorpat and Genevieve McCoy, "From Sails to Steam to Superferries," *The Seattle Times, Pacific Northwest Magazine* November 15, 1998, pp. 47, 50; Arline Ely, *Our Foundering Fathers* (Kirkland: Kirkland Public Library; 1975), p. 73-80, 89-90, 112-116; "State Assistance for Ferry Sought," *East Side Journal*, August 25, 1949, p. 1; "County Commissioners Reimburse City $2,592 for Dock Maintenance," *Ibid.*, December 29, 1949, p. 1, 12; "Final Fight for Ferry is Fomented," *Ibid.*, January 26, 1950, p. 1, 10; "Lake Ferry Service May Be Restored," *Ibid.*, February 2, 1950, p. 1; "Union May Operate Leschi Ferry," *Ibid.*, May 11, 1950, p. 1; "Leschi, Belle of the Lake Since 1913, Kissed Good-Bye Here Today," *Ibid.*, August 31, 1950, p. 1; "A Little Bit of Kirkland has Disappeared Forever," *Ibid.*, July 7, 1966, p. 13; "Sale of Leschi Dashes Hopes of Its Return Here," *Ibid.*, November 27, 1968, p. 13; Paul Dorpat and Genevieve McCoy, "From Sails to Steam to Superferries," *The Seattle Times, Pacific Northwest Magazine* November 15, 1998, pp. 47, 50.

Note: This file was revised on October 5, 2004.

By Greg Lange, January 01, 20

0741

Mosquito Fleet

THE MOSQUITO FLEET PROVIDES GROWTH

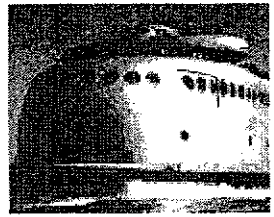
With dense forests and few roads through them, water remained the most efficient method of transportation around the Peninsula for many years. One of the most famous ferry services was called the Mosquito Fleet.

Like the name implies, this fleet of small steam vessels traveled the Puget Sound waterways, proving links between Peninsula communities and the Seattle-Tacoma corridor through the late 19th and early 20 centuries.

Today, there are still a few opportunities to travel this way, primarily on the Bremerton-Port Orchard foot ferry runs where the ship's Captain also serves as crew and money-taker. Modern passenger-only ferries run between Seattle and Bremerton, and Seattle and Kingston.

Most of the fleet has been replaced by the larger Washington State ferries, which carry millions of autos and foot passengers across the sound each year and are considered part of the state's highway system.

One of the most colorful auto ferries to grace the Puget Sound was the Kalakala (photo), the only Art Deco ferry ever constructed. In service between 1935 and 1962.



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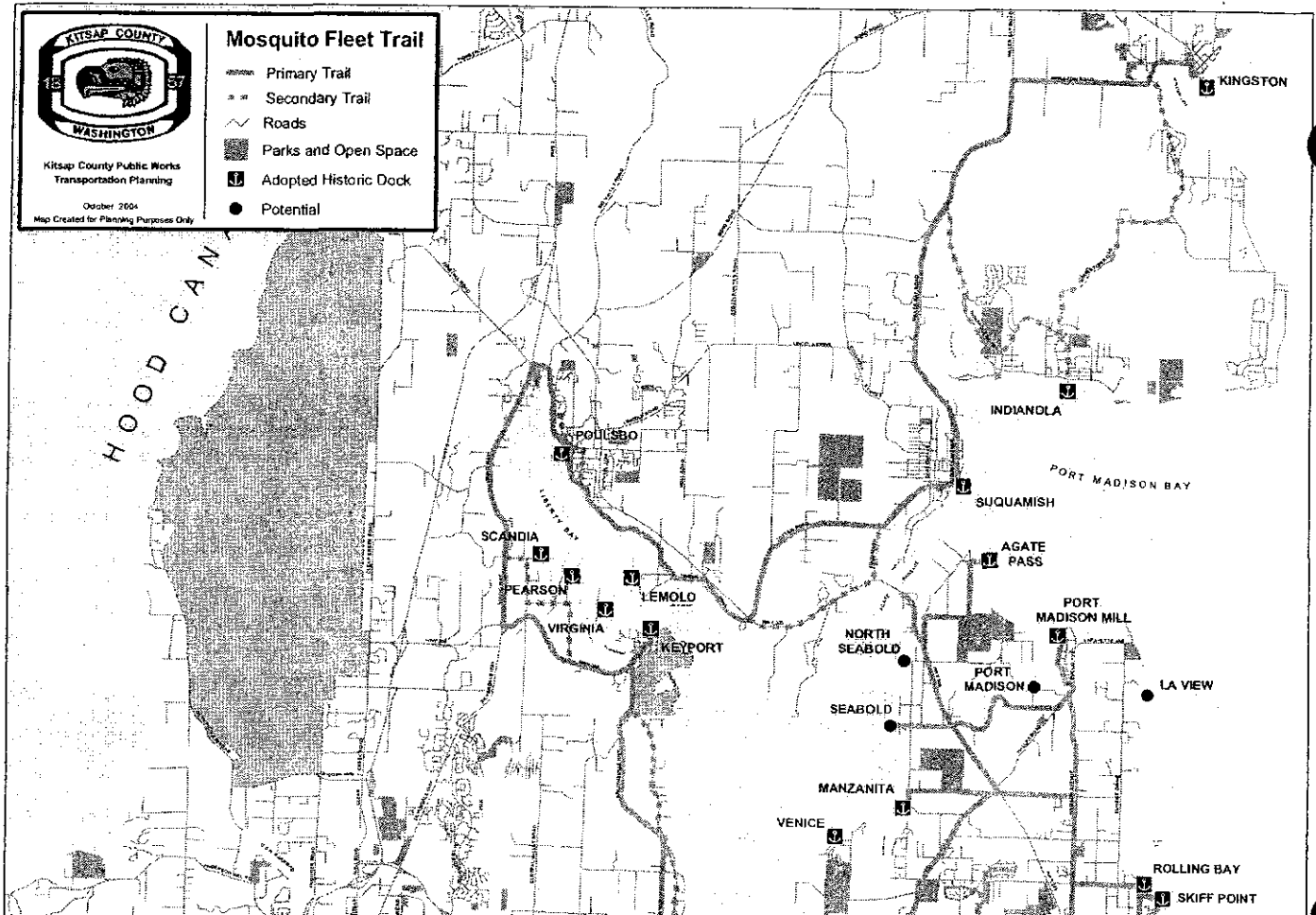
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Adopted Historic Dock
Potential
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KINGSTON
INDIANOLA
POULSBO
PORT MADISON BAY
SUQUAMISH
LIBERTY BAY
SCANDIA
AGATE PASS
PEARSON
LEMOLO
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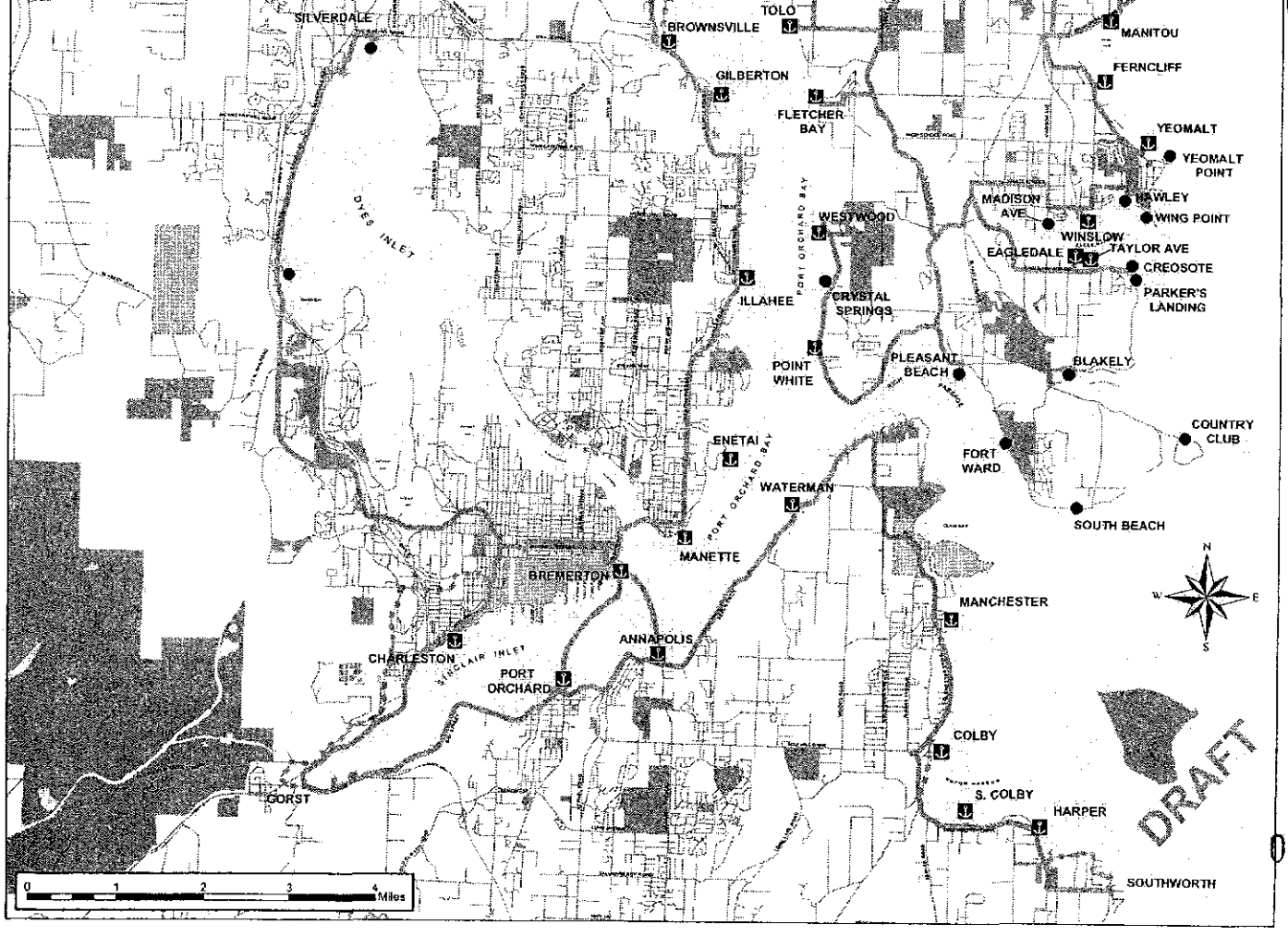
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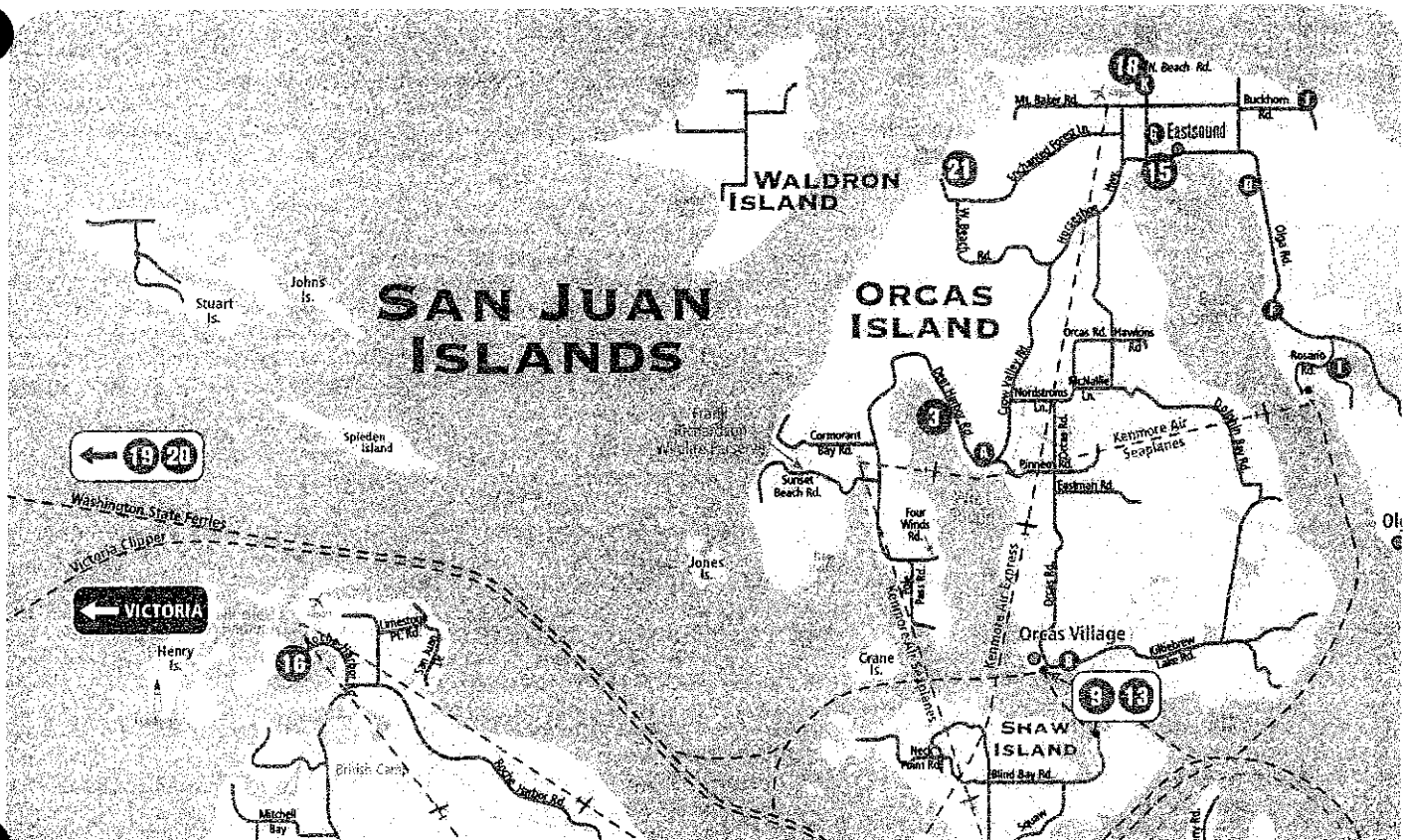
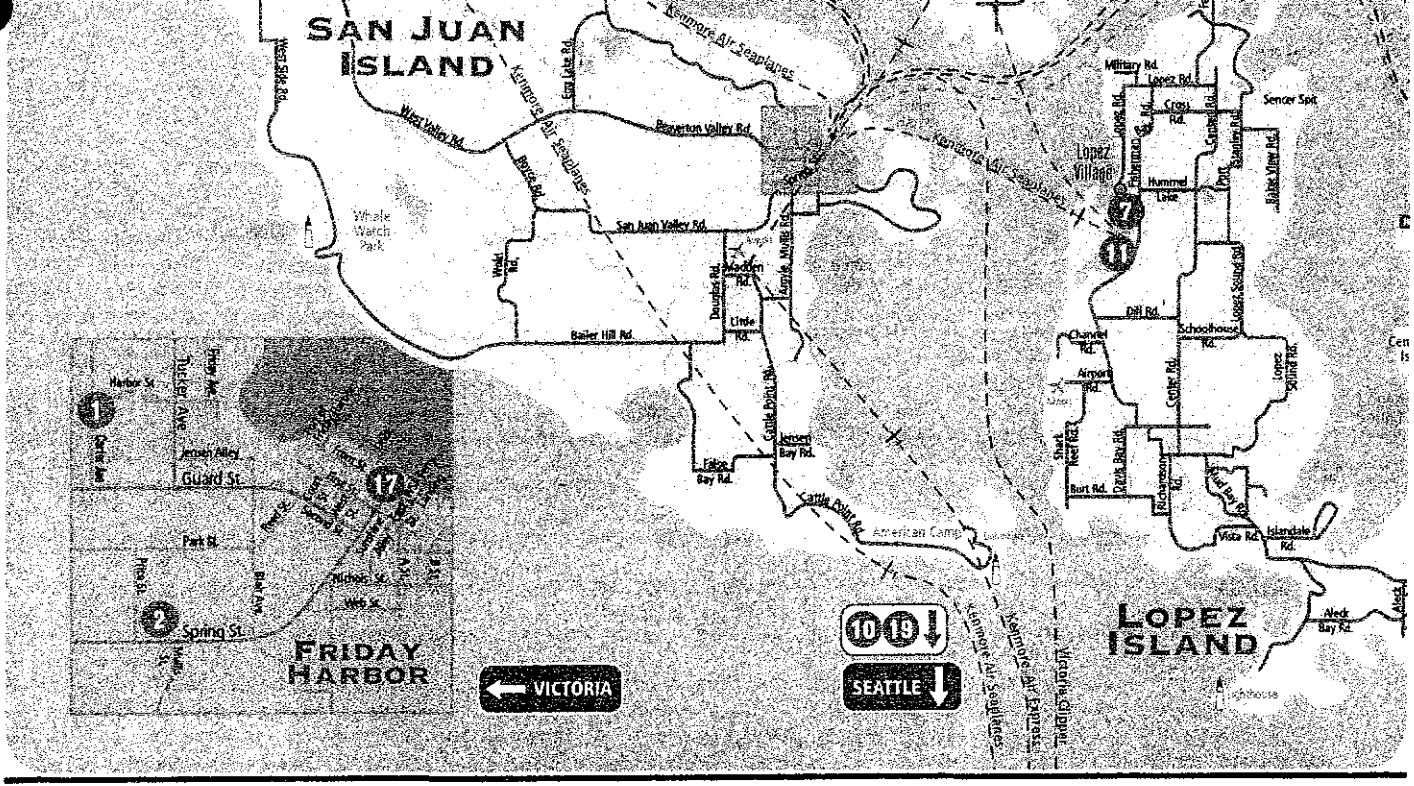

SAN JUAN ISLANDS
WALDRON ISLAND
ORCAS ISLAND
Stuart Is.
John's Is.
Spieden Island
Frank Richardson Memorial Park
Jones Is.
Henry Is.
Crane Is.
19 20
Washington State Ferries
Victoria Clipper
VICTORIA
Limestone Pt. Rd.
Cattle Point Rd.
Bailer Hill Rd.
British Camp
Mitchell Bay
Roche Harbor Rd.
Mt. Baker Rd.
N. Beach Rd.
Buckhorn Rd.
Eastsound
Crescent Beach Dr.
Lk. Shore Rd.
Horseshoe Hwy.
Olga Rd.
Orcas Rd.
Rosario Rd.
Dolphin Bay Rd.
Cormorant Bay Rd.
Sunset Beach Rd.
Four Winds Rd.
Pinewood Rd.
Eastman Rd.
Kenmore Air Seaplanes
Orcas Village
Killebrew Lake Rd.
SHAW ISLAND
Blind Bay Rd.
Shaw Rd.



PUBLISHER: Anne M. Fearn **CORPORATE OFFICE:** Certified Folder Display Service, Inc., 1120 Joshua Way, Vista, CA 92081 (760) 727-5100 Fax: (760) 727-1583 www.certifiedfolder.com
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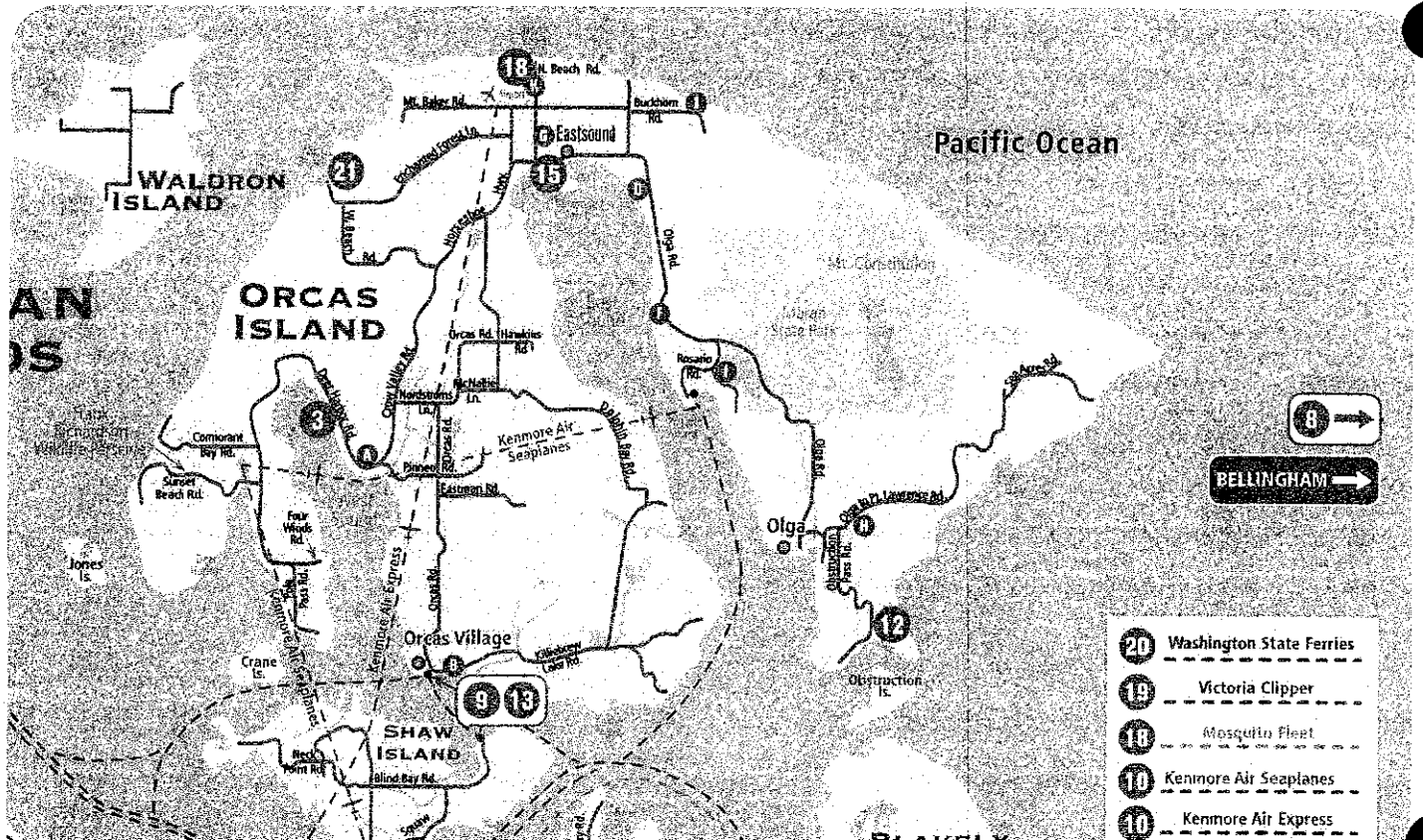
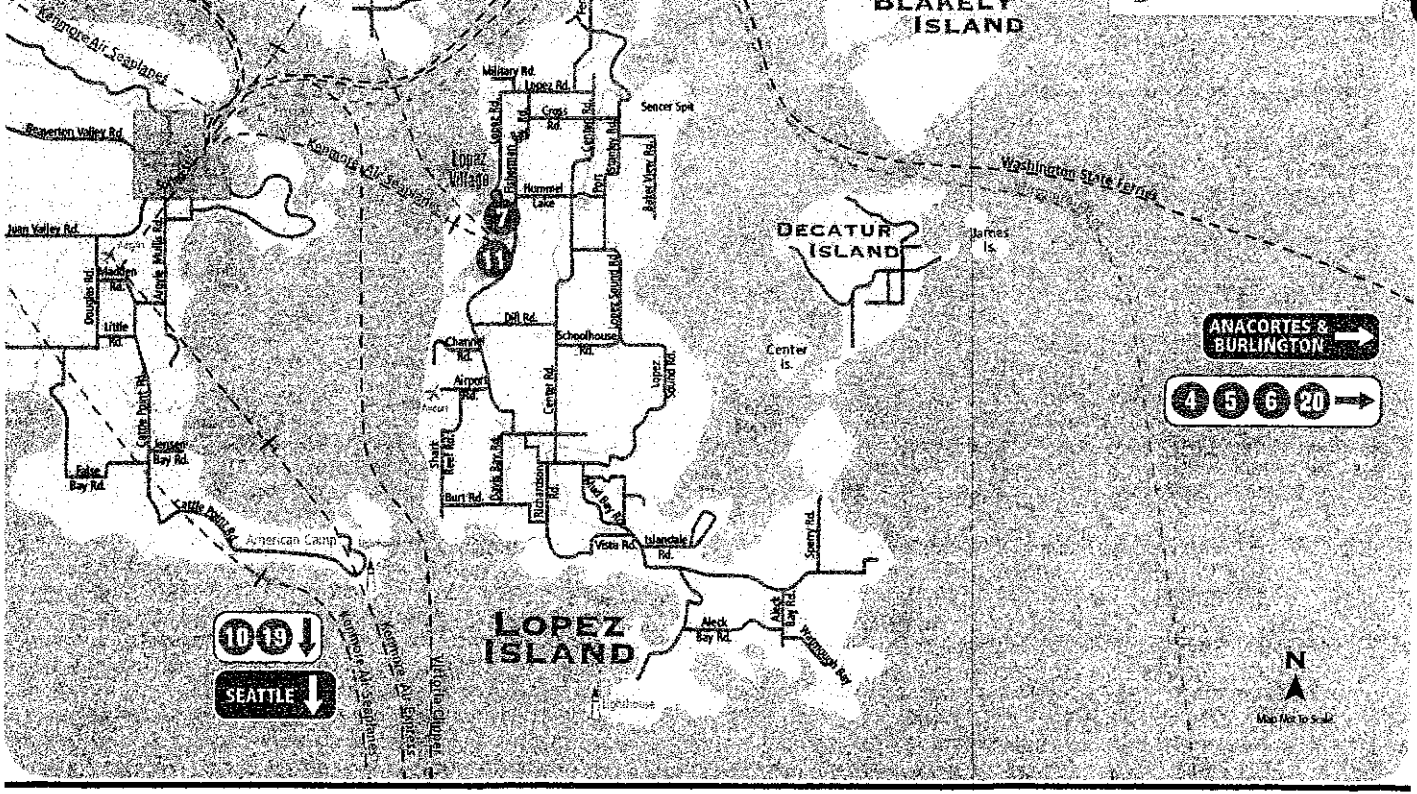
A-21


Pacific Ocean
WALDRON ISLAND
ORCAS ISLAND
Eastsound
N. Beach Rd.
Mt. Baker Rd.
Buckhorn Rd.
Enchanted Forest Ln.
Horseshoe Hwy.
W. Beach Rd.
Olga Rd.
Mt. Constitution
Orcas Rd.
Hawkins Rd.
Rosario Rd.
Nordstrums Ln.
McNutley Ln.
Orcas Valley Rd.
Deer Harbor Rd.
Cormorant Bay Rd.
Sunset Beach Rd.
Four Winds Rd.
Jones Is.
Pinnacle Rd.
Eastsound Rd.
Kenmore Air Seaplanes
Palmer Rd.
Olga
Obstruction Pass Rd.
Obstruction Is.
Crane Is.
Orcas Village
Kenmore Air Express
Killebrew Lake Rd.
SHAW ISLAND
Blind Bay Rd.
Rock Point Rd.
BELLINGHAM
20 Washington State Ferries
19 Victoria Clipper
18 Mosquito Fleet
10 Kenmore Air Seaplanes
10 Kenmore Air Express



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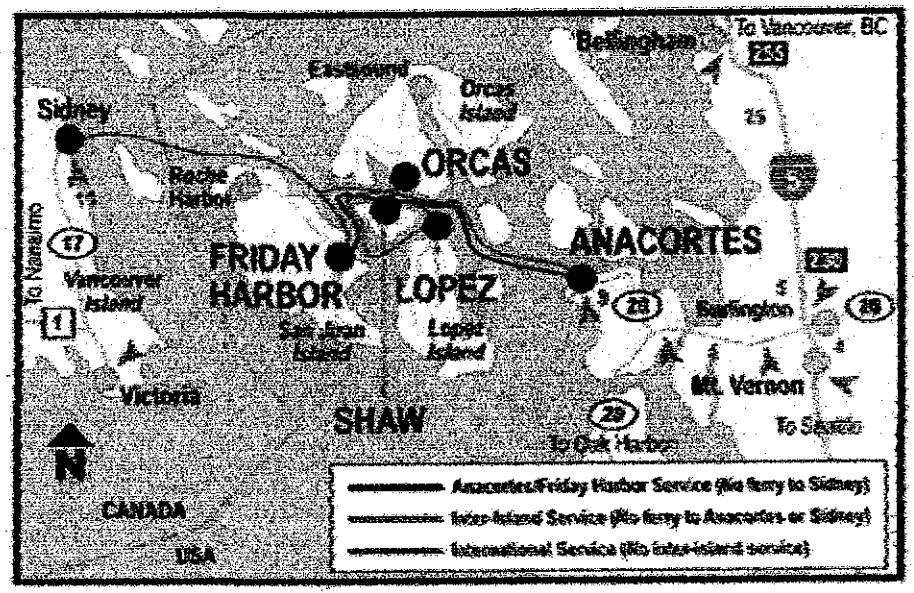
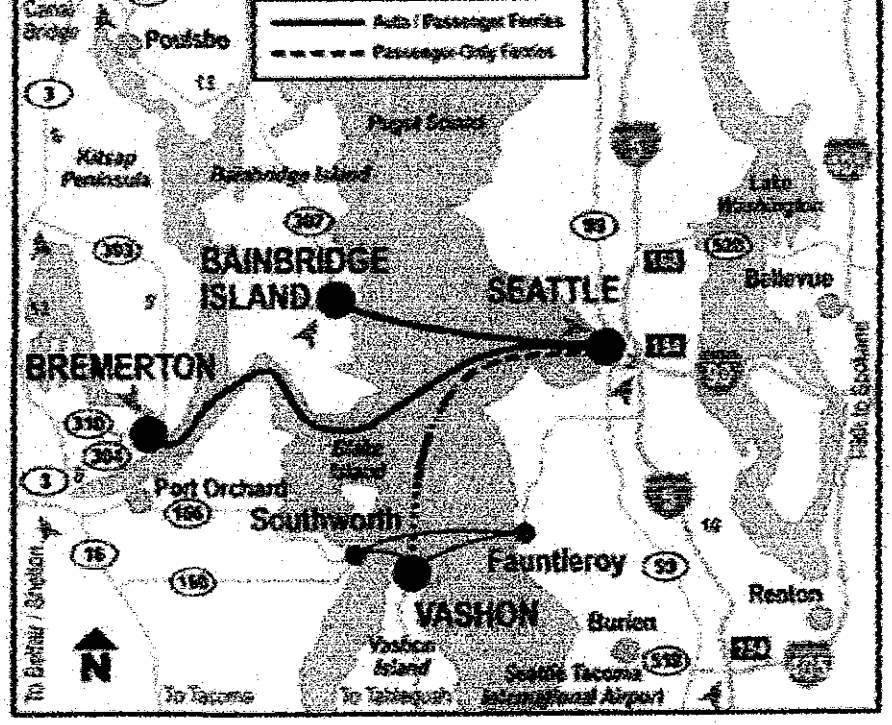
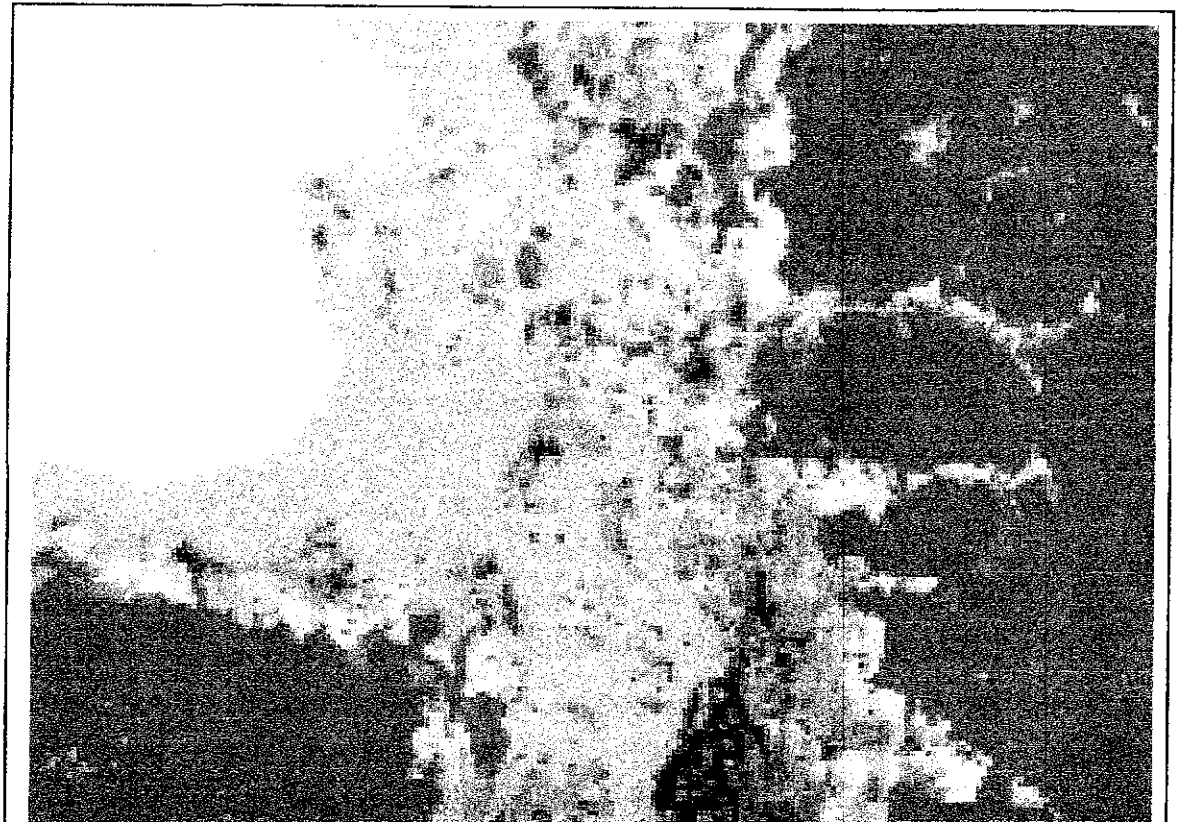
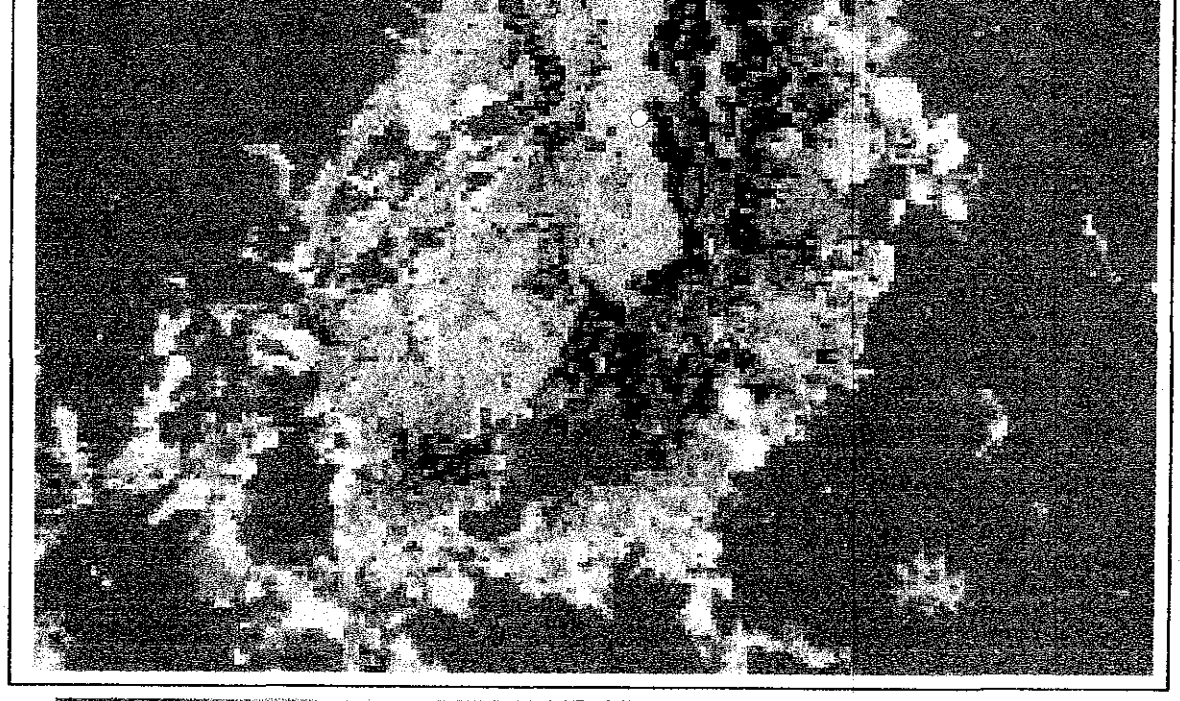
A-22

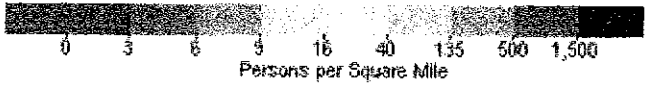

Bellingham
To Vancouver, BC
Eastsound
Orcas Island
Sidney
ORCAS
Roche Harbor
To Nanaimo
ANACORTES
FRIDAY HARBOR
LOPEZ
Vancouver Island
San Juan Island
Lopez Island
Burlington
Victoria
SHAW
Mt. Vernon
To Oak Harbor
To Sumas
N
CANADA
USA
Anacortes/Friday Harbor Service (No ferry to Sidney)
Inter-Island Service (No ferry to Anacortes or Sidney)
International Service (No inter-island service)


Auto / Passenger Ferries
Passenger-Only Ferries
Poulsbo
Puget Sound
Kitsap Peninsula
Bainbridge Island
BAINBRIDGE ISLAND
SEATTLE
BREMERTON
Bellevue
Lake Washington
Port Orchard
Southworth
Fauntleroy
VASHON
Burien
Renton
Vashon Island
Seattle Tacoma International Airport
To Tacoma
To Tahlequah
To Bethel / Shelton
N

Puget Sound Population Density- 2000 Census

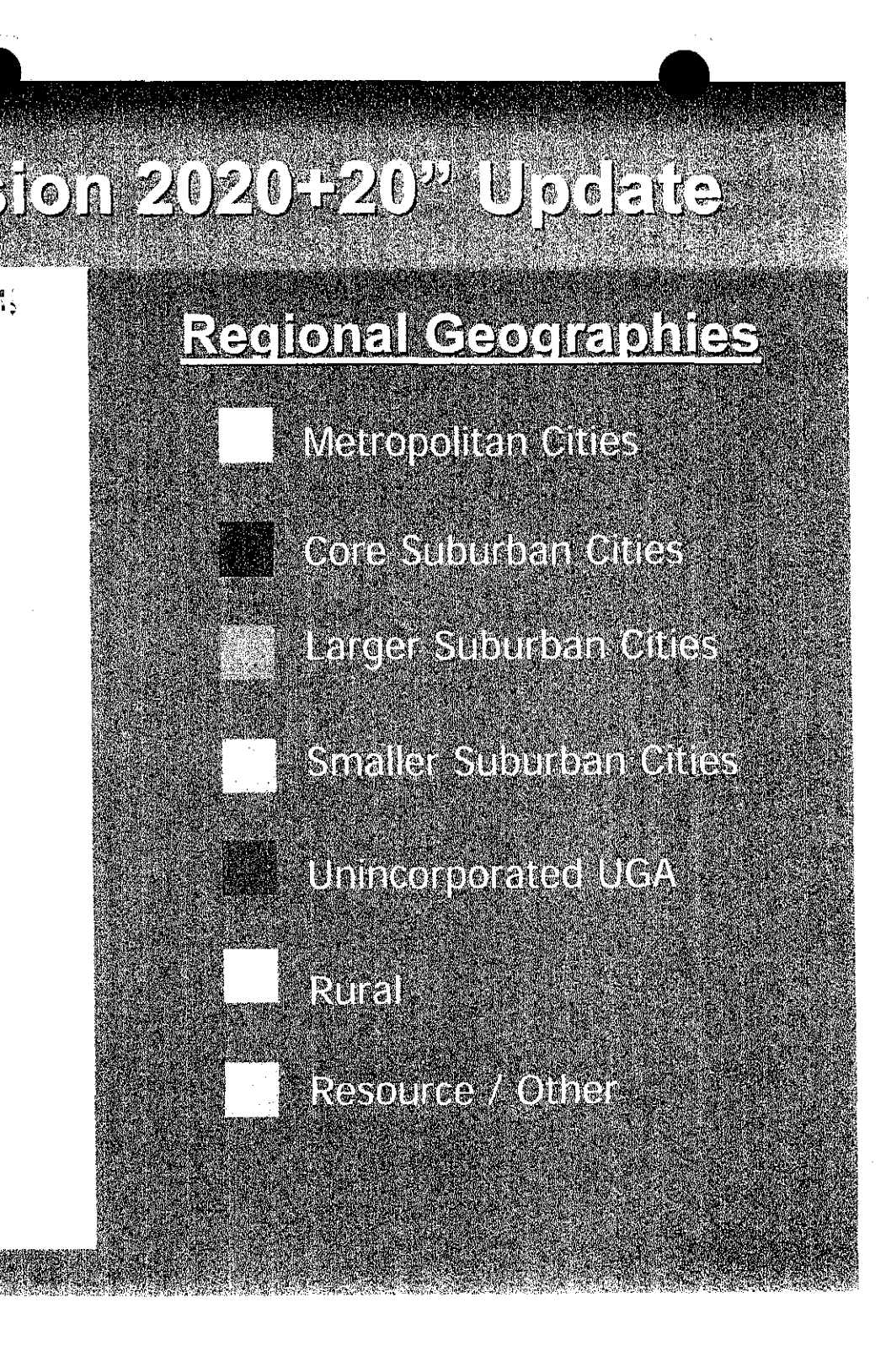





0
3
6
9
16
40
135
500
1,500
Persons per Square Mile

ion 2020+20" Update

Regional Geographies



Puget Sound's Va

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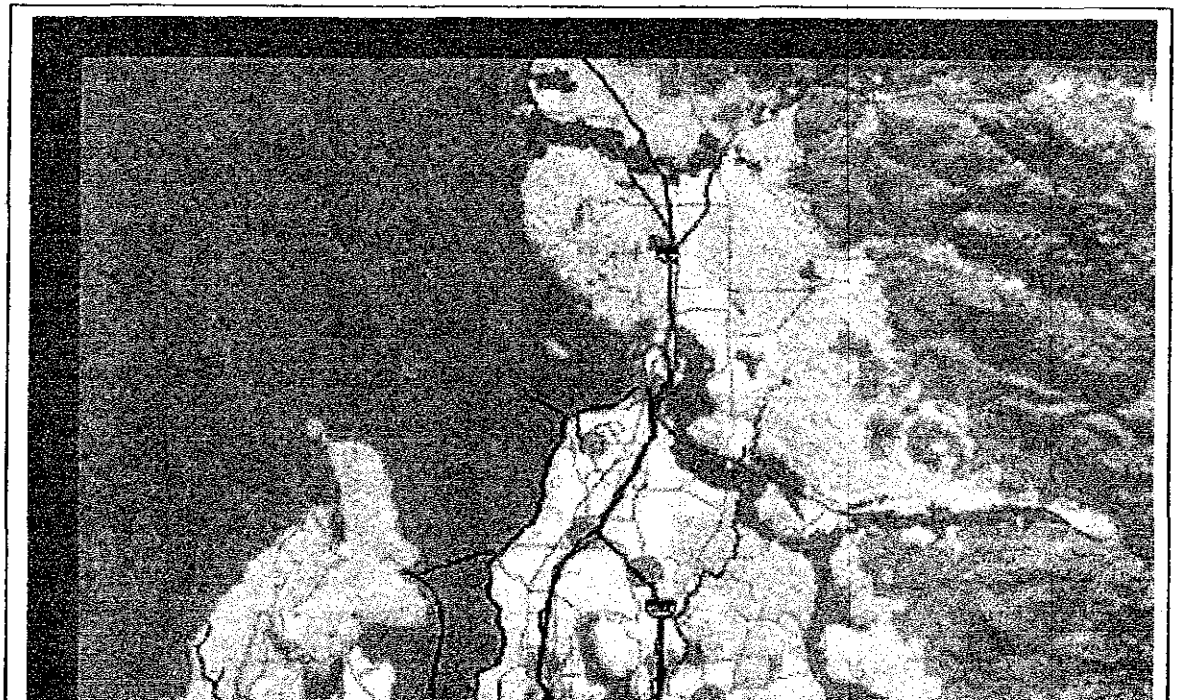
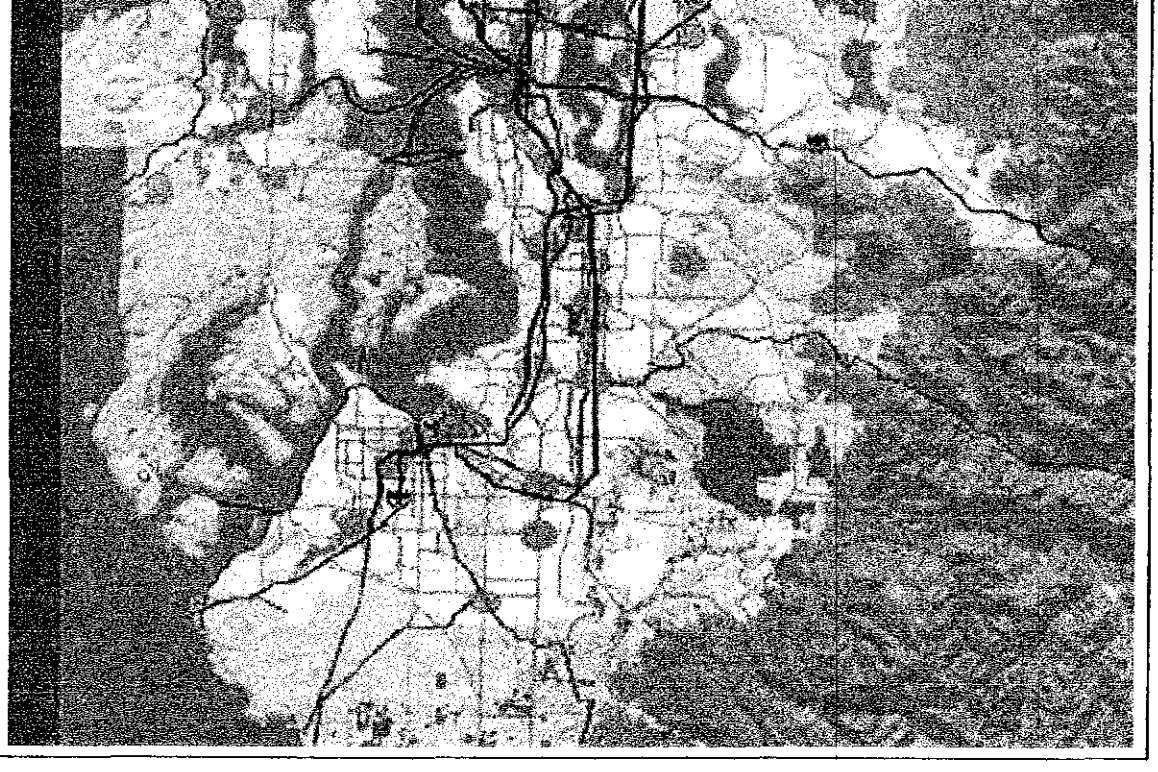
A-25

Puget Sound Major road and ferry network





Transportation network provides spokes leading to areas of dense population growth.

4.1 GROWTH INDUCEMENT

The San Francisco Bay Area is attractive not only for its geographic setting, but also for its relatively strong and diverse economy. The Association of Bay Area Governments (ABAG) estimates that the population of the nine-county region will increase by 1.4 million people in the next 25 years, from approximately 6.8 million in the year 2000 to 8.2 million in the year 2025. During the same time period, 252,800 acres would be available for development (residential and commercial/industrial), which is about 5.7 percent of the region's total area. This population growth rate is not as dramatic as in the late 1990s and early 2000s (ABAG 2001).

According to the General Plans of the nine counties, seven will experience housing shortages over the next 25 years. Those shortages will range from 5,450 housing units in Alameda County to 26,480 housing units in Santa Clara County in the year 2025. The average number of persons per household is expected to remain at approximately 2.7 for the Bay Area as a whole. The mean household income for the Bay Area is expected to rise from $93,800 in the year 2000 to $116,400 by the year 2025 (ABAG 2001).

The housing crisis in the Bay Area is negatively affecting the regional transportation system because the centers of population growth (i.e., where people are living or moving to) are not located where most employment opportunities are. Between the years 2000 and 2025, the projected increase in jobs will exceed the number of employed residents by approximately 149,000 people (ABAG 2001). This trend is expected to continue because Bay Area cities and counties seek to maximize job production without commensurate emphasis on housing

counties seek to maximize job production without commensurate emphasis on housing production (ABAG 2001).

Impact GRO-1 **The Proposed Project would expand ferry service at existing terminals and add new ferry terminals primarily at developed waterfront areas. This could be growth inducing for areas near the terminals.**

The Proposed Project includes expansion of service at existing terminal locations and at new sites selected because they have attributes and public support that indicate that ferry service will be successful in terms of ridership and cost effectiveness. All of the new terminal locations, with the exception of Hercules/Rodeo, would serve areas that are already generally developed with maritime or urban uses. The Hercules/Rodeo site is forecast (in their General Plan) for urban uses.

Growth can be considered negative or positive, depending on the objectives of the local government and the community. Local governments have the responsibility to make land use decisions. Potential growth inducement impacts should be considered by planning staffs at the local level to ensure that specific projects do not induce unplanned or unwanted growth. For these reasons, the Proposed Project is not anticipated to have a significant effect on unplanned growth. However, until site specific analyses are performed, this impact remains potentially significant.

Public Services

With the exception of Hercules/Rodeo, all of the ferry terminals in the Proposed Project are in built-up areas. Therefore, the Proposed Project would minimize impacts to open space resources and limit the expansion of the urban environment. However, redevelopment of an urban area can

carry its own set of environmental impacts, such as creating a demand for additional public services and infrastructure, causing the displacement of people or businesses, or physically dividing a community or neighborhood. For discussions of community impacts related to the displacement of people or businesses and the division of community, refer to Impacts LU-1 and LU-2 in Section 3.7 (Land Use).

A new ferry terminal or expansion of an existing terminal in an urban area could have an adverse effect on local public services such as police, fire, sewer, and water if the demand is great enough to require the expansion of those services. Likewise, the increase of ferries on the Bay could result in impacts to regional public services provided by the U.S. Coast Guard (USCG) (see Navigation Section 3.2 for a discussion on impacts to USCG operations). Typically, all public services are designed to provide adequate services for the growth planned in the local general plan or management plan. However, the exact size and nature of future planned development is not always known, so the capacity of public services is often determined by the maximum development allowed by the local zoning ordinance. Therefore, although many of the proposed ferry terminal locations are not identified in local planning documents, new terminals may not adversely impact public services.

Each terminal location would have a different set of potential impacts on the existing public services and infrastructure of a city or county, depending on the current capacity of local sewer and water infrastructure and the capabilities of the existing public safety workforce. Therefore, it is important that each potential ferry terminal site be considered in light of the local conditions. This is especially true of ferry terminals that are being considered by local agencies as part of a

larger project to provide amenities adjacent to the terminal, such as retail or commercial centers (see Cumulative Growth Inducement Impacts, below, for more discussion on adjacent land uses).

Population/Employment

Implementation of the Proposed Project could increase demand for public services, housing, and other services. Specifically, people may move into the areas due to a perceived increase in the regional quality of life or job opportunities afforded by the proposed increase in ferry services. However, a population increase as a result of either of these would not likely be significant relative to the number of people projected to move to the Bay Area in the next 25 years overall (see Section 3.7.1.1). People moving into communities from outside the Bay Area to improve their quality of life would be attracted by the availability of affordable housing, and the climate, and not just by improved ferry service.

New jobs created by the project would create new employment opportunities in the ferry industry. However, the existing ferry operators are not significant employers in the context of overall Bay Area employment, or even when considered within a single community where a terminal might be located. New positions would include additional ferry operators, and on-board and landside support for operation, passenger assistance, ticketing, maintenance, etc. However, while the actual number of employment positions is unknown, it is reasonable to assume that most if not all of the positions would be filled by people currently residing in the Bay Area. Furthermore, job opportunities that are created as a result of the project would occur incrementally, which would make any inmigration to the Bay Area as a result of increased jobs in the ferry industry insignificant. Therefore, the potential impacts due to creating employment opportunities are anticipated to be less than significant.