



THE RESORT
SEMI·AH·MOO

Master Development Plan

Blaine 2036
City of Blaine Comprehensive Plan
Appendix B

Page	Page
I. MASTER PLAN FORMAT-----	1.1
II. INTRODUCTON	
A. A Town Within A Town -----	2.1
B. The Community Concept -----	2.2
III. SUMMARY OF THE PLAN	
A. Location & Regional Context -----	3.1
B. Plan Concepts -----	3.1
C. Public Benefit -----	3.6
IV. BACKGROUND	
A. His tory -----	4.1
B. Recent Development of Semiahmoo -----	4.1
V. LAND USE DEVELOPMENT	
A. Semiahmoo Uplands & The Spit -----	5.1
B. Semiahmoo Uplands -----	5.1
1. Existing Conditions -----	5.1
2. Policies -----	5.2
3. Development Program -----	5.2
a. Re sidential -----	5.2
b. Open Space & Recreation -----	5.4
c. Roa ds -----	5.7
d. Commercial & Public Facilities -----	5.7
4. Building Design & Site Planning Guidelines -----	5.8
a. Boundary Ridge -----	5.8
b. Cove District -----	5.9
c. Golf Course -----	5.10
5. Planning Guidelines -----	5.11
C. Semiahmoo Spit 2014 UPDATE BEGINS HERE -----	5.22
1. Existing Conditions -----	5.22
2. Shoreline & Zoning Regulations -----	5.24
3. Policies -----	5.26
4. Development Program -----	5.32
a. Residential Program -----	5.35
b. Open Space, Recreation & Public Access -----	5.37
c. Roads and Vehicle Circulation -----	5.40
d. Commercial & Public Facilities -----	5.42
5. Building Design & Site Planning Guidelines -----	5.44
6. Historical Treatment/Archeological Monitoring -----	5.51
VI. LANDSCAPE DEVELOPMENT, PARKS & OPEN SPACE	
A. Landscape Plan – The Uplands -----	6.1
1. The Present Landscape -----	6.1
2. Landscape Goals -----	6.1
3. Landscape Development – The Uplands -----	6.4
4. Design Guidelines – The Uplands -----	6.9
a. General Concept -----	6.9
b. Definition -----	6.9
c. Landscape Zones -----	6.10
1. Natural Preserves -----	6.10
2. Circulation Zone -----	6.10
3. Recreation Zone -----	6.11
4. Residential Zone -----	6.12
B. Landscape Plan–The Spit 2014 UPDATE BEGINS HERE	
1. The Present Landscape -----	6.14
2. Landscape Goals -----	6.15
3. Landscape Development – The Spit -----	6.16
4. Design Guidelines – The Spit -----	6.18
a. General Concept -----	6.18
b. General Guidelines -----	6.18
c. Definitions -----	6.20
d. Landscape Zones -----	6.21

Page		
	C. Pedestrian Bicycle Circulation -----	6.30
	D. Site Furnishings -----	6.34
VII. TRAFFIC AND TRANSPORTATION 2014 UPDATE		
	A. Existing Transportation -----	7.1
	B. Projected Travel -----	7.2
	C. Planned/ Recommended Transportation -----	7.3
	1. Semiahmoo Parkway -----	7.3
	2. Drayton Harbor Road -----	7.3
	3. County Park Road -----	7.3
	4. Transit Service -----	7.3
	5. Ferry Service -----	7.4
VIII. UTILITIES		
	A. Existing Conditions 2014 UPDATE -----	8.1
IX. PUBLIC FACILITIES 2014 UPDATE		
	A. Fire Protection and Emergency Services -----	9.1
	B. Police Protection -----	9.1
X. IMPLEMENTATION		
	A. Phasing -----	10.1
	B. Permit Processing -----	10.4
	C. Periodic Review -----	10.4
	D. Public Access -----	10.5

	Page
XI. TECHNICAL APPENDIX	
A. Plant Lists -----	11.1
B. Analysis Maps -----	11.11
C. Transportation Reports (1985) -----	11.19
D. Fiscal Analysis -----	11.23
E. EIS Mitigating Measures (<i>see 1985 Final RSMP EIS</i>) -----	11.35
F. Rescinded per Ord 15-2872	
G. Rescinded per Ord 15-2872	
H. Traffic Impact Assessment 2014	
I. SEPA MDNS 2013	

LIST OF MAJOR ILLUSTRATIONS

Page	Page
Vicinity Map -----	2.4
Regional Context -----	3.1
Uplands – Land Use -----	3.3
Spit Tip – Land Use -----	3.5
Public Access -----	3.7
Solar & View Orientation -----	3.9
View of Semiahmoo Spit -----	3.10
Uplands – Residential Distribution -----	5.5
2014 UPDATE	
Spit Tip – Existing Features -----	5.23
Spit Tip – Shoreline Restrictions Designations -----	5.25
Spit Tip – Shoreline Setbacks -----	5.27
Spit Tip – Impervious Surface Distribution -----	5.29
Spit Tip – Development Allocations -----	5.34
Spit Tip – Illustrative Site Plan -----	5.38
Spit Tip – Parking -----	5.41
LANDSCAPES, PARKS & OPEN SPACE	
Vegetation & Wildlife Habitats -----	6.3
Pedestrian / Bicycle Circulation Plan -----	6.7
2014 UPDATE	
Spit Tip – Landscape Zones -----	6.19
Pedestrian / Bicycle Circulation Plan -----	6.31
TRAFFIC 2014 UPDATE	
Existing Traffic Volumes -----	7.2
Primary Road Layout -----	7.5
UTILITIES 2014 UPDATE	
Sewer Map -----	8.5
Water Map -----	8.6
Sewer Plan -----	8.9
TECHNICAL APPENDIX	
Appendix B	
Marine Life Habitats -----	11.11
Off Site Drainage -----	11.12
Soils -----	11.13
Soil Drainage Characteristics -----	11.14
Existing Drainage -----	11.15
Vegetation & Wildlife Habitats -----	11.16
Slopes -----	11.17
Adjacent Property Ownership -----	

Resort Semiahmoo Master Plan – Spit Update 2014

Preface to the 2014 Update

The Master Plan for the Resort Semiahmoo Planned Community received approval from the City of Blaine in May 1985. The main body of the 1985 Resort Semiahmoo Master Plan has remained substantially unchanged since its adoption in 1985. Two amendments to the Plan have been approved. The first of these was the Cannery Hill PUD amendment approved in 1991 and adopted as Appendix F to the 1985 Master Plan. The second amendment was the West Semiahmoo PUD amendment approved in 1994 and adopted as Appendix G to the 1985 Master Plan.

The Resort Semiahmoo Master Plan has been in place and guided development in Resort Semiahmoo for close to 30 years. In that regard, the 1985 Plan provides the historic planning context for Resort Semiahmoo. However, the plan is a prospective document. It describes how the Resort as planned is to be developed. Because development of Resort Semiahmoo is now substantially complete, it is appropriate to provide a perspective overview of the Resort as it has developed. The 2014 Spit Update to the Resort Semiahmoo Master Plan includes information about the current development status of the Spit and provides a fresh perspective on parking, building layout, public open space and shoreline access on the undeveloped properties, while still retaining the underlying goals and design objectives of the 1985 Plan.

I. MASTER PLAN FORMAT

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I. MASTER PLAN FORMAT

This Master Plan is based on the City of Blaine's Comprehensive Plan, adopted in 1984, the Marine Planned Recreation Zone (MPR), the Residential Planned Recreation Zone (RPR), the Subdivision Ordinance, and the Shoreline Management Master Program. An environmental assessment has been made of this proposed plan and mitigating measure are incorporated.

This document provides the overall framework for land use development, landscaping, traffic and transportation, utilities, public facilities and services, and implementation over the life of the project, estimated to be 15-20 years. In essence, this becomes the approved zoning for the MPR and RPR Zones.

This plan will be supplemented by additional information which will be approved with the first phase Final Planned Unit Developments, Shoreline Permits and Final Subdivision. These include:

Design Standards: Land Use Development
Landscape Development
Streets and Paths
Pedestrian Access
Site Furnishings,
Lighting
Signs

Engineering Plans: Water
Sewer
Drainage
Power
Traffic/Transportation
Mitigation

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II. INTRODUCTION

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A. A Town Within a Town

Semiahmoo is a planned resort community within the boundary of the seaside City of Blaine. It encompasses an 800 acre area west of Drayton Harbor and includes Semiahmoo Spit, the associated Tidelands, and the Uplands. This Master Plan completes the City Plan of Blaine.

Semiahmoo will provide the benefits of a self-contained new resort community while still supporting and depending upon the traditional central business district for regional and community related goods and services. The unique physical form as well as a new recreation/resort oriented economic base complements rather than competes with the existing city center.

With the development of The Resort at Semiahmoo, Blaine will grow to become a major Northwest tourism center. Set in a protected harbor adjacent to a major portal to Canada on Interstate 5, Blaine and Semiahmoo will continue to expand upon an economic base which relies on the sustained quality of the scenic and natural environment.

Blaine has an active commercial fishing community, boat repair and tourist trade which supports an active downtown commercial district. Development of Semiahmoo will contribute to this economic base by providing new recreation facilities (including golf, tennis, parks and expanded marina facilities), hotel/conference facilities, resort oriented shops, and quality housing of varying types and densities. In

order to reinforce the connection of Semiahmoo to downtown Blaine, public access to the spit will be enhanced with new bicycle trails, pedestrian walks, and a passenger ferry connection. The Resort at Semiahmoo will enhance the quality of life in this scenic town while strengthening its economic base and preserving its natural tranquility and ties to history.

B. The Community Concept

Within the last twenty five years the concept of a quality resort has changed dramatically. Where resorts were once based around a monumental hotel which served a seasonal and rather idle clientele, today's counterpart is a carefully planned active community. Resorts today have expanded on the traditions of social guest hospitality and leisure to include a year-round residential community, accommodations for executive conferences and seminars, and working visitors. A well designed resort community in the contemporary sense must be as much a human settlement as a resort destination. It must offer a unique quality of life which provides for a wide variety of recreational, cultural, social and practical necessities. The fine resorts of today combine these important needs with a unique sense of place and beautiful natural surroundings to create a satisfying destination for a variety of people, interests and lifestyles.

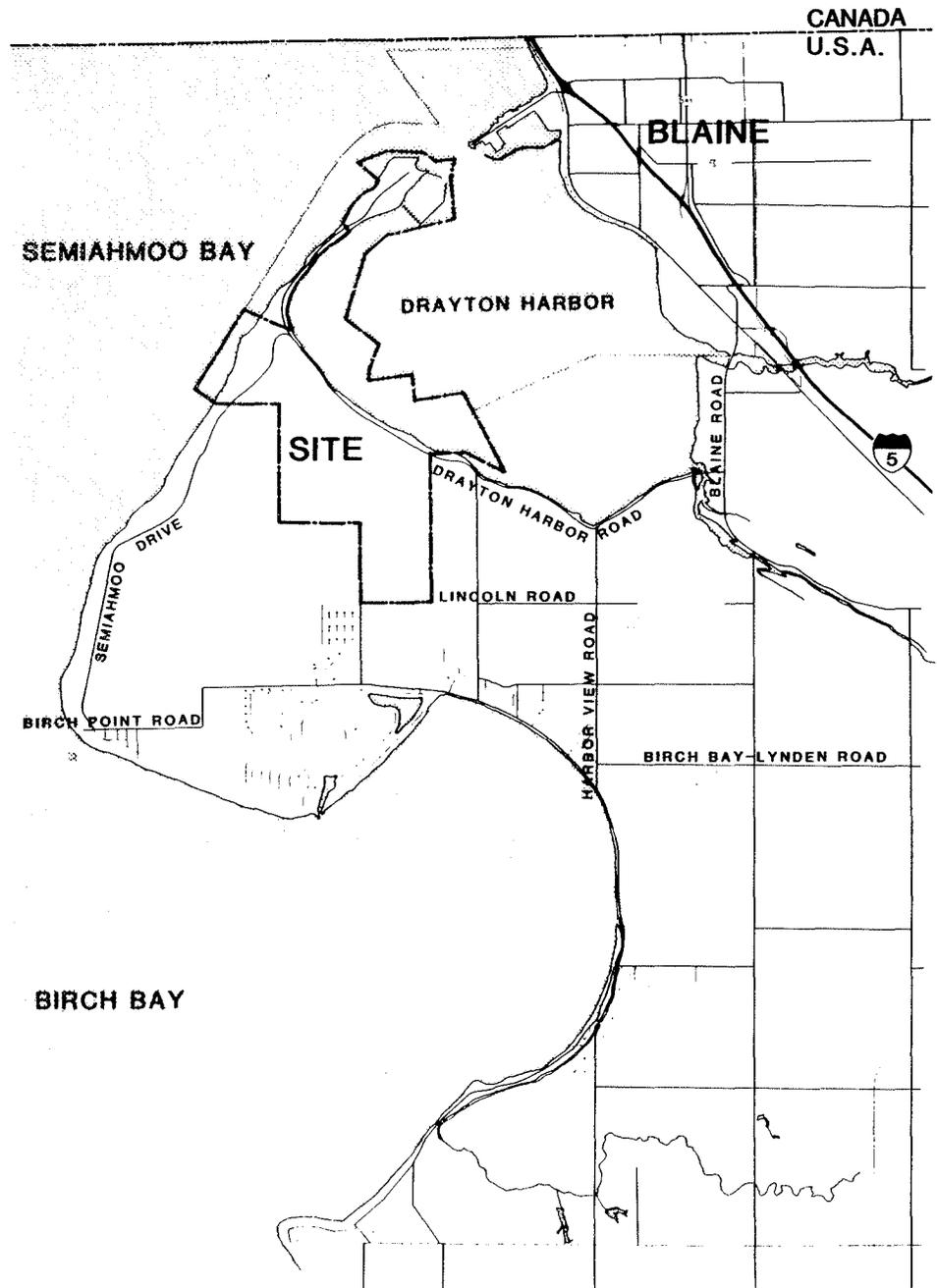
Washington and the Puget Sound region have yet to see a carefully planned destination resort community become a reality. The large amount of land needed for a comprehensive resort development is a limiting factor. The requirement that the site be in a unique, waterfront

setting further complicates that possibility. The assembling of needed human and financial resources creates still more obstacles, especially in a region where first class resort planning and development is relatively new. Semiahmoo has the necessary qualities and resources to meet these requirements.

The planning and design concepts reflected in this Master Plan are the result of a comprehensive design effort that integrates the special qualities of the site and the unique requirements of a planned resort community. Furthermore, it supports and reflects the objectives of the 1984 comprehensive plan and meets the requirements for allowed density bonuses. This Master Plan is a framework for further, more refined design in succeeding phases. It provides a strong commitment to superior planning principles with the flexibility to ensure the economic viability of the project. These commitments will guarantee the achievement of the goals and objectives of the city as well as those of the Semiahmoo Company.

Over the next 15 years this Master Plan will become a fully developed reality. During this course of time, refinements will be proposed based on the precepts and general commitments of this plan. As the community grows, the new residents of Semiahmoo will share with the Semiahmoo Company and the city in the development of final plan refinements for subsequent phases. With this combination of thoughtful planning and shared community pride, Blaine and Semiahmoo will become recognized as a quality community to live in and visit.





III. SUMMARY OF THE PLAN

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III. SUMMARY OF THE PLAN

A. Location and Regional Context

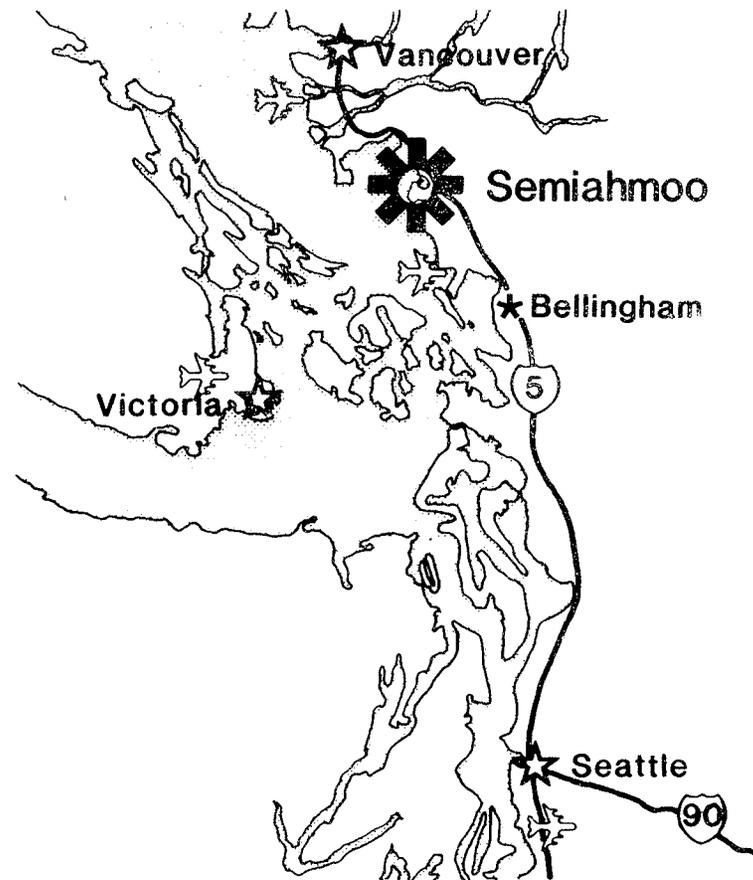
Semiahmoo is uniquely located at the extreme northwest corner of Washington State, within a 45 minute drive from Vancouver, British Columbia and a two hour drive from Seattle, Washington. It is a few minutes from historic downtown Blaine and the Canadian border on Interstate 5. Both Vancouver and Bellingham International Airports are within a 30 minute drive to the site. Air travel to Semiahmoo is particularly convenient from the urban centers of Oregon, Washington and British Columbia.

Directly to the west, across Semiahmoo Bay, lies the famed boating country of the Northwest: the San Juan Islands, the Canadian Gulf Islands and the entrance to the Inland Passage to Alaska. Drayton Harbor makes Semiahmoo and Blaine an increasingly popular destination for the growing boating community. With its new marina and facilities, Semiahmoo will become a major home port to boaters from the mainland.

Vancouver Island mountains shelter this cruising ground from Pacific storms allowing Semiahmoo to enjoy more sunshine than either Vancouver or Seattle. As a result, Semiahmoo offers a longer outdoor recreation season and experiences 15% less rain during the winter months.

B. Plan Concepts

The landforms of Semiahmoo create a myriad of natural environments and amenities for the resort. The wooded Uplands contain a 500 acre plateau at elevation 275', and is perfectly



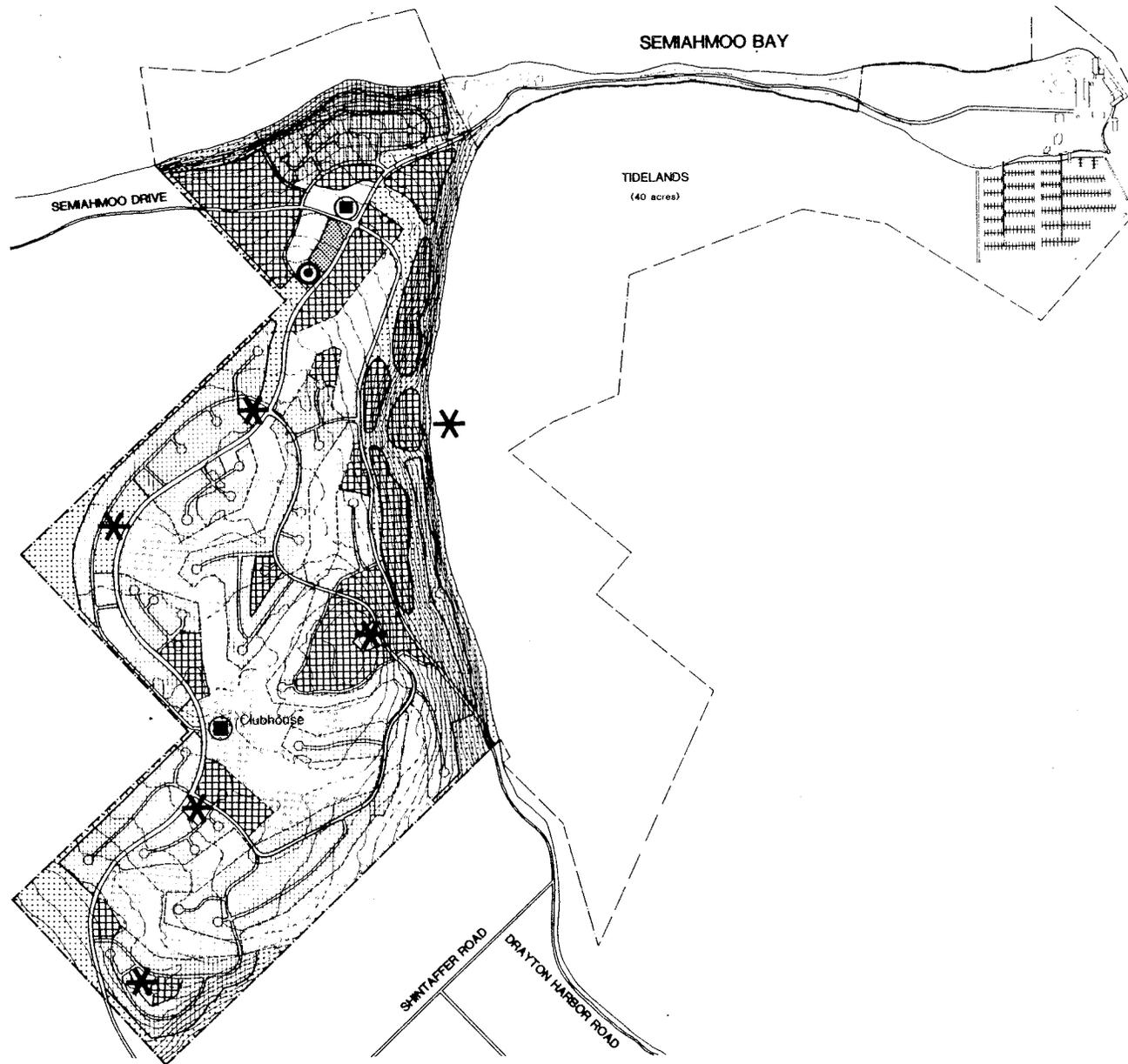
suited for the eighteen hole golf course which will be integrated with a low density residential environment. The 235 acres of land sloping to the east, north and west of the Uplands plateau provide excellent cluster residential sites with views of Semiahmoo Bay, Mount Baker, the North Cascades and Drayton Harbor.

Each residential neighborhood may feature a recreation center. A major tennis center, possibly with a swimming pool, will be located adjacent to the Upland's crossroads commercial and civic center.

Up to 2079 housing units may be built on the Uplands over the next 15 years. Single family lots will be offered on large, relatively flat sites, some with frontage on the golf course. Clustered groups of terraced housing will be developed primarily on sloping, view-oriented sites.

Contrasting with the Uplands wooded environment, the Semiahmoo Spit provides an "island-like" setting reaching out into the Bay. The Spit will be the site for Semiahmoo Village, a resort integrated with the historic turn-of-the century salmon cannery complex. A major hotel with 200-225 rooms, Semiahmoo Inn, will be one of the primary centers of activity on the Spit. The Inn will feature self-contained conference facilities and restaurants and lounges, all focused on a beach-side pool and linked to the wharf-side complex of shops and activities.

An indoor athletic club, located within the complex of cannery buildings adjacent to the Inn, will provide indoor tennis, squash and handball courts, as well as a swimming pool and exercise facilities.



**UPLANDS
LAND USE**

- Public Recreation
4.77 ACRES
- Single Family
287 ACRES
- ▤ Multi-Family
124 ACRES
- ▥ Commercial
3.5 ACRES
- ⊙ Public Facilities
1.0 ACRES
- ▦ Open Space
105 ACRES
- Golf Course
165 ACRES (Includes Clubhouse)
- * Community Recreation
5.23 ACRES
- Parking
4.5 ACRES

SEMAIHMUO

A PROJECT OF THE SEMIAHMUO COMPANY

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ARCHITECTURE - URBAN DESIGN - PLANNING

HAGMAN-YAW ARCHITECTS, LTD.
ARCHITECTURE

JONGEJAN, GERRARD, MCNEAL
LANDSCAPE ARCHITECTURE

URS ENGINEERS
CIVIL ENGINEERING

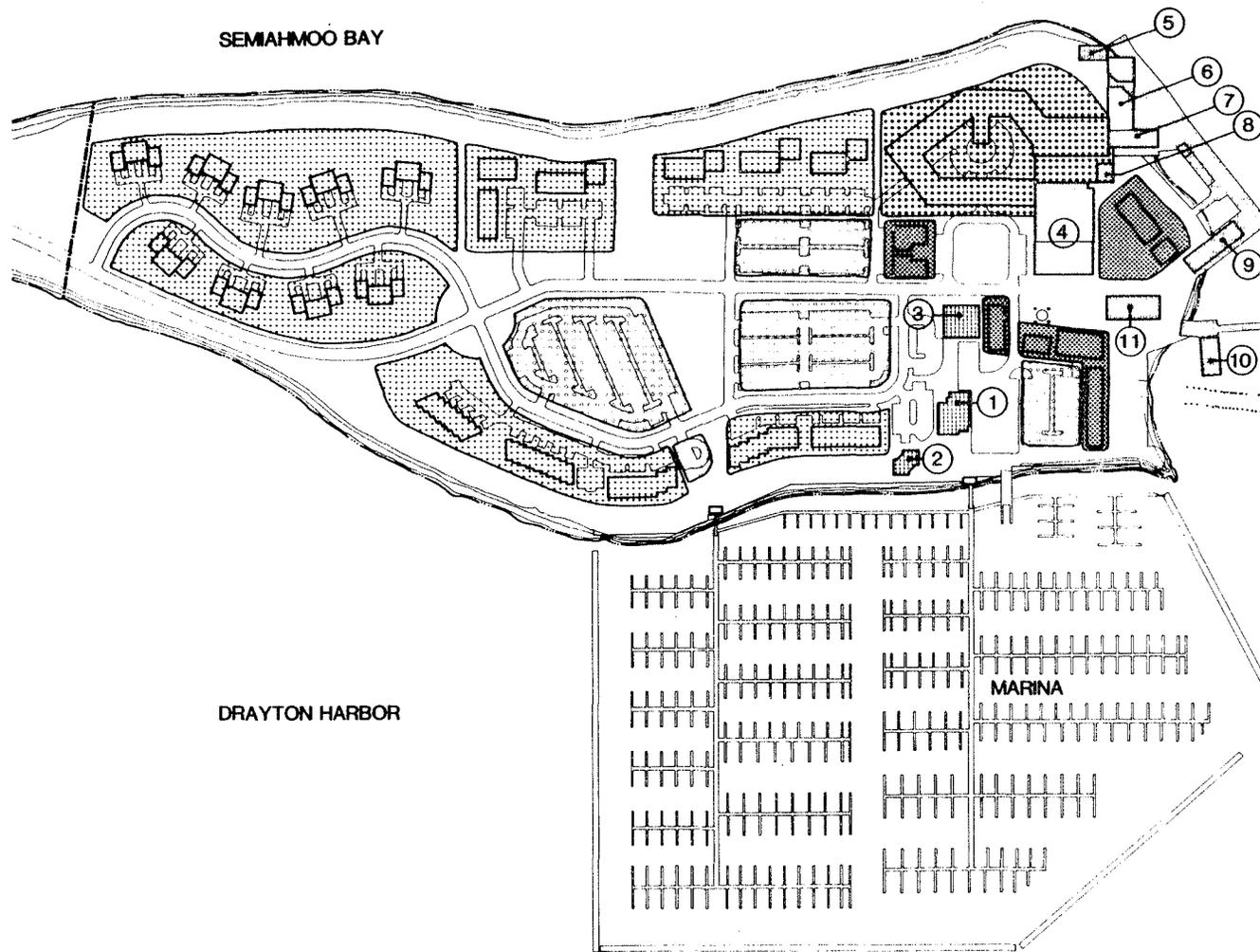


"Lighthouse Square," a cluster of village shops at the tip of the Spit, will be a pedestrian-oriented environment complete with outdoor eating and entertainment, specialty shops, galleries, and quality restaurants.

As demand increases, a passenger ferry is planned to provide a link to downtown Blaine allowing residents, hotel guests and visitors to enhance their experience of visiting an island village. This ferry operation will be jointly planned by the City of Blaine, Whatcom County Parks, Port of Bellingham, and the Semiahmoo Company.

Up to 375 attached residential units, designed for vacationers and residents, will be integrated into Semiahmoo Village, thereby contributing to the balance of uses on the spit. They will be sensitively located along the shores yet set well back to preserve the natural driftwood seascape. Pedestrian trails will be carefully integrated into the natural waterfront areas and the sea wall along the marina.

Parking for the Village will be centrally located away from the waterfront in a landscaped environment, convenient yet separate from the peripheral pedestrian walks, parks and plazas. The entire Village complex will be connected with public and private parks, gardens and walkways. The landscape features will be supportive of the natural qualities of the perimeter beaches and grasslands with more formal garden environments within the internal Village areas.



**SPIT TIP
LAND USE**

-  Existing Buildings
- 1 MARINA STORE
- 2 MARINA FACILITIES
- 3 OFFICES
-  Adaptive Re-use
- 4 ATHLETIC FACILITY
- 5,6 HOTEL / RESTAURANT
- 7,8,9,10,11 MIXED-USE:
COMMERCIAL / RESIDENTIAL

Development Zones

-  HOTEL /
CONFERENCE CENTER
-  MIXED-USE:
COMMERCIAL / RESIDENTIAL
-  ATTACHED RESIDENTIAL
-  PARKING

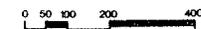
SE MIAHMOO
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ARCHITECTURE

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LANDSCAPE ARCHITECTURE

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CIVIL ENGINEERING



In contrast to the pastoral golf course and the secluded wooded Uplands residential area, the sunny shoreline of the Spit will be busy with the resort's colorful activities and lifestyles. Semiahmoo will offer activities and amenities for the young and old. It will become a home away from home for families on vacations and a conference and retreat center for the greater northwest business community. It will be a destination for weekend and seasonal visitors alike. Most importantly, Semiahmoo's unique regional location, its diverse and sensitive architecture and natural beauty will provide a pleasurable place to live throughout the year.

C. Public Benefit

Zoning for the Semiahmoo Uplands and the spit, (Residential-Planned Recreation Zone and Marine-Planned Recreation Zone), allows increased density, land coverage, building height, and attached residential units on the spit if the following public benefits are provided:

- Permanent public access to the Shoreline is provided.
- Development, operation and maintenance participation in a cross-water connection to downtown Blaine.
- Significant proportion of required parking is placed on the uplands.
- Shuttle service is provided to connect the cross-water dock, hotel, conference facility, and county park with activities on the uplands.
- Priority structures (buildings, piers, and ways) eligible for National Historic Register are preserved.
- Majority of other existing structures are retained.

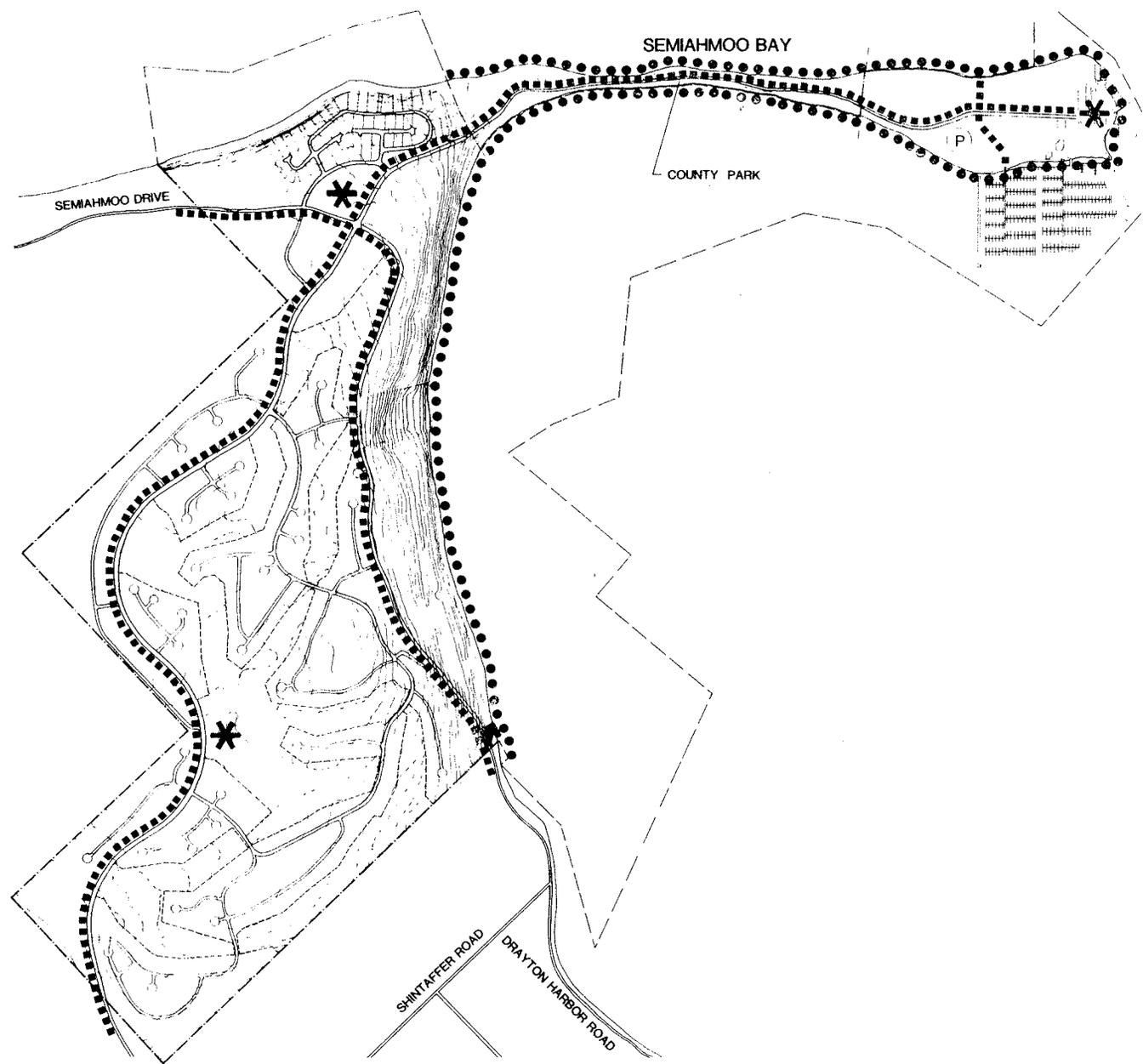
- Exemplary landscaping and architectural design which retains natural marine-oriented character of the area.
- In the uplands, bonuses are provided if a recreation-oriented development is proposed including major open space and clustered housing.

Each of these public benefit elements are included in the plan and are discussed in more detail in the following chapters.

The following diagram summarizes the public access on major roads and along the waterfront. Public recreation and commercial centers are also shown in relation to the circulation system.

Public benefit to the City of Blaine will be significant in terms of economic growth, increased direct and indirect employment, and increased social and recreational opportunity. Public Access to the waterfront and the tidelands will be maintained and enhanced. Predictability of the long term use of the Semiahmoo property, provided by this plan, will remove fears of poor development and potential environmental damage.

Economic benefit from increased real estate value will return income to Blaine for future city-wide improvements. Property taxes will increase from a relatively low current assessed valuation of \$13.5 million to a future combined real estate and buildings assessed valuation of \$300 million to \$400 million. Based on the projected figures outlined in the revenue summary (Appendix D), Semiahmoo will contribute over \$30 million in combined revenue over the next ten years.



UPLANDS AND SPIT

PUBLIC ACCESS

- Shoreline
- Major Roads and Trails
- * Recreation and Commercial Centers
- ← Connecting Trails
- P) Parking

SEMAHMOO

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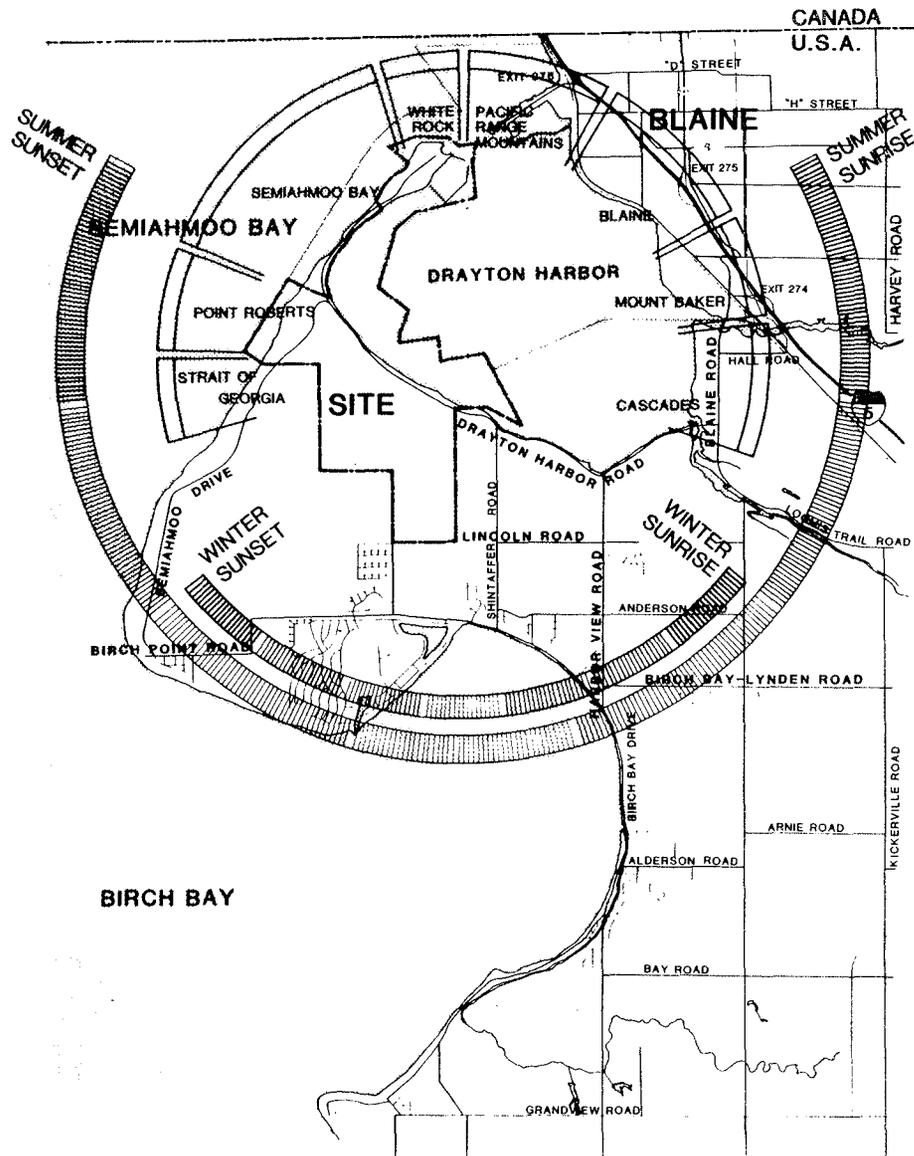


This investment will directly create new jobs within the resort and secondary jobs throughout the Blaine community. New business opportunities within the commercial portion of the Resort will provide a wide variety of economic opportunities for business growth and expansion. Construction-related services will expand and as the resort grows increased demand for goods and services will improve the economic health of Blaine.

The resort, when fully completed, will directly employ a minimum of 400 to 500 in the hotel, conference center, retail shops, marina complex, athletic facilities and administration. Gross yearly salaries are projected to be \$8 to \$10 million. The residential community will provide increased resident population of more than 2,000 people and a visitor capacity of approximately 3,000 people. A more detailed fiscal impact analysis is outlined in Appendix D.

Semiahmoo will also contribute to the improvement of existing utilities by providing a fair share of costs and reducing the overall cost burden on the current Blaine residents for severely needed utility improvements.

Social and recreational benefits will include the expansion of social activities at Semiahmoo, public use of the golf course, marina, hotel facilities, and access to the waterfront. Community pride will be strengthened with Semiahmoo providing rich resources for local activities and a quality environment for the residents of Blaine.



VICINTY MAP

SOLAR AND
VIEW
ORIENTATION

SEMIAHMOO

A PROJECT OF THE SEMIAHMOO COMPANY

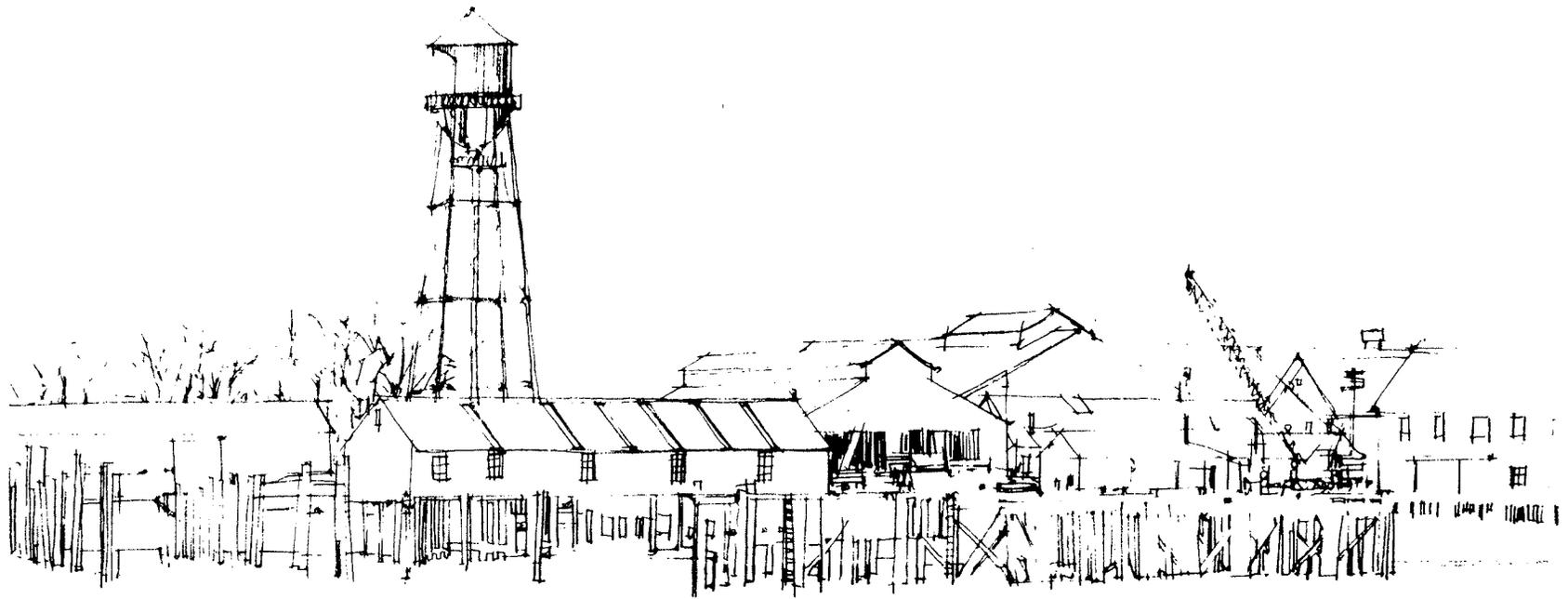
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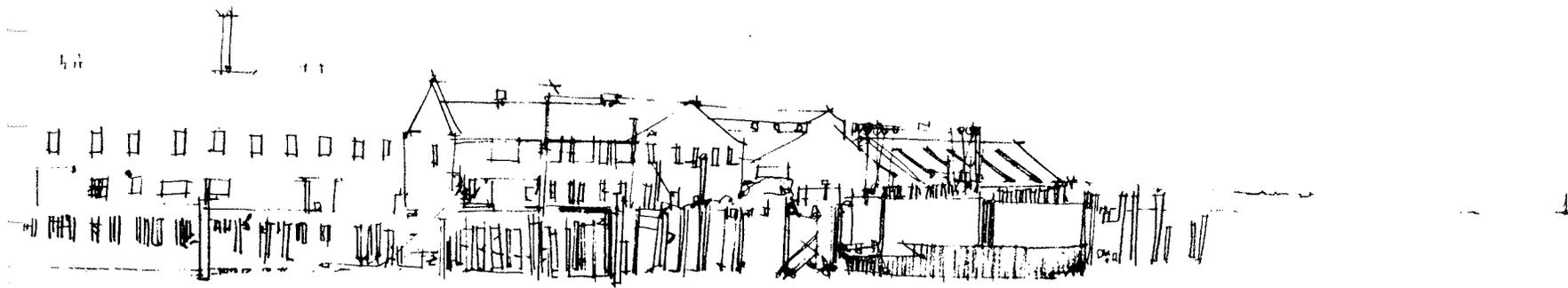
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Billy Evans '84

The Tidelands surrounding the Semiahmoo resort will remain an open space with appropriate public and community walks and bicycle paths along the beaches and docks.

Public access points and walks are specifically identified and appropriately designed to protect the natural environment while enhancing the concept of a "seaside" village.

The introduction of a shuttle ferry from Blaine to Semiahmoo Spit, accessible by walking from downtown Blaine, will increase the recreation opportunity between the spit and downtown Blaine.

Like any town, the Semiahmoo Village on the Spit is dependent upon visitors as well as residents to create a community spirit. The public is the clientele of the resort and common security measures will be necessary, as in any community.

However, the separation of private areas from the public areas will be done through site planning and architectural methods, where possible. The concept is to make a place for every kind of visitor rather than a place for a few, yet, a place where personal property is safe and privacy is respected.

Cultural benefit to the City of Blaine will also be gained by the restoration and retrofit of the historic Alaska Packers Cannery and wharfs.

The overriding benefit to the Blaine community is the assurance of quality architecture and sensitive planning for the Semiahmoo properties. With this plan, the citizens of Blaine will have the assurance of a quality development.

The development will be phased over 10 to 20 years providing gradual growth. It will provide the city with a model for development in other areas of Blaine and set a standard for achieving the ingredients of a successful city.

IV. BACKGROUND

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A. History

For nearly 3,000 years the Blaine area was within the realm of a Salish tribe, known as the Semiahmoos, who lived on the Spit and around Birch Bay. By the mid 1800's, rooming houses and outfitting stores sprang up on the Spit and mainland bluffs, catering to international boundary surveyors and miners in search of gold along the Fraser River. The town prospered until the gold rush ended in 1859. During the next two decades, homesteaders settled in Blaine and expanded the timber and fishing industry. The first cannery opened in 1881. Soon after, the town of Concord was platted and a year later, in response to the political fervor of the time, it was renamed after the Republican candidate for President, James G. Blaine.

By 1910, in a climate of strong economic expansion, there were five canneries, three lumber mills and ten shingle mills. Blaine was becoming a major port of entry and, through a successful promotional effort by the Chamber of Commerce, the Great Northern moved its railroad tracks from the east side of town to their present waterfront location.

During the 1920's tourism began to contribute to Blaine's economy, aided by construction of the Peace Arch in 1921. However, local resource depletion combined with the Depression reduced Blaine's population from a peak of 2,289 in 1910 to 1,510 in 1950.

With the end of World War II, the tourist and border industry boomed overnight. Blaine border crossings have since risen to the third highest on the United State-Canadian border, with over six million people crossing this border in 1982. During EXPO '86 in Vancouver B.C. crossings are estimated to increase to four times this level.

In 1974 the City of Blaine annexed the Semiahmoo site, which includes approximately 800 acres of land and nearly 1000 acres of tidelands. The land area is divided into two major land masses: Semiahmoo Spit and the Uplands. The Spit includes Semiahmoo Park and approximately 57 acres of developable land. The Uplands contains about 735 acres of land suitable for development.

B. Recent Development of Semiahmoo

Until 1979, the only user which occupied Semiahmoo was the Alaska Packers Association (APA), located at the end of the Spit. APA was a major salmon cannery and boat repair facility established at the turn of the century. The cannery operated until the area was annexed to Blaine in 1974. Today, the cannery buildings and wharf are vacant, presenting an unparalleled opportunity for reuse and redevelopment.

In 1979, a private development company began construction of an 800-slip marina. The first phase, 296 slips, is complete, and seaside services (including general store, marine repair facilities, shower and laundry facilities are provided. Concurrently, construction began on a 20-acre county park at the neck of the Spit which separates Semiahmoo Uplands from the Spit tip. The park includes an interpretive center, office and multi-purpose building.

These buildings are former APA buildings which have been restored and relocated from the Spit for park use.

In 1982, preliminary market research and concept planning was undertaken by the owners of Semiahmoo. The results of this research supported the concept of combining the Uplands and Spit to create a major destination resort. This concept draws on the attributes of the forested Uplands for land based recreation, and the Spit for marine related activities.

Subsequently, preliminary design for an 18 hole championship golf course on 165 acres of the uplands was begun, including drainage and irrigation designs. Clearing for the golf course began in late 1983, with construction scheduled for completion in 1985.

In early 1983 the city of Blaine began to update the 1974 Comprehensive Plan, Zoning Ordinance and Shoreline Management Master Program. These documents were formally adopted by the Planning Commission and the City Council in the spring of 1984. The updated Comprehensive Plan, amended Zoning Ordinance, and Shoreline Plan now reflect the consensus of the community. These plans address current land use issues, define goals and objectives, and provide incentives for quality development.

Concurrent with the City plan update, road improvements in the uplands area were discussed and formally adopted. Construction began in August, 1984 on Semiahmoo Parkway, a new north-south collector road connecting Semiahmoo Spit to Shintaffer Road. In addition, the relocation of Drayton Harbor Road to the top of the Uplands

plateau was approved. This new alignment will improve access to the new intersection of Semiahmoo Parkway and Semiahmoo Drive and eliminate substandard intersections.

The first new residential subdivision, Boundary Ridge, with 56 lots on 32 acres, will be completed in the fall of 1984. This planned neighborhood overlooking Semiahmoo Bay to the west, provides the first increment of single family homesites. This subdivision is an integral part of the Master Plan and is included in all Master Plan calculations and design considerations.

Semiahmoo Company formally began the detailed Master Planning process in the summer of 1984, bringing together a design team consisting of town planners, architects, economists, transportation and civil engineers, landscape architects and an environmental scientist. One of the APA offices on the Spit was remodeled for the Semiahmoo Company headquarters, from which the design, construction and operation of the community will be managed. This work was completed in August of 1984.

V. LAND USE DEVELOPMENT

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V. LAND USE DEVELOPMENT

A. Semiahmoo Uplands and the Spit

Semiahmoo Spit and Blaine Uplands are combined throughout the following plan sections. However, because of more detailed site planning issues, the Semiahmoo Spit plan is also presented at a larger scale and in more specific detail later in the book. The Uplands plan is intended to be more general and flexible in order to respond in the future to the longer term economic conditions and housing trends.

The Uplands represents 735 developable acres of woodlands. The intent of the Uplands Master Plan is to identify the major circulation, open space and land use components. Within this framework, a series of neighborhoods are proposed with a range of densities that, when constructed, will correspond to the allowable total housing units under the Residential Planned Recreation (Uplands) zoning category. Each development phase will be submitted in accordance with this Master Plan.

In contrast, the 57 acre Spit site is more complex and the proposed uses more varied. Therefore, because of the limited land resource, higher densities and the complex mixture of uses, the Spit Master Plan is presented more in terms of architectural solutions and definitive design guidelines.

Each development phase of the Spit will also be submitted in accordance with this Master Plan, the requirements of the marine planned recreation zone, the Shoreline Management Master Program and the subdivision ordinance.

This Master Plan is based on the 1984 Semiahmoo Spit and Blaine Uplands Comprehensive Plan; it conforms to the intent of that plan but establishes more definitive proposals for future development.

B. Semiahmoo Uplands

1. Existing Conditions

Within the Uplands area three recent developments have begun under separate permits: the 18 hole golf course, Semiahmoo Parkway and the 56 lot Boundary Ridge subdivision. The remaining portions of the Uplands are currently undeveloped. The 735 acre wooded area is a mixed forest of evergreen, alder and maple. The undergrowth is composed of Oregon Grape, Salal and other indigenous Northwest vegetation. The major portion of the land is relatively flat, with feeder bluffs and slopes above Semiahmoo Bay on the northwest, and Drayton Harbor on the northeast. The plateau area ranges from 200 to 275 feet above sea level. A wooded bluff characterizes the gently sloping area along the eastern boundary. The property has approximately 2/3 of a mile of shoreline on Semiahmoo Bay and 1-1/4 miles on Drayton Harbor. Tidelands comprising approximately 1,000 acres surround the Uplands and Spit property.

Site planning for the Uplands was preceded by a thorough analysis of soils, drainage, vegetation, wildlife habitats and marine life habitat. In addition to the natural systems of the site, views and solar access characteristics were analyzed. Each characteristic was mapped and used for site planning criteria.

This analysis, presented in this Master Plan summarizes these conditions. More detailed analysis is presented in the Environmental Impact Statement and supporting documents in the Technical Appendix.

2. Policies

Policies stated in the 1984 Comprehensive Plan are incorporated and expanded to form specific design and planning objectives enumerated in this Master Plan. These policies which encompass a concern for the preservation of the environmental quality of the Uplands, wooded bluffs, shorelines and tidelines, include the following:

Control density to preserve environmental quality

Encourage cluster developments and planned developments in order to create greenbelts and open spaces, and to maintain natural shorelines and bluffs

Encourage recreation as a means to expand the economic base of the city

Encourage a mix of housing types for permanent as well as second home residents

Retain associated tidelands as open space

As stated in the Comprehensive Plan, the Uplands provide a significant opportunity to develop a new and varied residential community integrated into a comprehensive recreation and open space plan that will serve the entire community. While the overall residential density averages only three units per acre, a 272 acre open space

system will require housing to be clustered on the perimeter of these open spaces. The major land use will be low density, single family detached housing. Cluster housing, with up to 12 units per acre, will be located near activity centers and in areas with good soil conditions, view amenities, and access to recreation and commercial facilities.

This will create identifiable neighborhoods separated by open space and recreation elements. The neighborhoods will also be linked by a hierarchy of arterial, collector and local streets, pedestrian and bicycle paths. The local street system will be privately maintained and be designed to fit the natural quality of the landscape. The beaches and tidelands will remain a part of the natural open space system with development set well back to preserve the wooded slopes meeting the beach line. As a result, the community will have a feeling of diversity and contrast while maintaining a cohesive quality.

3. Development Program

Seven basic land use categories are proposed for the Uplands. The following table outlines the number of areas by land use category and the percentage of total acreage for that use.

a. Residential

The total number of dwelling units planned in the Uplands is three units per net acre as provided in the Residential Planned Recreation Zone. As illustrated in the following Development Program Summary, the gross acreage of the Uplands is 735 acres. Subtracted from that will be 33 acres of dedicated rights of way and 9

UPLANDS DEVELOPMENT PROGRAM

GROSS SITE ACREAGE	735	Acres
Dedicated Rights of Way	33.0	
Public Facilities	1.0	
Commercial	3.5	
Spit Overflow Parking,		
Recreational Vehicle Parking	<u>4.5</u>	
	42.0	<u>42</u>
NET SITE ACREAGE	693	Acres
Allowable Density	3 DU/A	
Maximum Number of Units Allowed (3 x 692) =	2,079	
<u>LAND USE DISTRIBUTION</u>		
<u>Residential:</u>		
Boundary Ridge	Single Family	32 acres
	Multi Family	20 acres
Cove District	Single Family	8 acres
	Multi Family	40 acres
Golf Course District	Single Family	248 acres
	Multi Family	<u>55 acres</u>
Residential Total:		411 acres
<u>Golf Course:</u>		
Course, Clubhouse, Maintenance Area		165 Acres
<u>Recreation:</u>		
Two major athletic centers, five minor recreation areas		10 Acres
<u>Open Space:</u>		
Green Belts, site buffers, ponds, slopes over 30%		<u>107 Acres</u>
TOTAL		693 Acres

NOTE: All figures are approximate.

acres of commercial and public facility uses, leaving a net of 693 acres.

Development at the allowed rate of three units per acre results in a development potential of 2079 residences.

A total of 411 acres is assigned to residential uses with seventy percent of that (287 acres) planned for single family detached housing. The remaining thirty percent (124 acres) of the residential land use is planned for attached townhouse or multifamily uses.

The residential program is divided into three distinct districts: 1) Boundary Ridge, overlooking Semiahmoo Bay to the west; 2) the Golf Course; and 3) the Cove, overlooking Drayton Harbor to the east.

Each district has unique natural physical characteristics requiring special design guidelines. Each district contains separate neighborhoods bounded by a combination of natural buffers: wooded steep slopes, beaches and tidelands, golf course, open space, or landscaped buffers along a street edge.

Housing densities within each neighborhood will vary depending on the soil conditions, view amenity, slope and proximity to commercial and recreational activities.

A range of single family lots will be offered, from one acre sites in wooded zones west of Semiahmoo Parkway to 1/4 acre lots fronting the golf course. Zero lot line homesites at six lots per acre will also be offered at selected locations adjacent to the golf course. Multi-family densities will range from 6 to 10 units

per acre for attached townhouses, and 10 to 14 units per acre for 3 and 4 story housing.

The distribution and range of units proposed in each neighborhood is shown on illustration 34. Each zone is tabulated providing the area in acres, proposed density and range of possible dwelling units. The exact number of units for each phase will be specified within this range at the time final P.U.D. plans are submitted. Since the total units allowed is 2079, some zones will be developed at the low range, some at a middle range and some at the high range.

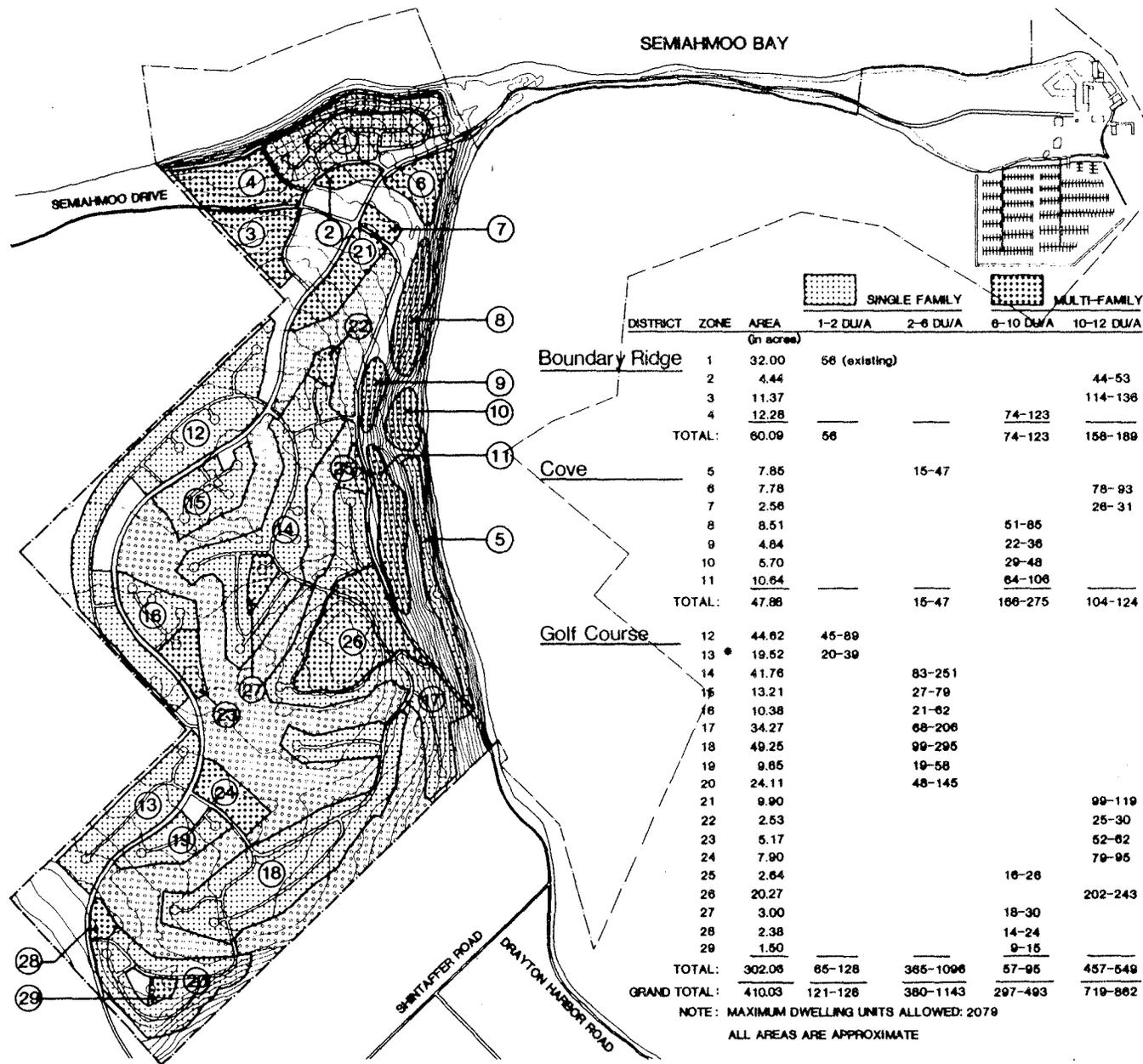
These proposed densities are maximums. Lesser densities would be allowed in all zones. As development occurs in each zone, no additional density will be allowed unless included in initial approval by the City. Density in any one zone can exceed the maximum approved in the Master Plan if the change is approved as part of a P.U.D. and the total number of units does not exceed 2,079.

b. Open Space and Recreation

The 18 hole public golf course and associated facilities are the principal recreation amenity for the Uplands. The course utilizes 165 acres or 22% of the total Uplands acreage. Club facilities will be phased allowing up to 30,000 square feet of building(s) and appropriate associated parking.

The golf course also provides the major view amenity for the plateau area with the majority of the land abutting the fairways being dedicated to single family detached housing.

In addition to the golf course, 107 acres of open space are proposed, consisting of greenbelts, wooded steep slopes (over 30% slope), and site buffers. The combination of golf course, greenbelts and buffers excluding the road buffers is 36% of the total Uplands acreage. Greenbelts and buffers within the public road right-of-way add an additional 14.2 acres to the open space plan. With the right-of-way buffers included, the total open space acreage is 287 acres, or 39%.



UPLANDS
RESIDENTIAL
DISTRIBUTION

DISTRICT	ZONE	AREA (in acres)	SINGLE FAMILY		MULTI-FAMILY	
			1-2 DU/A	2-6 DU/A	6-10 DU/A	10-12 DU/A
Boundary Ridge						
	1	32.00	56 (existing)			
	2	4.44				44-53
	3	11.37				114-136
	4	12.28				74-123
	TOTAL:	60.09	56		74-123	158-189
Cove						
	5	7.85		15-47		
	6	7.78				78-93
	7	2.56				28-31
	8	8.51			51-85	
	9	4.84			22-36	
	10	5.70			29-48	
	11	10.64			64-106	
	TOTAL:	47.86		15-47	186-275	104-124
Golf Course						
	12	44.62	45-89			
	13*	19.52	20-39			
	14	41.76		83-251		
	15	13.21		27-79		
	16	10.38		21-62		
	17	34.27		68-206		
	18	49.25		99-295		
	19	9.85		19-58		
	20	24.11		48-145		
	21	9.90				99-119
	22	2.53				25-30
	23	5.17				52-62
	24	7.90				79-95
	25	2.64			16-26	
	26	20.27				202-243
	27	3.00			18-30	
	28	2.38			14-24	
	29	1.50			9-15	
	TOTAL:	302.06	65-128	385-1096	57-95	457-549
	GRAND TOTAL:	410.03	121-126	380-1143	297-493	719-862

NOTE: MAXIMUM DWELLING UNITS ALLOWED: 2079

ALL AREAS ARE APPROXIMATE

* 8 Acres reserved for potential school site

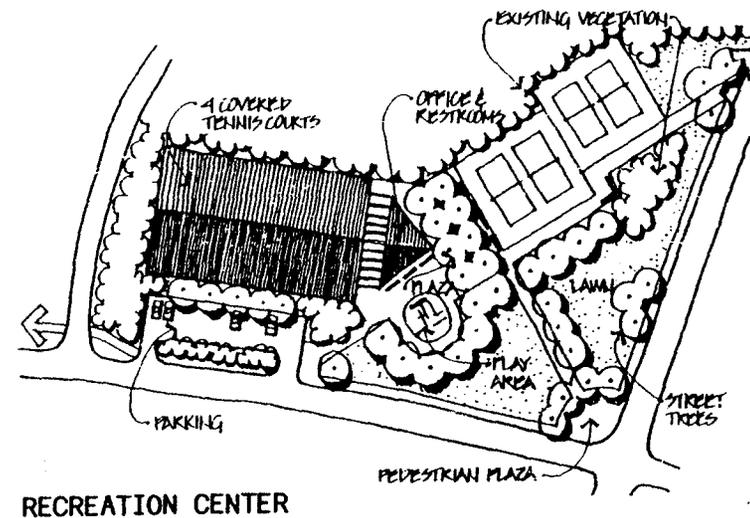
SEMAIHMUO
A PROJECT OF THE SEMAIHMUO COMPANY
HEWITT/DALY/ISLEY
ARCHITECTURE · URBAN DESIGN · PLANNING
HAGMAN-YAW ARCHITECTS, LTD.
ARCHITECTURE
JONGEJAN, GERRARD, McNEAL
LANDSCAPE ARCHITECTURE
URS ENGINEERS
CIVIL ENGINEERING



Within the open space, two ponds are proposed along the western boundary of the property for storm water retention and irrigation. These total 8.7 acres. The ponds will provide the majority of the irrigation water for the golf course as well as filtration and storage of storm water flowing to the west.

Four community recreation centers within walking distance of the neighborhoods are also planned. Each site is one to one and one-half acres and will include tennis courts, play areas, swimming pool or other uses consistent with the needs of the surrounding neighborhood.

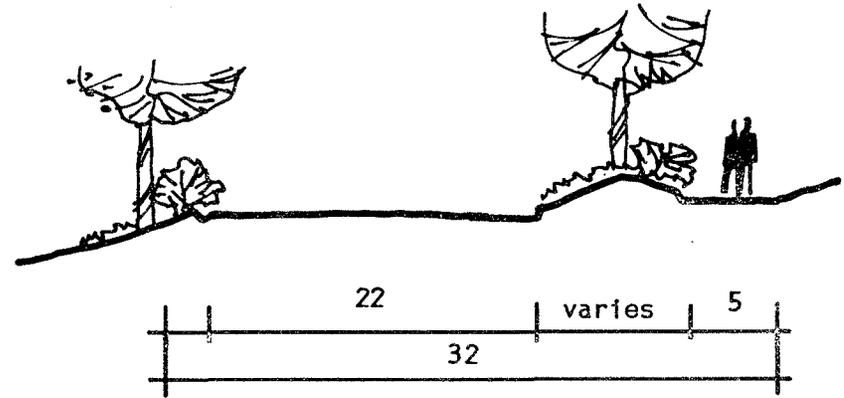
A major five-acre tennis and athletic center is planned in the Boundary Ridge District to serve the entire community. Another recreation center is planned for the golf course district. Located within a multi-family zone at the edge of the Uplands plateau, this center will serve both the golf course and the cove district communities. In addition, a small, non-motorized boat float on the beach of Drayton Harbor for community use is planned for Cove Village. This will be a very simple floating pier from which rowboats, kyaks, and canoes can be used. The tennis and athletic center and the golf clubs will be operated as private clubs open to the public on a membership basis. The combined open space and recreation land uses, then, will total 297 acres or 40% of the gross Uplands acreage.



RECREATION CENTER

c. Roads

Semiahmoo Parkway at 80 feet R.O.W., and Drayton Harbor Road and Semiahmoo Drive at 60 feet R.O.W. will be dedicated as public streets. The developer's 50 foot access easement across the county park will be transferred to the City of Blaine. This dedication represents 33.2 acres or approximately 5% of the property. All other streets are proposed as private local streets and will be planned at the time each plat and/or P.U.D. is submitted. The area calculation for the private street land use is included in the residential neighborhood units. Private roads will utilize a 32-foot right of way with 2 eleven-foot lanes. This minimizes tree removal and impervious surface and keeps paving to a minimum to reinforce the wooded character of the Uplands. The adjoining illustration depicts this concept. The private road layout shown on illustration on page 7.10 is a preliminary street design: final alignments, turnarounds and intersections will be proposed at the time of each submission.



ROADWAY SECTION

d. Commercial and Public Facilities

A commercial and civic center providing convenience services to the Resort is also planned for the intersection of Semiahmoo Parkway and Drayton Harbor Road. The center will provide retail spaces for groceries, personal needs and gifts in the atmosphere of a general store. In addition, a service station, small offices and restaurants, and civic facilities such as a post office, fire station and community services, are planned. Parking for recreation vehicles, additional parking to serve the Spit and provision for a future shuttle bus will be located west of the center. This

commercial zone is proposed on a 3 1/2 acre parcel on the southwest corner of the intersection of Semiahmoo Parkway and Semiahmoo Drive. This land area will provide a total of 50,000 to 70,000 square feet of commercial uses. Associated parking will be provided at four spaces per 1000 square feet of commercial use.

Directly to the south of the commercial center a one-acre fire station site is planned. An eight acre elementary school site will be reserved in Zone 13 for potential future use.

Two separate landscaped and screened areas for recreation vehicle parking and storage, and a reserve parking area to serve the Spit will be located to the west of the commercial parcel. These parking areas total 4.5 acres and will have a capacity of 400 vehicles. If in the future these parking facilities are found to be excessive, the property should be redesignated for residential, commercial or public use with approval of the City.

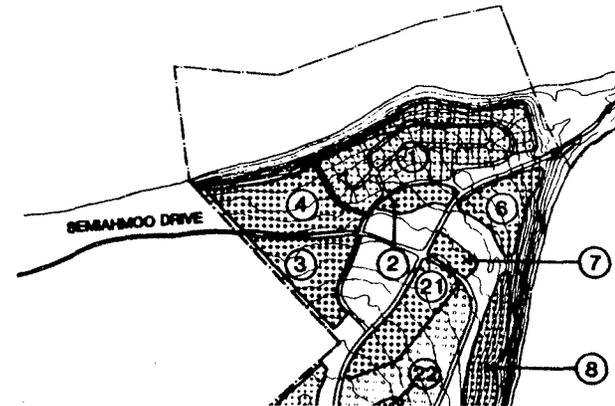
4. Building Design and Site Planning Guidelines

This chapter describes in detail the housing characteristics of each of the Districts and outlines the general site planning and building design criteria.

a. Boundary Ridge District

Boundary Ridge includes residential zones 1, 2, 3, and 4, totalling approximately two lots per net acre. Zones 2, 3, and 4 represent 28 acres. Multifamily densities are proposed for these zones; however, all portions of land immediately adjacent to the single family subdivision will be developed in the lowest multifamily densities (5 to 6 Du/A), providing a transition of density from the single-family to the higher multifamily zones. In all cases, adequate vegetation buffers shall separate multi-family uses from single family lots.

Boundary Ridge generally lies on the northwest slopes of the Uplands in close proximity to the Commercial Center. These amenities form a focal point for the neighborhood while the views to the north and west over Semiahmoo Bay provide the principal site amenity for the dwelling units.



BOUNDARY RIDGE DISTRICT

A community pedestrian connection from the center to the waterfront separates the single family zone (1) from the multifamily zone (4), providing access to the beach and a buffer between the two zones. In addition, a dedicated portion of land near the treatment plant will also serve as a public access point to the beach.

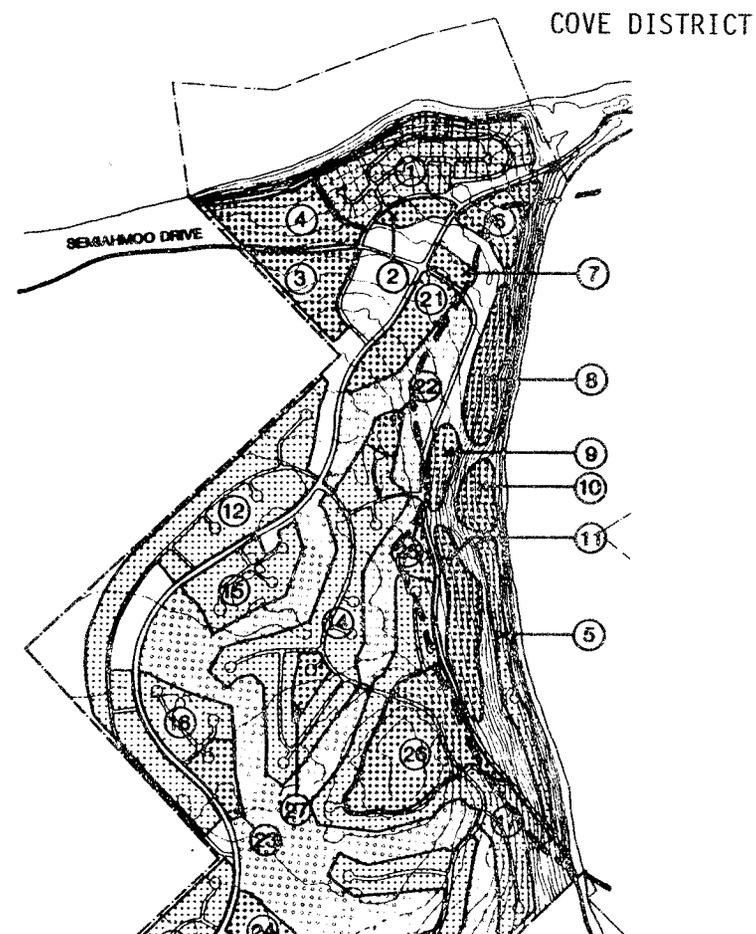
Internal trail systems should be designed within the multifamily zones to connect to this major trail.

b. Cove District

The Cove District encompasses the western sloping property in Zones 5, 6, 7, 8, 9, 10, and 11, totalling approximately 46 acres. Approximately 40% of this district contains wooded slopes in excess of 30% which should be preserved as open space. All zones with the exception of Zone 5 are proposed for clustered multifamily housing in order to preserve vegetation in the excessively sloped areas. The principal amenity of the Cove District is the western view across Drayton Harbor to Blaine and the Cascade Mountain Range.

Zone 10, historically a logging camp site, is bowl shaped, providing an excellent opportunity for housing cluster surrounding a central open space which accesses directly to the waterfront.

Access roads to the housing clusters should parallel the topography where possible to minimize street slopes and grading.



A public pedestrian and bicycle trail also parallels the relocated Drayton Harbor Drive providing a connection to the planned community recreation center in Zone 26 and the commercial and athletic center in the Boundary Ridge District.

A pedestrian trail along the beachfront will provide a direct link to the Spit and back to Blaine. This path will be a passive use easement at the water's edge. Minor community trails from all the Cove Districts should connect to this major trail.

The majority of the housing in this district will be built on slopes requiring special stepped foundations and pole foundations to minimize the impact on the slopes.

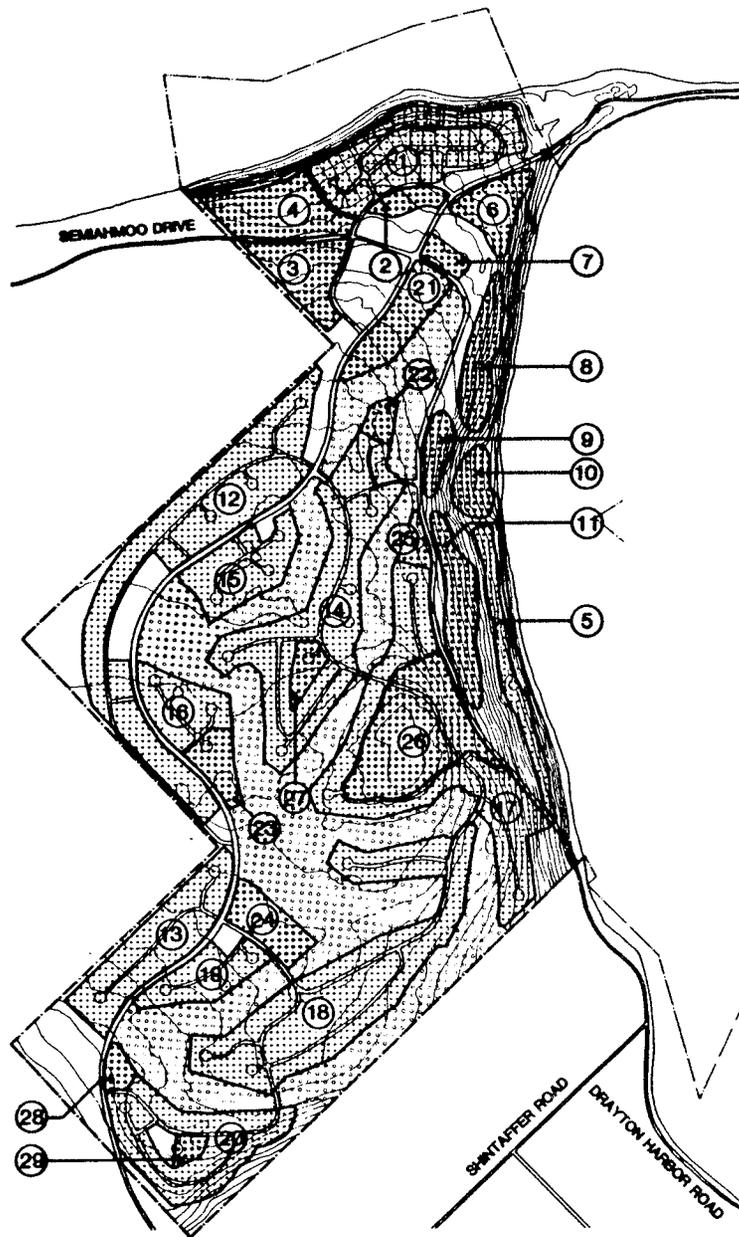
All housing in this zone should be sited to avoid the steepest slopes and to maintain a natural, wooded shoreline and to avoid the unstable banks landward of the existing Drayton Harbor Road. This road bed should eventually be removed and the area reclaimed as a natural environment.

Natural drainage areas from the Uplands to Drayton Harbor will be necessary in this area and will require careful design consideration.

The proposed single family lots in Zone 5 may be platted to the waterfront; however, all structures will be located within the designated development area.

C. Golf Course District

The Golf Course District includes all the remaining residential zones (12 through 29), which focus primarily on the golf course as view and recreation amenity. The residential zones total approximately 305 acres. The golf clubhouse is centrally located within this district with a network of trail systems leading



GOLF COURSE DISTRICT

to the residential neighborhoods and recreational centers.

The properties west of Semiahmoo Parkway are intended to be the lowest density zones. A clear meadow open space is recommended in the north and central portion of Zone 12 to visually tie this zone to the golf course open space. These cleared zones will provide active play fields while providing contrast to the driving experience along Semiahmoo Parkway.

The following building and site planning guidelines should be used where appropriate in the detailed design of each residential zone.

5. Planning Guidelines

General Guidelines

The four major site amenities for the Uplands are:

- Views of and proximity to the golf course
- Distant views to the surrounding waters, mountains and towns
- Enclosed wooded environments
- Waterfront environments

Each residential site design should combine as many of these amenities as possible while still acknowledging the need for maximum sunshine and light within the home. Clearing and thinning will be necessary in all cases; however, extreme care will be used in balancing the need for view, light and preservation.

More specific landscape guidelines are outlined in Chapter VI. The use of both natural and new landscape elements is to be considered an integral part of the architectural character, providing continuity and identity to the neighborhood enclaves.

The architectural vocabulary of the Uplands housing should be reflective of the Northwest environment, incorporating the use of natural materials and encouraging the integration of architecture with the landscape.

Major buildings such as the Tennis Center, Commercial Center and the Golf Club house should also be expressive of Northwest architecture but can become "landmarks" in the community, requiring bolder architectural treatment.

However, all larger buildings groups should be designed to reduce their scale by articulating the building forms and utilizing appropriate landscape treatment.

Multifamily buildings should also be articulated to express individual living units and to create a more pleasant scale.

The following general guidelines are also recommended:

Setbacks:

Frontyard	25' min.
Rear Yard	30' min.
Side Yard	10' min.
Zero-lot line	0' one side
Side Yard	10' min. other side

Land Coverage:	
Buildings	25%
Total Impervious Surface	35%

Height Limits:	
Multifamily * (P.U.D. process)	50' above average adjacent natural grade
(Non P.U.D. process)	40' above average adjacent natural grade
Single Family	35' above average adjacent natural grade
Golf Clubhouse	50' above average adjacent natural grade
Tennis Center	50' above average adjacent natural grade

Lot Width:
Varies depending on density and location.

*Residential Zones 26, 2, 3, 4, 6, & 7.

Housing Design Guidelines

In the Uplands there are generally twelve types of housing which may be developed:

Single Family Detached

Fee simple lot ownership
One and Two Story

- 1 DU/AC
- 2 DU/AC
- 3 DU/AC
- 4 DU/AC
- 5 - 6 DU/AC

Multifamily Attached

6 to 10 units per acre
Allows fee simple or condominium ownership

- Duplex
- Triplex
- Fourplex
- 5 to 10 unit townhouse buildings

10 to 12 units per acre
Requires condominium or cooperative ownership or rental
Two, three and four story

- Flat over flat
- Two story townhouse over flat
- Two story townhouse over two story flat

Parking

Residential:	1.5 - 2.0/unit
Golf Course:	175 - 225
Recreation	
Center:	260 - 340

Single Family Detached

In the Uplands the single family house on a private lot will be the dominant land use. The single family lot allows each lot owner to construct his own home utilizing the lot setbacks and natural vegetation to insure privacy from neighboring lots.

No designated single family zones will be developed for multifamily uses. However, single family uses will be allowed in multifamily zones.

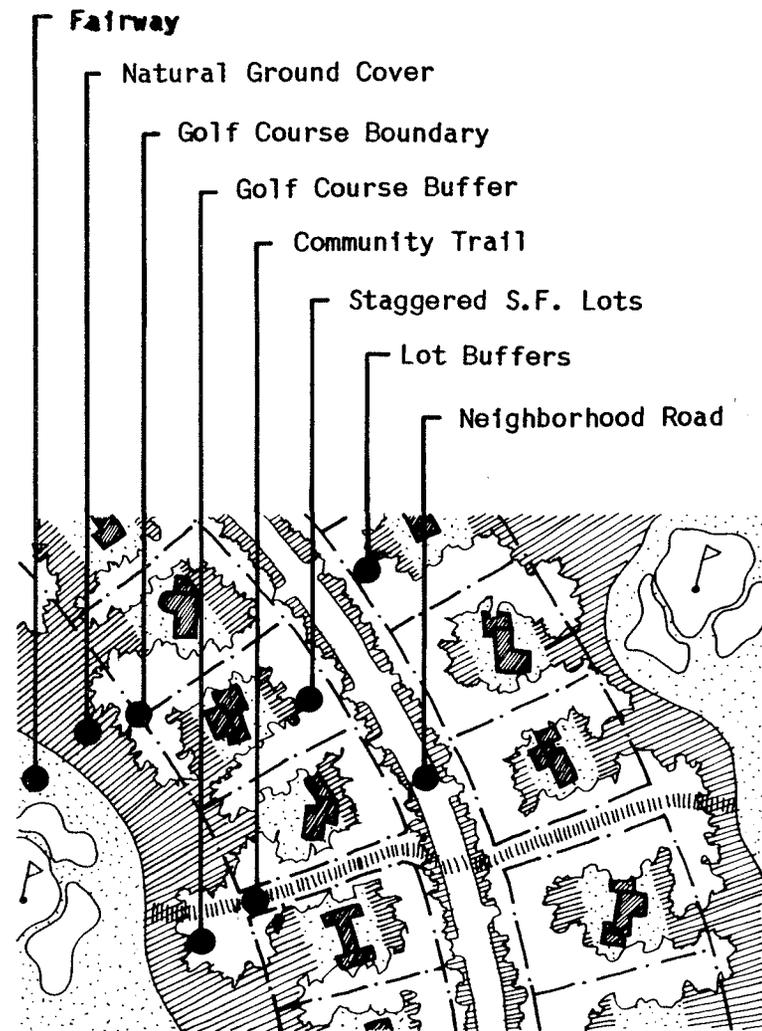
70% of the Uplands residential property will be devoted to single family detached housing with fee simple lots. The majority of these lots will be located in the golf course district.

The lowest density, one dwelling per acre, is recommended in areas where there are no dominant amenities such as distant views or proximity to recreation facilities. These lots should rely on creating an amenity within the site and capitalizing on private delineated outdoor space as the key amenity.

Two to four dwelling units per acre should be planned in areas where the single family type is desired and a view amenity and/or proximity to the golf course or a recreation facility is available. Four dwellings per acre allows a frontage width of 80' which should be considered the minimum in order to maintain recommended side yard setbacks and allow the retention/-preservation of natural vegetation.

Along the golf course the frontage, generally, will be a minimum of 100' in width. Lots behind the frontage lots should be staggered to allow for potential views, and to create an

alternating rhythm of access drives and development along the street. This concept should also be applied on waterview lots to maximize view access.



Zero Lot Line - Single Family Detached

Where increased single family housing density is desirable to reduce lot costs and maximize the number of homes related to a view amenity, Zero lot line housing is recommended. Zero lot line housing can be designed for densities up to six lots per acre. This housing type is distinguished by the location of one wall on a side property line, thereby maximizing the opposite side yard for outdoor private space. This housing type allows for single lot ownership within a more dense zone while maintaining the feeling of privacy.

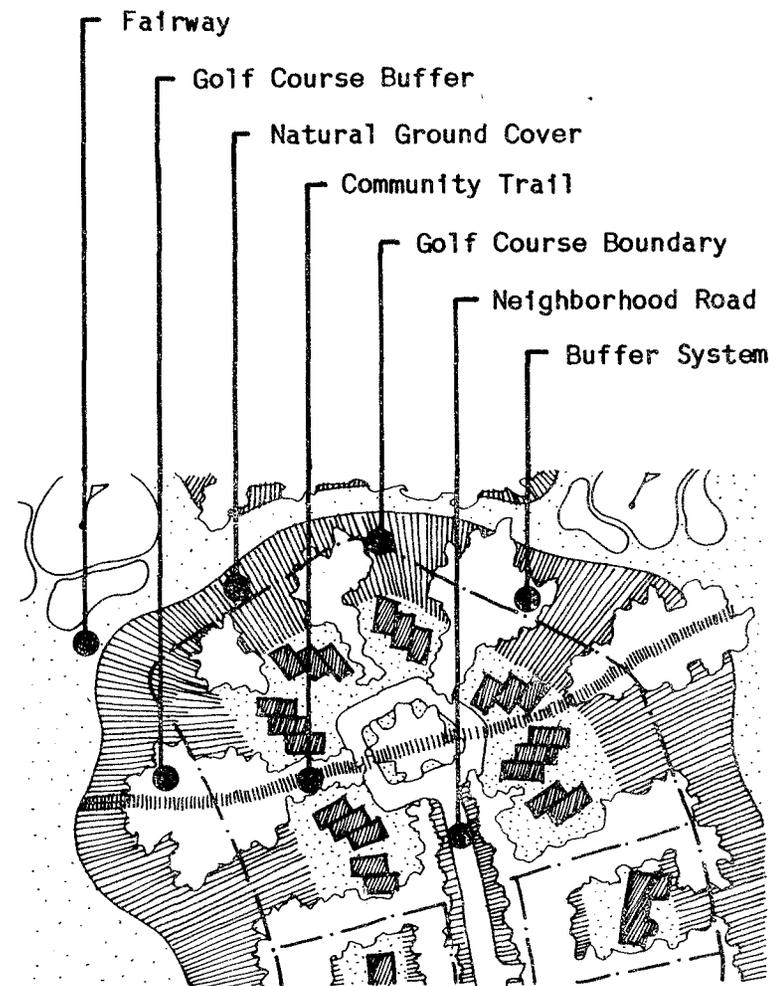
In this case the housing must be designed in groups rather than relying on individual housing designs. Side, rear and occasionally front yards are enclosed by walls to form a garden court. Lot width of 50 feet can be accomplished with Zero lot line housing.

This housing type is particularly suited to people who desire a detached house but want to minimize building costs and to reduce maintenance.

In all the single family housing where views are to be maximized, two story houses should be located behind one story structures. This is particularly important on flat sites.

On sloping sites, access drives should be developed on the uphill side of the lots in order to avoid steep uphill driveways, large cuts and the necessity for retaining walls.

On slopes in excess of 20%, garages and parking decks should be developed adjacent to the street with second level entries or stairways down to the first floor level. This concept would allow



the garage (accessory use) to be built in the front yard setback.

Where possible, driveways that will cause auto lights to shine directly on houses across the street should be avoided. If this is unavoidable, planting buffers should be introduced. Where appropriate, shared driveways are encouraged in order to minimize clearing and paving, and reduce the number of entry points.

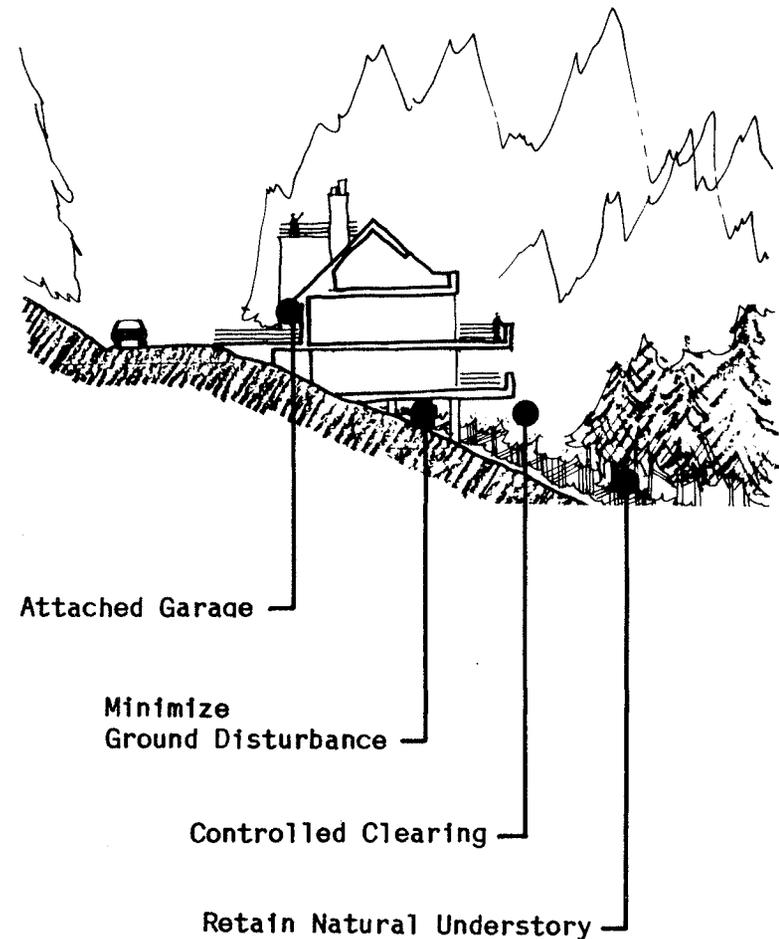
Clearing and thinning of vegetation on the lots should be allowed in order to adequately bring in south, west or east sunshine and to open views and private outdoor space. Specific clearing guidelines are outlined in the landscape Chapter VI.

Garages and carports, either integral with the house or detached, should be encouraged in order to reduce the visual impact of the automobile.

On-site parking should be adequate but should not dominate the site. Street parking will be allowed for occasional short term parking but should not be considered a permanent private parking resource.

Recreation vehicle parking outside a garage is prohibited. A special recreation vehicle parking area will be provided at the commercial center.

Contrasting housing design in the lowest density areas is less critical than in the higher density areas because of the natural vegetative separation. In addition to the codes, covenants and restrictions set forth by the Semiahmoo Company, the following general considerations should be given to all single family homes.



Roof forms should be pitched, gabled or sheds. Flat roof designs are considered inappropriate for residential units in Semiahmoo, except in special circumstances and then only to 25% of the roof area.

Roof overhangs and porches are a necessity in the Northwest climate to protect window and door openings and to create covered outdoor space. Overhangs and porches also provide shadows and help articulate large wall planes.

Window openings should be concentrated away from the street views to increase privacy for the occupants and to reduce light and glare on the streets and walks in order to preserve the wooded character.

Building materials generally should be of natural materials, either stained or painted natural earth tone colors.

Trim colors should be allowed to accentuate architectural details and give building exteriors a richness in contrast and texture.

Large homes, particularly two story, should be articulated to reduce the apparent mass and to sensitively relate to adjacent homes. This is particularly necessary in the density ranges where houses are near each other (3 and 4 DU/A). Also, large building masses can be reduced in scale by maintaining large tree groups.

Outdoor lighting should be designed so as not to create glare and obtrusive light on neighboring properties and the adjacent roadway.

Multifamily

Multifamily housing sites are planned for approximately 30% of the Uplands residential land.

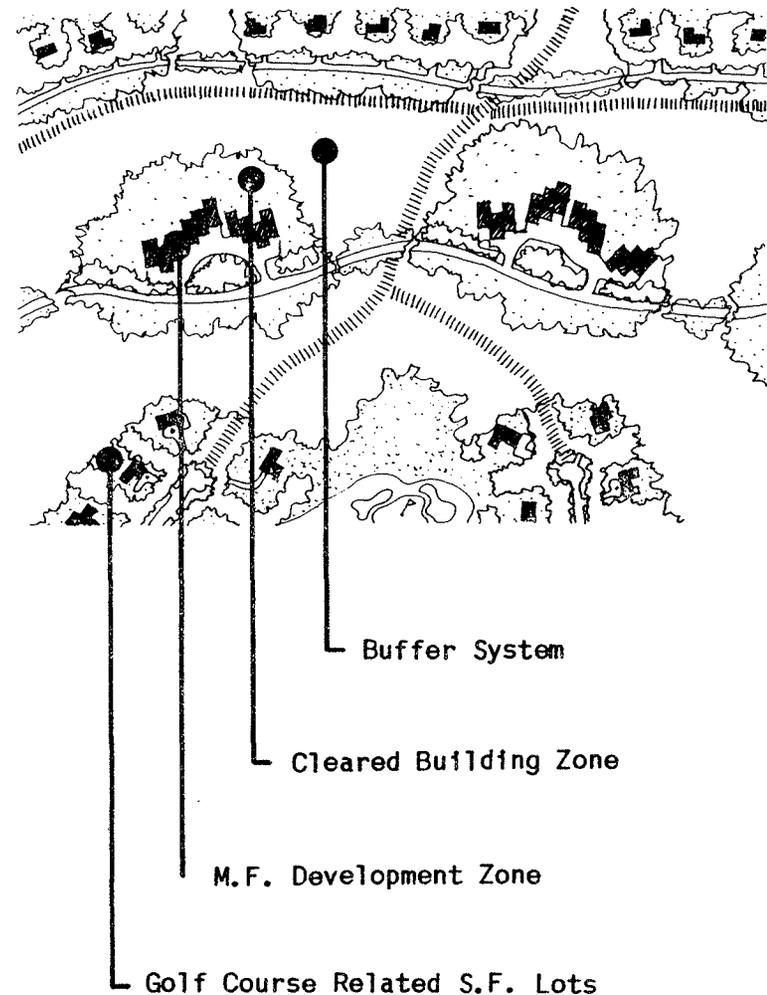
Multifamily housing is defined as any housing which is attached, from duplex to multi-unit buildings.

Where the housing units are ground related and have no separate units above, the land may be platted providing for individual lot ownership with commons walls. In this case, a plat and common wall agreement would be required. This concept provides attached housing the added benefit of having private fee ownership of outdoor yards for gardens and landscaped courts. It also provides the owner with an added feeling of land ownership while achieving the efficiency and economy of attached housing.

Multifamily housing can have many configurations including: 1) one, two, three, and four story flats; 2) two story townhouses, and 3) two story townhouses over one story flats.

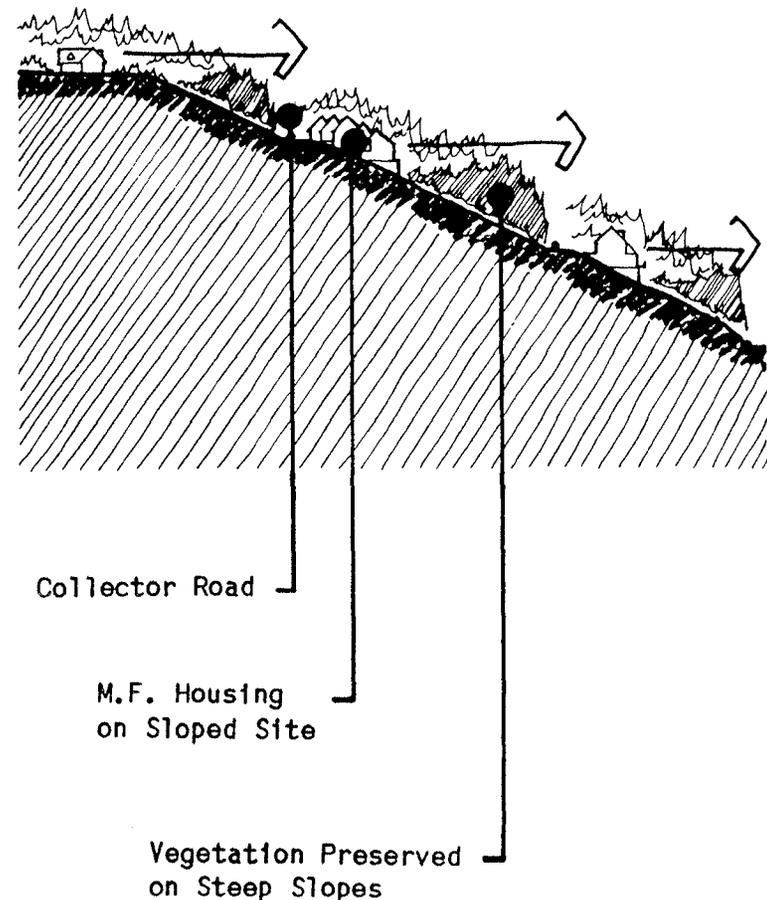
The location of multifamily zones is based on the following criteria:

- 1) Areas near major recreation facilities such as the golf clubhouse, the tennis center and neighborhood recreation centers.
- 2) Areas with exceptional view amenities where multifamily housing does not conflict with single family housing.
- 3) Steep slope areas where buildings should be clustered to reduced grading and clearing and minimize access roads.

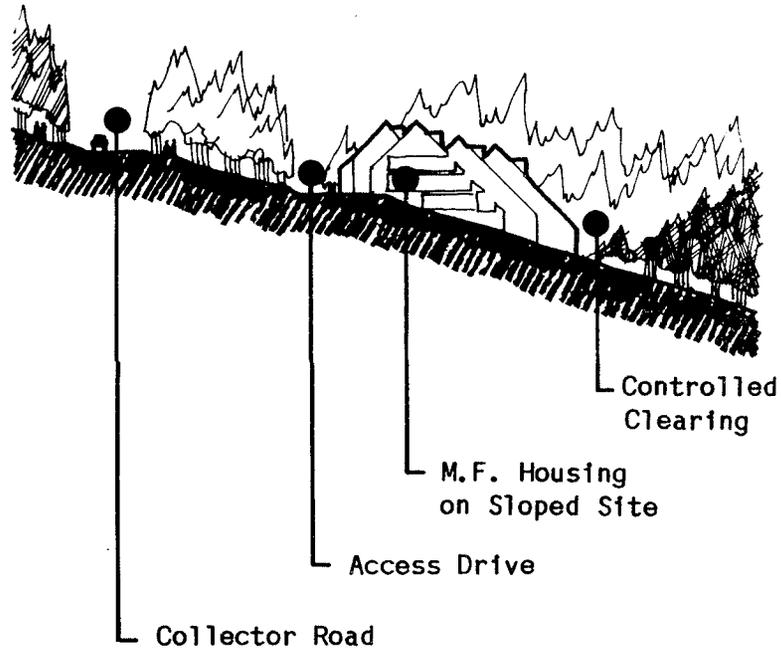


The general site planning and design guidelines outlined for single family housing apply also to multifamily types, with these additional criteria:

- 1) Organize Buildings in clusters to create a sense of "enclave" or neighborhood.
- 2) Organize buildings to form exterior enclosed spaces where common amenities are visible and accessible to a maximum number of units.
- 3) Each building group should be separated by adequate buffers of natural vegetation to reinforce the sense of building groups.
- 4) In townhouse and townhouse over flat designs, create private entries where possible with a maximum of four units served by one entry, and two units served by one stair.
- 5) Garages and carports are encouraged and should be located adjacent to private entries.
- 6) Lower multifamily densities (6 to 8 DU/A) should be planned adjacent to single family areas with an adequate visual buffer providing a scale transition to higher densities.
- 7) Traffic serving multifamily zones should be planned to minimize impact on single family areas. This is particularly important in the area south of the single family Boundary Ridge home sites along the south boundary of the Boundary Ridge zones 4 and 3, and zones 22, 23, 24, 27, 26 and 25 in the Golf Course District.
- 8) Buildings should be articulated to express the identity of each unit.
- 9) Breaks in roof planes, porches, entry courts, decks, roof dormers and patio walls are encouraged as devices to increase sense of privacy, while reducing the apparent mass of building.



- 10) On steep slope areas pole type foundations are encouraged to reduce grading and clearing.
- 11) On sloped sites access to all multifamily units should be developed from the uphill side of the building. Additional guest parking should be located so as not to create large cuts and fills.
- 12) Multi-family units on the steep slope areas of the Cove (Zones 6, 8, 9, 10, and 11), or with heights above 40' (Zones 2, 3, 4, and 26) will be subject to special review procedures (P.U.D.).



C. Semiahmoo Spit

1. Existing Conditions

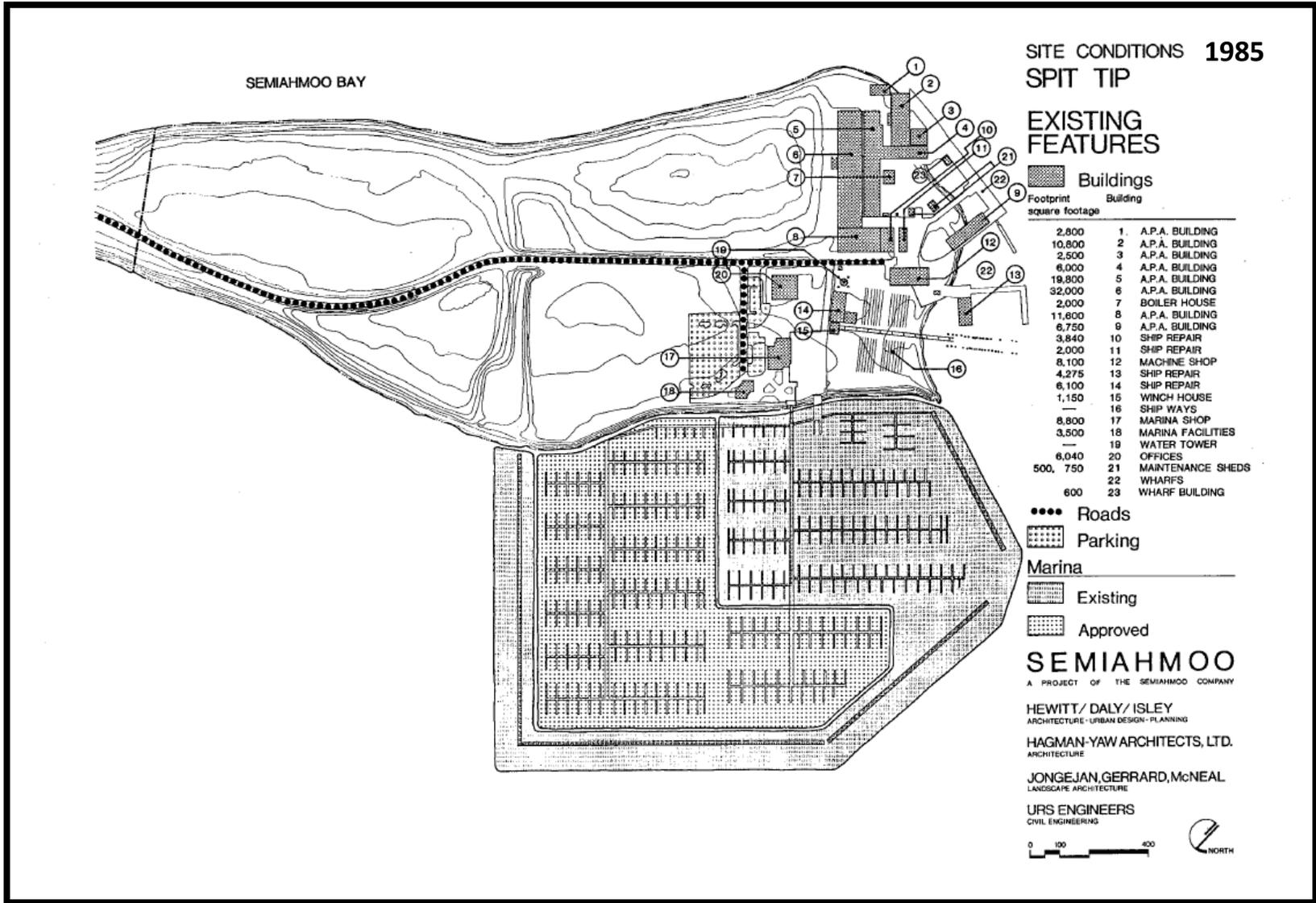
Spit Development – Approved projects.

Approximately 32 acres of the 57 acres of the Resort Semiahmoo area on the Spit has been or is in the process of being developed with projects approved under the 1985 Resort Semiahmoo Master Plan. These projects include the Resort Hotel, Beachwalker Condominiums, Marin Condominiums, the Seagrass Plat and Phase 1 of the Marina.

Beachwalker Condominiums and the Resort Hotel were developed in the late 1980's. These two projects substantially conform to their planned design character as described in the 1985 Master Plan. The hotel building, as approved and subsequently constructed, differed in its layout from the design shown in the 1985 Plan (RSMP 1985, pg 5.38). The Resort Hotel, as finally designed and constructed, incorporated substantially more of an existing Alaska Packer's building located on the same site than shown in the 1985 Master Plan.

Two of the three approved Marin Condominium buildings have been completed. Their design departs somewhat from the layout shown in the 1985 Master Plan. The most notable change is the use of underground parking to replace the surface parking proposed in the original plan.

Construction of the Seagrass Plat has been completed through installation of roads and utilities. Future development within Seagrass is subject to the provisions of the Seagrass Design and Development Guidelines. The Design and Development Guidelines include detailed standards for the design and placement of structures on the multifamily Tract D, and on the duplex lots.



Remnant Alaska Packers Association Buildings.

At the time the Resort Semiahmoo Master Plan was approved in 1985, there was about 121,000 square feet of buildings on the Alaska Packers Association Cannery site at the tip of the Spit. Approximately 74,000 square feet (61%) of APA building space was incorporated into the Resort Hotel. About 11,000 square feet of the original APA building space remains including about 4,300 square feet in Warehouse #6 and about 6,700 square feet in Warehouse #8. Warehouse #6 and #8 are over-water structures.

Undeveloped Areas and Spit Landform

The undeveloped areas on the Spit are flat with little topographic relief. Sandy, gravelly soil predominates, generally covered with weeds and grasses. The beaches are coarse sand with some areas of broken shells and small stones. A definitive line of driftwood marks the extent of storm wave action and protects the first levels of grasses and plant life.

2. Shoreline and Zoning Regulations

The Marine Planned Recreation Zone (MPR) was established in recognition of the unique and irreplaceable nature of the Semiahmoo site, and creates a special overlay zone for areas within the Marine Recreation Zone. This provides for the establishment of public-oriented, tourist-related uses such as marinas, boat docking facilities, recreation-oriented residential, hotel and overnight accommodations, conference facilities, restaurants, and small specialty retail. A balance of uses in this overlay zone is intended to serve recreational and tourist/conference mixed use activities where orientation and access to the water is a prime public amenity and to encourage retention of existing historical structures. The performance standards in the overlay zone required the preparation of an overall master plan for the development, which responded to

the use, historic preservation and circulation provisions of the comprehensive plan and provided a guide to phasing of the project.

In 1985 the Resort Semiahmoo Master Plan was completed and approved by the City of Blaine as the overall master plan for development in Resort Semiahmoo as required under both the Marine Planned Recreation zoning on the Spit and the Residential Planned Recreation zoning on the Upland.

This 2014 Update to the Master Plan conforms to City of Blaine Zoning Regulations and the City's Shoreline Program and is consistent with the original Master Plan as approved by the City. The update is intended to provide a fresh perspective on parking, building layout, public open space and shoreline access while still retaining the underlying goals and design objectives of the 1985 Plan.



3. Policies

The 1985 Master Plan was prepared under the policies enumerated in the City's 1984 Comprehensive Plan. As in the Uplands, the basic goal of the Spit-oriented policies was to preserve the recognized qualities of the site.

With the adoption of the Resort Semiahmoo Master Plan in 1985, subsequently adopted versions of the City's Comprehensive Plan no longer included goals and policies specific to Resort Semiahmoo. The goals, policies and guidelines of the Resort Semiahmoo Master Plan together with the regulations contained in the City's Marine Planned Recreation (MPR) and Residential Planned Recreation (RPR) zones comprise the plan and official controls for regulating development on the Spit.

The development goals for the Spit are listed below. The guidelines and policies of the Plan together with the applicable provisions of the City's land use regulations are intended to implement these goals.

Enhance and preserve environmental quality including natural beaches, vegetation, fish and wildlife areas.

Provide a variety of recreational opportunities for residents and visitors.

Expand the economic base of the City of Blaine through the provision of marine oriented, tourist related facilities.

Provide marine oriented commercial and residential activities complimentary to the rest of the City.

Provide a tourist-oriented activity center to serve Blaine residents and area visitors.

Coordinate Uplands development complimentary to the Spit.

Provide a mix of uses, which are mutually supportive and reinforcing.

Provide opportunities to increase the working waterfront atmosphere at the Spit tip through the use and expansion of piers and wharves that provide greater access to the marine waters.

Specific objectives to assure the highest quality development on the Semiahmoo Spit are as follows:

Retain a majority of existing APA buildings and piers, particularly those, which are essential to retain the character of the historic district.

Retain or restore shorelines in as natural a condition as possible.

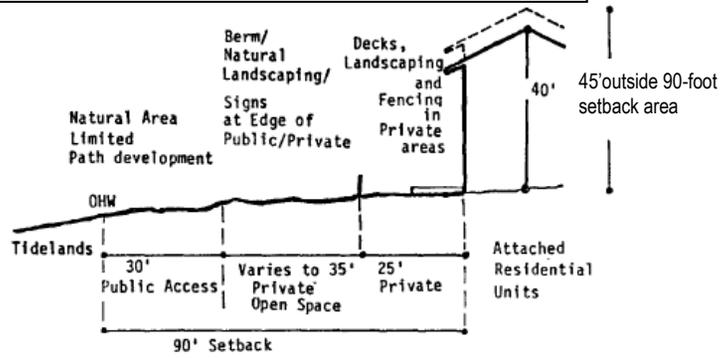
Provide public access to the shorelines and tidelands, including development of planned cross-Spit trails and loop trail around the Spit.

Consider the impact of development on the geologic structure of the Spit.

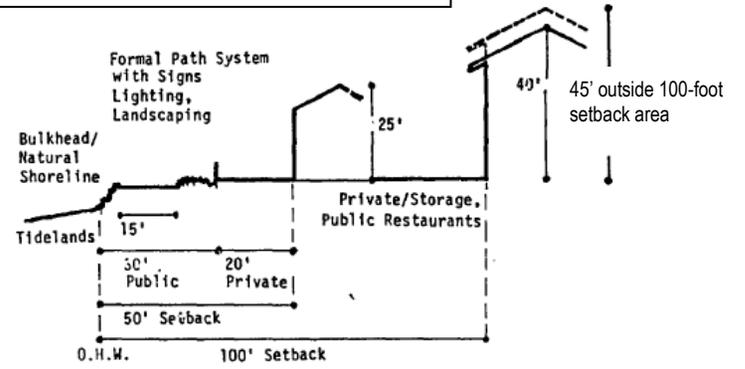
Preparation of planning and design guidelines.

Encourage the renovation and reuse of piers to facilitate water-borne access to the Spit and other water-oriented uses outlined in the Shoreline Management Act.

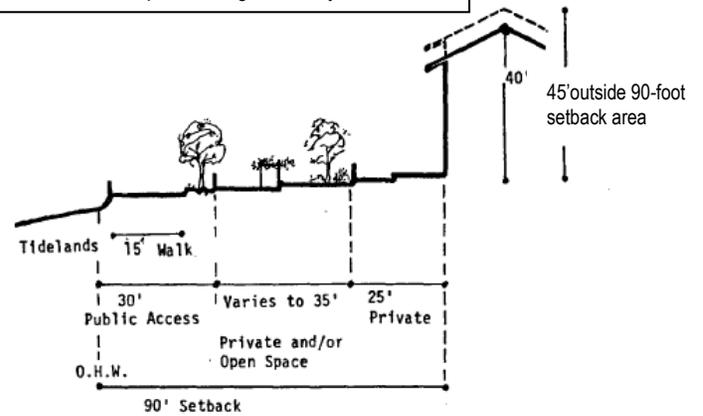
Residential Development – Shoreline Residential SMU



Commercial Development - High Intensity SMU



Residential Development - High Intensity SMU



PERVIOUS/IMPERVIOUS SURFACE TABULATIONS¹

Total Land Area57 Acres
Total Impervious Semiahmoo Parkway	1.60 acres
Net Acreage	55.4 acres

IMPERVIOUS SURFACE DISTRIBUTION

ACTUAL EXISTING CONDITIONS

Semiahmoo Shore/Seagrass:

Roads, Driveways, Parking ²	1.74 ac.
Building Coverage ³	<u>3.16 ac.</u>
	4.90 ac.

Beachwalker

Roads, Driveways, Parking	.59 ac.
Building Coverage/ T Court	<u>1.07 ac.</u>
	1.66 ac.

Marin

Roads Driveways, Parking	0.53 ac.
Building Coverage	<u>0.94 ac.</u>
	1.47 ac.

Resort Hotel

Roads Driveways, Parking	2.73 ac.
Building Coverage/pool/tennis	<u>3.29 ac.</u>
	6.02 ac.

PROPOSED DISTRIBUTION EXAMPLE – 2014 update

Semiahmoo Resort Village

Roads, Driveway, Parking	3.67 ac
Building, Courtyards, Terraces	3.93 ac
Marina Parking	<u>1.20 ac</u>
	8.80 ac.

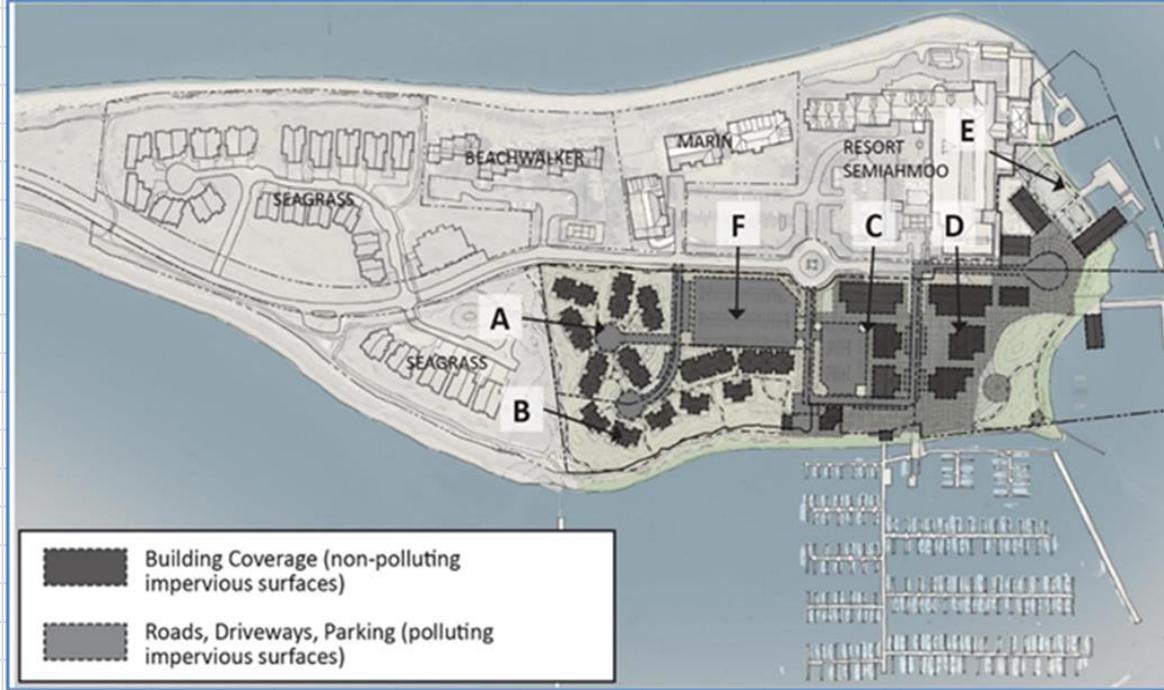
Total Impervious

Roads, Driveways, Parking	8.84 ac.
Building Coverage	<u>11.59 ac.</u>
	20.43 ac.

¹ Tabulations do not include 1.6 acre Semiahmoo Parkway Road Surface.

² Typically considered pollution generating impervious surfaces

³ Typically considered non-pollution generating impervious surfaces



SPIT TIP

IMPERVIOUS SURFACE DISTRIBUTION

MASTER PLAN UPDATE 2015

ACRES	USE
3.93	Building Coverage
1.20	Marina Phase 1 Parking
3.67	Roads, Driveways, Parking
8.80	Total

EXISTING DEVELOPMENT ALLOCATIONS

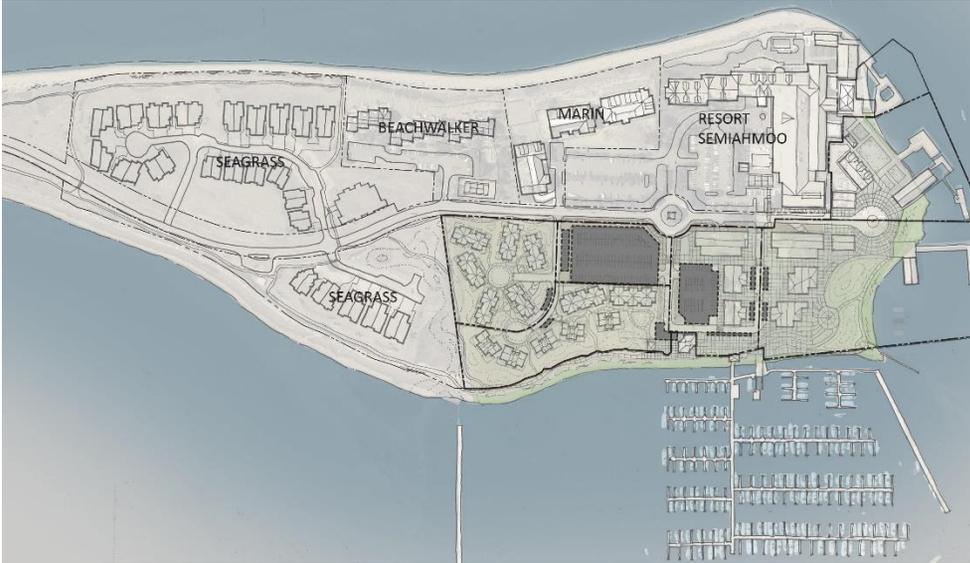
ACRES	USE
4.9	Semiahmoo Shore/Seagrass
1.66	Beachwalker
1.47	Marin
6.02	Resort Semiahmoo Hotel
14.05	Total

	Parcels						Totals
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	
Total Area-acres*	2.67	3.28	2.63	3.78	1.53	1.67	15.56
Impervious Area (with Parking) from Illustrated 2014 MP Update-acres	1.11	1.03	2.38	2.07	0.75	1.37	8.71
Impervious Area Parcel Coverage from Illustrated 2014 MP Update - %	42%	31%	90%	55%	49%	82%	
Maximum Impervious Area allowed per Parcel 2015 MP Update-acres	1.87	2.3	2.37	2.65	1.07	1.5	11.76
Maximum Impervious allowed per Parcel 2015 MP Update-acres	70%	70%	90%	70%	70%	90%	

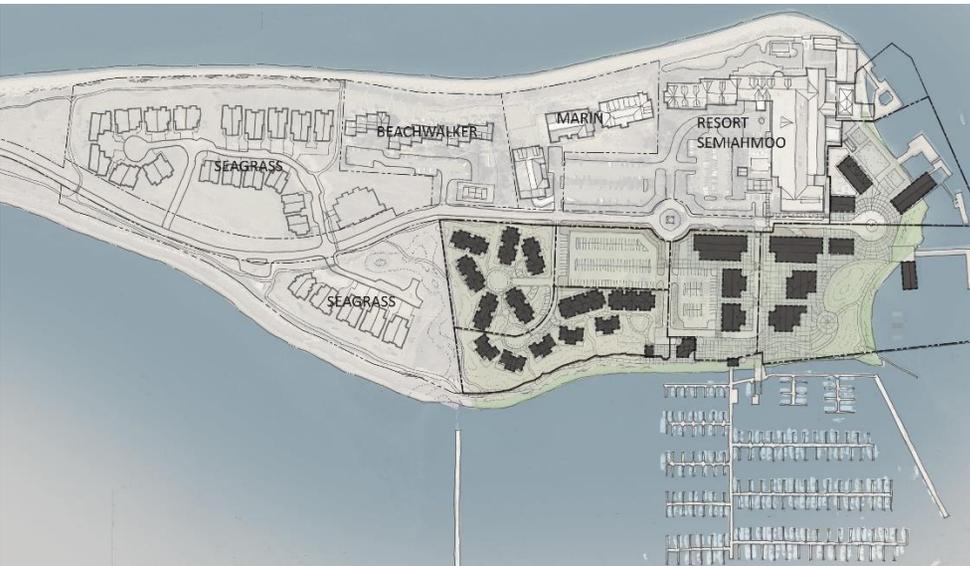
SUMMARY

ACRES

26.56	Total Allowable (per 1985 RSMP)	(11.76)	Allocation for Resort Village (shown above)
(14.05)	Existing Development	0.75	Available for Discretionary Allocation Through PUD Approval(s)
12.51	Remaining Allowed for Semiahmoo Resort Village		



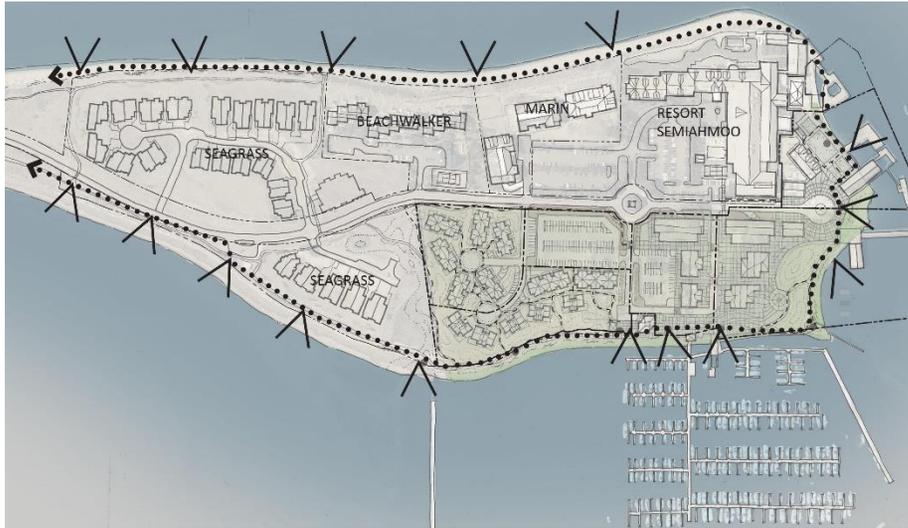
PARKING CONCENTRATED AWAY FROM WATER'S EDGE



CONCEPTUAL LAYOUT OF RESORT VILLAGE

DEVELOPMENT DETAILS TO BE FINALIZED WITH PLANNED UNIT DEVELOPMENT REVIEW AND APPROVAL

Views From Blaine



The Master Plan for the Resort Village at Semiahmoo Spit was prepared with a genuine reverence for the casual, weathered character of this unique natural, industrial and historic waterfront. Thus, the view from Blaine across Drayton Harbor will remain very similar to the existing view of the Spit. Beyond the rows of pilings and swaying masts, the waterfront edge of the Spit tip will continue to be predominately structured and somewhat industrial in character. The existing seawalls and piers will be softened with outdoor furnishings, lighting, some planting and other pedestrian scale amenities. The point on the Spit closest to Blaine will be developed in a simple manner as a viewpoint back to Blaine and the surrounding harbor. This informal, passive park will provide a visual link between the Resort Village and the City of Blaine.



The building mass and density will be greatest at the tip of the Spit and decrease toward the neck of the Spit, reflecting the present profile of the Spit. The large cannery and cannery type structures which house the hotel/conference centers perch near the water's edge. Behind them are clusters of smaller scale residential and commercial buildings. The lowest development density will occur toward the "neck" of the Spit, where the Seagrass residential units give way to the County Park with its open expanse of grassy dunes. The existing architectural character will be preserved by 1) preserving and reusing many existing buildings and 2) controlling the massing, materials and colors of new construction to blend with the older weathered structures.

4. Development Program

The development program for the Spit directly reflects the land use recommendations set forth in the City's 1984 Comprehensive Plan. This Master Plan proposes a variety of carefully planned uses, which provide a balanced mix of marine, tourist, residential and recreational opportunities. The illustration on page 5.34 depicts the distribution of these uses on the Spit. Included are developments previously approved and either completed or under construction and the proposed layout of structures for the 2014 Spit Master Plan Update. The table on page 5.33 provides summary information on the approved and existing Spit development as well as the development proposed in the 2014 Update.

There may be several different purchasers of the individual areas that constitute the Semiahmoo Resort Village. These purchasers will evaluate market conditions as they relate to the distribution of Commercial Space and Residential Units as shown in the illustration on page 5.34. The owners may find it beneficial to exchange some portion of the Commercial Space or Residential Units among areas.

In order to provide for this flexibility and also maintain the overarching requirements of the Resort Semiahmoo Master Plan Update 2014, the limitation on such exchanges are:

1. Residential Units
 - a. An Area cannot provide more than 10 Residential Units nor receive more than 20 Residential Units total from other Areas.
 - b. If an Area increases its Residential Units from those identified on the illustration on page 5.34, the resulting amount of impervious surface cannot exceed the amount indicated on page 5.29.
 - c. Units that are not approved for development or transferred from the donor area at the time of PUD approval are "lost" and cannot be developed or transferred at a later time.

2. Commercial Space
 - a. An Area cannot provide more than 10,000 SF of Commercial Space nor receive more than 10,000 SF of Commercial Space to or from another Area
 - b. If an Area increases its Commercial Space from that allocated on the illustration on page 5.34, the resulting impervious surfaces cannot exceed the amount indicated on page 5.29.
 - c. Commercial space that is not approved for development or transfer from the donor area at the time of PUD approval is "lost" and cannot be developed or transferred at a later time.

SPIT DEVELOPMENT PROGRAM

GROSS SITE ACREAGE 57.00 Acres

Dedicated Rights of Way 1.65

Other Dedications 0.21

1.86 (1.86) Acres

NET SITE AREA 55.14 Acres

NET USE DISTRIBUTION

Commercial Space up to a maximum of: 60,000 s.f.

Includes retail, office space, small shops,
eating establishments for example

Resort Hotel/Conference Center: 224,000 s.f.

Includes fitness center and spa

Residential Units:

Seagrass 62 units

Beachwalker 33 units

Marin 54 units

Semiahmoo Resort Village up to a maximum of 220 units

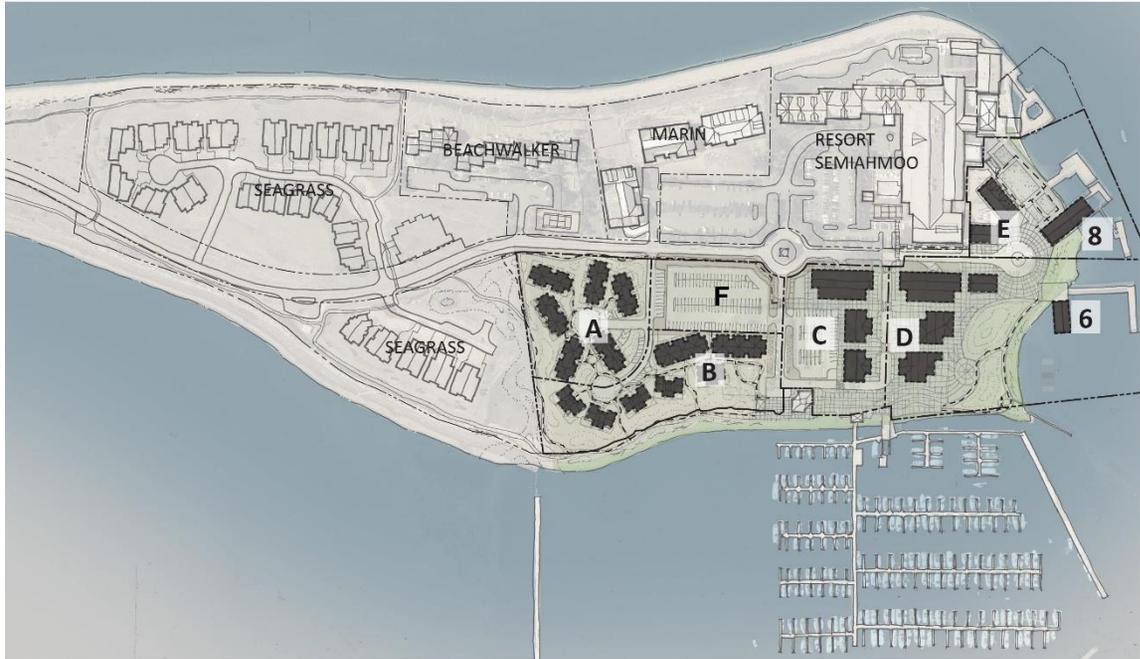
Total 369 units

Marina:

1985 RSMP allowed 800 slips

Phase 1 296 slips

Phase 2 Not to exceed 504



SPIT TIP - ALLOCATIONS

COMMERCIAL - ADAPTIVE RE-USE

Warehouse	SF
6	4,300
8	6,700

RESIDENTIAL / COMMERCIAL DISTRIBUTION

Area	Unit (#)	Commercial (SF)
A	64	
B	69	
C	24	24,500
D	54	31,500
E	9	4,000
F	0	0
Total	220	60,000

Area F is Marina Phase 1 Parking

a. Residential Program



Up to 369 housing units can be developed on the Spit. Most of these are higher density clustered unit types. The illustration on page 5.34 shows the approximate housing distribution. Housing distribution on the Spit tip is allocated to three areas:

1. The Seagrass Residential Plat is situated on the narrowest and highest portion of the Spit. These units have views to both the east and west. A "Dunes Landscape" characterizes the quality of this environment. The development plan has been approved and roads, utilities and landscaping including the portions of the public shoreline trail along the shoreline of the project have been constructed.
2. The Beachwalker and Marin Condominium developments are located on the western side of the Spit and are organized to make the transition from an informal, naturalistic dunes environment to a more formal town environment near the hotel and Resort Village.
3. Semiahmoo Resort Village Condominiums face eastward and northerly, overlooking Drayton Harbor and the Cascade Mountains beyond. Starting with an informal "beach front" concept south of the marina, the geometry of the planning remains somewhat informal, as the units relate to the meandering shoreline trail approaching the Resort Village core.
4. The Resort Village core has a more formal rectilinear pedestrian-oriented street design which unites the Marina Phase 1 frontage with the resort hotel frontage creating the sense of a main street, promenade or village green.

Each of these housing areas takes its design cue from its location, enhancing the overall concept for development by helping to delineate and organize the area within which it exists. As reflected also in the landscape portion of this plan, the interaction of the open space/landscape system with the planning/architectural design is of paramount importance in the realization of this plan.

As in the Uplands, and to ensure economic feasibility in future economic climates, the exact number of units will be specified at the time of final P.U.D. submittals. The overall maximum of 220 units in the Resort Village will not be exceeded.



Semiahmoo Resort Village Core

b. Open Space, Recreation, and Public Access

The primary resource for open space utilization on the Spit is the shoreline. This is characterized by three distinct zones: 1) undisturbed natural beach - a total of three miles of beaches exist on the Spit, sloping gently from the water's edge and tidelands up to a line of driftwood and dune grasses; 2) wharf edge - this man-made edge, consists of heavy timber wharf structures, buildings on pilings and supplies the essential character to the Resort Village center; 3) the marina edge - the constructed bulkhead, walkway and slips are the first manifestation of the rebuilding of the Spit into a new economic zone. This area introduces the use of modern materials and activities to the Spit.

Trails

These diverse zones create a comprehensive and multifaceted open space and recreation system linked by a network of trails and pathways. Naturally landscaped trails at the driftwood line provide a continuous path along the top of the beach, allowing visitors and residents alike to participate fully in the experience of this island-like setting. At several points cross-spit connectors link the east and west side of the Spit providing total access to waterfront areas. Much of the shoreline trail system was constructed in the years between 1985 and 2014, but as of the date of the 2014 Plan update some sections remain to be developed. The system will be developed in conjunction with planned unit development

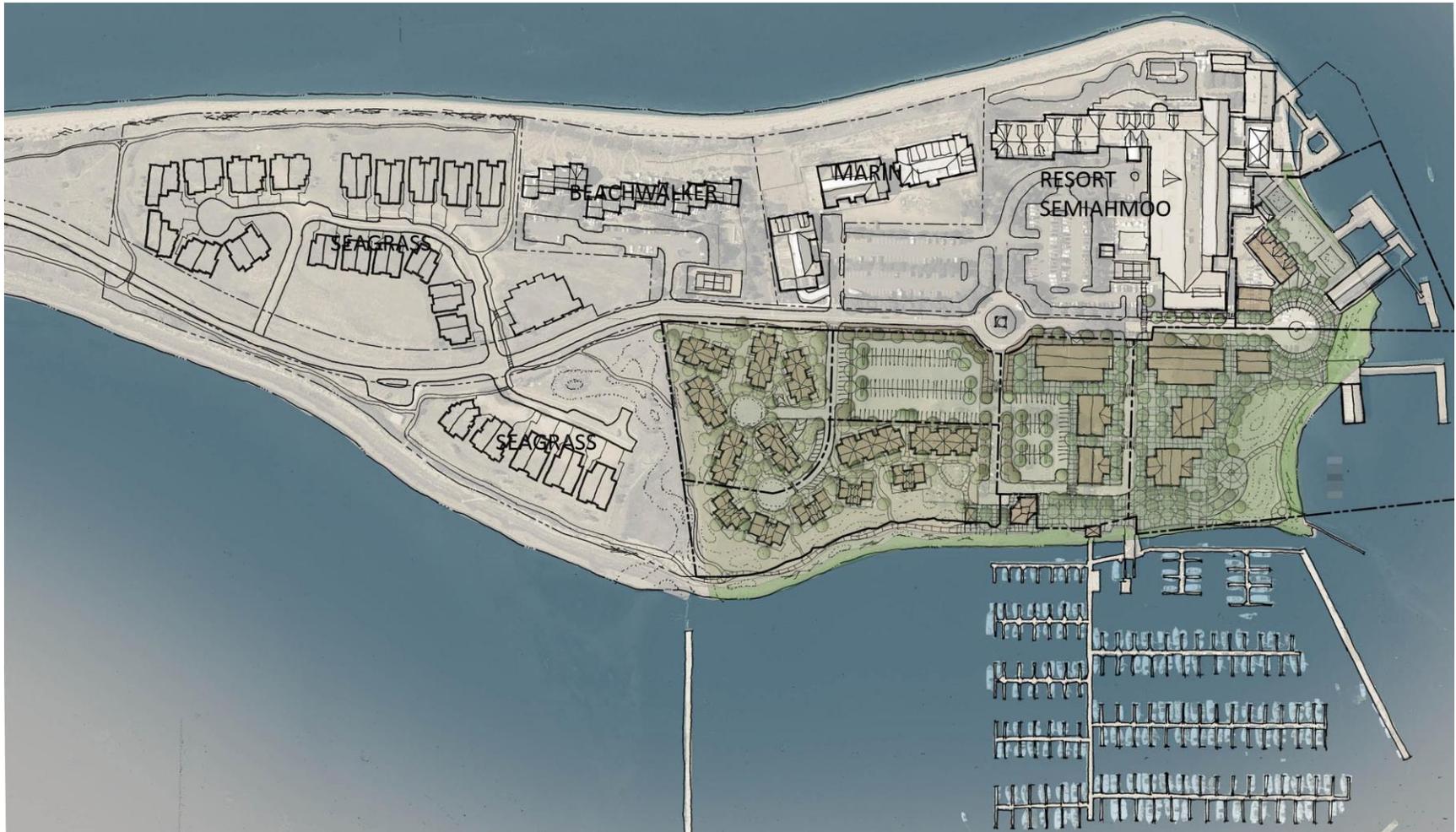
approval and construction. The City may also develop or enhance some sections within the public access easement.

At the Spit tip, this trail system, having undergone a gradual change from natural to more formal as one enters the Resort Village, takes on a distinct "village center" character. In the village center, planting is organized in clearly defined areas within the context of a series of pedestrian plazas, open spaces and walks.

Beach Access

During the early years of development of Semiahmoo much of the tidelands along both Semiahmoo Bay and Drayton Harbor shorelines were dedicated to the City. Combined with the Whatcom County park property, these tidelands create extensive beach access for recreation. The tidelands adjacent to the hotel, round the tip of the spit, and underlying the marina are in private ownership.

The beach at the tip of the spit between Warehouse 8 and the Marina is a prime location for swimming and sun-bathing due to the sandy substrate and the generally warmer outflowing water from Drayton Harbor. During review and approval of future planned unit developments (PUDs), public access to this beach should be considered and developed where feasible. This should be coordinated with development of the Ways Park to create an integrated facility.



ILLUSTRATIVE SITE PLAN

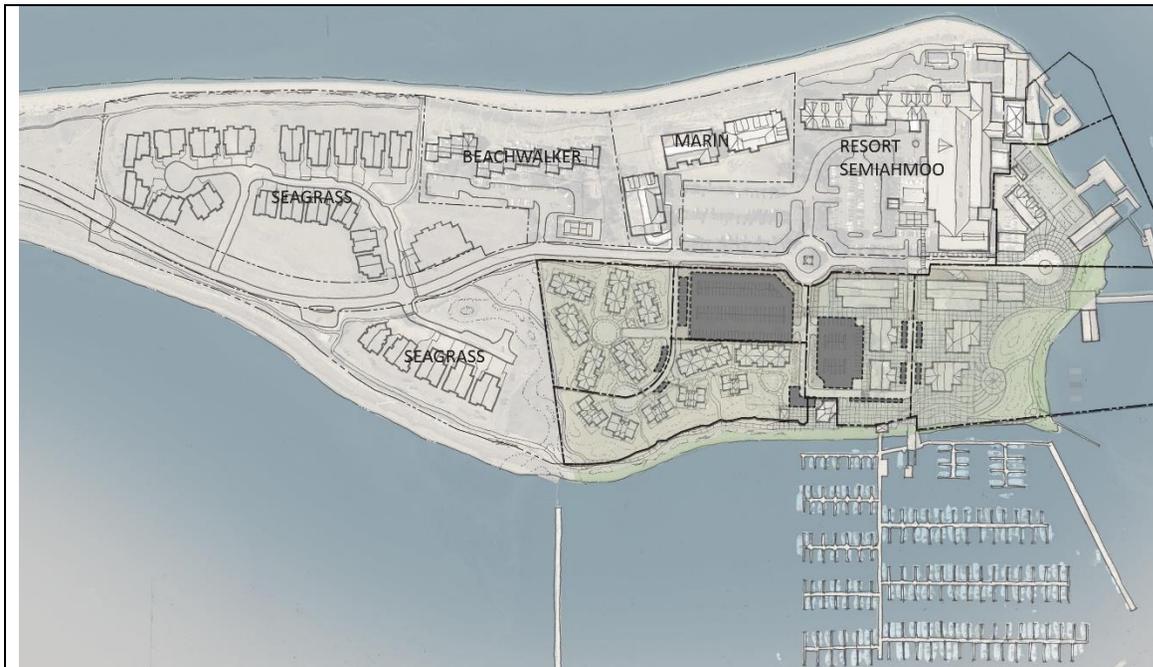
This Illustrative Site Plan demonstrates how the development restrictions contained in this Resort Semiahmoo Master Plan Update 2014 can be met on the Spit properties. The ultimate development pattern may differ. Final development plans of the properties will be the subject of future Planned Unit Developments (PUD) for each property which must follow the guidelines contained in this Update.



Character Sketch of Village Green

c. Roads and Vehicle Circulation

The primary access road to the Spit is Semiahmoo Parkway. A public access easement to a turn-around will be provided at the end of the public R.O.W. The 50' access easement across Whatcom County Park has been assigned to the City of Blaine. All other roads, serving the housing and marina, will be private. Parking for the Resort Village and the existing marina is provided by a combination of surface and garages below the condominium buildings. Surface parking is located at the hotel and at certain locations along the roadways. Short term parking and loading areas are provided at the marina access locations.



SPIT TIP

PARKING PLAN*

ALLOCATIONS

Marina Phase 1 Parking: 115

Residential Parking: Predominately provided beneath residential buildings, and to include adequate visitor parking at street level; subject to City of Blaine parking requirements.

Commercial Parking: Each commercial development's parking will be met on site, subject to City of Blaine parking requirements.

Public Parking:

- A minimum of 10 parking spaces will be created in close proximity to those located south of Marin with development of Area A and B.
- A minimum of 25-percent of outdoor street-level parking in Areas C and D shall be designated general use, limited restriction parking.
- Additional public parking is encouraged.
- Residential guest parking shall not substitute for general public parking.

See 2013 MDNS for additional information.

*For illustrative purposes only, this Parking Plan identifies 88 potential, street level commercial and public parking spaces.

d. Commercial and Public Facilities

The primary commercial zone on the Spit will be Semiahmoo Resort Village commercial core. The commercial core includes a concentration of restaurants and shops, together with the Resort Hotel and Conference Center, which establishes the village-like character at the tip of the Spit. Organized around a system of plazas and water edge walkways, these uses would be supplemented by summer theatre, arts fairs, craft expositions and other public interest activities, lending seasonal variety to the core group of commercial uses.

Up to 60,000 S.F. of commercial space separate from the Resort Hotel and Conference Center and existing buildings can be developed on the Spit. This space can be located at the street level floors of mixed-use buildings with resort condominium units on floors above, or it can be located in freestanding commercial buildings. This new construction will be sympathetic to the existing forms while not simply imitating them. This ensures an orderly program of growth as warranted by demand. Office space, as an accessory use, may also be developed to contribute to the diversity of the Spit.

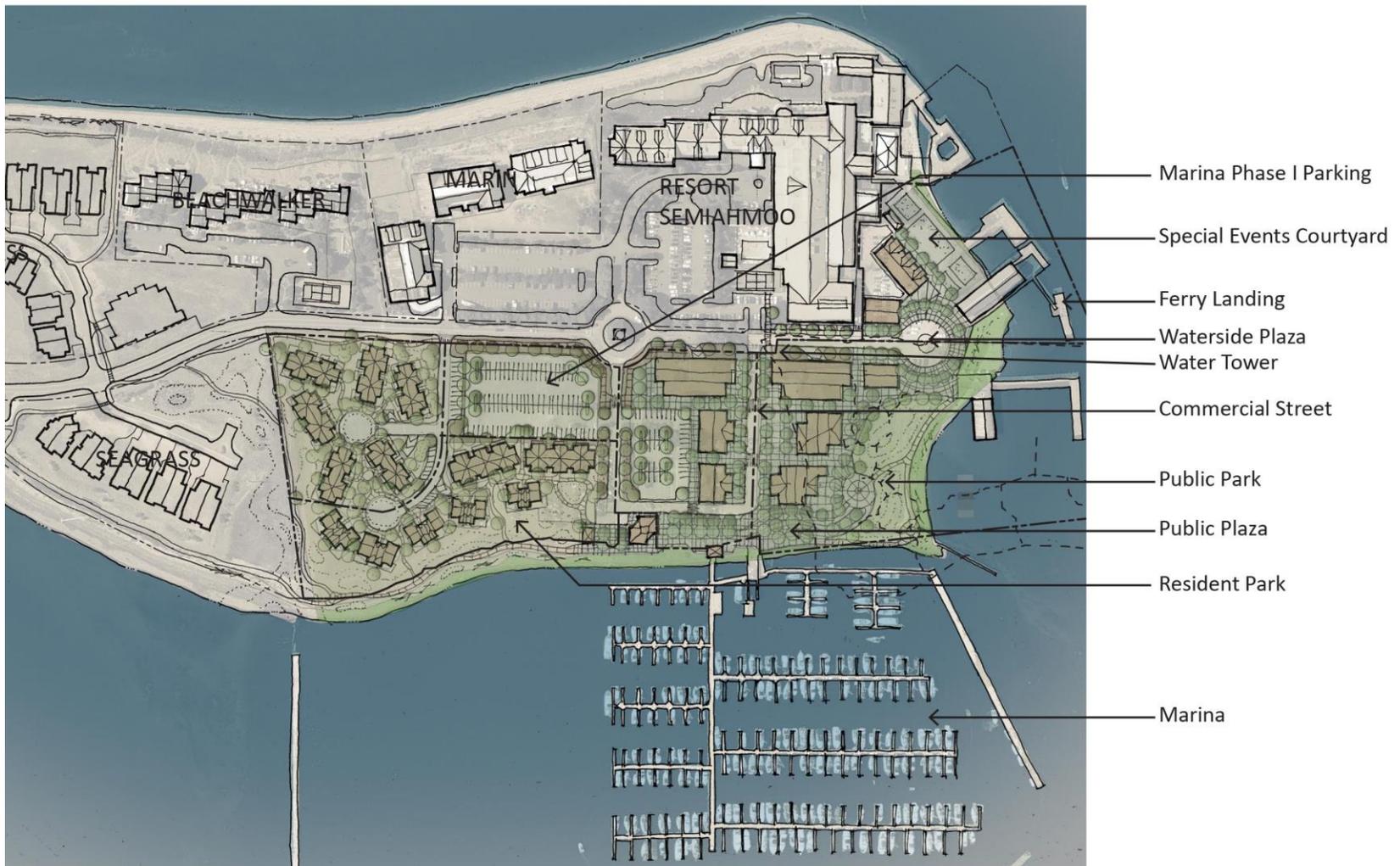
An Athletic Center, associated with the Hotel, has been completed. It contains tennis courts, a swimming pool, and

other facilities that provide a recreational resource for residents and visitors to Semiahmoo.

Semiahmoo Resort Hotel and Conference Center, containing 198 rooms, has been completed. The Hotel relates to the natural beach to the south by progressively stepping away from the Beach Zone to allow a natural, undisturbed beach. In this area, outdoor decks overlook Semiahmoo Bay to the west. Within the Resort Hotel are restaurants, bar and other public spaces from which the sunsets over Vancouver Island can be enjoyed.

The water tower will continue to function as the prime focal point and identifier for Semiahmoo. This structure, visible from Blaine and the surrounding countryside, will be a major element, and serve as a point of reference for the pedestrian system of the Spit tip. Improvements, modifications, or if necessary, replacement with a similar iconic structure, will be detailed in subsequent PUD submissions.

If a replica is constructed, the size should be appropriate to maintain the original visual impact of the water tower. A small scale replica is not the intent of the Master Plan.



The Marina could be expanded in the future to include additional slips, as allowed in the 1985 RSMP. An additional access ramp and parking/drop-off zone would need to be established to service Phase 2 of the marina. Prior to Phase 2 of the marina expansion, that portion of the temporary shoreline corridor fronting the marina should be landscaped and developed with a public trail connecting the Seagrass project with the park planned for the tip of the Spit. This trail would continue to provide interesting views of the marina and boating activities.

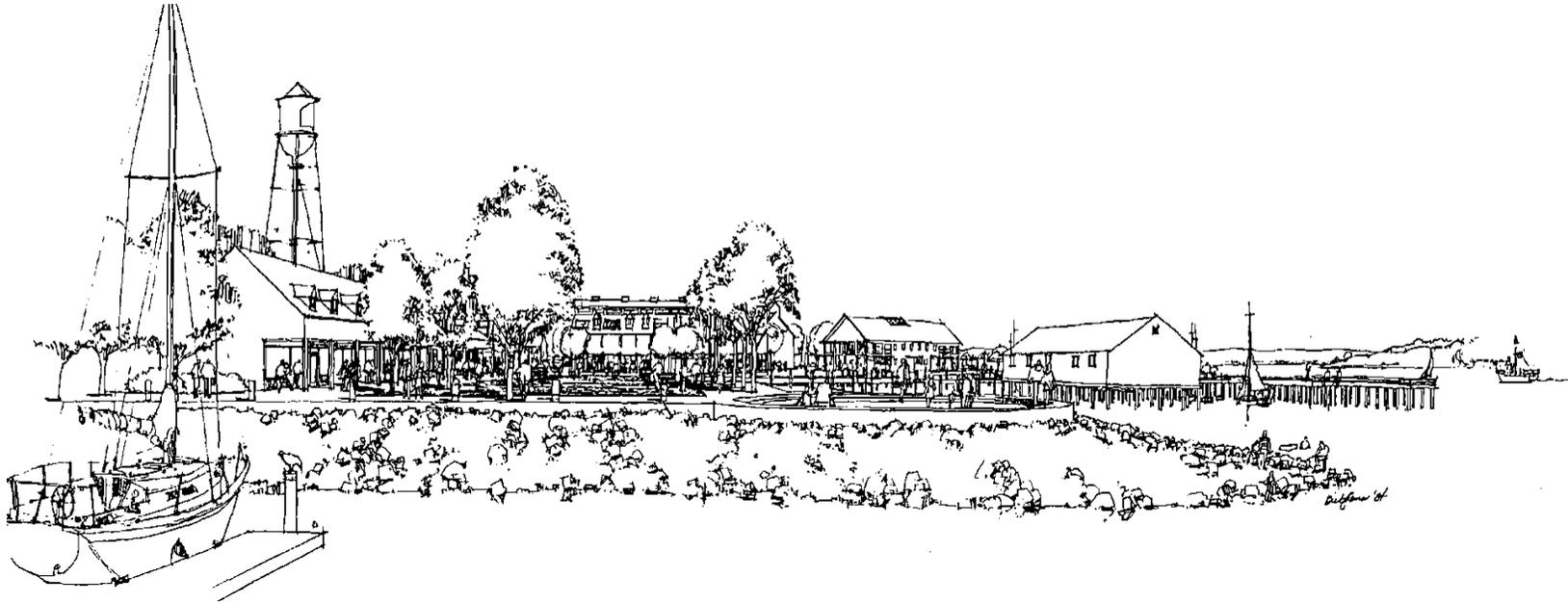
5. Building Design & Site Planning Guidelines

General Guidelines

The major site amenities on the Spit are:

- Views to the surrounding waters and mountains
- Access to the beaches and waterfront environments
- Proximity to the athletic and commercial services at the Spit tip
- Proximity to the marina

Each residential site design should respond specifically to the adjacent type of site condition. Care should be taken to relate to the natural environments of the beaches and dunes in such a way as to enhance their natural qualities and integrate these into the community. On the marina edge and near the Resort Village center, housing and other development should reinforce the Village concept of this area.



Character Sketch of Park

Historic buildings on the wharf will have minor modifications to the exterior.

The architectural vocabulary of the Spit housing and commercial structures should be compatible with the clean, simple forms of the existing APA buildings. In the more natural beachfront areas, this straightforward geometry and massing should be articulated to reduce the apparent size of the clusters of units. The expression of individual units, pitched roofs, large overhangs, and light natural colors will help to establish a sympathetic relationship between nature and building.

Major buildings such as the hotel, condominium structures and larger commercial buildings should preserve the idea of simple massing and allow for the introduction of more modern architectural elements such as larger areas of glazing, "industrial" materials, and the expression of heavy timber construction. Colors should be bold and warm to generate a festive and exciting atmosphere.

Residential Design Guidelines

On the Spit there are three types of housing:

Beach Clusters

Bay Clusters

Resort Village Condominiums

Each of these has certain characteristics and specific guidelines as outlined below:

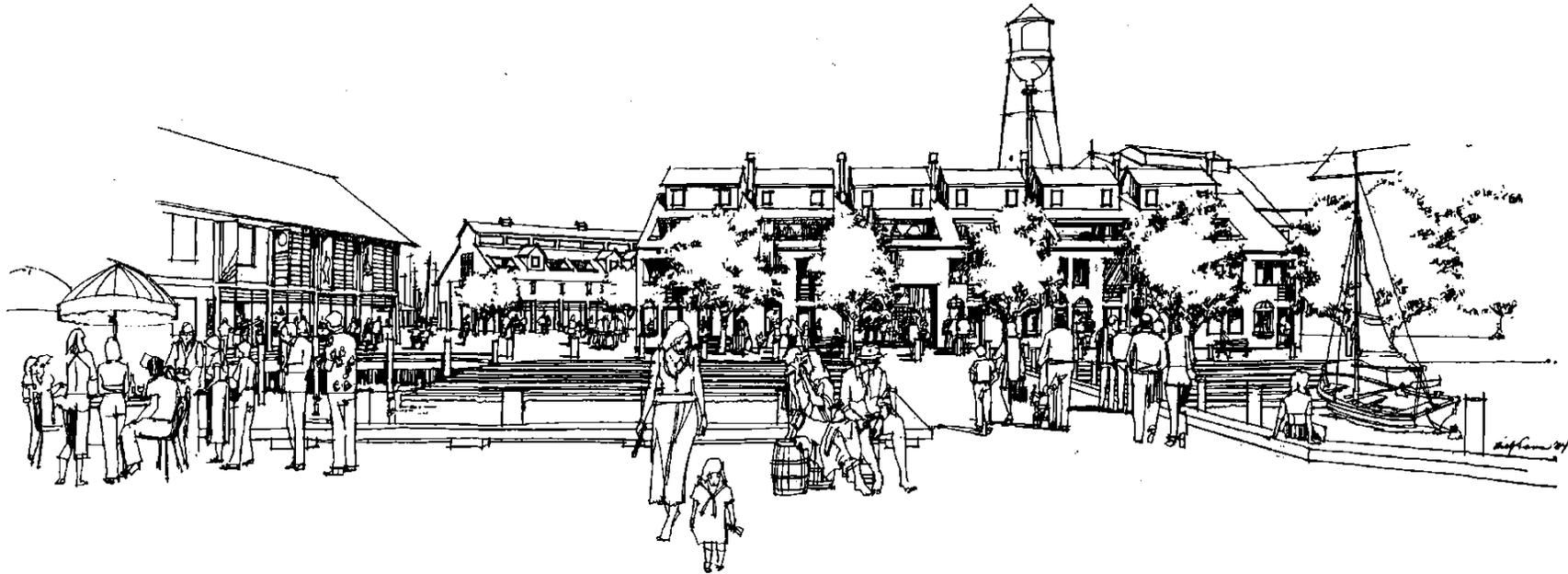
Beach Clusters: Seagrass

Located on the most natural portion of the Spit, these units will be carefully scaled to achieve a beach house image. Natural materials and careful integration with the ground-plane will help to integrate these units with the dunes. Additionally, deep overhangs projecting over

bermed patios and courtyards will give a feeling of protection from the elements of strong sun and vigorous winds. Parked cars should not be visible in this environment. Garages for these homes should be integrated into the building form. Furthermore, driveways and guest parking will be shielded from view through the use of berms and dunes planning. (See Landscape Section for more detail.)

Bay Clusters: Beachwalker and Marin

Located just south of Resort Semiahmoo Hotel, these multi-family clusters overlook the beach and Semiahmoo Bay. The seaward side should be treated much as the Beach Clusters in that they share a similar relationship to the beach. The inland side, however, should be more supportive of a village-like character. Helping in this will be the more ordered and tightly grouped massing of these clusters. On the landward side, community circulation paths would parallel the building faces providing access to and from the other facilities of the Village. The seaward side, on the other hand, will be a dunes and beach grass environment. Here private courts behind berms and balconies sheltered by overhanging roofs would shield residents from the sometimes harsh seaside environment. At the same time these berms and overhangs would reduce the scale of the buildings, thus minimizing their impact on the beach environment. Parking for these units will be in lots or underground, directly associated with the cluster. These will be landscaped in accordance with the landscape guidelines.

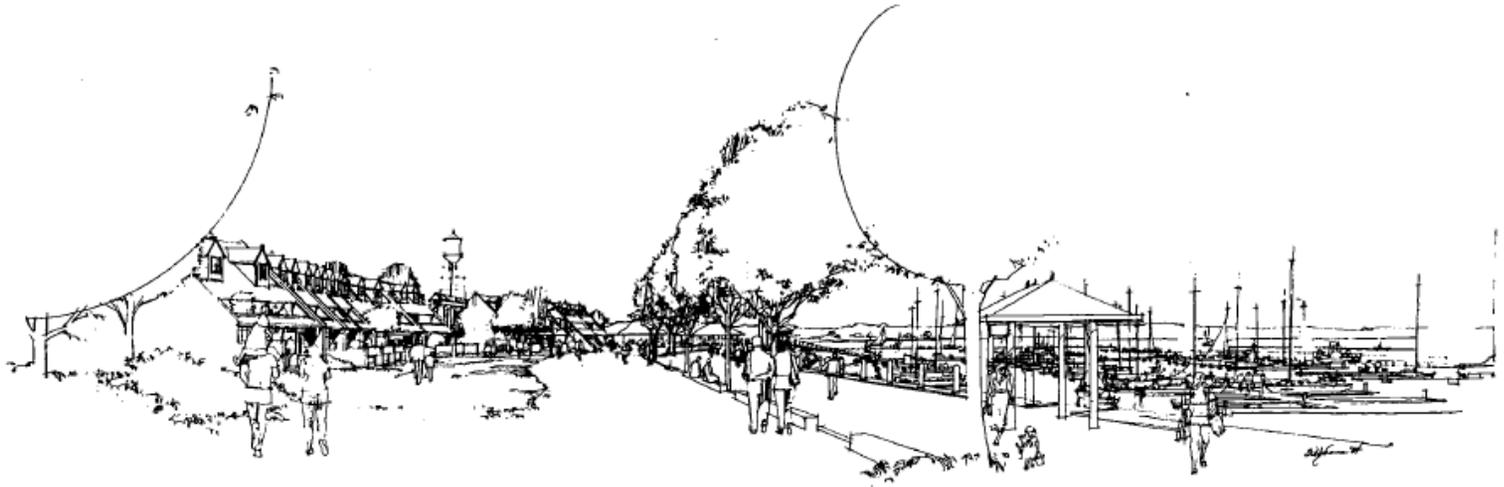


Character Sketch of Wharf Area

Historic buildings on the wharf will have minor modifications to the exterior.

Resort Village Condominiums

These units are located in the Resort Village and front on the shoreline corridor, forming a village-like edge to the waterfront. These units may exploit a wider range of materials and colors due to their relationship to the marina. In this zone there now exists the use of stone, concrete and timber. This palette should be maintained and reinforced. Outdoor private space should be delineated clearly. Parking for these units' residents can be provided underground, with adequate on-street visitor parking to meet City of Blaine code requirements.



CHARACTER SKETCH OF MARINA WALK

Piers & Wharves

These structures are among the most important on the Spit. They give the essential "working waterfront" character to the Spit. These will be repaired where required and preserved as they are. If economically feasible they will be renovated and repurposed to include meeting, event and food service space. Some public amenities will be integrated such as lighting, seating, interpretative displays and planters, but essentially their character will remain unchanged.

In areas at the Spit tip where piers and wharves were actively used over the years but have not been preserved or are not structurally or economically feasible to preserve in their current configuration, encourage renovation or expansion of pier or wharf structures that allow for marine vessel mooring and other associated activities consistent with a working waterfront character.

Commercial Buildings

Commercial/retail uses will be in both new and renovated buildings. A majority of these new buildings could have housing above the commercial uses. New commercial structures will reflect the overall simple forms of the existing cannery buildings with the added detail and appropriately scaled elements reflecting the pedestrian scaled retail atmosphere of the Resort Village.

6. Historical Treatment / Archeological Monitoring

The tip of the Spit has a rich heritage as a major canning center. Development on the Spit recognizes this heritage. Many of the original APA buildings were incorporated into the hotel construction in the late 1980's. Remaining historic buildings on the Spit will be saved and rehabilitated wherever feasible. Many architectural features reminiscent of the APA period were incorporated into the hotel design and will be considered for use in the final development of the Spit properties.

The wooden structures referred to as Warehouse 6 and 8 have exceptional historic value. Future rehabilitation and improvements will be consistent to the greatest degree possible with Secretary of Interior Standards. Historic structures are encouraged to be listed in the state and national historic registers. A special review of plans to assure their consistency will be made during the P.U.D. or building permit process.

Interpretive signage will be an integral part of the Resort Village and will be implemented concurrent to each development phase.

An iconic representation of the ways including skids, track, and dolly may be incorporated into a historical display as part of the Spit tip park open space area.

If the water tower or other historic structures are determined to be structurally unsafe and financially unfeasible for restoration, appropriate historical documentation will be completed according to City and State standards, prior to removal.

Areas on the Spit tip should be noted as historic points of interest with signage, displays or iconic representations.

Parking for these units will be in lots directly associated with the cluster. These will be landscaped in accordance with the landscape guidelines.

Marina Clusters

These units front on the Marina Promenade, forming a village-like edge to this man-made waterfront. These units may exploit a wider range of materials and colors due to their relation to the marina. In this zone there exists now the use of stone, concrete and timber. This palette should be maintained and reinforced. Outdoor private space should be delineated clearly. Parking will be in landscaped lots associated with the units.

Harbor Clusters

Immediately south of the Marina Clusters, these units occupy a natural dunes area similar to the Beach Cluster zone. Although the density of the harbor clusters is somewhat higher, the principles outlined for Beach Clusters do apply here. Again, natural colors, articulation of massing and integration with the natural ground plane are important. Parking for these units will be shielded by berms and landscaping.

Lighthouse Square Residences

These units are located in the Spit Tip District, sharing directly in the mix of uses and activities of the commercial zone. While some of these will be overshop units, others may be a townhouse type. In any case, attention must be given to establishing a sense of private entry for the units. While this may be a shared

entry among groups of units, it must be perceived as residential in character. Attention must also be given to ensuring views from each unit.

Parking will be within short walking distance with short-term parking and drop-off areas at each building.

Semiahmoo Inn

The Inn occupies a pivotal site on the spit. On the west, it faces the beach and Boundary Bay; to the north are the APA buildings and wharfs; to the east is the athletic center and village green. The Inn should relate clearly and forcefully to each of these elements, linking them to the overall plan concept of the spit. The Inn must possess a strength of character to address the large volume of the renovated athletic center and the sweeping beach and ocean vistas. Additionally, it must form a distinct edge to Village Green, enclosing and protecting this cultivated space from the more exposed environment of the beach. This can be achieved with large, bold massing similar to the existing APA buildings. The addition of dormers and indented balconies will soften the elevations and add texture.

Elements on the roof such as skylights, ventilators, and chimneys may also be used to add detail to the ridge line. At the ground level, multi-pane glazing, trim details, and other small-scale textural devices should be used in keeping with the workman-like nature of the existing structures.



CHARACTER SKETCH OF MARINA WALK

Athletic Center

The Athletic Center will occupy two of the largest existing buildings on the spit. Care should be taken that the character of these structures is retained as they are visible from almost all points of the spit development. The shape of the building shell should remain quite undisturbed in its overall mass. Entrances and additional fenestration should be industrial in character and be sensitive to the strict rhythm of existing structure and openings. Warm and vibrant colors can contrast with the large planes of neutral exterior wall to emphasize new construction and openings. A certain level of transparency would also be desirable at several locations in order to maintain a connection between indoor and outdoor public use.

Piers & Wharves

These structures are among the most important on the spit. They give the essential "working waterfront" character to the spit. These will be repaired where required and preserved as they are. Some public amenities may be integrated such as lighting, seating, and planters, but essentially their character will remain unchanged.

Commercial Buildings

Commercial/retail uses will be in both new and renovated buildings. The majority of these buildings will have housing above the commercial uses. New commercial structures will reflect the overall simple forms of the existing cannery buildings with the added detail and appropriately scaled elements reflecting the pedestrian scaled retail atmosphere of Lighthouse Square.

6. Historical Treatment/Archeological Monitoring

The tip of the Spit has a rich heritage as a major canning center. Development plans for Lighthouse Square recognize this heritage and utilize it to the fullest extent possible.

Most of the existing buildings will be saved and rehabilitated. Many design features will even recreate the original materials and details of the older structures. As a general policy, the Secretary of the Interior's guidelines for rehabilitation will be followed. Application for State and National historic registries involve many financial and logistical trade-offs. It is our current intention, however, to apply for historic district status at some time during the development process.

The wooden structure referred to as Warehouse 6 has exceptional historic value. Rehabilitation and improvements will be consistent with Secretary of Interior Standards. A special review of plans to assure their consistency will be made during the P.U.D. or building permit process.

Interpretive signage will be an integral part of Lighthouse Square and will be implemented concurrent to each development phase. As an overall design goal, we hope to instill a feeling for the history of Semiahmoo's economic and cultural past with each visitor to the area.

The developer will work with the Whatcom County Park department to develop a historical display at the tip of the spit.

The developer will participate with the City in the installation of entry signs in the CBD, Peace Portal, and Bell Road and other points as identified.

A portion of the ways including skids, track, and dolly will be incorporated into a historical display as part of the open space adjacent to Lighthouse Square.

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**VI. LANDSCAPE DEVELOPMENT,
PARKS AND OPEN SPACE**

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VI. THE LANDSCAPE OF SEMIAHMOO

The Semiahmoo Planned Resort Community consists of three distinct landscape types: The Uplands, The Spit and The Tidelands. In this section, the Uplands are addressed first, followed by the Spit. No development of any type is planned for the Tidelands; therefore this area is not specifically discussed here. Concluding this section is a description of and guidelines for the proposed pedestrian and bicycle circulation system. Plant lists and specific recommendations for vegetation management can be found in Appendix A.

A. LANDSCAPE PLAN - THE UPLANDS

1. The Present Landscape

The present landscape of the uplands area is characterized by two predominant features - a steep bluff along the water's edge, and a dense evergreen/deciduous forest on the upland plateau. A narrow beach runs along the base of the bluff, in some areas only exposed at low tide.

The upland forest is typical of northwest coastal forest environments. Douglas fir, madrone, big leaf maple, vine maple and alder create a dense forest canopy; a lush understory of salal, blackberries and ferns thrives below. Recent clearing for the golf course is the only openings within the forest environment.

The present wildlife population is similar to other lowland forests in the northwest. Of note is a bald eagle nest which has been spotted approximately 400' beyond the southeast boundary of the Uplands community.

Views from the site are restricted by the forest, and from the present roadway there are no views out over Drayton Harbor or to the Semiahmoo Spit. With the gradual development of the resort community, it is expected that a limited number of view corridors will be created. These should not materially change the view of the Uplands from the surrounding community, which will be perceived as a forested hillside with small clearings.

2. Landscape Goals

Preserve and enhance the forest character of the uplands;

Provide a variety of both land and water-oriented recreational opportunities;

Maximize visual and physical access to the water;

Preserve existing view corridors to and from the area and enhance view opportunities within the site;

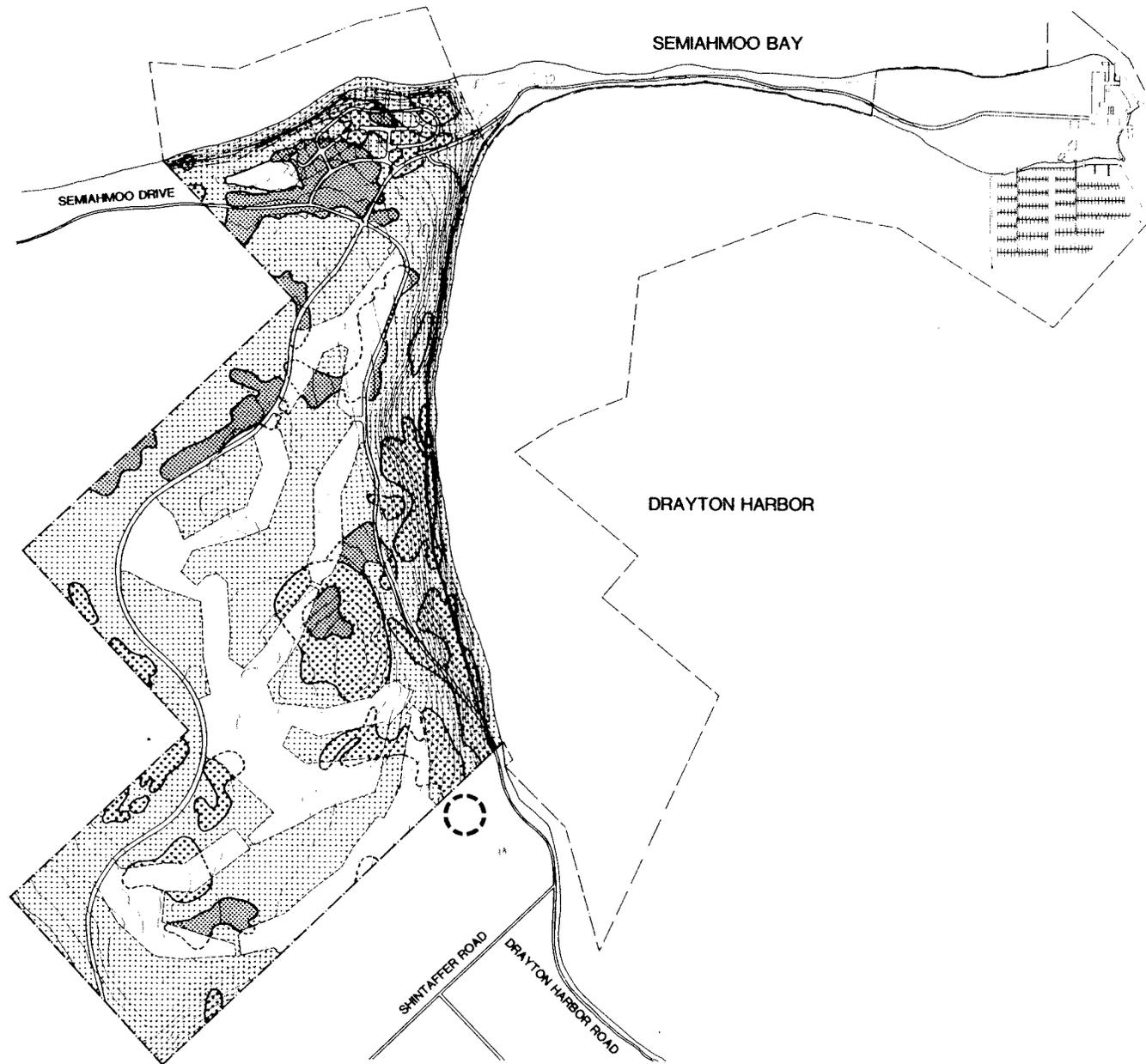
Provide an integrated system of open spaces throughout the development;

Provide a roadway and parking system which is integral with the landscape character of the area and which minimizes both the physical and visual intrusion of the car;

Utilize native and naturalized plant materials to complement and enhance the existing landscape character;

Encourage signing, lighting and other site furnishings in character with the landscape development of the area.

Create a landscape environment which utilizes the highest quality design standards, plantings, construction materials and techniques throughout the project.



SITE CONDITIONS

VEGETATION AND WILDLIFE HABITATS

-  High percentage of Evergreen Conifers
-  Moderate percentage of Evergreen Conifers
-  High percentage of Deciduous Hardwoods
-  Bald Eagle Nest (approximate location)
-  Golf Course

SEMAIHMUO

A PROJECT OF THE SEMIAHMUO COMPANY

HEWITT/DALY/ISLEY
ARCHITECTURE · URBAN DESIGN · PLANNING

HAGMAN-YAW ARCHITECTS, LTD.
ARCHITECTURE

JONGEJAN, GERRARD, MCNEAL
LANDSCAPE ARCHITECTURE

URS ENGINEERS
CIVIL ENGINEERING



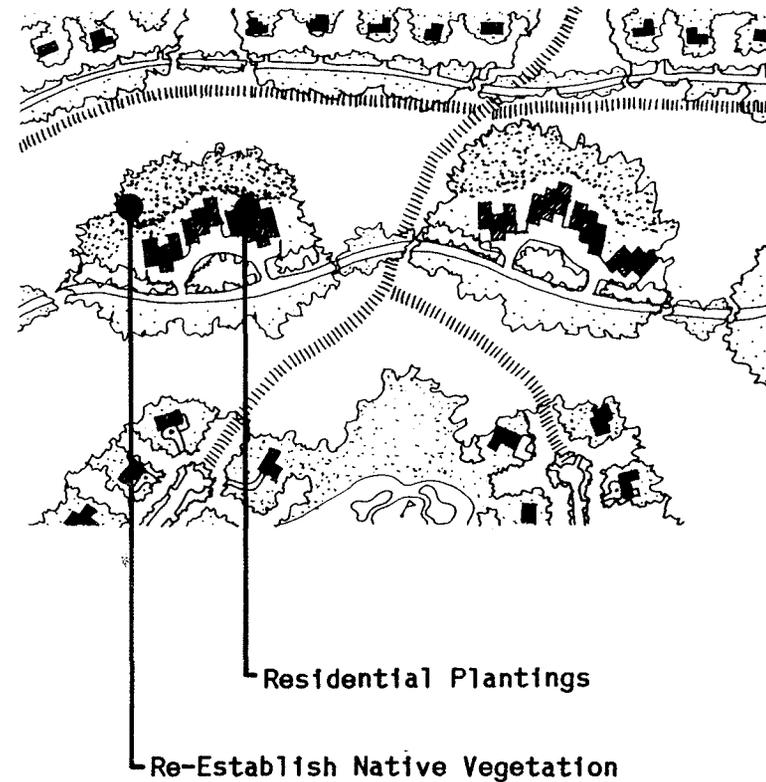
3. LANDSCAPE DEVELOPMENT - THE UPLANDS

The landscape concept for the Uplands recognizes the forest as a major design determinant. A largely informal, naturalistic landscape program has been designed to create the sense of a community nestled into the dense natural forest. The landscape plan incorporates both specific recreational features such as the golf course, the tennis center, neighborhood playgrounds and a trail system, as well as extensive natural preserves. These recreational facilities are distributed throughout the development and are connected by trails and natural preserves to create a continuous open space system.

The natural preserves include large areas where the existing vegetation is to remain intact, undisturbed by the surrounding development. Portions of the bluff and several buffers, retained at the perimeter of the site as well as within the development itself, are to remain as undisturbed, natural forest.

Specific vegetation management guidelines have been developed for these preserves. Selective clearing and thinning of the existing vegetation is outlined as well as revegetation and planting guidelines to ensure a smooth transition between the undisturbed natural areas and the new landscape development. Plant materials in these areas are limited to native and naturalized species.

The golf course, carved from the forest, requires special design consideration in terms of landscape management. A major element in the open space system, it is important that the golf course blend with the natural forest in order to reinforce the overall landscape concept. Native



and naturalized plant species will be reestablished along the golf course fairways to create the effect of a natural meadow and to provide a subtle transition from the manicured greens and fairways to the natural forest.

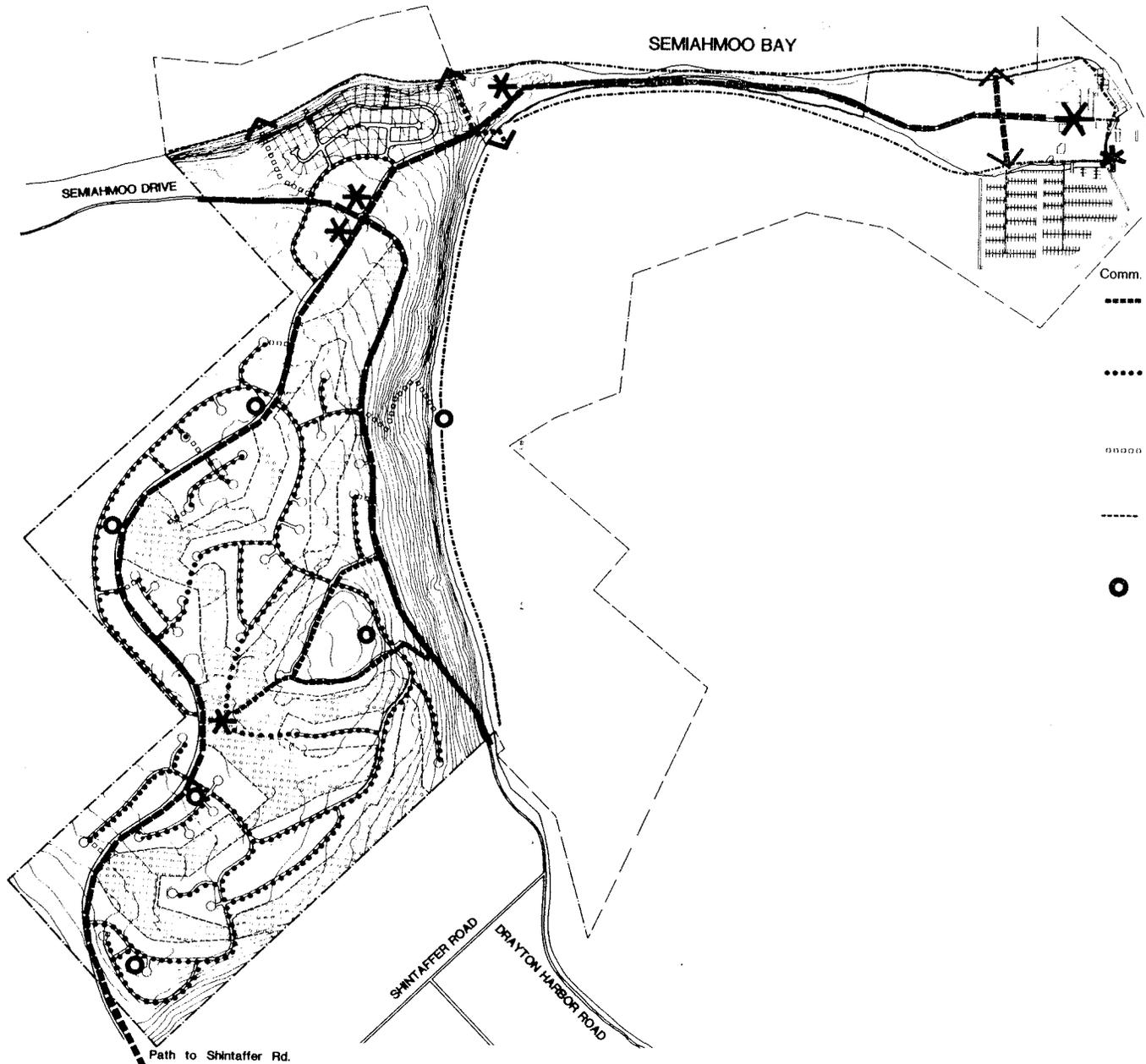
Neighborhood parks and community centers are provided for the Semiahmoo community. These facilities are small-scale (averaging approximately 1.5 acres) and provide close-to-home playgrounds, picnic areas, and other recreational facilities to be enjoyed by the adjacent neighborhood. These family-oriented facilities provide a sense of individuality for the neighborhoods which comprise the larger Uplands community.

Trails are provided for both pedestrian and bicycle circulation throughout the Uplands. The primary paths are designated for use by both the Semiahmoo community and the general public, while the secondary and short-cut paths are reserved for community use. (See the Pedestrian/Bicycle Plan.) The road network is the basis for the trail system. Along Semiahmoo Parkway the right-of-way includes a wide sidewalk which accommodates both pedestrian and bicycle traffic in a comfortable and safe manner. This sidewalk is separated from the roadway itself by a planted area, and is wide enough to provide a separate lane for the bicyclists using the walkway.

The secondary path system consists of a narrower sidewalk which parallels the smaller roadways. Bicyclists would be allowed to ride on either the sidewalk or the roadway in these areas. Crosswalks are marked for bicycle and pedestrian crossing at the key intersections.

This roadway-based trail system is augmented with other pathways throughout the residential neighborhoods. These trails provide access to the various community parks and connect the neighborhoods with the larger trail system, the golf course and other recreational facilities. Trails are also provided for beach access along Drayton Harbor and Semiahmoo Bay.

While part of the open space system is reserved for Semiahmoo community use only-- including the secondary and short-cut trails, and neighborhood recreation centers-- the primary pedestrian/bicycle paths along Drayton Harbor Road and Semiahmoo Drive are open for public use. Several points of public access are provided to both Drayton Harbor and Semiahmoo Bay; the golf course is also considered a major public-use recreational facility for the greater Blaine community.



PEDESTRIAN/ BICYCLE CIRCULATION PLAN

- Comm. Public
- Primary Pedestrian/
Bicycle Path
- Secondary Pedestrian/
Bicycle Path
- Short-cut Path
- Beach/Waterfront
Access
- * Recreation or
Commercial
Destination Point

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LANDSCAPE ARCHITECTURE

URS ENGINEERS
CIVIL ENGINEERING



4. DESIGN GUIDELINES - THE UPLANDS

a. General Concept

The Uplands will be an inwardly focusing community nestled into the mixed evergreen/deciduous forest. The design guidelines will promote informal, naturalistic landscape development in harmony with its northwest forest setting. Special emphasis will be placed on the subtle transition from woodland edge to development clusters and roadways. For example, selective clearing, sensitive grading and the use of primarily native vegetation will be encouraged to unify various developments and to enhance the natural beauty of this site. Within development clusters and individual lots, native species will be used in combination with ornamental plantings. Formal site and landscape design are deemed appropriate only at the commercial and social centers.

The Uplands has been divided into four landscape areas for the purpose of the landscape development guidelines. Development objectives, suggested plant palettes and maintenance practices vary among these areas. The definitions outlined in the design guidelines for the Spit are applicable to all areas of the Uplands. The more specific directives which follow relate to the particular landscape type.

General Guidelines

High Visual Quality: Special care shall be taken to insure that all site and landscape development shall be of the highest visual quality. This applies to both areas which shall be developed naturalistically as well as those in more intensely developed zones.

Integration of Landform and Planting: From the beginning of the design process, slopes, grades and berms should be considered in conjunction with the site development and planting concepts.

Suitability of Plant Materials: A specific plant list (Plant List D) has been developed to meet the specific horticultural conditions and goals of the landscape development in the Uplands area. At least 80% of plant materials used in each of these areas should be selected from this list, which can be found in Appendix A.

b. Definitions

Drifts of planting refers to the massing of one type of plant or plant mixture in an elongated area.

Formal Planting implies the precise, balanced arrangement of trees and shrubs, such as matched rows of street trees or other symmetrical planting schemes. It also includes plantings which are maintained in a formal manner, such as clipped hedges and topiaries.

Informal Planting refers to a more casual planting scheme in which plants are not symmetrically arranged but attractively massed to achieve a naturalistic effect.

Selective Clearing is the careful removal and thinning of certain trees or understorey to bring additional light to the forest floor, create clearings for development or views, and to create a naturalistic forest edge.

Visual Buffer is planting or a combination of planting, berms, low walls or fences which provides a sense of visual separation between adjoining areas or functions.

Visual Screen is planting, berms, walls, fences or a combination thereof that provides a solid, year-around sight barrier.

c. Landscape Zones

(1) Natural Preserves

The natural preserves are areas which are to remain undisturbed or which are to be restored to their natural condition. Included are the beach, the coastal bluff, large forested greenbelt areas and smaller buffer areas within the developed zones. Also included are the edges of all the cleared areas of other development zones, such as the golf course, residential lots and roadways.

Objectives

1. To preserve to the maximum extent possible the forested character of the site.
2. To integrate these natural areas within the overall site development.
3. To protect the beach and coastal bluff areas from disturbance.

Guidelines

1. An area of clearing should be determined for each project, based on program needs. Remaining acreage within the development parcel should be designated to remain as natural forest.
2. Prior to any clearing for construction, the "limits of clearing" shall be clearly defined at the construction site by flagging or a temporary fence.

3. Site development should favor preservation of groups of trees and natural vegetation (25-foot as a minimum dimension, 50-foot desirable) rather than preservation of isolated specimens.

4. Within the area designated to be cleared for development, specimen trees (over one-foot diameter, approximately) and related understory plants are to be saved wherever possible.

5. The edges of cleared areas should be undulated to create a more natural forest edge condition and to allow for transition or "face down" planting. This supplemental planting should be of species which naturally occur at the edge of forest clearings.

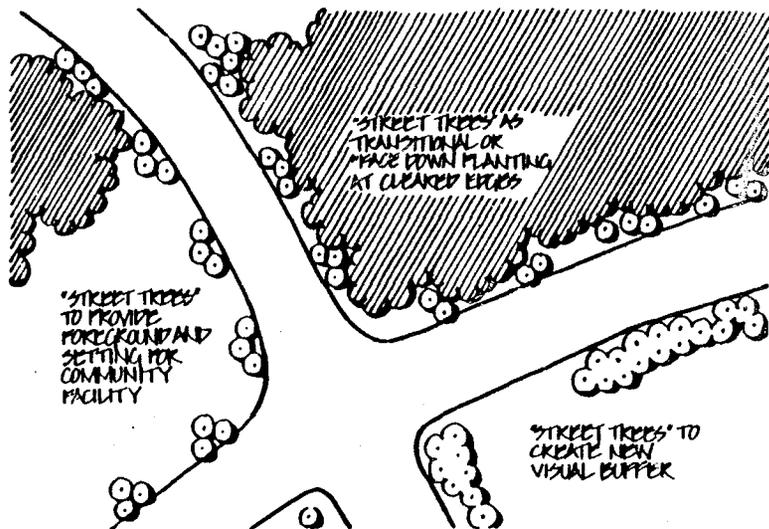
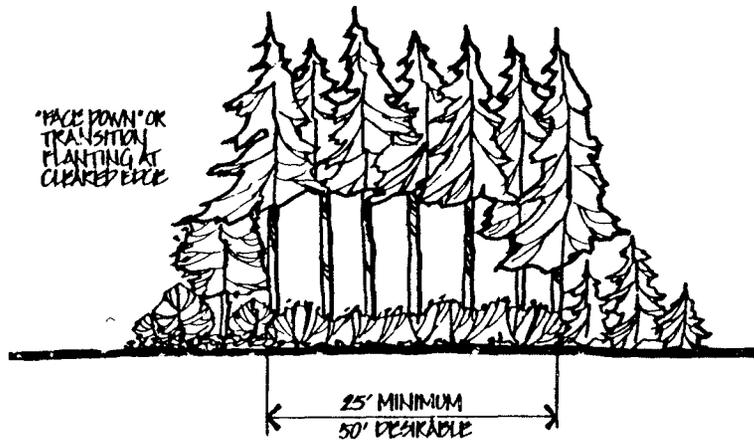
7. Only native plant materials selected from Plant List D should be used in the natural preserves, except in upper beach areas, where materials from Plant List A should be used. See Appendix A.

(2) Circulation Zone

This area encompasses the following areas in the Uplands: areas immediately adjacent to a road; areas which are part of the pedestrian/bicycle circulation system; areas set aside for access to the beach and other recreational facilities; and all parking areas in the development.

Objectives

1. To enhance the travel and arrival experience for the residents and for the visitor to the Uplands community.
2. To provide for safe and efficient circulation for a variety of transportation modes - i.e.



pedestrian and bicycle as well as the automobile.

Guidelines

1. Existing vegetation should be retained as close to the roadway and paths as possible while providing for required visibility at curves and intersections. A naturalistic forest edge along roadways and paths should be achieved by selective clearing, as outlined in "Natural Preserves", Guideline 5 above.

2. Formal, regularly spaced tree plantings should be avoided in favor of informal groupings to supplement and/or enhance existing vegetation. Exceptions to this may be appropriate in close proximity to developed areas.

3. The design of parking areas should take advantage of valuable existing trees and/or vegetation, topographic features and/or other unique natural features that would serve to screen or break-up the expanse of parking. Refer to "Natural Preserves", Guidelines 1 - 5.

4. Visual screens should be provided around parking lots and other service areas, using primarily plantings and berms.

5. All planting in this zone should be selected from Plant List D. See Appendix A.

(3) Recreation Zone

This includes those areas related to both active and passive recreation - the golf course, tennis center, small parks - as well as to those areas related to the day-to-day life of the community as a whole - the schools and shopping areas.

Objectives

1. To create a pleasant, cohesive landscape setting for a variety of recreational activities.
2. To provide a system of recreational facilities and open spaces that can be efficiently maintained.

Guidelines

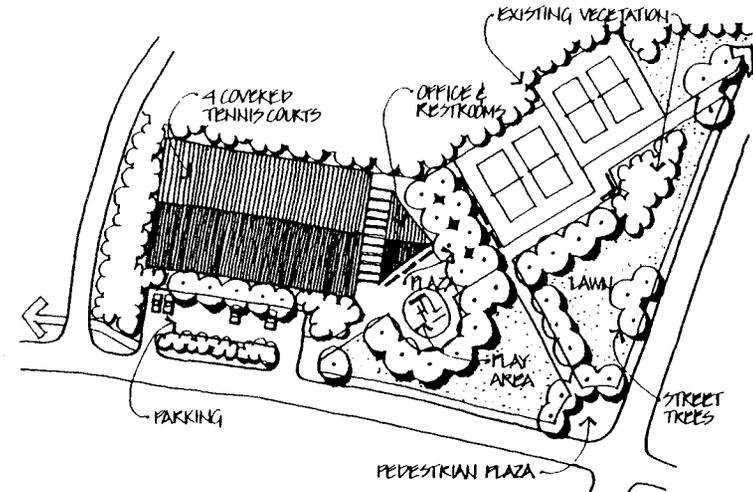
1. Guidelines 1 through 5 of the "Natural Zone" should apply to all development areas in this zone.
2. The predominant groundcover in the public open areas should be well-maintained lawn (irrigated when appropriate), suitable for recreation activity and reminiscent of natural forest meadows. Other plantings should be selected from Plant List D. See Appendix A.
3. Particularly close attention should be devoted to the siting of all buildings as well as to the interior/exterior relationships of buildings to the landscape.

(4) Residential Areas

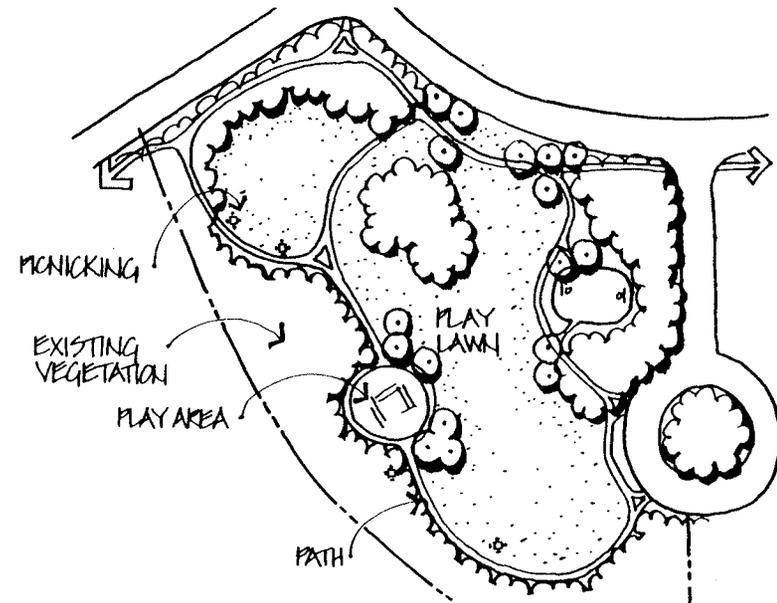
Both single-family and multi-family residential areas of the Uplands community are included in this designation.

Objectives

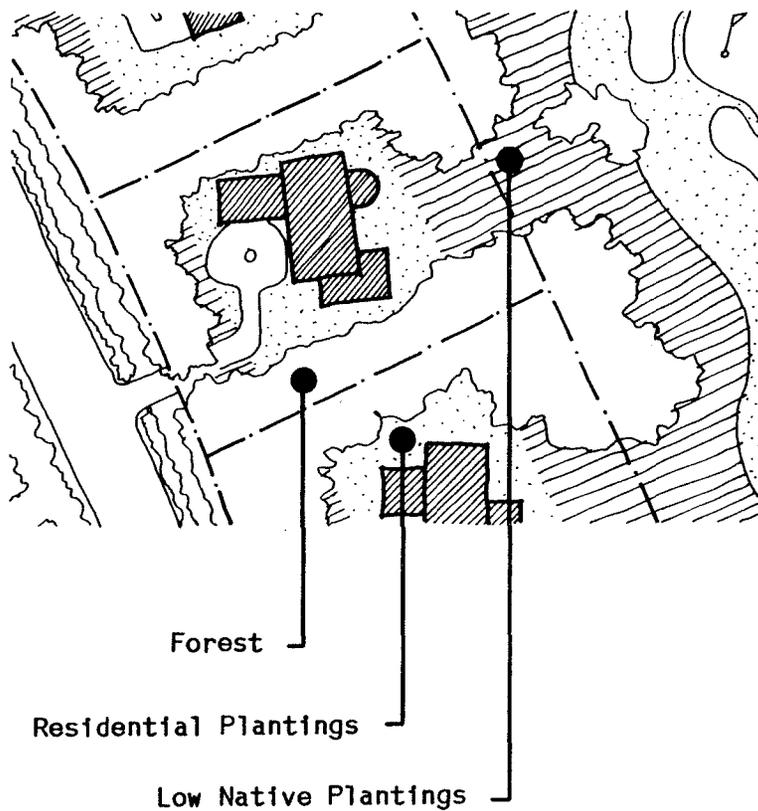
1. To establish a strong landscape character with which residents of the area can identify.
2. To assure preservation and enhancement of the natural environment within these areas of private ownership.



RECREATION AREA PROTOTYPE A



RECREATION AREA PROTOTYPE B



3. To create a hierarchy of residential open space that encourages community pride as well as individual expression.

Guidelines

1. Guidelines 1 - 5 of the "Natural Zone" should apply.

2. A restrained approach to selective thinning, pruning and/or removal of dead wood from existing trees and vegetation should be undertaken in creating views for residential units. Clear-cutting of view corridors should be discouraged.

3. Project designers should be directed to address preservation of existing vegetation as an initial and integral consideration in the design process. Site plans which indicate preservation of existing vegetation should be a mandatory part of the design review process.

4. Landscape plan review should be a standard part of the overall plan review process.

5. A detailed manual which provides homeowners with specific recommendations or directives about landscape development and maintenance within private space should be made available.

6. Plantings for common areas (entries, parking lots, and common open space in the multi-family units) within the residential zone should be selected from Plant List D. This list is also appropriate for single family housing. See Appendix A.

B. Landscape Plan - The Spit

1. The Present Landscape

a. Landscape – Approved projects.

As discussed previously, approximately 32 acres of the 57 acres of the Resort Semiahmoo area on the Spit has been or is in the process of being developed with projects approved under the 1985 Resort Semiahmoo Master Plan. These projects include the Resort Hotel, Beachwalker Condominiums, Marin Condominiums, Seagrass Plat and Phase 1 of the Marina.

Beachwalker Condominiums and the Resort Hotel were developed in the late 1980's. Landscaping for these two projects was installed at the time of development and has matured over the years. The landscape character of these two projects is well established and is consistent with the applicable original landscape plan goals as listed below.

Two of the three buildings that make up the Marin Condominiums are complete. The landscaping plan for this development has been approved and the installation of the landscaping is complete for the first two buildings. The approved landscaping plan for Marin is also consistent with the applicable 1985 landscape design goals of the Master Plan.

Infrastructure construction on the Seagrass Plat has been completed and open space and trail corridor landscaping has been installed pursuant to the approved landscape plan. Future development including landscaping on multifamily tracts and duplex lots is subject to the provisions of the Seagrass Design and Development Guidelines. The Design and Development Guidelines include detailed standards for landscaping.

b. Landscape – Undeveloped areas

In contrast with the enclosed, dense landscape of the Uplands, the remaining undeveloped areas of the Spit are sparsely vegetated. The Spit landform is nearly flat, gently sloping toward the water at either edge. A distinct "line" is created along the beach, where large driftwood logs mark the storm tide line and separate the lower and upper beach area. The western shore is a significant tidelands area; the eastern edge of the Spit has been partially developed with a marina and a promenade along a portion of the shoreline.

The landscape character of the remaining undeveloped area at the Spit tip is distinctly different from the remainder of the Spit. This area was once developed as a fish cannery, now abandoned. Typical of such abandoned marine industrial environments, the area is quite barren, with very little vegetation. Only a few species are able to establish in the harsh, disturbed environment. Dock structures extend from the Spit, and a small sandy beach remains between two segments of the bulkhead.

Views from the Spit are spectacular. To the north, south and east are views of the City of Blaine, Drayton Harbor, Mt. Baker and the Uplands. To the northwest and west are views of White Rock and Semiahmoo Bay. The only areas of the Spit where views are constrained are at the Spit tip, due to the existing buildings. Conversely, the Spit is part of the water views from the City of Blaine, Drayton Harbor and the Uplands.

The present vegetation consists of beach grasses, wildflowers, shrubs and other plants, which are tolerant of the harsh marine environment. There are few trees – other than the trees planted in/around the Resort parking lot.

2. Landscape Goals

- Preserve and enhance the marine character of Semiahmoo Spit;
- Protect environmentally sensitive areas from development and/or intrusion;
- Maximize visual and physical access to the water;
- Preserve existing view corridors to and from the area and enhance view opportunities within the site;
- Provide an integrated system of open spaces throughout the development;
- Provide a roadway and parking system which is integral with the landscape character of the area and which minimizes both the physical and visual intrusion of the car;
- Utilize native and naturalized plant materials to complement and enhance the existing landscape character;
- Encourage signing, lighting and other site furnishings in character with the landscape development of each area;
- Create a landscape environment, which utilizes the highest quality design standards, plantings, construction materials and techniques throughout the project.

3. Landscape Development -The Spit

The landscape development of Semiahmoo Spit celebrates the open littoral beach environment. Throughout large areas of the Spit, the landscape plan is designed to reestablish the upper beach environment. The landscape plan develops a careful transition from this open beach to the more formal plazas of the Resort Village area, resulting in a wide variety of open space within the context of the beach environment.

With the beach and shoreline as the focus of the Resort community, continuous public access has been provided along the water's edge. Opportunities as diverse as a leisurely walk along the beach, shopping and dining within the bustle of the Village, or strolling along the shoreline watching boats come and go, have been incorporated within the public areas. Careful design ensures the compatibility of these public facilities with the adjacent private residences and Hotel development.

In addition to the waterfront areas, the landscape plan provides a network of pathways, which connect the various activity areas to one another and provide for pedestrian and bicycle circulation throughout the Resort Village community. Sidewalks are provided along the roads and meandering paths offered along the shoreline and through the Village and Resort housing areas connecting the north and south shore of the Spit.

The park at the tip of the Spit is an informal open space, designed to provide visual and physical access to the shoreline, Drayton Harbor and Cascade Mountains. The park is a casual public beachfront setting intended for sunbathing, picnicking, and enjoying views.

Landscaping along Semiahmoo Parkway has been designed to create a sequential arrival experience. The visitor passes through a gradual transition in the landscape, from the beach environment with low berms, undulating forms, native dune grasses and sparse beach vegetation, to more formalized plantings as the road approaches the Resort Hotel and Resort Village area. The initial "arrival" to the Resort Village is announced with a subtle sense of enclosure, a contrast from the low, open landscape of the road through the residential areas.

The dominant landscape vegetation on the Spit will continue to be native and naturalized plant materials such as shore pines, dune grasses and wildflowers. Approaching the Resort Hotel and commercial area, the naturalistic dune vegetation gives way to distinct drifts of wildflowers and informal groupings of trees, and finally to select deciduous street trees and the more formal open space areas and landscaping of the Resort Village.

The Resort Hotel environs are developed with a somewhat more formal character than the other open spaces. While respectful of the beach setting, a more manicured landscape is desirable at the Hotel entry, with ornamental plantings designed to create a sense of elegance yet still reflect the cultural & industrial history of the Spit.

The Village commercial core area is also distinct from the naturalistic beach character. Here, the landscape is more urban, with courtyard and plaza spaces as well as plantings. The structured shorelines, including the docks at the Spit tip and the riprap along the marina, are linked to create a linear landscape, oriented to the water. Benches and seating walls run parallel to the water's edge to reinforce the linear quality of the public shoreline corridor. Plantings are strategic with care taken to avoid obstructing views from adjacent areas.

The beach environment also creates a unique landscape for residential development. The landscape

design of the residential areas minimizes the disruption of the open beach environment yet provides for private outdoor space for the individual units. More ornamental planting and landscape design is provided in the entry courts and the Hotel parking lot.

The Resort Hotel parking lot and service areas are designed to maintain the quality of the beach environment to the maximum extent feasible. The Resort Hotel parking areas are screened from view through the use of plantings and low berms.

4. DESIGN GUIDELINES -THE SPIT

a. General Concept

Landscape development on the Spit will be carefully controlled to achieve a subtle transformation from the naturalistic Spit environment to a more formal, sophisticated fabric of urban open spaces, plazas and waterfront promenades at the hotel/commercial complex.

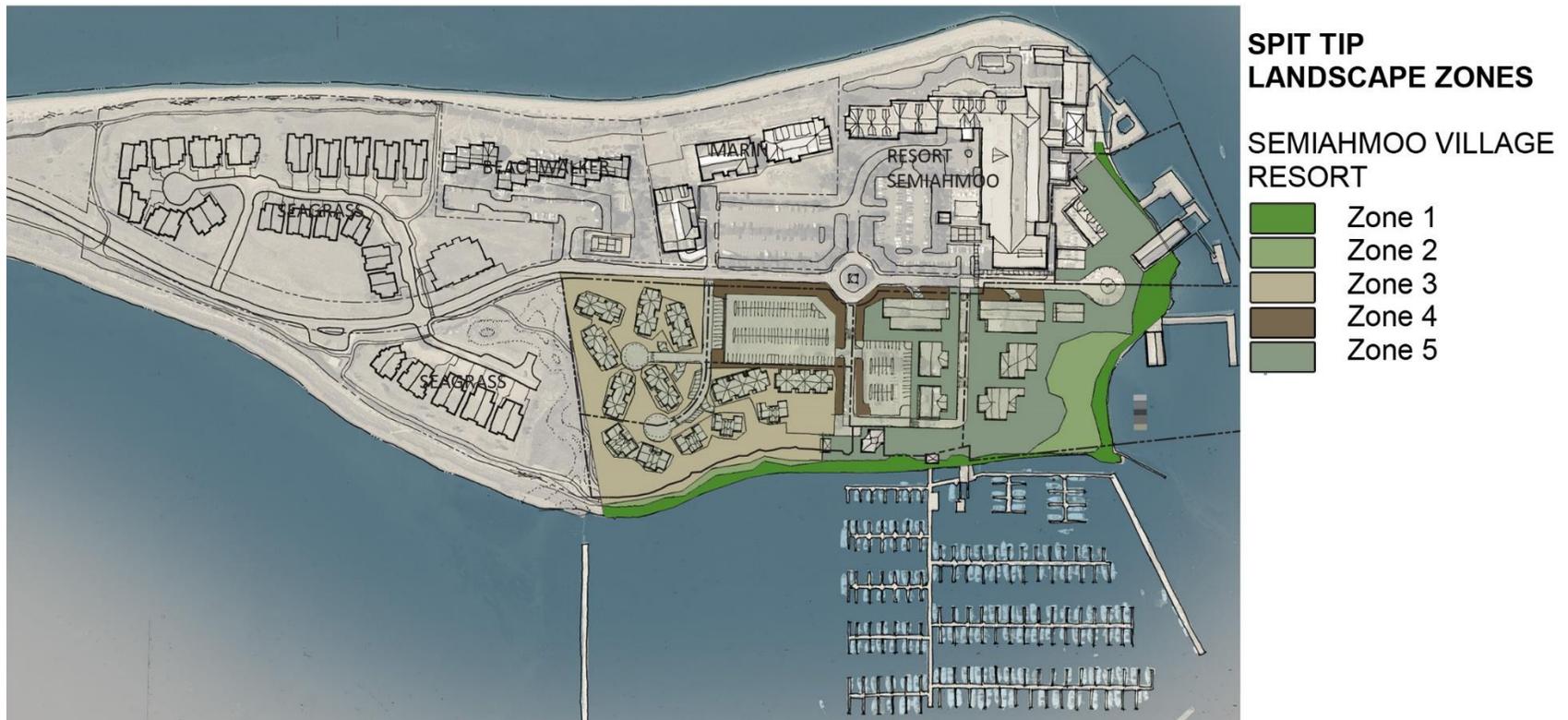
The Spit has been divided into a number of landscape zones on the basis of natural systems, proposed land use type and intensity. See the Spit Tip Landscape Plan on page 6.19. Development objectives, suggested plant palettes and maintenance practices vary among these landscape zones. The general guidelines and definitions are applicable to all areas of the Spit. More specific directives, which follow, relate to specific landscape zones.

b. General Guidelines

High Visual Quality: Special care shall be taken to assure that all site and landscape development shall be of the highest visual quality. This applies to areas which shall be developed naturalistically, as well as those in more intensely developed zones.

Integration of Landform and Planting: From the beginning of the design process, slopes, grades and berms should be considered in conjunction with the site development and planting concepts.

Suitability of Plant Materials: Three specific Plant Lists have been devised to meet the specific horticultural and visual requirements of the various landscape components on the Spit. For visual continuity, at least 80% of the plant materials used should be selected from the appropriate plant list. See Appendix A 2014 update.



Additional species may be added to Plant Lists B and C provided they can withstand the harsh climatic conditions. Plant List A

contains specialized species, which have adapted to coastal dunes and should be considered complete. Plant list A was

enhanced for the Seagrass project and is provided as Appendix A 2014 update.

During the preparation of detailed planting plans, additional research should be conducted on all proposed plant materials to ascertain other pertinent information regarding horticultural or design considerations.

c. Definitions

Drifts of Planting refers to the massing of one type of plant or one planting mixture in an elongated shaped area.

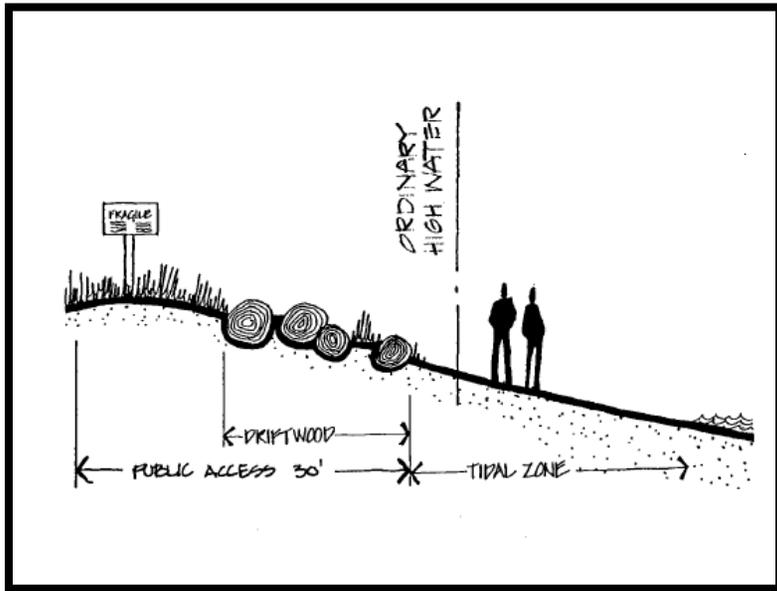
Formal Planting implies the precise, balanced arrangement of trees and shrubs, such as matched rows of street trees or other symmetrical planting schemes. It also includes plantings which are maintained in a formal manner, such as clipped hedges.

Informal Planting refers to a more casual planting scheme in which plants are not symmetrically arranged but attractively massed to achieve a naturalistic effect.

Seasonal Color Plantings include annual, perennial and bulb-type plantings which are used in visually prominent areas to provide seasonal color and interest.

Visual Buffer is planting or a combination of planting, berms, and low walls/fences which provides a sense of visual separation between adjoining areas or functions.

Visual Screen is planting, berms, walls, fences or a combination thereof that provides a solid, year around sight barrier.



d. Landscape Zones – Beachwalker, Seagrass and Marin

Lower Beach and Tidelands

This area runs from the tidelands to just above the line of driftwood logs, which is the upper tide limits. It receives constant winds and strong salt spray. The generally sandy substrate has not been covered by dredged spoils.

Objectives

1. To maintain/restore and enhance the natural character of this fragile environment.

Guidelines

1. In most areas, natural processes will maintain the ruggedly beautiful shoreline. However, the vegetation, which is clustered along the driftwood line and dominated by dune wild rye, saltbush, gumweed and peppergrass, cannot take much foot traffic and may be damaged by excessive use. Therefore, beach walking and other activities should be channeled into the tidal zone below the vegetative line. It is recommended that signs or interpretive displays explaining the fragile nature of this environment be posted at key points of public beach access.
2. In visually critical areas, such as adjacent to the Hotel, restoration of the shoreline may be undertaken to quickly achieve a natural appearance. Existing harmful "weedy" species, such as poison hemlock, horsetweed and mullein should be hand pulled. Seeds of the desirable native species listed in Guidelines #1, above, should be collected and sown.

Upper Beach

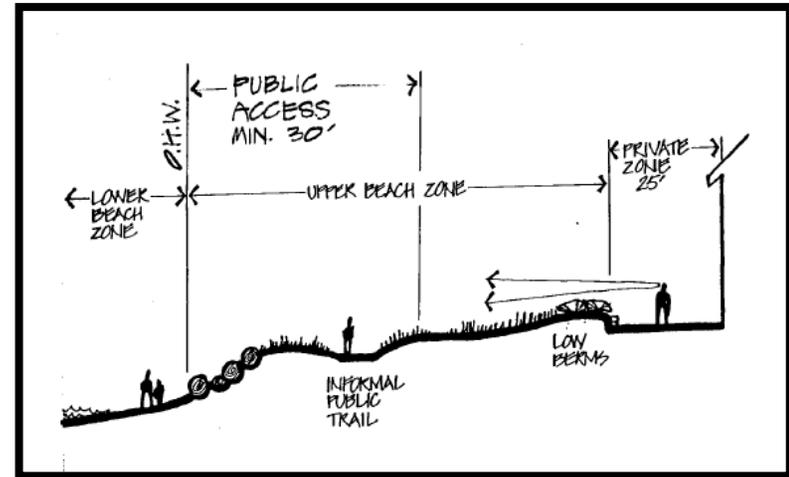
The Upper Beach Zone generally includes the area between the Lower Beach and the waterfront side of buildings or their private open spaces. Most of this area has been highly disturbed with the loading of dredged spoils. Soils are rocky and low in fertility. Vegetation is subject to strong winds and receives a moderate amount of salt spray. This zone presents a landscape management challenge on the Spit.

Objectives

1. To restore this area to a more natural condition, including a naturalistic, gentle landform and a stable vegetative community dominated by native species.
2. To manage the existing vegetation, slowly obtaining a more nutritious soil capable of supporting a diverse, stable plant community.
3. To minimize active use of this fragile environment by controlling beach access, avoiding active recreational use of the area, and educating users by way of interpretive signing at main access points.

Guidelines

1. Grade or add fill to create a gently rolling landform of shallow rolling dunes which generally parallel the shoreline. New dredge spoils should not be used for this purpose but any new fill should have similar soil texture. Avoid excessive damage to the surrounding area and vegetation.
2. Begin a maintenance program to slowly improve soil fertility while reducing the quantities of visually jarring and toxic weeds. Plant, desirable native and naturalized herbaceous vegetation, along the roadways and other disturbed areas. See Plant List A in Appendix A 2014 update for greater detail of planting and maintenance in this special environment.



Landscape Zones – Semiahmoo Resort Village

The Resort Village includes about 16 acres of undeveloped uplands at the tip of Semiahmoo Spit. The landscape objective and guidelines for the 16 acre Resort Village area are set forth below.

Objective

Use plant types and groupings to create landscape settings similar to those that might be found naturally occurring on a marine shoreline and spit. Plantings should be used judiciously to frame outdoor spaces, protect natural landscape processes, screen manmade elements such as driveways and garage ramps, provide a natural buffer between public and private spaces, and provide shade and wind protection.

Guidelines

Semiahmoo Resort Village has been divided into landscape zones to achieve the objective described above. The particular landscape theme and objective for each of these zones is described more fully below. Plants should be selected from the plant list included as Appendix A 2014 update of the Resort Semiahmoo Master Plan to maintain continuity with type of landscape plantings used elsewhere on the Spit. The Spit presents a relatively harsh environment for plants as evidenced by the relatively small variety of plant species that have colonized the undisturbed areas of Semiahmoo Park. In order to increase the range of northwest native plant species and provide grass in parks, some irrigation may be required.

Planting techniques such as the use of mulch and topsoil and grouping plants by their irrigation need can help reduce the amount of irrigation required.

Design and Development Guidelines should be prepared to include landscaping guidelines and plant lists that are consistent with the description of each landscape zone as set

forth in this Master Plan. Construction site plans for all development in the Resort Village should include a detailed landscape plan based on the standards of the landscape zone or zones established in the design guidelines.

ZONE 1

This area runs from the edge of the tidelands to the 30' shoreline setback. The tidelands receive constant winds and strong salt spray and the generally sandy substrate has not been covered by dredged spoils. This zone also includes the 30' public access zone and trail which receives moderate wind and salt spray, and is mainly located on top of dredged spoils.

Objective

1. To maintain / restore and enhance the natural character of this fragile environment.
2. To provide public access to the shoreline.
3. To develop an exciting transition to the urban waterfront character at the marina and commercial zones.

Guidelines

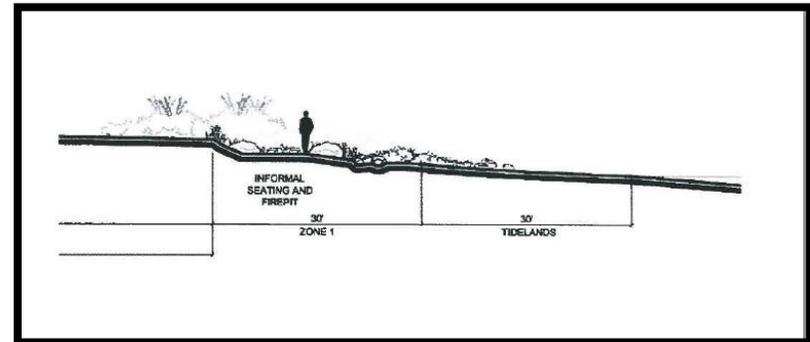
1. In most tideland areas, natural processes will maintain the ruggedly beautiful shoreline. However, the vegetation, which is clustered along the driftwood line and dominated by dune wild rye, saltbush, gumweed, and peppergrass, cannot take much foot traffic and may be damaged by excessive use. Therefore, beach walking and other activities should be channeled into the tidal zone below the vegetative line. Signs or interpretive displays explaining the fragile nature of the environment should be posted at key points of public beach access.

In visually critical areas, such as adjacent to the Resort Hotel, restoration of the shoreline may be undertaken to quickly achieve a natural appearance. Existing harmful "weedy" species, such as poison hemlock, horseweed, and mullein should be hand pulled. Seeds of the desirable native species listed in Guideline #1 above should be collected and sown.

2. Care should be taken to create gently rolling "dune" landforms, driftwood assemblages and appropriate native shoreline plantings. Vegetation should not impact views to the water from the public access trails or residential units beyond.

3. Tree plantings should generally not be found within this zone. However, very limited groupings of hearty coastal species such as shore pine are acceptable.

4. Where intertidal slopes are gentle and suitable for public access and water-oriented recreation, developers should coordinate with the City to provide formal public access rights to the intertidal area as part of the PUD approval and development process, except where overwater structures or other uses preclude reasonable access.



ZONE 2

Zone 2 generally includes the area from the 30' shoreline setback to the 90' shoreline setback. This zone receives moderate wind and salt spray, and is mainly located on top of dredged spoils. Soils are rocky and low in fertility.

Objective

1. To maintain, restore and enhance the natural character of this fragile environment.
2. To provide specific active-use areas for community residents and visitors using environmentally responsible plantings and land design.
3. To develop a transition buffer from the private residential units to the public access trail.

Guidelines

1. Grade or add fill to create a gently rolling landform of shallow rolling dunes which generally parallel the shoreline. New dredge spoils should not be used for this purpose but any new fill should have similar soil texture. Avoid excessive damage to the surrounding area and vegetation.
2. Planting should consist of continuous groundcover and shrubs organized into large massings. Plants should be selected from those in Plant List C, with particular attention paid to tolerance of winds and occasional salt spray.
3. The public park located at the easternmost point of the spit should provide a highlight within Zone 2. This park will provide residents and the public with direct connection to the water's

edge and views toward Mt. Baker and Downtown Blaine. The park will provide a variety of seating options as well as various wind breaks.

4. Begin a maintenance program to slowly improve soil fertility while reducing the quantities of visually jarring and toxic weeds. Plant desirable native and naturalized herbaceous vegetation along the roadways and other disturbed areas. See Plant List A in Appendix A 2014 update for greater detail of planting and maintenance in this special environment.

5. Turf will be permitted in selective areas within Zone 2 as illustrated on the Landscape Plan.



ZONE 3

Zone 3 is the area landward of the 90' shoreline setback as illustrated on the Landscape Zones Diagram. Due to its inland location, Zone 3 provides open spaces that are somewhat protected from the wind and water elements that dominate the beach and other perimeter areas. The soils have been disturbed with the loading of dredged soils and are generally rocky and of low fertility. Zone 3 design elements include but are not limited to resident open spaces, private patio's, terraces, courts, hotel amenities, public and resident trails and viewing spaces.

Objective

1. To provide an appropriate transition between private residential space and community areas.
2. To provide sophisticated outdoor hotel and residential amenities for a variety of users which maximize water views and views to the City of Blaine.
3. To provide easy, safe and pleasant pedestrian circulation across the Spit.

Guidelines

1. Interior open spaces should predominantly be grasses suitable for informal recreational activity. Pathways should be scaled appropriately to fit the related use. Materials used for pathways, landscape walls, and all built elements should reflect a high visual quality comparable with other development at Resort Semiahmoo. Plant material should be selected from Plant List B & C.
2. The majority of the open space associated with the Hotel shall be a combination of hardscape and ornamental planting. Turf should be used strategically for flexible event spaces. Plants within this zone should be specimen quality at the time of planting.

3. Special planting consideration should be paid to residential courts and terraces. Shallow rooting shrubs and groundcovers should be utilized and raised planters should be considered for tree material.



ZONE 4

Zone 4 includes the Semiahmoo Parkway access road, and the large portion of surface parking on the Spit. These areas are predominately hardscape material, and comprise the majority of the impervious vehicular surfaces on the Spit. This zone and uses are located within the interior portion of the site to minimize the intrusion of the automobile into the waterfront areas.

Objective

1. To create an isolated entry experience for residents and visitors by using berms to block internal resident spaces.
2. To minimize the visual impact of automobiles within the parking and service areas.
3. To create a pleasant and attractive arrival and parking experience.
4. To treat water run-off from vehicular streets and parking.

Guidelines

1. In order to minimize the visual impact of the parking areas, landscape berms should be placed in between the entry roadway and surface parking lots. Strategically placed shrubs and trees on top of the berm will add greater screening height.
2. Plant material within this zone should be fast growing and with low maintenance requirements in order to provide effective screening as soon as possible. At least 75% of the plant materials selected should be evergreen plants from Plant List B. Open groupings of shore pines or other coniferous trees should be provided, as well as shrub masses of dense, leafy plants. Native groundcovers, wildflowers or grasses should be used to unify the planting areas. Some ornamental plantings should be located in groups to add splashes of color to the entry drive.

3. Surface water from the streets and parking will flow directly into rain gardens. Plant material within these zones should be selected for their water cleansing capabilities.

4. The existing formal street tree planting along Semiahmoo Parkway in front of Marin and the Resort Hotel shall be mirrored on the south side of the Parkway through Zone 4.



ZONE 5

Zone 5 predominantly is centered at the north end of the Spit and is created as a busy, active, pedestrian oriented commercial area. A variety of vehicular and pedestrian courts, streets and plazas are planned as illustrated on the Landscape Plan. Hardscape elements and planting work together to create a dramatic “old town” urban center for the Resort Village. This zone receives moderate wind and salt spray, and is mainly located on top of dredged spoils. Soils are rocky and low in fertility.

Objective

1. To provide areas that accommodate a large number of people and will facilitate pedestrian circulation and shopping activities.
2. To create a “village” atmosphere which recalls the history of the area and enhances the waterfront industrial character of the area.
3. To create a sense of arrival at the commercial center this will lead residents and visitors to various Resort Village destinations.
4. To utilize plant materials and design to treat water run-off from vehicular surfaces.

Guidelines

1. Much of the open space will be hard surfaces consistent with pedestrian use. The quality of detailing and construction should be high.
2. Plant materials should be largely native and/or naturalized plants to enhance the character of the Village. Planting design should utilize plant materials to treat water run-off from vehicular surfaces. All plants should be of specimen quality and should be selected from Plant Lists B & C.

3. This area should be well furnished with benches, kiosks, trash receptacles, bicycle racks, etc. to complement the pedestrian character of the commercial zone.
4. Pergolas, arbors, and covered structures are encouraged in this zone for weather protection and for framing views.



Residential Zone

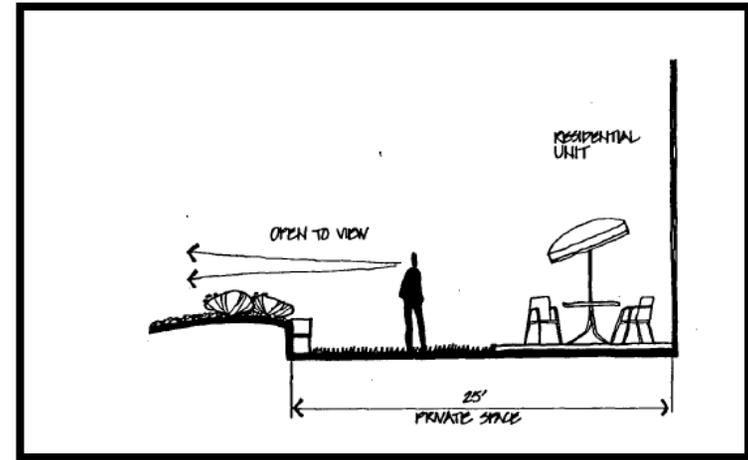
The low-density residential development just north of the entry road is included in this landscape zone.

Objectives

1. To provide an appropriate transition between private residential space and community areas.
2. To preserve and enhance the open, wind-swept character of the beach for the residential units within the beach zone.

Guidelines

1. A subtle definition of private space should be provided at approximately 25 feet from the face of the residential unit. This is to be achieved with a low seat wall of logs (at the beach) or timbers (at the marina) augmented with low berms and plantings.
2. Groupings of large trees and/or shrubs should be avoided on the water side of the residential units. Such plantings would alter the character of the upper beach area and potentially block views to the water from the residences.
3. Landscape plan review should be required as part of the overall plan review process.
4. Plantings for the areas adjacent to the upper beach should be selected from Plant List A.



Pedestrian and Bicycle Circulation System

A. Introduction:

This section of the 2014 Update replaces Section VI.C and VI.D of the 1985 Resort Semiahmoo Master Plan. The pedestrian and bicycle circulation system in Resort Semiahmoo is substantially complete and final plans for the remaining undeveloped section, primarily the waterfront trail on the Spit are also substantially complete. This update reflects both the status of the existing pedestrian and bicycle circulation system and site furnishings.

B. Pedestrian and Bicycle Circulation System Outline

The design guidelines for the pedestrian and bicycle circulation are divided into three sections: general objectives and guidelines which effect the overall site development; specific objectives and guidelines for the Uplands area; and specific objectives and guidelines for the Spit.

General Guidelines

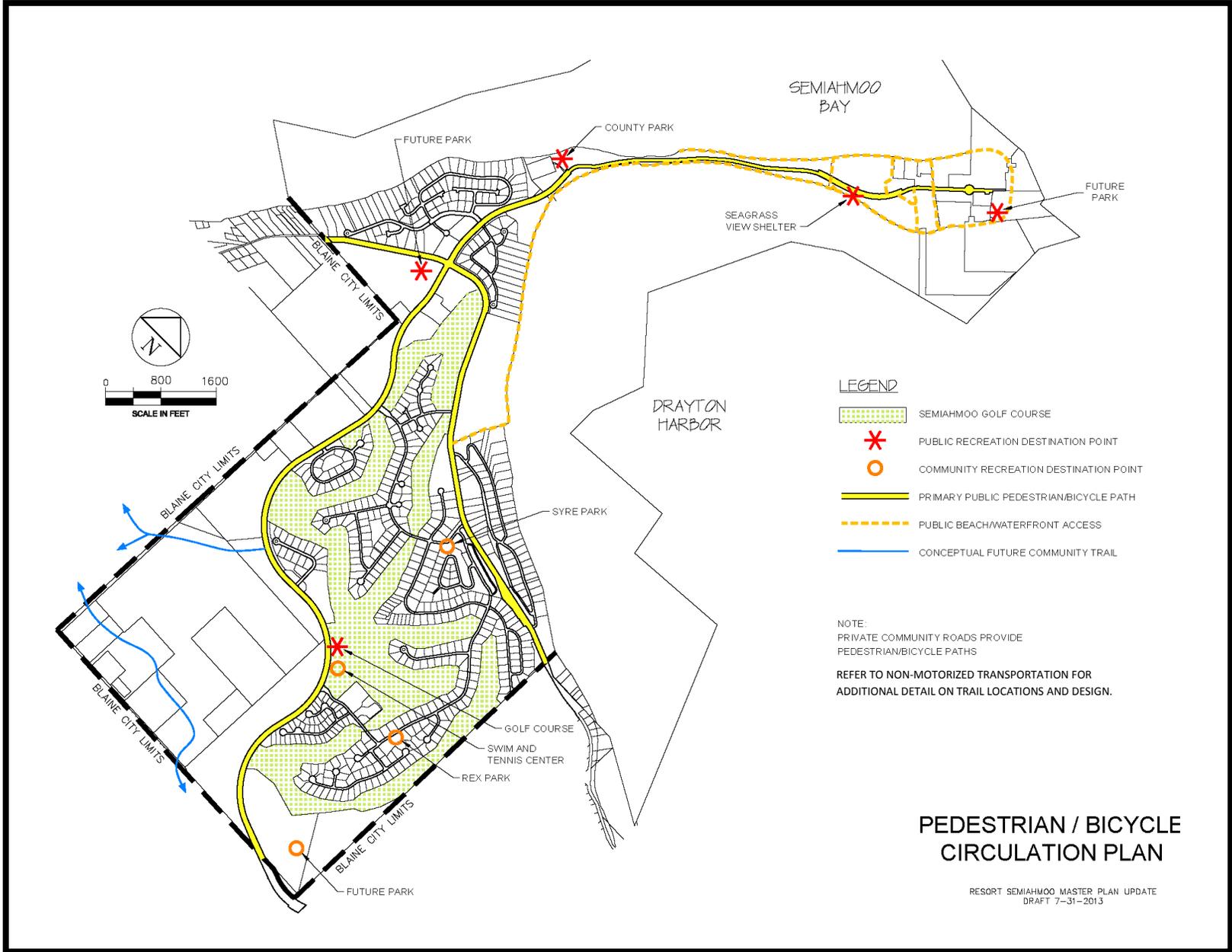
Objectives

1. To encourage and provide safe and efficient on-site alternatives to automobile circulation.
2. To provide attractive and varied opportunities for walking, running, bicycling, and other non-motorized modes as important recreational activities.

3. To strengthen the concept of an overall system of recreational open space by providing physical links throughout the development.

Guidelines

1. Gradients for all elements of the pedestrian/bicycle circulation system should be kept as minimal as possible.
2. All paths should be crowned or pitched for adequate drainage. All primary pedestrian/bicycle paths should be paved.
3. Crosswalks occurring at incidental points along the roadway system should be striped with standard white reflective tape. Textural buttons and proper signing should be provided at appropriate distances to warn drivers they are approaching a designated crosswalk. In the more intensely developed zones, both in the Uplands and the Spit, crosswalks may in some instances, be developed with special paving that will be both compatible with other pedestrian paving and provide a color and textural contrast to the roadway surface.
4. Opportunities for resting (benches, flat rocks, seat walls, etc.) should be provided at a frequent interval on the primary paths.
5. Paths and trails open to the public should be signed as such at trail entrances. Directional and mileage signs should be added where appropriate. Signs should be of high quality and coordinated with the general site signing system.



**PEDESTRIAN / BICYCLE
CIRCULATION PLAN**

RESORT SEMIAHMOO MASTER PLAN UPDATE
DRAFT 7-31-2013

Uplands

The pedestrian/bicycle system serves two functions for the Uplands community. First, the paths and trails link the various recreation facilities and open spaces to create a continuous open space/recreation system. See the Pedestrian/Bicycle Circulation Plan on page 6.31. Second, the paths and trails provide a recreational opportunity in themselves.

Parts of the system also serve the greater Blaine community. The primary pedestrian/bicycle paths along Drayton Harbor Road and Semiahmoo Parkway are open to the public. Other trails not specifically labeled as "Public" on the Pedestrian/Bicycle Circulation Plan are reserved for use by the Resort Semiahmoo community and their guests.

The two types of pedestrian/bicycle paths are outlined below.

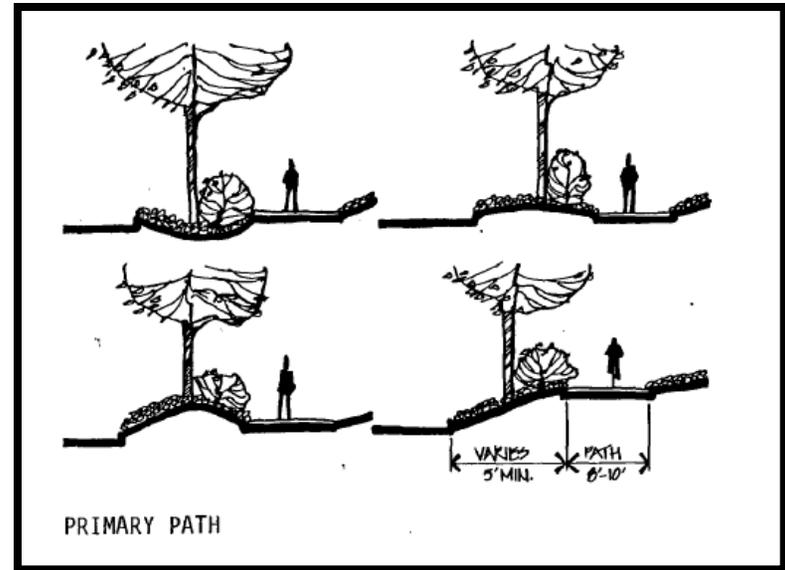
Primary Public Pedestrian/Bicycle Path

This type of path is contained within the roadway right-of-way throughout the development. The path occurs on one side of the road, separated from the roadway by a berm, swale, slope and/or planting.

The primary paths are surfaced, typically with an asphalt concrete. A width of eight to ten feet is considered minimum in order to accommodate both pedestrian and bicycle traffic.

Every attempt should be made to respond to particular topographic and vegetation conditions without interfering with the gradients required for such a major path.

A bicycle/pedestrian path is included within the R.O.W. of the Semiahmoo Parkway and the relocated Drayton Harbor Road.



Private Community Roads & Paths

These pathways are similar to the primary path in that they commonly parallel the roadway network of the site. These paths are narrower, between three feet (minimum) and five feet (desirable). This width is adequate for two pedestrians to walk side by side or to pass one another. It assumes that cyclists, except perhaps, young children, are using the roadway.

The secondary paths are surfaced, either with asphalt concrete or with consecutive layers of crushed rock. The layout of these paths should respond more completely to existing topography and/or vegetation, winding informally through the trees, if appropriate.

The Spit

The pedestrian and bicycle circulation throughout the Spit development is considerably more integral to the recreational activities, and diverse in layout and design than in the Uplands area. Pedestrians and bicyclists are provided with a wide range of opportunities: the public shoreline trail with a hard surface along the marina edge and a soft path along the western edge of the Spit; interior pedestrian pathways that include both public access paths and resident paths; and, corridors that move through the commercial and hotel areas.

Primary Hard Surface Paths

The pedestrian/bicycle path along the entrance road should be similar to the "Primary Path" outlined in the Uplands area. The paths should be eight to ten feet in width and surfaced with asphaltic concrete or other appropriate material. Bicycle riding is allowed only on the primary hard surface paths on the Spit.

Secondary Pedestrian Paths

Other walkways adjacent to roadways, parking areas and interior spaces should provide east/west and north/south connections on the Spit for both the public and resident. Path widths are typically between four and six feet. All secondary paths should be paved with either concrete, asphaltic concrete, crushed rock or other appropriate material depending on location.

Public Shoreline Trail

The Public Shoreline Trail should be located in the 30 foot public trail corridor that encircles the Spit. At some locations, particularly through the park at the tip of the spit, the trail may be located further landward to provide separation between the trail and beach to enhance the shoreline experience. The particular surfacing material and trail width selected should be based on the setting for that portion of the trail.

Bollards

Location: Bollards are recommended where a strong physical and visual separation is desirable between vehicular and pedestrian circulation or to otherwise control vehicles.

Design: Bollard design should be in keeping with the overall design elements of the Spit.

C. Exterior Furnishings

Objectives

1. To provide a variety of non-plant landscape features for visual interest and to serve utilitarian functions including shade, seating, privacy and security.
2. Provide for handicapped accessibility.

Guidelines

Exterior furnishings include such items as benches, gazebos, arbors, trellises, fencing and sculptures. Exterior furnishings should be placed judiciously to serve their purpose whether utilitarian or aesthetic. They should be incorporated into the vegetative landscape in a complementary manner.

Lighting

Objectives

1. To insure that lighting provides general illumination for safety and security.
2. To insure that lighting is used in a manner appropriate and in scale with designated land uses.
3. To minimize energy consumption, light pollution and maintenance/repair costs.

Guidelines

1. General Design Concept: Lighting should reinforce street hierarchy, provide security for pedestrians, and subtly add to the nighttime ambience of Resort Semiahmoo. In general, the beach areas and upper beach zone should not be lighted.
2. Poles at roadways, parking areas, and major pedestrian spaces in the Uplands should be square, laminated wood poles in natural weathered tones. Heights should be appropriate to the land use, i.e. higher along roads and in parking areas, lower in play areas and along paths. Pole fixtures should be simple and rectangular (shoe-box type profile) in dark bronze.
3. Pole lighting is discouraged on the Spit, but will be provided in parking areas and on roadways to the minimum extent necessary for safety considerations.
4. Low intensity, indirect light sources should be used to light paths, patios and entries. Subtle accent lighting on trees or other structural elements are allowed if not visible from off-site. Fixture design should complement the architectural character of the building and surrounding landscape.

5. Lighting should be shielded to avoid light trespass on adjacent properties, beaches and lighting the night sky.

D. Signing

Objectives

1. To effectively communicate necessary information.
2. To establish a high quality visual image for all graphics and signage throughout Resort Semiahmoo and developable areas.
3. To ensure that all information and vehicular control signing (not including standard traffic signing) is coordinated in size, height, color, material and letter styles while allowing some degree of individuality.
4. To ensure that all signs are architecturally integrated with the structures with which they are associated and are compatible and in scale with the surroundings.

Guidelines

1. All signing at Resort Semiahmoo should be approached with restraint to avoid both visual clutter and the confusion that too many signs can create.
2. A coordinated system of signing for identification, directional guidance and information disbursement will be developed.
3. Location and placement of individual signs will be subject to review and approval by the design review committee and/or the City of Blaine as appropriate.

**VII. TRAFFIC AND
TRANSPORTATION**

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VII. Traffic and Transportation

A. Existing Transportation System

The main roadways providing access to Resort Semiahmoo include Semiahmoo Parkway, Semiahmoo Drive and Drayton Harbor Road. Regional transportation routes feeding these three access roads include Birch Bay Drive/Birch Point Road/Semiahmoo Drive; Birch Bay Drive/Shintaffer Road, Bell Road/Blaine Road/Harborview Road/Lincoln Road, Birch Bay-Lynden Road/Harborview Road/Lincoln Road, and Bell Road/Blaine Road/Drayton Harbor Road.

Traffic impact mitigation and a phasing plan are described in Appendix C of the 1985 Resort Semiahmoo Master Plan. The phasing plan was based on a traffic study completed prior to approval of the Resort Semiahmoo Master Plan in 1985. The improvements identified in the proposed phasing plan were improvements that the 1984 traffic study identified would likely be needed in response to both development in Resort Semiahmoo and the increase in background traffic from development elsewhere in the region.

Resort Semiahmoo has developed at a much slower pace and with fewer residential units than was anticipated in the 1984 traffic study. As a consequence, the anticipated level of traffic impacts has not materialized in the years as expected and described in Appendix C of the 1985 Resort Semiahmoo Master Plan. Some off-site road improvements have not been required as originally planned.

The 2014 Update to the Resort Semiahmoo Master Plan includes a transportation impact analysis

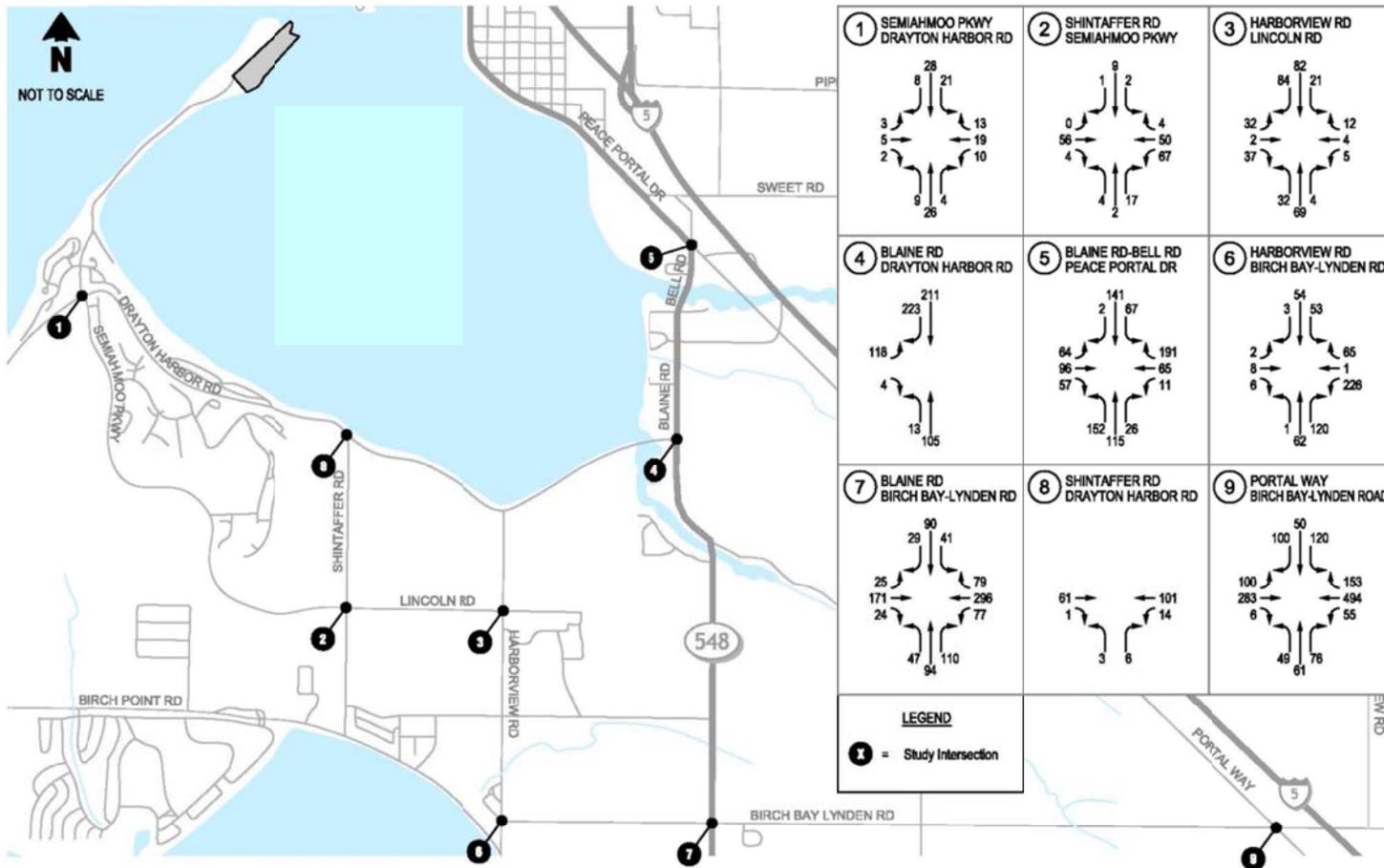
(TIA) to identify potential transportation-related impacts associated with this Update as it identifies potential improvements to the undeveloped properties on the Spit (the Project). The figure on page 7.3 from the TIA shows the 2013 Existing Weekday PM Peak Hour Traffic Volumes on roadways in the vicinity of Resort Semiahmoo.

Overall, the PM peak hour volumes are relatively low and do not exceed the capacity of roadways providing access to the Resort Semiahmoo and regional transportation routes, with the exception of the Birch Bay-Lynden Road/Portal Way intersection, Lincoln Road/Harborview Road intersection, Drayton Harbor Road/Blaine Road intersection, and Peace Portal Drive/Blaine Road intersection. The Semiahmoo Parkway road segment is also identified as being constrained where it passes along the isthmus through the park.

At the current level of development, Resort Semiahmoo traffic is not significantly impacting traffic movement or intersection levels of service in the general vicinity.

A Mitigated Determination of Non-Significance (MDNS) for the Resort Semiahmoo Master Plan – Spit Update 2014 was issued by the Blaine, Washington SEPA Responsible Official on December 9, 2013. Road intersections and segments requiring traffic mitigation are listed in the MDNS, including the processes for determining fair share participation in the mitigation requirements by development contemplated in this Update and for preparing final TIA.

A copy of the Final TIA is included in Appendix E. A copy of the MDNS is included in Appendix F.



2013 Existing Weekday PM Peak Hour Traffic Volumes

Semiahmoo Spit Buildout

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FIGURE

2

B. Planned/Recommended Transportation System

Internal Roadway System

The internal roadway system for Semiahmoo is illustrated on page 7.5. The majority of the road system is private streets maintained by the homeowner's associations. The major traffic elements are public streets maintained by the City of Blaine. The characteristics of the major traffic elements of this system are:

SEMAIHMUO PARKWAY.

This road was constructed in early 1985. It includes 2-12 foot lanes with 8 foot shoulders. An 8 foot paved bike/pedestrian lane is separated from the roadway by a planting strip. Semiahmoo Parkway intersects with Shintaffer Road at Lincoln Road.

RELOCATED DRAYTON HARBOR ROAD.

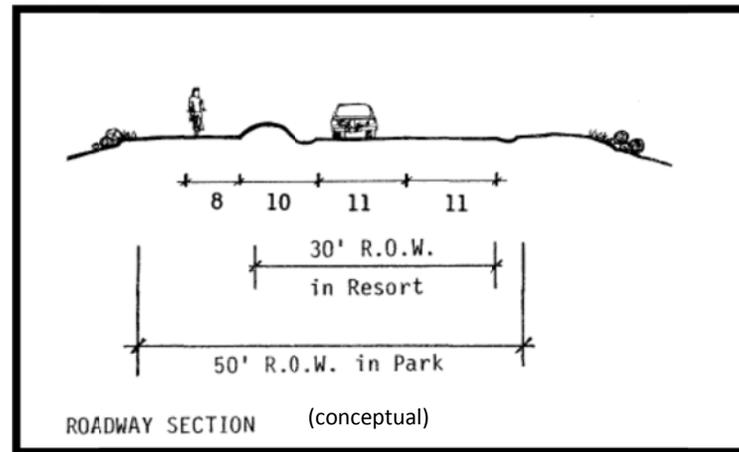
Original access to the Semiahmoo Spit was via Drayton Harbor Road, running along the south edge of the harbor. A replacement for the Drayton Harbor Road has been constructed and the old road bed was converted to a trail. The new roadway provides 2-11 foot lanes with 4 foot shoulders, and an 8 foot bike/pedestrian lane. Projected traffic volumes can be served adequately with Semiahmoo Parkway and the existing road.

ROADWAY SECTION THROUGH COUNTY PARK.

The portion of the old Spit access road through the County Park presents special needs, due to the narrowness of the landform and pedestrian traffic crossing to the beach on either side of the road. The plan calls for a cross section design as indicated by the illustration on this page. Through this section, the design should encourage slower speeds and separation of the pedestrians and bicycles from the vehicular traffic. The design would provide a reduced section, with 2-11 foot lanes

and an 8 foot bike/pedestrian path separated from the roadway by 10 feet and a 3 foot berm. Crosswalks would be striped and designated by bollards.

The City shall coordinate with development on the Spit to ensure the full cross-section is developed wherever feasible. Additionally, because the cross-section is narrower than would usually be developed for the anticipated future traffic volumes, the City may explore options for widening this section.



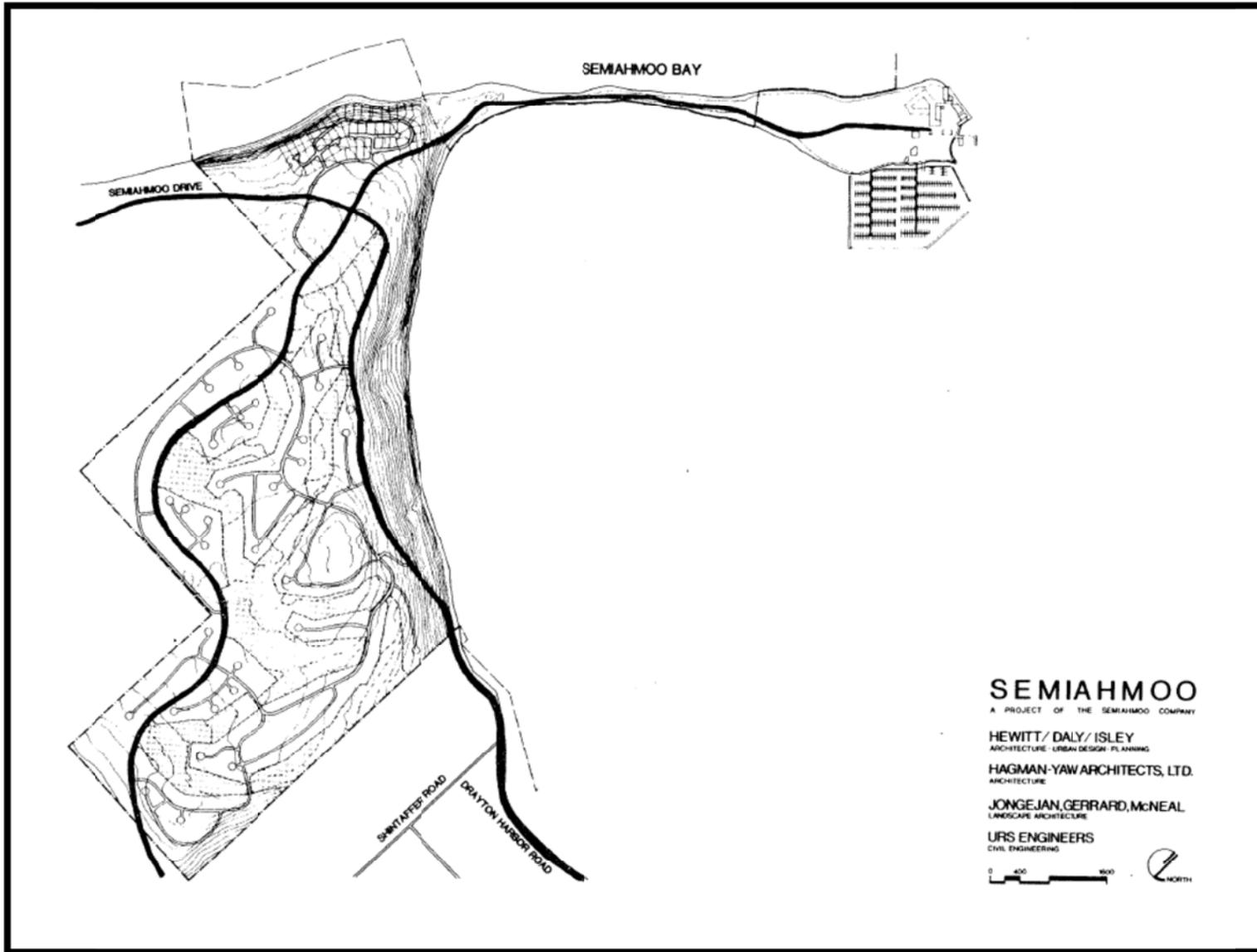
Transit Service

The Resort Semiahmoo Hotel has a shuttle service between the hotel and the golf course clubhouse for guests who wish to play golf. The proposed Project developments are within the service area of the Whatcom Transit Authority (WTA). Resort Semiahmoo contributes a tax of 0.06-percent of all retail sales and construction activities to support WTA. WTA does not have a scheduled route serving the Resort Semiahmoo area because there is insufficient ridership to support bus services at this time. The Resort is in an area served by Dial-a-Ride

bus service. This service is available on Mondays and Thursdays only.

Ferry Service

Excursion passenger ferry service between the tip of the Spit and the Blaine wharf district is available seasonally on Fridays, Saturdays and Sundays between Memorial Day and Labor Day. The ferry operates from a float at the tip of the Spit, which was constructed in 2005. The ramp and float system could serve as the Semiahmoo terminal for future water taxi service between Resort Semiahmoo and the City wharf district as envisioned in the City of Blaine's Wharf District Master Plan.



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VIII. UTILITIES

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VIII. Utilities

A. Existing Conditions

Water

Water service to Semiahmoo Spit is provided by a City of Blaine 14-inch water line which crosses the harbor from Marine Drive.

Pumps located on the Spit near the marina supply water to the Resort Semiahmoo system and boost the water pressure from the mainland's 171 pressure zone to the Spit's 330 pressure zone. These pumps also supply water to the 1 million gallon storage reservoir located in the Semiahmoo Uplands 360 pressure zone.

At one point there was storage capacity issues identified in the 330 zone. The City has since installed a booster pump at the central reservoir at Pump Station 1 that alleviated the storage capacity issue. The City's Water Comprehensive Plan calls for the development of an additional 1 million gallon zone 330 reservoir to serve the area. The City should develop a fee program that will assist in development of the additional 330 zone reservoir.

There are no identified pressure problems in the higher elevations (360 pressure zone) in the Uplands. However, the system lacks redundancy and is entirely reliant on one pump station to provide consistent service.

The City water system historically provided irrigation water for the Semiahmoo Golf Course. With the opening of the City of Blaine's Lighthouse Point Water Reclamation Facility (LPWRF) in 2010, reclaimed water produced by this new facility supplies the golf course irrigation needs.

Reclaimed water from LPWRF could also be considered for use in future developments in Resort Semiahmoo for irrigation, decorative fountains and ponds, toilet flushing, and other gray water uses.

The water supply, water storage and conveyance system for Resort Semiahmoo is adequate to provide service to existing development. With the improvements identified herein, the existing system has sufficient capacity to serve the anticipated remaining development. The cost of extending water service to the remaining undeveloped areas of Resort Semiahmoo will be borne by the developer of those areas and will be subject to engineering design review and construction inspection by the City of Blaine to the City's water utility standards.

Sanitary Sewer

Sewer service for Resort Semiahmoo is provided by the City of Blaine. The new treatment plant, Lighthouse Point Water Reclamation Facility (LPWRF), was opened in 2010 and is located in the City's wharf district.

Wastewater arrives at LPWRF from the Resort Semiahmoo via a trunk line under the entrance to Drayton Harbor. Reclaimed water from LPWRF travels back to Semiahmoo via a second trunk line under the entrance to Drayton Harbor and is discharged west to Semiahmoo Bay via a submerged outfall that originates at the neck of the Spit near the location of the old wastewater treatment facility. Reclaimed water is currently being used for irrigation at the Semiahmoo Golf Course and could be incorporated into other uses within Resort Semiahmoo and in Central and East Blaine.

The sanitary sewer system on the Spit and most of the Semiahmoo Uplands gravity drains to Lift Station #4, a two pump station located south of the hotel. Lift Station #4 was reconfigured to pump effluent across the harbor to the new treatment facility. The pump will need to be upgraded to replace the motors and possibly the pumps at some point in the future. The City should develop a funding mechanism to pay for the necessary improvements to Lift Station #4.

Lift Stations #8 and #9 are located in the Semiahmoo Uplands. There are no known deficiencies for Lift Stations #8 and #9.

Lift Station "Troon" was originally installed as a temporary lift station and was not designed and constructed to the City standards for permanent operation, which has resulted in it needing service by the City. Historically, improvements to this lift station have been tied to development of the Inverness project in Zone 20. The Troon lift station should be constructed to meet City standards as development in that area proceeds, or it should be retired after construction of a lift station at a lower elevation in Zone 20.

With the construction of the new treatment plant, the City has sufficient wastewater treatment capacity to serve existing and anticipated future development in Resort Semiahmoo.

Electrical

Electrical service to Resort Semiahmoo is provided by the City of Blaine. A submarine cable across the mouth of Drayton Harbor is the main feeder to the Resort Semiahmoo electrical power distribution system. The current submarine cable was installed in the mid 1990's to replace the cable that originally provided power to the fish processing plant and subsequently to development in Resort Semiahmoo. The new cable has sufficient capacity to serve the current and future power needs

of the Resort as well as other properties on Birch Point within the City's service area.

In 2006, the City completed the installation of a land based loop feeder line that connects to the Resort distribution system. As the name implies, the loop feeder provides a loop connection between Birch Point and the City's main power grid. The loop connection allows power to be supplied to Resort Semiahmoo from two directions. In the event the submarine cable is damaged, power can be supplied from the other end of the loop and vice versa.

The power distribution system within the Resort is funded and installed by the developer. Extensions to the system to serve new developments are made as development occurs. The engineering and the installation of electrical power distribution lines is reviewed, inspected and approved by the City. Upon completion and final approval of the installation, the distribution lines and equipment become the property of the City.

Telephone

Telephone service is provided to Resort Semiahmoo by Frontier Communications and follows a similar route as the other utilities.

Natural Gas

Natural gas service is provided to Resort Semiahmoo by Cascade Natural Gas.

Cable / Internet

Cable / internet service is provided to Resort Semiahmoo by

Comcast/Xfinity.

Drainage

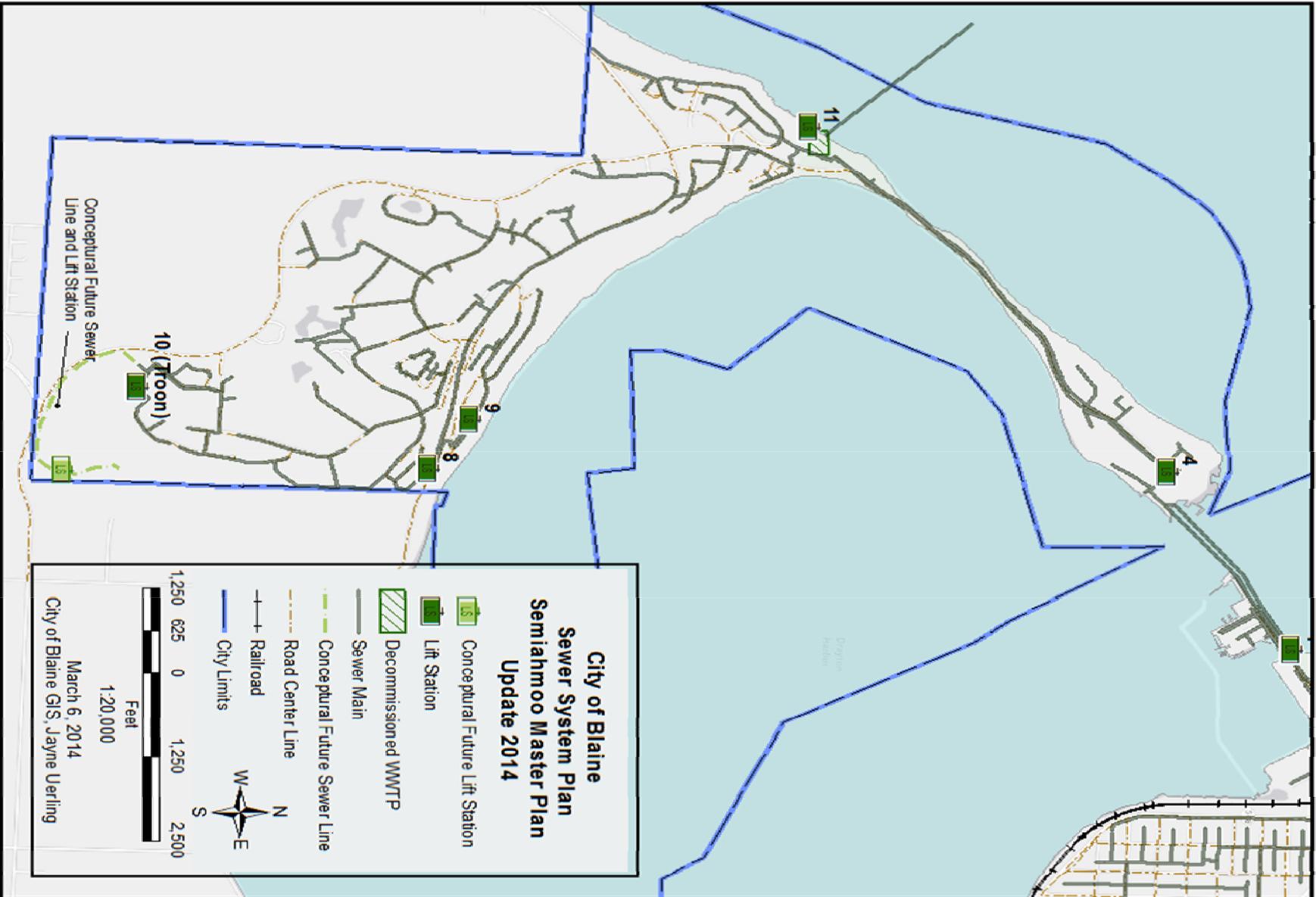
The original stormwater management system for Resort Semiahmoo was designed and installed before critical area regulations and the state stormwater standards were in place. The three water quality sampling programs conducted from August 1985 through July 1986, from August 1989 through July 1990 and from March 1994 to through January 1995 showed that runoff from Resort Semiahmoo properties, including the golf course, do not adversely affect the water quality of Drayton Harbor. Each of these programs sampled water at the east and west outfalls to Drayton Harbor as well as other sampling locations. In the 1995 program, marine water samples from the marina and from Drayton Harbor immediately off shore of the Drayton Harbor Hillside development were taken in addition to the samples taken at the two stormwater outfalls.

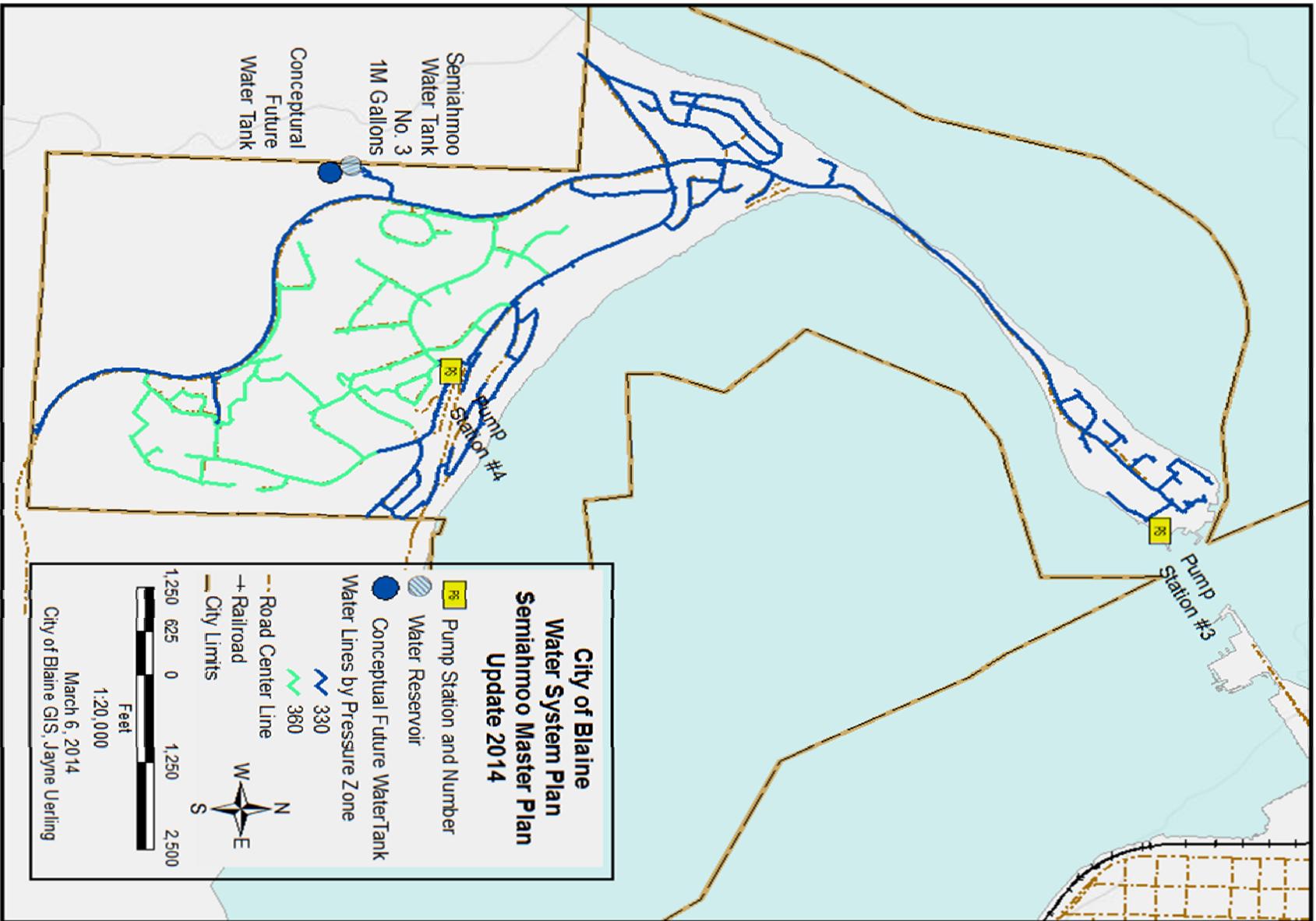
Another monitoring program was completed in 2009. Five monitoring sites were selected including three stormwater culvert outfalls and two saltwater sampling sites. The culvert outfalls included the two culverts on the south shore of Drayton Harbor and the outfall at the tip of the Spit. The two saltwater sites are the same as the sites in the 1995 report, which included a marina site and a saltwater site between the

two culverts on the south shore of Drayton Harbor. Results again showed that runoff from Resort Semiahmoo properties, including the golf course, does not adversely affect the water quality of Drayton Harbor.

As individual areas within Resort Semiahmoo have been developed over the years, design and construction has taken place under environmental regulations in place at the time. As stormwater and critical areas regulations have been adopted and refined over the years, they have served as programmatic mitigation for the potential impacts of stormwater runoff on receiving waters. Recent projects such as Seagrass, Marin and Carnoustie have all employed current best management practices from the state stormwater manual to treat stormwater prior to discharge. The implementation of these best management practices typically go beyond the mitigation measures originally identified in the Resort Semiahmoo EIS.

Stormwater management techniques continue to improve. Future stormwater facilities within the Master Plan area need to be designed and constructed according to the version of the Department of Ecology Stormwater Management Manual for Western Washington in place at the time of development.





Editor's Note: Pages 8.6-8.18 deleted in 2014 Update.

**IX. PUBLIC FACILITIES
AND SERVICES**

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IX. Public Services

A. Fire Protection and Emergency Services

An analysis of public service issues relating to the approval of Resort Semiahmoo in 1985 identified that a fire station would be needed to provide fire protection and emergency services for residents of this new Blaine neighborhood. The Semiahmoo Company, as developer of Resort Semiahmoo, agreed to provide a site and to construct a fire station to serve the community when the need arose for the station. A one-acre site for a fire station was identified in the Resort Semiahmoo Master Plan and a fire station was completed on the site in 1991 at a cost of approximately \$900,000. The station provides facilities for a total of 9 resident firefighters and their equipment.

Since development of Resort Semiahmoo, the City of Blaine annexed into North Whatcom Fire and Rescue (Fire District #21) by public vote. The City has transferred the Semiahmoo Station to the District. The Fire District uses the Semiahmoo Station intermittently, but does not maintain a resident staff at the station. Emergency service response is provided from the Birch Bay (Birch Bay-Lynden Road) station and the Blaine (Odell Road) station.

B. Police Protection

Police protection is provided by the City of Blaine Police Department.

Police services for all areas within the Blaine City Limits are funded by the City's General Fund. Currently there are no Police facilities, such as a sub-station located or proposed in West Blaine or the Semiahmoo Master Plan area.

Editor's Note: Pages 9.2-9.3 deleted in 2014 update.

X. IMPLEMENTATION

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X. IMPLEMENTATION

A. Phasing

Semiahmoo will be developed over a ten to twenty year time span. For planning purposes, it is estimated the 75% of the project will be sold and/or built within the next ten years (1996).

It is the goal of the City of Blaine and The Semiahmoo Company to develop the Uplands and the Spit concurrently so that a balance of recreational opportunities and housing products is maintained from the beginning.

The phasing of Semiahmoo is based on economic projections, the cost of financing, national economic forces, the availability of mortgage money, and the responsiveness of the market demand. Fluctuations in these factors are recognized to directly affect the actual rate of development at Semiahmoo. The Fiscal Analysis (see Appendix D) is the basis for estimating the phasing of the project and public facilities and utilities improvements. Actual phasing and integration of infrastructure will vary depending on the above uncertainties and actual needs.

Given current trends and market conditions, the following phasing is proposed:

Phase One: Semiahmoo Inn, the hotel and conference center; 127 residential units; 30,000 square feet of commercial; 96 additional Marina slips; and the hotel-related Athletic Center are planned to open in 1986 in time for the Canadian Exposition. Building permits will not be issued for over 100 residential units on the Spit until the hotel is under construction.

Concurrently, the previously approved lots in Boundary Ridge, approximately 94 golf course lots and 72 cluster homes in the Uplands are planned. The golf course (including a maintenance center) will be substantially completed by the summer of 1985.

Between 1986 and 1990, the remaining planned residential units will be completed on the Spit and 180 attached units plus 275 lots are planned in the Uplands.

Between 1990 and 1995, it is projected that the remaining home sites and condominiums would be built and sold at a rate of 80 to 200 per year. Beyond 1995, the remaining properties would be developed and absorbed at a rate of 75 to 150 units per year until the project is complete.

Recreation facilities, roads, utilities and other associated improvements will be done at each increment of development. Some facilities, because of economic constraints, may also be phased, such as the permanent golf clubhouse and the tennis/athletic center.

Because of the complexity of the building, landscape, and utilities design, a specific detailed phasing design can only be estimated in the Master Plan. However, it is the policy that facilities and utilities required to serve the development are the responsibility of the developer, and each phase will include the necessary infrastructure and associated amenities to make a complete increment of development.

ESTIMATED PROJECT PHASING AND PUBLIC FACILITIES IMPROVEMENTS

10.2

ASSUMPTION

1. At project completion, Uplands will be 40% single family lots = 832
60% attached multi-family = 1247
2. Beyond 1993, development will occur at a constant rate until build out in the year 2002.
3. 40% of lots sold up to 1993 are built on.

PROJECT/YEAR	1984	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	TOTAL	
SPIT CONDOS		30	65	55	50	50	50														350
UPLAND CONDO		40	35	35	45	50	50	50	90	85	80	86	86	86	86	86	86	86	86		1247
UPLAND LOTS	25	50	55	65	75	70	65	65	60	55	31	27	27	27	27	27	27	27	27		832
HOMES		10	20	22	26	30	28	26	26	24											
HOTEL/REC.		—————																			
RESTAURANT/RETAIL		—————																			
GOLF COURSE	—————																				
MARINA ADDITIONAL PHASES		—————		—————			—————		—————		—————										
UPLAND COMMERCIAL CENTER																					
<u>PUBLIC FACILITIES IMPROVEMENTS EASEMENTS & DEDICATIONS</u>																					
SEMAHMOO PARKWAY BICYCLE & PED. WAY		—————																			
SEMAHMOO BAY BEACH ACCESS TRAIL		—————																			
SPIT TIP PUBLIC ACCESS		—————																			
DRAYTON HARBOR BEACH ACCESS		—————																			
DRAYTON HARBOR ROAD PED/BIKE WAY		—————																			
SPIT ROAD PEDESTRIAN WALK		—————																			
MARINA WALK																					
SCHOOL SITE DEDICATION IF REQUIRED																					
FIRE STATION SITE DEDICATION																					
SPIT MAIN ROAD FROM PARK TO TOWN SQUARE DEDICATE TO CITY		—————																			

• M P agreement ————— •

ESTIMATED PROJECT PHASING AND UTILITY IMPROVEMENTS

ASSUMPTION

1. At project completion, Uplands will be 40% single family lots = 832
60% attached multi-family = 1247
2. Beyond 1993, development will occur at a constant rate until build out in the year 2002.
3. 40% of lots sold up to 1993 are built on.

PROJECT/YEAR	1984	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	TOTAL	
SPIT CONDOS		30	65	55	50	50	50														350
UPLAND CONDO		40	35	35	45	50	50	50	90	85	80	86	86	86	86	86	86	86	86		1247
UPLAND LOTS	25	50	55	65	75	70	65	65	60	55	31	27	27	27	27	27	27	27	27		832
HOMES		10	20	22	26	30	28	26	26	24											
HOTEL/REC.		—————																			
RESTAURANT/RETAIL		—————																			
GOLF COURSE		—————																			
MARINA ADDITIONAL PHASES		—————																			
<u>UTILITIES</u>																					
<u>WATER</u>																					
TRANSMISSION LINE IN SEMIAHMOO PARKWAY PARK TO CLUB HOUSE		—————																			
1 MILLION GAL. STORAGE TANK ON SITE		—————																			
1/2 MILLION GAL. ADDITIONAL TANK ON SITE		—————																			
<u>SEWER</u>																					
COMPREHENSIVE SEWER STUDY		—————																			
TREATMENT PLANT EXPANSION (CURRENT CAPACITY .8MGD)		—————																			
ELIMINATE CITY INFILTRATION BY CITY		—————																			
SPIT LIFT STATION		—————																			
SEMAHMOO PARKWAY SEWER MAIN TO PHASE ONE PUD		—————																			
UPLANDS SEWER LINE EXTENSION		—————																			
<u>ELECTRICAL</u>																					
PROVIDE NEW SPIT & UPLANDS SERVICE		—————																			
<u>STORM WATER</u>																					
RETENTION/IRRIGATION PONDS SOUTHWEST DRAINAGE SHED		—————																			
INTERMEDIATE DETENTION FOR DRAYTON HARBOR WATER SHED		—————																			
SEMAHMOO BAY STORM WATER OUTFALL SUBJECT TO MONITORING PROGRAM		—————																			

Detailed architectural/engineering construction plans will be coordinated with all departments of the City during both the P.U.D. and building permits stages in insure City requirements are met. Because of the economic constraints, infrastructural improvements such as water, power, and sewer will require incremental development in relationship to building phases.

B. Permit Processing

The initial phases of development will be submitted in conformance with the Planned Unit Development ordinance. The ordinance requires schematic site plans and building configurations for each project together with additional details describing the utilities, drainage, circulation, landscaping, etc.

Design standards for sheds, paths, signs, landscaping, and lighting furnishings, which are approved as part of the final P.U.D., will be incorporated as part of this Master Plan.

On the Spit, all projects will require a Shoreline Substantial Development Permit, requiring a public hearing process. The P.U.D. and Shoreline applications should be processed simultaneously.

Land Subdivisions in the Uplands will not be processed as P.U.D.'s (except Zone 5), and will conform to the basic subdivision ordinance procedure and design guidelines established in this Master Plan.

Building projects in the Uplands, if 200 feet from the shoreline, will not be subject to Shoreline permits and will be processed through the regular building permit process unless they exceed 40' in height (Zones 2, 3, 4, 6, and 26) or are in the steep slope areas of the Cove (Zones 8, 9, 10, 11). These will be processed as a combined preliminary/final P.U.D.

The Commercial Center, including related parking, public facilities and athletic center, will be required to be processed as a P.U.D. The golf course's final design will be reviewed administratively by the City's Technical Review Committee to assure that landscaping, utility, and drainage requirements are met.

This Master Plan should be used as a guide for all subsequent projects. Minor modifications will be necessary as more refined design and market analyses are prepared.

C. Periodic Review of Master Plan

It is stipulated that the Master Plan for the Uplands and the Spit will be reviewed as development approaches 25% for each area. At each of those milestones, the Developer will present a summary report on the status of the project; status of public streets; utilities and facility construction; evaluation of the resulting impacts and mitigating measures; and recommendations for the next increment of development, including:

- Changes to Master Plan or other regulations.
- Implementation of mitigating measures.
- Other items as necessary or requested by the City of Blaine.

1. Spit

The first phase of development on the Spit will complete over 50% of the total development. At the end of that development, a review will occur with particular emphasis on streets, police protection, fire protection, utilities, public access and associated transportation measures such as the pedestrian ferry and shuttle.

The next review period will be based on the completion of 50% of the remaining development. The commercial, residential, and marina uses are assumed to be of equal impact.

2. Uplands

When the number of residential lots or units reach the 20-25% milestone of the total proposed--based on ranges included in the Master Plan--the review report will be prepared. (Please note, this is not the actual number of lots and units approved, but the Master Plan range.) However, this time increment for review should not be over five years. Therefore, the following ranges are applicable.

20-25%	-	415	-	520
45-50%	-	935	-	1,040
70-75%	-	1,455	-	1,560
95-100%	-	1,975	-	2,079

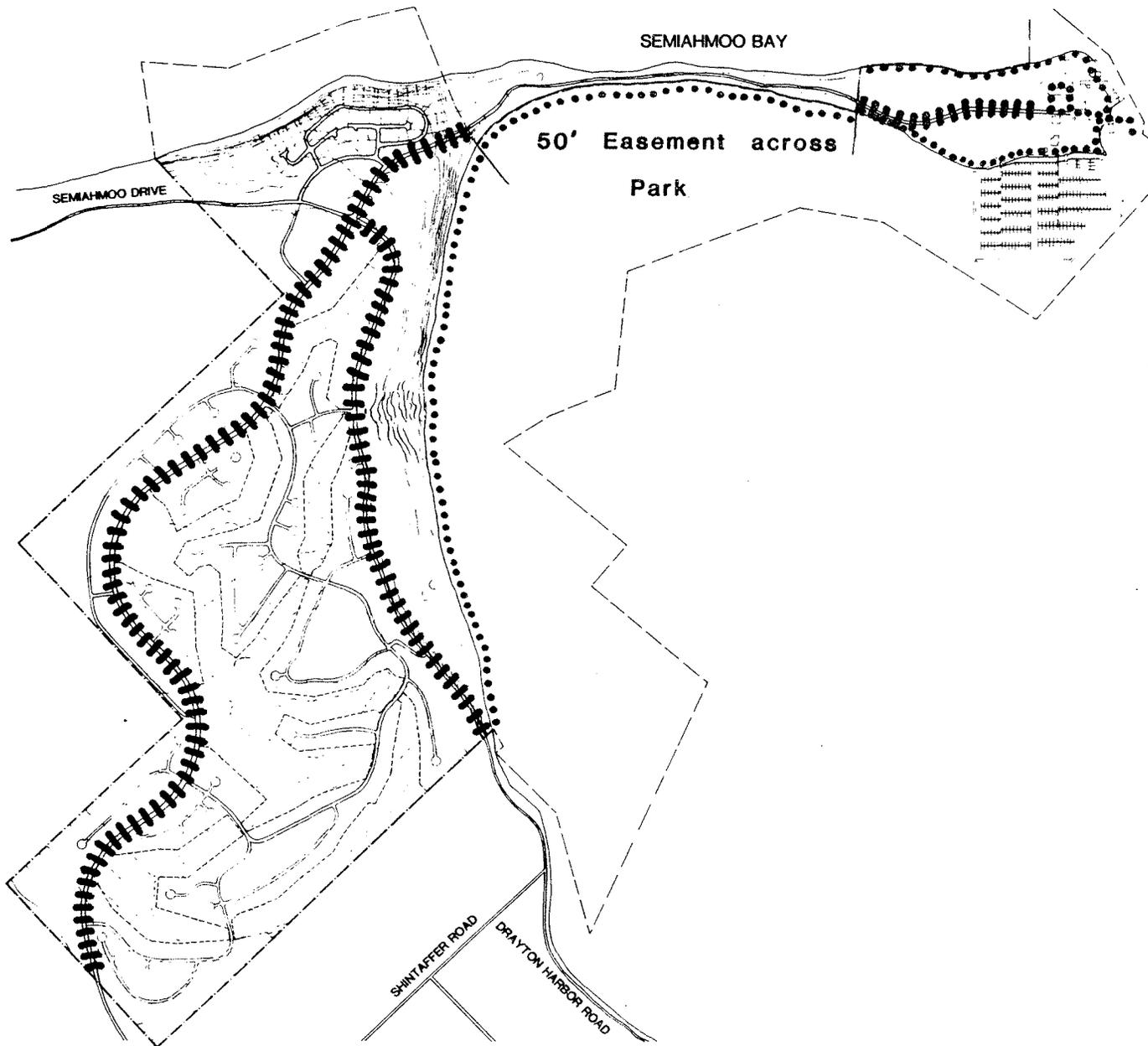
D. Public Access Implementation

Semiahmoo will contain an internal system of roads and pathways for vehicular and pedestrian traffic. Upon the submittal of each phase for the development for P.U.D. approval, public roads and paths will be designated as public areas on the face of the plat and the right of public access guaranteed either through dedication or grant of easement. Public access may be limited in some instances in order to protect the areas of the Spit containing fragile environmental characteristics or in order to preserve and maintain the aesthetic standards or personal safety of visitors to our residents of the resort community.

On the Uplands property, the Semiahmoo Parkway and Drayton Harbor Road will be dedicated to the City of Blaine upon completion of construction and acceptance by the City under L.I.D.'s 12 & 13. This dedication will encompass an 80 foot right-of-way for the Semiahmoo Parkway, which includes the pedestrian/bicycle primary pathway together with the road itself, and a 60 foot right-of-way for the Drayton Harbor Road. The public pedestrian paths will be granted to the public through an easement, similarly shown on the face of the plat. These easements may limit public access for security, safety-related or other purposes as long as such limitations are reasonably related to the safety and welfare of the resort community and do not unreasonably restrict the public's right to access. Restrictions may include, but shall not be limited to, non-motorized vehicle or pedestrian-only designations or limited hours of usage.

On the Spit, a 30 foot right-of-way for the Semiahmoo Parkway and utilities shall be dedicated to the City of Blaine on the face of the plat. The right-of-way will include two 11 foot lanes for automobile traffic. Parallel to the Semiahmoo Parkway, along portions of the circumference of the shoreline and at other points within the development, public access will be insured through the grant of an easement to be shown on the face of the plat. Easement areas, as in the case of the Uplands, may be restricted in use and other matters consistent with the terms of the Master Plan and as approved in the P.U.D. In addition to public walkways, easements will be designated on the face of the plat for public access, ingress and egress for a minimum of ten, beach-access parking spaces within the development, for access by fire and other emergency vehicles to the hotel and Lighthouse Square along the extension of the Semiahmoo Parkway to the tip of the Spit and also for access to the proposed public ferry between the Spit and downtown Blaine. All easement areas shall be clearly designated on the face of the plat.

The 50 foot access/utility easement through the Whatcom County Park will be assigned to the City of Blaine.



SEMIAHMOO
 A PROJECT OF THE SEMIAHMOO COMPANY

HEWITT/DALY/ISLEY
 ARCHITECTURE - URBAN DESIGN - PLANNING

HAGMAN-YAW ARCHITECTS, LTD.
 ARCHITECTURE

JONGEJAN, GERRARD, McNEAL
 LANDSCAPE ARCHITECTURE

URS ENGINEERS
 CIVIL ENGINEERING



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XI. TECHNICAL APPENDIX

APPENDIX A – 2014 update

PLANT LIST A:

Native and naturalized species for open natural areas on the Spit

TREES

Cupressus macrocarpa
Monterey Cypress
Pinus contorta
shore pine

SHRUBS AND WOODY GROUNDCOVERS

Arctostaphylos media
no common name
A. uva-ursi
kinnickinick
Gaultheria shallon
salal
Holodiscus discolor
ocean spray
Lonicera involucrata
twinberry
Mahonia aquifolium tall
Oregon grape
M. nervosa
low Oregon grape
Myrica californica
California wax myrtle
Pinus mugo 'mugo'
Mugho pine
Rosa rugosa
ramanas rose
Salix hookeriana
coastal willow

* =seed probably unavailable commercially
and must be collected

ANNUALS/ PERENNIALS I GRASSES

Abronia latifolia *
sand verbena
Achillea millefolium
yarrow
Brodiaea coronaria *
blue dick brodiaea
B. congesta *
northern saites
Cakile edentata
sea rocket
Chrysanthemum leucanthemum
ox-eye daisy or marguerite
Convolvulus soldanella *
beach morning glory
Daucus carota
Queen Anne's lace
Elymus mollis
wild dunerye
Epilobium angustifolium
fireweed
Fescue longifolia
hard fescue
Fragaria chiloensis
sand strawberry
Glehnia leiocarpa *
beach silvertop
Grindelia integrifoli *
gumweed
Honkenya peploides
sea purslane
Lathyrus japonicus
maritime peavine
Paa macrantha *
seashore bl. grass
Potentilla pacifica *
Pacific silverleaf
Trifolium pratense
red clover
T. repens
white clover

WILDFLOWER/GRASS SEED MIX

Abronia latifolia
sand verbena
Brodiaea coronaria
blue dick brodiaea
Chrysanthemum leucanthemum
ox-eye daisy
Elymus mollis
wild dunerye
Fescue longifolia
hard fescue
Trifolium pratense
red clover

Equal parts. Apply at a rate of 100 pounds by acre into lightly raked soil.

RECOMMENDATIONS FOR VEGETATION ESTABLISHMENT AND MAINTENANCE: UPPER BEACH ZONE

1. Begin a vegetation management program after grading and construction operations are complete. Start by slowly improving soil fertility by encouraging the growth of nitrogen-fixing plants such as clovers and lupines. The general application of soil additives are not recommended for two reasons: they would give an advantage to the existing weedy species, and they might promote the invasion of woody plants which would slowly change the open character of the beach.
2. Reduce the qualities of visually jarring and toxic weeds through hand pulling. This operation need only occur a couple times a year, preferably before the weeds go to seed. (Herbicides might also be effective but they are not recommended because of the potential for drift. Also they would harm beneficial species.) The major species to hand pull are:
Klamath weed/ Hypericum perforatum thistles/
Carduus spp. & Cirsium spp.

sow thistles/ Sonchus asper horseweed/ Conyza canadensisdock/ Rumex crispus
poison hemlock/ Conium maculatum mullein/
Verbascum thapsus
- plus any alien species taller than 3.5"

It is estimated that it will take about two or three years of pulling to significantly reduce the quantities of these undesirable weeds. Other weedy species such as plaintain and vetch are harmless and visually unobtrusive. They should be tolerated.

3. Plant desirable native and naturalized herbaceous vegetation along roadways, dunes and in other disturbed areas. Rooted clumps of dune wildrye and beach grass should be planted in long drifts where they will spread through underground rhizomes. Seeds from the other desirable species in Plant List A should be mixed with sand for better distribution and hand sown into lightly raked soil. Hydroseeding is not recommended because the mulch medium is rich in organic materials and would encourage weeds.
4. The planting of woody species should be very restrained in the Upper Beach Zone to preserve the openness of the spit and avoid blocking views. However there are locations adjacent to roadways and buildings where naturalistic mass plantings of trees and shrubs would help visually anchor development in the landscape. All species should be selected from Plant List A.

PLANT LIST B:

Native and naturalized species for transition areas and low density development on the Spit

TREES

Crataegus oxyacantha
English hawthorn
Cupressus macrocarpa
Monterey cypress
Pinus contorta
shore pine
Quercus garryana
Oregon oak
Sorbus aucuparia
European mountain ash

SHRUBS AND WOODY GROUNDCOVERS

Arctostaphylos uva-ursi
kinnickinick
Cistus hybridus & purpureus
rockrose
Cotoneaster horizontalis
rock cotoneaster
C. lacteus
Parney cotoneaster
C. 'Lowfast'
Lowfast cotoneaster
Gaultheria shallon
salal
Helianthemum nununularium
sunrose
Fragaria chiloensis
Sand strawberry
Juniperus chinensis 'Seaspray'
seaspray juniper
J. conferta
shore juniper
Mahonia aquifolium
tall oregon grape
M. nervosa
low Oregon grape

Myrica californica
California wax myrtle
Pinus mugo
Mugho pine
Rosa rugosa
Ramamas rose
Rosemarinus officinalis
rosemary
Spirea douglasii
hardhack
Vaccinium ovatum
evergreen huckleberry

ANNUALS/ PERENNIALS/ GRASSES

Achillea tomentosa *
yarrow
Brodiaea coronaria *
blue dick brodiaea
Chrysanthemum leucanthemum
oxeye-daisy or marguerite
Daucus carota
Queen Anne's lace
Elmus mollis
dune wildrye
Erigeron glaucus
beach astor
Eschscholzia californica
California poppy

Fescue longifolia
hard fescue
Fragaria chiloensis
sand strawberry
Honkenya peploides
sea purslane
Lathyrus latifolius *
convnon peavine
Lupinus latoralis *
seashore lupine
Poa macrantha
seashore bl. grass

*= Seed probably commercially unavailable and must be collected

ROUGH GRASS SEED MIX

Agrostis palustri
seaside bentgrass
Deschampsia cespitosa
tufted hairgrass
Elymus mollis
wild rye
Festuca ovina v. durascula
hard fescue•
F. rubra stolonifera
creeping red fescue
Lolium perenne
ryegrass

Equal parts. Apply at the rate of 40 pounds per acre in lightly raked soil.

WILDFLOWER/GRASS SEED MIX

Achillea tomentosa_
yarrow
Chrysanthemum leucanthemum
ox-eye daisy
Elymus mollis
wild dunerye
Eschscholzia californica
California poppy
Fescue longifolia
hard fescue
Trifolium pretense
red clover

Equal parts. Apply at the rate of 100 pounds per acre in lightly raked soil.

PLANT LIST C:

Ornamental and naturalistic species for formal plantings, hotel, commercial and high density residential development on the Spit

TREES

A. rubrum
red maple
Carpinus betula 'astigiata'
narrow European hornbeam
Crataegus oxycantha
English hawthorn
Cupressus macrocarpa
Monterey cypress
Q. coccinea
scarlet oak
Pinus contorta
shore pine
P. sylvestris
Scotch pine

SHRUBS AND WOODY GROUNDCOVERS

Arbutus unedo
strawberry tree
Buxus sempervirens
boxwood
Berberis thunbergii
Japanese barberry
B. darwinii
Darwin barberry
Choi sya ternata
Mexican orange
Cistus hybridus & purpureus
rockrose
Clematis sp.
clematis vine
Cotoneaster dammeri
bearberry cotoneaster
Elaeagnus pungens
silverberry

Escallonia rubra & rosea
red and pink escallonia
Euonymus fortunei vars.
wintercreeper
Helianthemum nummularium
sunrose
Hydrangea macrophylla
hydrangea
Ilex crenata vars.
Japanese holly
Juniperus chinensis procumbens
Japanese garden juniper
Ligustrum sp.
privet
Mahonia nervosa
low Oregon grape
Nandina domestica
heavenly bamboo
Parthenocissus quinquefolia
Boston ivy
Potentilla tabernaemontanii
spring cinquefoil
Pinus muyo
Mugho pine
Rosa sp.
hybrid teas and climbers
Rosmarinus officinalis
rosemary
Viburnum tinus
laurustinus
Yucca filamentosa
yucca varieties

ANNUALS/ PERENNIALS/ GRASSES

Achillea millefolium vars.
yarrow
A.ptarmica 'The Pearl'
white yarrow
Alyssum montanum
perennial alyssum
Arabis caucasia
wall rockcress
Armeria maritima
common thift
Artemisia stellerana
dusty miller
Aurinia saxatallis
basket of gold
Bellis perennis
English daisy
Centaurea cyanus
cornflowers
Chysanthemum frutescens vars.
marguerite
Coreopsis gradiflora
coreopsis
Dorotheanthus bellidiformis
Livingston daisy
Erigeron glaucus 'Arthur menzies'
beach astor
Eschscholzia californica
California poppy
Fragaria chiloensis
sand strawberry
Hemerocallis spp.
daylilly
Hosta spp.
plantain lilly
Iberis sempervirens
evergreen candytuft
Lavendula spp.
Lavender

Santolina chamaecyparissus
lavender cotton
Senecio cineraria
dusty miller
S.hybridis
cineraria

LAWN

60% creeping red fescue
20% Kentucky bluegrass
10% velvet bent grass
10% Pennefine ryegrass

Sod or seed as per standard horticultural practices.

PLANT LIST D:

Native and ornamental species for residential, commercial and recreation areas and open space in the Uplands

Note: "-N" after a plant name denotes a native or naturalized specie suitable for use in natural reserves, forest edges and other natural settings.

TREES

Abies yrandis -N
grand fir
Acer circidiphyllum -N
vine maple
A.palmatum
Japanese maple
A.rubrum
red maple
Calocedrus decurrens -N
incense cedar
Cercidiphyllum japonicum
Katsura tree
Cercis spp.
Redbud

Chamaecyparis lawsoniana -N
 Port Orford cedar
 Q. palustris pin oak
 Cornus florida
 Q. robur
 Eastern white dogwood
 Cornus mas -N
 Carolinian cherry
 C. phaenopyrum
 Washington thorn
 Fraxinus oxycarpa
 flame ash
 Gleditsia triacanthos
 Honeylocust - thornless vars.
 Liquidambar styraciflua
 Sweet gum
 Malus floribunda
 flowering crabapple
 Oxydendrum arboreum
 Sourwood
 Pinus densiflora
 Japanese red pine
 P. nigra
 Austrian black pine
 Plantanus acerifolia
 London plane tree
 Populus nigra "Italica"
 Lombardy poplar
 P. tremuloides
 quaking aspen
 Prunus spp.
 flowering cherry
 Pseudotsuga menzeisii -N
 Douglas fir
 Quercus chrysolepis
 canyon live oak
 Q. ilex
 holly oak
 Q. palustris
 pin oak

Q. robur
 English Oak
 Rhus typhina
 staghorn suma
 Salix babylonica
 weeping willow
 Sequoia sempervirens -N
 coast redwood
 Sorbus aucuparia -N
 mountain ash
 Stewartia spp.
 stewartia
 Sytrax japonica
 Japanese snowball tree
 Thuja plicata -N
 western red cedar

SHRUBS AND WOODY GROUNDCOVERS

Amelanchier laevis -N
 Serviceberry
 Arbutus unedo
 strawberry tree
 Arctostaphylos uva-ursi -N
 kinnickinick
 Berberis dawinii
 Darwin's barberry
 B. thunbergii
 Japanese barberry
 Buxus sempervirens
 Boxwood
 Camellia spp.
 Camellia
 Chaenomeles spp.
 flowering quince
 Clematis spp.
 clematis vine
 Cistus hybridus & purpureus
 rockrose

Cornus canadensis -N
bunchberry
C. stolonifera -N
red twig dogwood
Corylus cornuta -N
hazelnut
Daphne spp.
daphne
Enkianthus campanulatus
enkianthus
Erica spp.
heath
Euonymus alata
spindle bush
E. fortunei vars.
wintercreeper
fragaria chiloensis -N
sand strawberry
Gaultheria procumbens -N
wintergreen
G. shallon -N
salal
Hedera helix
English ivy
Helianthemum nummularium
sunrose
Holodiscus discolor -N
ocean spray
Hypericum calycinum
St. John's wort
Ilex altaclarensis 'Wilsonii'
Wilson holly
I. crenata
Japanese holly
Juniperus chinensis procumbens
Japanese garden juniper
Kalmia latifolia
mountain laurel
K. microphylla
western laurel

Ligustrum japonicum
waxleaf privet
Magnolia stellata
star magnolia
Mahonia aquifolium -N
tall Oregon grape
M. nervosa -N
low Oregon grape
Nandina domestica
heavenly bamboo
Osmanthus delavayi
Delavay osmanthus
Pernettya mucronata
pernettya
Philadelphus Spp. -N
mock orange
Photinia glabra
Japanese photinia
Pieris japonica
pieris
Potentilla fruticosa
shrubby cinquefoil
Prunus laurocerasus 'Otto Luyken'
Otto Luyken laurel
P. lusitanica
Portugal laurel
Pyrocantha spp.
firethorn
Raphiolepis spp.
Yeddo & Indian hawthorn
Rhododendron spp. -N
rhododendrons & azaleas
Ribes sanguineum -N
red flowering current
Rosemarinus officinalis
rosemary
Sarcococco spp.
sarcococco
Stranvaesia davidiana
Stranvaesia

Symphoricarpos albus -N
snowberry
Viburnum burkwoodii
no common name
V. davidji
David's viburnum
V. plicatum tomentosum
doublefile viburnum
V. tinus
laurustinus
Vinca minor
periwinkle
Weigela spp.
no common name

ANNUALS/ PERENNIALS/ FERNS

Anemone x hybrida
Japanese anemone
Aquilegia spp. -N
columbine
Astilbe sp.
no common name
Calendula officinalis
calendula
Coreopsis spp.
coreopsis
Hemerocallis spp.
daylillies
Iris siberica
Siberian iris
Lythum salicaria
no common name
Narcissus spp.
Daffodils - naturalizing
Phlox spp.
phlox
Polypodium glycyrrhiza
licorice fern
Polystichum munitum -N
sword tern

WILDFLOWER SEED MIX:

Northern California and Pacific Northwest Wildflowers' mix
available from Environmental Seed Producers

LAWN

60% creeping red fescue
20% Kentucky bluegrass
10% velvet bent grass
10% Pennefine ryegrass

Sod or seed as per standard horticultural practices.

Semiahmoo Spit Supplement 2014

Landscape & Maintenance

Zone 1

Objective

1. To maintain / restore and enhance the natural character of this fragile environment.
2. To provide public access to the shoreline.
3. To develop an exciting transition to the urban waterfront character at the marina entries and commercial zones.

Guidelines

The first 30 feet landward of the Ordinary High Water Mark is referred to as “Zone 1” and is limited to trail development, public shoreline viewing spaces, selective addition of vegetation for habitat enhancement, and beach erosion control as illustrated in the landscape plan.

Landscaping along shoreline trails will include the use of native plant materials to maintain the existing landscape character of shoreline grasses, low lying perennial and evergreen shrubs. Drought tolerant grasses will be used in open space areas planned for passive recreational activities.

Signage will be provided at various park and trail locations. The size of the sign will be in keeping with message to be conveyed.

Care should be taken to create gently rolling “dune” landforms and appropriate native shoreline plantings. Vegetation should not impact views to the water from the public access trails or residential units beyond.

Landscape Guidelines

Recommendations for Vegetation Establishment & Maintenance

1. Begin a vegetation management program after grading and construction operations are complete. Start by slowly improving soil fertility by encouraging the growth of nitrogen-fixing plants such as clovers and lupines. The general application of soil fertilizers, pesticides and herbicides is prohibited. In grass-land areas, the general application of soil organics is not recommended. In woody shrub / tree plantings, the application of 3” of certified weed free organic mulch is recommended immediately around new plantings.
2. Reduce the quantities of visually jarring and toxic weeds through hand pulling. This operation need only occur a couple times a year, depending on the best time to eradicate the invasive species – preferably before they go to seed. The major noxious weeds and invasive species are listed at the end of this section.
3. Plant desirable native species in a naturalistic treatment. Plant types should be selected from the Zone 1 plant list. Lawns and irrigation are not permitted within this zone. Hydro-seeding is not recommended because the mulch medium is rich in organic materials and would encourage weeds.
4. The planting of woody species should be grouped to preserve the openness of the spit and avoid blocking views. Woody species should be maintained below 48” in height to maintain an open character to the Spit.
5. All initial planting should be implemented within the time period September 15th – March 15th to the greatest degree possible, to allow plants to begin establishing roots before summer.

Zone 1

(Starting at Tidelands to the 30' Shoreline Setback) (*Recommended Plant Species)

Plant Characteristics:
High Salt Tolerance, High Wind Tolerance, Native Soils with Low Nutrient Content, No Irrigation Allowed

Existing Plants Semiahmoo Spit – From Resort Semiahmoo Master Plan.

Herbaceous - Terrestrial plants growing above high water mark

BOTANICAL NAME	COMMON NAME
<i>Achillea millefolium</i>	Yarrow
<i>Ambrosia chamissonis</i> var. <i>bipinnatisecta</i>	Silver burweed
<i>Atriplex patula</i> var. <i>obtusata</i> <i>Grindelia integrifolia</i> var.	Silver burweed
<i>Daucus carota</i>	Queen Anne's Lace
<i>Elymus mollis</i>	Dunegrass
<i>Macrophylla</i>	Gumweed

Herbaceous – Backshore Vegetation

BOTANICAL NAME	COMMON NAME
<i>Achillea millefolium</i>	Yarrow
<i>Agrostis alba</i>	creeping bentgrass
<i>berberis nervosa</i>	Oregon grape
<i>cerastium arvense</i>	chickweed
<i>Festuca ovina</i>	Sheep fescue
<i>Grindelia integrifolia</i> var. <i>macrophylla</i>	Gumweed
<i>Plantago lanceolata</i>	English plantain
<i>Rosa gymnocarpa</i>	baldhip rose
<i>Symphocarous alba</i>	Snowberry

Trees

BOTANICAL NAME	COMMON NAME
<i>Arbutus menziesii</i>	Pacific madrone
<i>Pinus contorta</i>	Lodgepole pine
<i>Prunus emarginata</i>	bitter cherry
<i>Rhamnus purshiana</i>	casacara
<i>Salix scouleriana</i>	Scoulers willow
<i>Taxas brevifolia</i>	Pacific yew

Shrubs

BOTANICAL NAME	COMMON NAME
<i>Acer circinatum</i>	Vine maple
<i>Acer glabrum</i>	Douglas maple
<i>Amelanchiar alnifolia</i>	Serviceberry
<i>Arctostaphylos uva-ursi</i>	kinnikinnick
<i>corylus cornuta</i>	Beaked filbert
<i>Gaultheria shallon</i>	Salal
<i>Holodiscus discolor</i>	Ocean spray
<i>Mahonia nervosa</i>	Oregon grape
<i>Oemleria cerasiformis</i>	Osoberry
<i>Polystichum munitum</i>	Sword fern
<i>Quercus garryana</i>	Garry oak
<i>Ribes sanguineum</i>	Red flowering currant
<i>Rhododendron macrophyllum</i>	Pacific rhododendron
<i>Rosa gymnocarpa</i>	Wood rose
<i>Rosa rugosa</i>	Rose
<i>Rubus parviflorus</i>	Thimbleberry
<i>Sambucus racemosa</i>	Red elderberry
<i>Symphoricarpos albus</i>	Snowberry
<i>Vaccinium ovatum</i>	Evergreen huckleberry

Zone 2

Landscape Zone 2 is the area measured from the 30' shoreline setback line to the 90 foot shoreline setback line.

Zone 2 includes such uses as residential patio space, resident and public open space, trail development, and public shoreline viewing spaces as illustrated in the landscape plan.

Objective

1. To maintain / restore and enhance the natural character of this environment.
2. To provide specific active-use areas for community residents and visitors using environmentally responsible plantings and land design.
3. To develop a transition / buffer from the private residential units & commercial areas to Zone 1.

Guidelines

Zone 2 shall be landscaped and maintained by a property owners' association to be established (e.g., "Resort Village Association") with the exception of residential patio spaces which are maintained by the homeowner.

Planting should consist of continuous groundcover and shrubs organized into large massings. Plants should be selected to tolerate high winds and occasional salt spray.

Grade or add fill to create gently rolling landforms of shallow rolling dunes which generally parallel the shoreline.

Recommendations for Vegetation Establishment & Maintenance

1. Begin a vegetation management program after grading and construction operations are complete. The project may retain the services of a biologist who specializes in the restoration of disturbed landscapes. The general application of soil

fertilizers, pesticides and herbicides is prohibited. In grassland areas, the general application of soil organics is not recommended. In woody shrub / tree plantings, the application of 3" of certified weed free organic mulch is recommended immediately around new plantings.

2. Reduce the quantities of visually jarring and toxic weeds through hand pulling. This operation need only occur a couple times a year, depending on the best time to eradicate the invasive species – preferably before they go to seed. The major noxious weeds and invasive species are listed at the end of this section.
3. Plant desirable native species in a naturalistic treatment. Plant types should be selected from the Zone 1 or Zone 2 plant lists shown. Hydro- seeding is not recommended because the mulch medium is rich in organic materials and would encourage weeds.
4. The planting of woody species should be grouped to the greatest degree possible to preserve the openness of the spit and avoid blocking views. Woody shrub species should be maintained below 48" in height to maintain an open character to the Spit.
5. All initial planting should be implemented within the time period Sept. 15th – March 15th to the greatest degree possible to allow plants to begin establishing roots before summer.
6. Turf will be permitted in selective areas within Zone 2 as illustrated on the Landscape Plan.

Zone 2

Plant Characteristics:

High Salt Tolerance, High Wind Tolerance, Non-Native / Enhanced Soils with Moderate Nutrient Content

The Zone 1 plant list may be used in coordination with the following Zone 2 plant list.

Trees

BOTANICAL NAME	COMMON NAME
<i>Arbutus menziesii</i>	Pacific madrone
<i>Pinus contorta</i>	Lodgepole pine
<i>Prunus emarginata</i>	bitter cherry
<i>Rhamnus purshiana</i>	cascara
<i>Salix scouleriana</i>	Scoulers willow
<i>Taxus brevifolia</i>	Pacific yew

Shrubs

BOTANICAL NAME	COMMON NAME
<i>Acer circinatum</i>	Vine maple
<i>Acer glabrum</i>	Douglasí maple
<i>Amelanchiar alnifolia</i>	Serviceberry
<i>Arctostaphylos uva-ursi</i>	kinnikinnick
<i>Corylus cornuta</i>	Beaked filbert
<i>Gaultheria shallon</i>	Salal
<i>Holodiscus discolor</i>	Ocean spray
<i>Mahonia nervosa</i>	Oregon grape
<i>Oemleria cerasiformis</i>	Osoberry
<i>Polystichum munitum</i>	Sword fern
<i>Quercus garryana</i>	Garry oak
<i>Ribes sanguineum</i>	Red flowering currant
<i>Rhododendron macrophyllum</i>	Pacific rhododendron
<i>Rosa gymnocarpa</i>	Wood rose
<i>Rubus parviflorus</i>	Thimbleberry
<i>Sambucus racemosa</i>	Red elderberry
<i>Symphoricarpos albus</i>	Snowberry
<i>Vaccinium ovatum</i>	Evergreen huckleberry

Zone 3

Landscape Zone 3 is the area landward of the 90' shoreline setback line. Zone 3 includes such uses as residential courts / terraces / patios, residential and public open space, trail development, hotel amenities, and public shoreline viewing spaces as illustrated in the landscape plan.

Objective

1. To provide an appropriate transition between private residential space and community areas.
2. To provide sophisticated outdoor hotel and residential amenities for a variety of users which maximize water views and views to the City of Blaine.

Guidelines

It is recommended that Zone 3 shall be landscaped and maintained by a property owners' association to be established (e.g., "Resort Village Association"), with the exception of private residential patio spaces which are maintained by the homeowner.

Special planting consideration should be paid to residential courts and terraces. Shallow rooting shrubs and groundcovers should be utilized and raised planters should be considered for tree material.

Interior open spaces should predominantly be grasses suitable for informal recreational activity. Open space associated with the hotel should be a combination of native and ornamental planting. Turf should be used strategically for flexible event spaces.

Zone 4

Zone 4 predominantly is centered at the northern end of the Spit and is created as a commercial area. A variety of vehicular and pedestrian courts, streets and plazas are planned as illustrated on the Landscape Plan. This zone receives moderate wind and salt spray, and is mainly located on top of dredged spoils. Soils are rocky and low in fertility.

Objective

1. To utilize plant materials and design elements to create a 'village' atmosphere which creates a sense of arrival at the commercial center, while defining vehicle and pedestrian areas.
2. Treating water run-off from vehicular surfaces.

Guidelines

It is recommended that Zone 4 be landscaped and maintained a property owners' association to be established (e.g., "Resort Village Association"). Plant materials should be a combination of native and/ ornamental plants to enhance the character of the Village. Plant material within these zones should be selected for their water cleansing capabilities of run-off from vehicular surfaces. This water is directed into designated rain gardens suitable for street trees.

Zone 5

Zone 5 includes the Semiahmoo Parkway access road, and the large portion of surface parking on the Spit. These areas are predominately hardscape material, and comprise the majority of the impervious vehicular surfaces on the Spit. This zone and uses are located within the interior portion of the site to minimize the intrusion of the automobile into the waterfront areas.

In order to minimize the visual impact of the parking areas, landscape berms should be placed in between the entry roadway and surface parking lots.

Plant material within this zone should be fast growing and with low maintenance requirements in order to provide effective screening as soon as possible. Groupings of coniferous trees should be provided for screening, as well as shrub masses of dense, leafy plants. Native groundcovers, wildflowers or grasses may be used to unify the planting areas. Ornamental plants may be located in groups to add splashes of color and interest at entries and focal points.

Surface water from the streets and parking will flow directly into rain gardens. Plant material within these zones should be selected for their water cleansing capabilities.

Recommendations for Vegetation Establishment & Maintenance (Zones 3, 4, & 5)

1. Begin a vegetation management program after grading and construction operations are complete. The general application of soil fertilizers, pesticides and herbicides is prohibited. In grassland areas, the general application of soil organics is not recommended. In woody shrub / tree plantings, the application of 3" of certified weed free organic mulch is recommended immediately around new plantings.
2. Reduce the quantities of visually jarring and toxic weeds through hand pulling. This operation need only occur a couple times a year, depending on the best time to eradicate the

invasive species – preferably before they go to seed. The major noxious weeds and invasive species are listed at the end of this section.

3. A mix of desirable native and ornamental species shall be planted in forms as illustrated in the landscape plan. Plant types should be selected from the Zone 1, 2, 3, 4 or 5 plant lists shown. Hydro-seeding is not recommended because the mulch medium is rich in organic materials and would encourage weeds.
4. Plantings should be located to the greatest degree possible to preserve the openness of the spit and avoid blocking views for residents and open space users.
5. All initial planting should be implemented within the time period Sept. 15th – March 15th to the greatest degree possible to allow plants to begin establishing roots before summer.

Zone 3, 4 & 5

Combination: Native Plant Species and Species From Plant List B & C – Semiahmoo Landscape Master Plan, Native Plant Species and species from the Rain Garden Handbook for Western Washington

Plant Characteristics:

Moderate Salt Tolerance, Moderate Wind Tolerance, Non-Native /Enhanced Soils with Moderate Nutrient Content,

Plant Lists A, B, & C from the Semiahmoo Landscape Master Plan, as well as the Zone 1 & 2 plant lists may be used in coordination with the following Zone 3,4, & 5 plant list.

Trees

BOTANICAL NAME	COMMON NAME
<i>Arbutus menziesii</i>	Pacific madrone
<i>Pinus contorta</i>	Lodgepole pine
<i>Prunus emarginata</i>	bitter cherry
<i>Rhamnus purshiana</i>	casara
<i>Salix scouleriana</i>	Scoulers willow
<i>Taxus brevifolia</i>	Pacific yew

Shrubs

BOTANICAL NAME	COMMON NAME
<i>Acer circinatum</i>	Vine maple
<i>Acer glabrum</i>	Douglas maple
<i>Amelanchier alnifolia</i>	Serviceberry
<i>Arctostaphylos uva-ursi</i>	kinnikinnick
<i>Corylus cornuta</i>	Beaked filbert
<i>Gaultheria shallon</i>	Salal
<i>Holodiscus discolor</i>	Ocean spray
<i>Mahonia nervosa</i>	Oregon grape
<i>Myrica californica</i>	California wax myrtle
<i>Oemleria cerasiformis</i>	Osoberry
<i>Polystichum munitum</i>	Sword fern
<i>Quercus garryana</i>	Garry oak
<i>Ribes sanguineum</i>	Red flowering currant
<i>Rhododendron macrophyllum</i>	Pacific rhododendron
<i>Rosa gymnocarpa</i>	Wood rose
<i>Rubus parviflorus</i>	Thimbleberry
<i>Sambucus racemosa</i>	Red elderberry
<i>Symphoricarpos albus</i>	Snowberry
<i>Vaccinium ovatum</i>	Evergreen huckleberry

Zone 3, 4 & 5

Sunny to Partly-Sunny Rain Garden Plant Recommendations

Trees

BOTANICAL NAME	COMMON NAME
<i>Acer circinatum</i>	Vine Maple
<i>Amelanchier alnifolia</i>	Western Serviceberry
<i>Corylus cornuta</i>	Beaked hazelnut
<i>Rhamnus purshiana</i>	Cascara

Shrubs

BOTANICAL NAME	COMMON NAME
<i>Acorus gramineus</i>	Sweet Flag
<i>Athyrium filix-femina</i>	Lady Fern
<i>Carex vulpinoidea</i>	Fox Sedge
<i>Cornus sericea</i>	Red-twig Dogwood
<i>Cornus sericea</i> 'Kelsey'	Dwarf Red-twig Dogwood
<i>Cornus</i> 'Midwinter Fire'	Blood-twig dogwood
<i>Iris versicolor</i>	Blue Flag Iris
<i>Lobelia cardinalis</i>	Cardinal Flower
<i>Mahonia aquifolium</i>	Tall Oregon Grape
<i>Myrica californica</i>	Pacific Wax Myrtle
<i>Physocarpus capitatus</i>	Pacific Ninebark
<i>Rosa pisocarpa</i>	Clustered Wild Rose
<i>Rubus parviflorus</i>	Thimbleberry
<i>Salix purpurea</i> 'Nana'	Dwarf Arctic Willow
<i>Spirea douglasii</i>	Douglas spirea Steeplebush
<i>Symphoricarpos albus</i>	Snowberry
<i>Veronicastrum virginicum</i>	Culver's Root

Ornamental Grasses

BOTANICAL NAME	COMMON NAME
<i>Miscanthus sinensis</i>	Silver Grass
<i>Pennisetum alopecuroides</i>	Fountain Grass
<i>Helictotrichon sempervirens</i>	Blue Oat Grass
<i>Panicum virgatum</i> 'Heavy Metal'	

Shady to Partly-Shady Rain Garden Plant Recommendations

Ornamental Grasses & Emergents

BOTANICAL NAME	COMMON NAME
<i>Carex obnupta</i>	Slough Sedge
<i>Juncus patens</i>	Spreading Rush
<i>Molina caerulea</i>	Moor Grass
<i>Scirpus microcarpus</i>	Small-fruited Bulrush

Shrubs

BOTANICAL NAME	COMMON NAME
<i>Asarum caudatum</i>	Wild Ginger
<i>Athyrium filix-femina</i>	Lady Fern
<i>Blechnum spicant</i>	Deer Fern
<i>Gaultheria shallon</i>	Salal
<i>Lonicera involucrata</i>	Black Twinberry
<i>Mahonia nervosa</i>	Cascade Oregon Grape
<i>Mahonia repens</i>	Creeping Mahonia
<i>Oemleria cerasiformis</i>	Indian Plum
<i>Polystichum munitum</i>	Sword Fern
<i>Rubus spectabilis</i>	Salmonberry
<i>Symphoricarpos albus</i>	Snowberry
<i>Tellima grandiflora</i>	Fringecup
<i>Tiarella trifoliata</i>	Foamflower
<i>Tolmiea menziesii</i>	Piggy Back Plant
<i>Vaccinium ovatum</i>	Evergreen Huckleberry

Naturalized seed mixes

Disturbed areas that require re-vegetation shall be seeded with the mix of recommended herbaceous plants as noted below.

Herbaceous Grass Seed

BOTANICAL NAME	COMMON NAME
<i>Achillea millefolium</i>	Yarrow
<i>Allium cernun</i>	Nodding Onion
<i>Ambrosia chamissonis</i>	Silver Burweed
<i>Bromus tectorum</i>	Cheatgrass
<i>Cerastium arvense</i>	Field Chickweed
<i>Elymus mollis</i>	American Dunegrass
<i>Erigeron glausus</i>	Seaside Daisy
<i>Festuca idahoensis</i>	Idaho fescue
<i>Fragaria chiloensis</i>	Sand Strawberry
<i>Grindelia integrifolia</i>	Gumweed
<i>Lomatium nudicaule</i>	Parsley
<i>Plantago major</i>	Plantain
<i>Plantago maritime</i>	Seaside Plantain
<i>Rumex acetosella</i>	Sheep Sorrel
<i>Agrostis exerata</i>	Spike Bentgrass
<i>Carex macrocephala</i>	Big-head Sedge
<i>Carex mertensii</i>	Merten's Sedge
<i>Deschampsia caespitosa</i>	Tufted Hairgrass
<i>Elymus mollis (vancouverensis)</i>	American Dunegrass
<i>Festuca roemerii</i>	Roemer's Fescue, Wildcrafted
<i>Festuca roemerii</i>	Roemer's Fescue, Field-grown
<i>Festuca rubra v. littoralis</i>	Red Fescue
<i>Luzula multiflora (campestris)</i>	Field Woodbrush

Herbaceous – Wildflower Seed

BOTANICAL NAME	COMMON NAME
<i>Abronia latifolia</i>	Yellow sandverbena
<i>Achillea millefolium</i>	Yarrow
<i>Agrostis exerata</i>	Spike bentgrass
<i>Allium cernuum</i>	Nodding onion
<i>Ambrosia chamissonis</i>	Pearly-everlasting
<i>Armeria maritima</i>	Thrift
<i>Artemisia suksdorfii</i>	coastal mugwort
<i>Aster subspicatus</i>	Douglas aster
<i>Cakile edentula</i>	American searocket
<i>Camassia quamash</i>	blue camas
<i>Campanula rotundifolia</i>	Harebell
<i>Carex mertensii</i>	Merten's sedge
<i>Collinsia parviflora</i>	blue-eyed Mary
<i>Delphinium menziesii</i> Menz	Larkspur
<i>Deschampsia caespitosa</i>	Tufted hairgrass
<i>Elymus glaucus</i>	blue wildrye
<i>Elymus mollis (vancouverensis)</i>	American dunegrass
<i>Erigeron speciosus</i>	Showy fleabane
<i>Eriophyllum lanatum</i>	Woolly sunflower
<i>Festuca roemerii</i>	Roemer's fescue, wildcrafted.
<i>Festuca roemerii</i>	Roemer's fescue, field-grown
<i>Festuca rubra v. littoralis</i>	Red fescue
<i>Fragaria chiloensis</i>	coastal strawberry
<i>Fritillaria camschatcensis</i>	Northern rice-root
<i>Fritillaria lanceolata</i>	chocolate-lily

BOTANICAL NAME	COMMON NAME
<i>Glehnia littoralis</i>	black beach carrot
<i>Grindelia integrifolia</i>	coast gumplant
<i>Heuchera micrantha</i>	Alum-root
<i>Iris setosa</i>	Alaska iris
<i>Lathyrus littoralis</i>	Grey beach peavine
<i>Lathyrus maritimus (japonicus)</i>	beach pea
<i>Lomatium nudicaule</i>	barestem lomatium
<i>Lupinus littoralis</i>	Seashore lupine
<i>Luzula multiflora (campestris)</i>	Field woodrush
<i>Penstemon serrulatus</i>	coast penstemon
<i>Plantago maritima</i>	Seaside plantain
<i>Solidago canadensis</i>	Canada goldenrod

MEMORANDUM

To: Bill Isley January 18, 1985
From: Chris Deffebach File: #1320
Subject: Response to DEIS Comments, Semiahmoo

We have reviewed the comments on the Semiahmoo Draft EIS and have the following responses. The responses are summarized under the major headings: Existing Conditions, Projected Conditions, Project Impacts and Mitigating Measures. For the purpose of assessing the implementation feasibility of the mitigating measures, we have prepared planning level costs of the improvements and developed an implementation strategy.

Existing Conditions

- o Access roads to Semiahmoo are in good operating condition in the sense that they are functioning adequately for today's demand. Many of the roadways, though, require physical improvements to meet today's design standards.

Projected Conditions

- o Our analysis is based on the assumption that Lincoln Road will remain in its existing condition. The current proposal to improve Lincoln Road was considered too conceptual, at this stage, to be assumed as a projected condition.
- o Our analysis indicated that the background traffic growth alone would result in operational problems at several locations, notably Level of Service "E" at the intersection of Peace Portal and Bell, and Level of Service "D" at Birch Bay-Lynden and Blaine intersection and would add congestion for some turning movements at the Drayton Harbor and Harborview intersection and at Birch Bay Drive and Harborview. (See Table 4) It is important to note that all of these intersections are unsignalized and that the analysis was based on peak summer weekend conditions. Traffic operation at all other periods would be better.

Project Impacts

- o The project will increase the pedestrian and bicycle volumes, especially on internal roadways. The Semiahmoo Company plans to provide for this impact by adding lanes for bicycles on Semiahmoo Parkway and on the Spit.

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- o Construction-related traffic will add to the projected trip volumes. With the exception of the construction of the first phase hotel-conference-retail development, the traffic will be distributed over the total 20-year buildout period. This traffic might result in additional road maintenance costs, depending on the pavement quality and underlying base course stability.
- o The project traffic volumes on Semiahmoo Spit Drive through Whatcom County Park are estimated as:

1986	190 peak hour VTE
1995	285 peak hour VTE
2005	380 peak hour VTE

The project impact on the road through the park is expected to be one of traffic speed, not capacity. Without design control, the traffic might travel too fast to be compatible with the park environment. Therefore, we selected a roadway design to reduce speed. It includes a reduced section to 2-11 foot lanes and a berm-separated 8 foot bike-pedestrian path.

- o We did not analyze the impact of Semiahmoo-generated traffic on the I-5 Interchanges. Traffic volume count data was not available for the interchanges. We estimated the number of project trips at each interchange during year 2005, peak hour to be:

	To NB I-5	From NB I-5	To SB I-5	From SB I-5
Interchange #270	60	60	140	140
Interchange #274	--	--	20	20
Interchange #276	80	80	0	0

- o The intersections serving I-5 via Birch Bay-Lynden Road are projected to be operating at Level of Service "C" or "D" during peak hours in year 2005. A Level of Service "C" is generally considered acceptable for rural conditions and Level of Service "D" for urban conditions. A signal would improve the level of service, but may not meet engineering warrants because these traffic conditions will be better during summer weekdays and during the off-peak season.

Mitigating Measures

- o The signal at the intersection of Birch Bay-Lynden Road and Harborview Road will need to be warranted for operation. The intersection may require a new signal and redesign of the approaches. A warrant study would establish the need for a new signal and approach design.
- o The intersection of Blaine Road and Drayton Harbor road is adequate for the projected traffic volumes through approximately 1995. Control of speed on Blaine Road would allow the existing design to operate more effectively.
- o Traffic volumes on the Spit road and other internal roadways could be reduced with additional internal shuttle service, provided that demand exists for such service.

- o Directional signage on I-5 would help direct trips to the 276-Interchange. Signage that says "Semiahmoo - Lodging" or "Semiahmoo Parkway" would be appropriate. The type of signage will depend on State and Federal uniform traffic control standards.

Implementation

Phasing

The phasing schedule of the improvements depends on traffic volume and the availability of funds. Though some of the improvements are required now to improve substandard conditions, sufficient funds may not be available today.

Therefore, we have prepared a phasing plan for the improvements based on a reasonable assessment of funding and projected traffic volumes. Because the City and County must consider capital improvements on a regional basis, they may want to adjust the phasing plan to match other area-wide improvements.

Ferry

The pedestrian ferry depends on parties and events outside The Semiahmoo Company control. As such, it cannot be a precondition to development. The Semiahmoo Company agrees, however, to participate in the implementation effort of the ferry with the City, Port Authority and County Parks.

Financing

The cost of future off-site traffic improvements is proposed to be paid by unallocated county funds generated by The Semiahmoo Development and in cooperation with the City and County.

The Semiahmoo Company could agreed now to pay a share of the costs based on trip generation or another formula. It would be unreasonable, however, for Semiahmoo to pay in proportion to volumes for existing deficiencies. A latecomers fee, in which later developers could contribute to the cost of the improvement after it was completed, may also be appropriate.

Semiahmoo Spit Road

The Semiahmoo road through the county park is now owned by Whatcom County. The Semiahmoo Company has a 50' easement which it will transfer to the City of Blaine at the time the Spit Road outside the park is dedicated. The R.O.W. on the Semiahmoo Resort Spit property is to be 30' with two eleven (11) foot lanes and associated shoulders. Additional buffers and pedestrian way easements will be provided on the resort property as illustrated in the Master Plan (page 143).

The bicycle/pedestrian way in the park should be developed in the 50' R.O.W., separated from the roadway and on the Drayton Harbor side.

PROPOSED PHASING PLAN

Improvement	Year	1985	1990	1995	2000	2005
Dwelling ¹ Units		310	800	1280	1880	2480
Semiahmoo Parkway		●				
Upgrade RR Crossing		●				
Signalize Harborview & B-B Lynden Intersection			●			
Relocate Drayton Harbor Road			●			
Realign Intersections: Drayton Harbor/Shintaffer				●		
Drayton Harbor/Harborview				●		
Directional Signage on I-5			●			
Blaine Road speed control signage			●			
Signalize Bell Road/ Peace Portal					●	
OR						
Realign Bell Road with I-5 ramps					●	
Internal Shuttle Expansion				●		
Local Transit Service					●	
New I-5 ramps & Arterial Connection to Semiahmoo Parkway						●

¹ Excluding Hotel Units



Appendix D

SEMAIHMUO RESORT FISCAL IMPACT

The following tables and graphs illustrate projected revenues to the City of Blaine, Whatcom County and Washington State as a result of Semiahmoo development. This analysis is fairly inclusive of all direct revenue sources. However, Semiahmoo Resort will, at build-out, become the area's largest employer, creating between four and five hundred new jobs. It will involve hundreds of millions of dollars in construction costs and will attract tens of millions in local retail revenues. Clearly, the second and third order effects of development will have far reaching benefits to the region and should not be ignored.

In October 1984, Economic Research Associates of San Francisco conducted an independent research study of Semiahmoo's market area. Their projections for real estate sales form the base build-out assumptions for the fiscal model. Although these projections represent our best guess of actual timing and phasing, actual development and the resulting revenues will hinge on a myriad of market factors which are, to date, unknown.

It is critical to understand that although revenues will closely track development, so will the need for services and capital improvements. This fact eliminates the need for certainty in Semiahmoo's development schedule. Rather, Semiahmoo is assured of contributing positive net cash, at any assumed rate of growth, to the city, county and state treasuries.

Because of the rapid construction of resort amenities, total annual revenues to the City of Blaine are projected to exceed \$2,000,000 in the current year. \$363,000 of this accrues to the City of Blaine as unallocated funds. These numbers steadily increase over time to a projected \$5,090,000 during 1993, of which \$592,000 are unallocated City revenues. In total, Semiahmoo will have generated over \$33.5 million in city, county and state revenues by 1993. Many common expense items that would normally accrue to these bodies, such as utility development, road construction and maintenance, will be handled by the developer, freeing up funds for major civic improvements.

Please see the following Revenue Summary Tables (one through eight) for a detailed breakdown of revenue sources.

In discussion meetings, several expense items were of concern to the City. Two items were incremental police requirements and county road improvements caused by Semiahmoo development. The general concern was that no appreciable revenue would be generated to offset these expenses in the early years. However, as is shown in the Revenue Summary, Semiahmoo will have contributed approximately \$363,000 in unallocated City revenues by the end of this year with virtually no offsetting need for City services. Approximately \$183,000 will be required for services directly associated with the development, leaving \$180,000 actually unallocated. County road improvements should also be supported by Semiahmoo revenues. The County Revenue vs. Road Improvement Graph illustrates the relationship between costs and unallocated revenues accruing to the County.

SEMIAMMOO RESORT — FISCAL IMPACT

ANNUAL REVENUES (1984 DOLLARS)

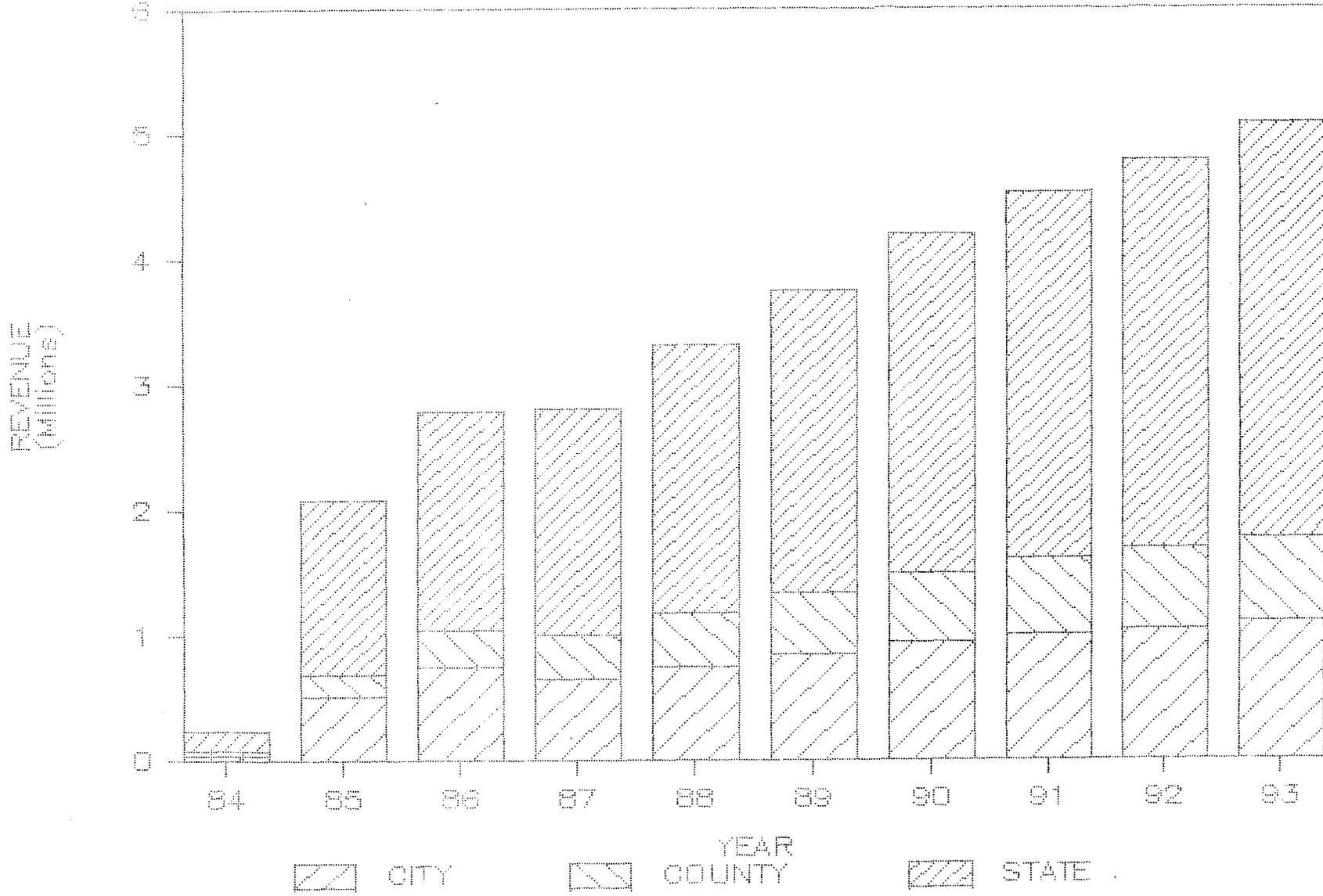


Exhibit 1

SEMAIHMUO RESORT - FISCAL IMPACT
REVENUE SUMMARY
(000) - 1984 DOLLARS

City	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	Total
City											
Unallocated Funds											
Sales Tax (1)	0	9	53	97	113	129	146	159	172	183	1061
Construction Sales Tax (1)	15	157	167	82	92	90	94	88	82	81	948
Construction Permits (2)	0	158	157	85	95	92	98	91	85	84	945
Real Estate Transfer Tax (3)	5	30	42	46	53	59	62	66	64	65	492
Property Tax	6	7	22	41	51	63	74	86	97	107	554
Transient/Convention Tax	0	0	4	9	9	9	10	10	10	10	71
State Revenue Sharing	0	2	6	12	19	28	38	47	55	62	269
Subtotal	<u>26</u>	<u>363</u>	<u>451</u>	<u>372</u>	<u>432</u>	<u>470</u>	<u>522</u>	<u>547</u>	<u>565</u>	<u>592</u>	<u>4340</u>
Allocated Funds											
Water Cap. Improve.	0	59	106	78	81	88	90	88	81	77	748
Sewer Cap. Improve.	0	42	76	40	42	45	46	45	42	39	417
Drainage Cap. Improve.	0	28	51	27	28	30	31	30	28	26	279
Fire District #13 (4)	8	11	30	55	70	86	102	118	133	146	759
School District #503	12	16	46	84	106	131	155	179	202	222	1153
Total City Revenues	<u>\$ 46</u>	<u>\$ 519</u>	<u>\$ 760</u>	<u>\$ 656</u>	<u>\$ 759</u>	<u>\$ 850</u>	<u>\$ 946</u>	<u>\$ 1007</u>	<u>\$ 1051</u>	<u>\$ 1102</u>	<u>\$ 7696</u>
County											
Unallocated Funds											
Sales Tax	0	2	11	20	24	28	32	36	39	42	234
Construction Sales Tax	3	28	25	14	16	16	17	16	15	14	164
Real Estate Transfer Tax	21	128	181	197	227	252	267	283	274	280	2110
Property Tax	11	14	39	72	91	112	132	153	173	189	986
Subtotal	<u>35</u>	<u>172</u>	<u>256</u>	<u>303</u>	<u>358</u>	<u>408</u>	<u>448</u>	<u>488</u>	<u>501</u>	<u>525</u>	<u>3494</u>
Allocated Funds											
Port of Bellingham	7	9	26	48	61	75	89	103	116	128	662
Whatcom County Parks	1	1	4	7	8	10	12	14	16	17	90
NW Park and Rec.	1	1	2	4	5	7	8	9	10	11	58
Total County Revenues	<u>\$ 44</u>	<u>\$ 183</u>	<u>\$ 288</u>	<u>\$ 362</u>	<u>\$ 432</u>	<u>\$ 500</u>	<u>\$ 557</u>	<u>\$ 614</u>	<u>\$ 643</u>	<u>\$ 681</u>	<u>\$ 4304</u>
State											
Unallocated Funds											
Sales Tax	0	144	562	979	1200	1425	1655	1858	2041	2212	12076
Construction Sales Tax	118	1200	1086	624	699	687	718	676	627	616	7051
Less: Distributions to City	0	2	10	21	28	37	48	57	65	72	340
Subtotal	<u>118</u>	<u>1342</u>	<u>1638</u>	<u>1582</u>	<u>1871</u>	<u>2075</u>	<u>2325</u>	<u>2477</u>	<u>2603</u>	<u>2756</u>	<u>18787</u>
State Schools	31	40	114	209	264	325	384	444	502	551	2864
Total State Revenues	<u>\$ 149</u>	<u>\$ 1382</u>	<u>\$ 1752</u>	<u>\$ 1791</u>	<u>\$ 2135</u>	<u>\$ 2400</u>	<u>\$ 2709</u>	<u>\$ 2921</u>	<u>\$ 3105</u>	<u>\$ 3307</u>	<u>\$ 21651</u>
Total Revenue from Semiahmoo	<u>\$ 239</u>	<u>\$ 2084</u>	<u>\$ 2800</u>	<u>\$ 2809</u>	<u>\$ 3329</u>	<u>\$ 3750</u>	<u>\$ 4212</u>	<u>\$ 4542</u>	<u>\$ 4799</u>	<u>\$ 5090</u>	<u>\$ 33651</u>

Exhibit 2

- (1) Approx. 50% allocated to street improvement reserve
- (2) Construction permits go directly to servicing permit review.
- (3) R.E. Transfer Tax is assigned to road improvements.
- (4) Contract amount estimated by current assessment.

SEMIAMMOO RESORT — FISCAL IMPACT

CITY REVENUES (1984 DOLLARS)

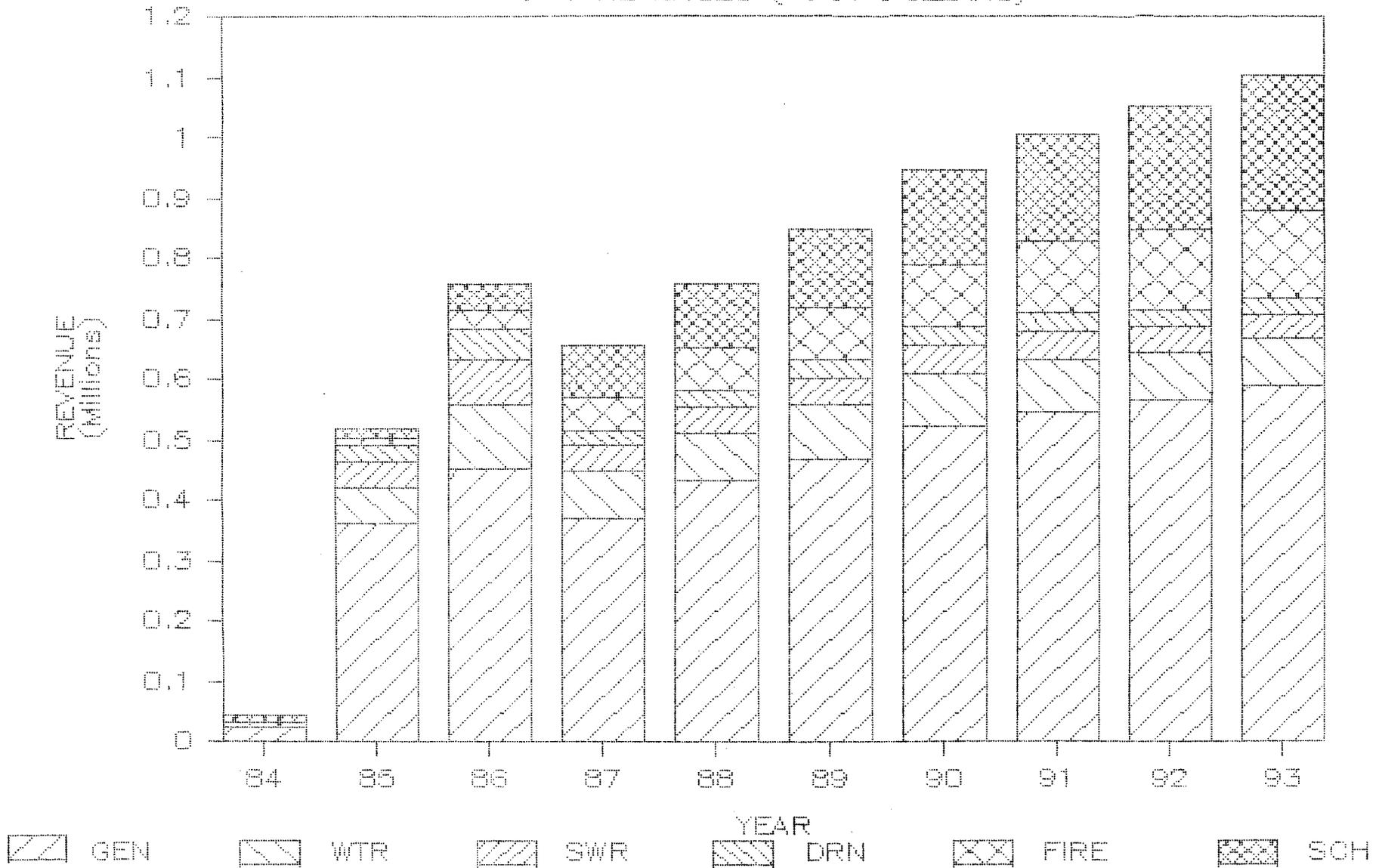
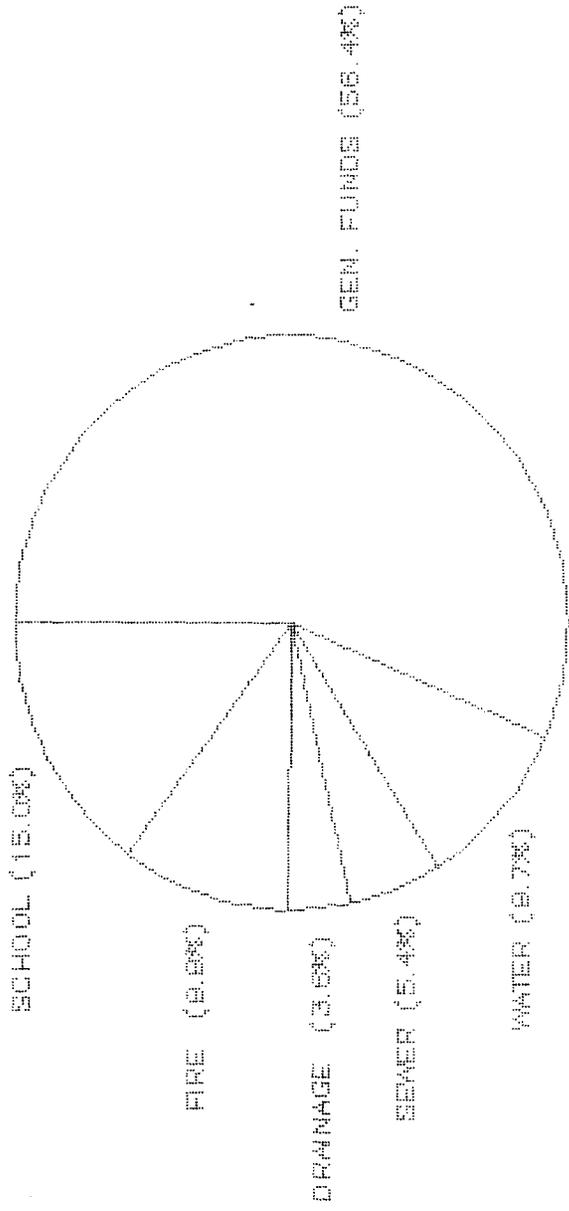


Exhibit 3

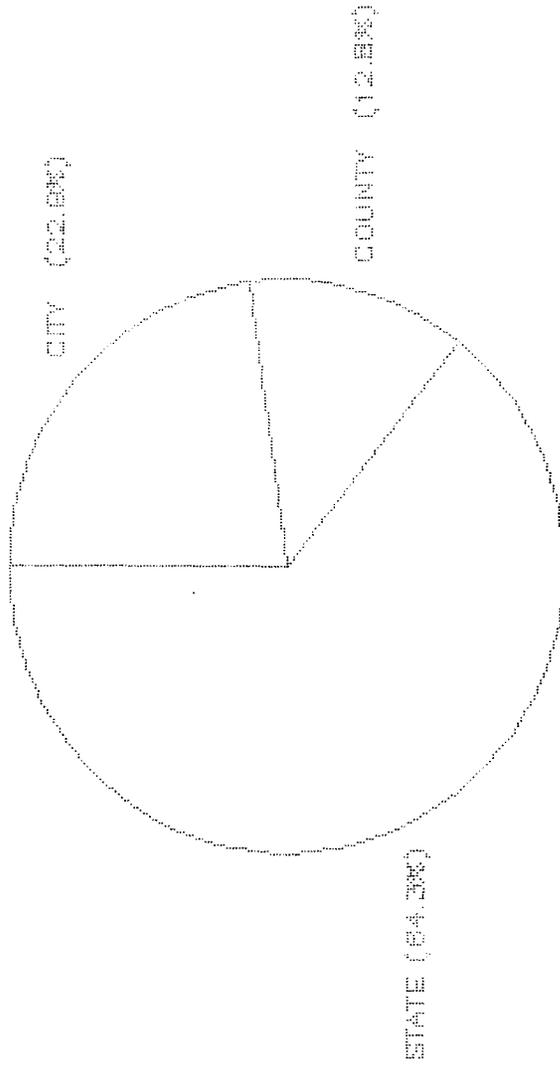
SEMAHMOO RESORT - CITY REVENUES

1993 - \$7,696,000



SEMAHMOO RESORT - REVENUE SUMMARY

1993 - \$33,551,000



SEMLAHMOO RESORT - FISCAL IMPACT
PROPERTY TAX SCHEDULE
(000) - 1984 DOLLARS

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993		
<u>Construction</u>												
<u>Infrastructure</u>												
Marina				450			450			450		
Golf Course	700	1800			1000							
Hotel and Athletic Club		6250	6250									
Restaurant and Retail		1500	1500									
	\$ 700	\$ 9550	\$ 7750	\$ 450	\$ 1000		\$ 450			\$ 450		
<u>Residential</u>												
Spit Condos	- Number	30	65	55	50	50	50	50	-	-		
	Value	4500	7500	6750	6250	6250	6250	6250	-	-		
Upland Condos	- Number	40	35	35	45	50	50	50	90	85		
	Value	4000	3500	3500	4500	5000	5000	5000	9000	8500		
Lots	- Number	25	50	55	65	70	65	65	60	55		
	Value	2000	2500	2500	3000	3150	3000	3000	2700	2500		
Homes -(40% lots sold - 1 yr lag)	- Number	-	10	20	22	26	30	28	26	24		
	Value		1000	2000	2200	2600	3000	2800	2600	2400		
		2000	12000	15500	15450	16750	17400	17050	16850	14300	13400	
Undeveloped land		9000		4500								
Assessed Value		11700	21550	27750	15900	17750	17400	17500	16850	14300	13850	
Cum. Value		11700	33250	61000	76900	94650	112050	129550	146400	160700	174550	
<u>Property Tax</u>												
(1 yr. assessment lag)	<u>Levy Rate</u>										<u>Totals</u>	
City	(.664)	6	7	22	41	51	63	74	86	97	107	554
County	(1.179)	11	14	39	72	91	112	132	153	173	189	986
Fire Dist. #13	(.908)	8	11	30	55	70	86	102	118	133	146	759
School Dist. #503	(1.383)	12	16	46	84	106	131	155	179	202	222	1153
State Schools	(3.430)	31	40	114	209	264	325	384	444	502	551	2864
Port of Bellingham	(.795)	7	9	26	48	61	75	89	103	116	128	662
Whatcom County Parks	(.107)	1	1	4	7	8	10	12	14	16	17	90
		\$ 76	\$ 98	\$ 281	\$ 516	\$ 651	\$ 802	\$ 948	\$ 1097	\$ 1239	\$ 1306	\$ 7068
<u>Transfer Tax - Residential</u>												
(assumes 10% resales beginning 1986)												
City (.25%)		5	30	42	46	53	59	62	66	64	65	492
County (1.07%)		21	128	181	197	227	252	267	283	274	280	2110
		\$ 26	\$ 158	\$ 223	\$ 243	\$ 280	\$ 311	\$ 329	\$ 349	\$ 338	\$ 345	\$ 2602

Exhibit 5

SEMAIHMUO RESORT - FISCAL IMPACT
CONSTRUCTION SCHEDULE
(000) - 1984 DOLLARS

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	
<u>Construction Costs</u>											
Marina (\$4,500/Slip)				450			450			450	
Golf Course	700	1800			1000						
Hotel and Athletic Club		6250	6250								
Restaurant and Retail		1500	1500								
Lots (\$20,000/Lot)	1120	900	980	1100	1300	1400	1300	1300	1200	1100	
Condos (\$65,000/Condo)		7020	5980	5850	5850	6175	6500	6500	5850	5525	
Houses (\$100,000/House)		1000	2000	2200	2600	3000	2800	2600	2600	2400	
Total	\$ 1820	\$18470	\$16710	\$ 9600	\$10750	\$10575	\$11050	\$10400	\$ 9650	\$ 9475	
											<u>Totals</u>
<u>Tax Revenue</u>											
City (.85%)	15	157	167	82	92	90	94	88	82	81	948
County (.15%)	3	28	25	14	16	16	17	16	15	14	164
State (6.5%)	118	1200	1086	624	699	687	718	676	627	616	7051
	\$ 136	\$ 1385	\$ 1278	\$ 720	\$ 807	\$ 793	\$ 829	\$ 780	\$ 724	\$ 711	\$ 8163
<u>Permit Revenue</u>											
City (1% of Const. Cost excluding lots and golf course)	\$ 0	\$ 158	\$ 157	\$ 85	\$ 95	\$ 92	\$ 98	\$ 91	\$ 85	\$ 84	\$ 945
<u>Capital Improvement Fees</u> (Hotel @ .5 Units/Room - No alloc. for Commercial, Athl. or Marina)											
Water (\$500 + .002 of Building Value/Unit)	-	59	106	78	81	88	90	88	81	77	748
Sewer (\$360/Unit)	-	42	76	40	42	45	46	45	42	39	417
Drainage (\$240/Unit)	-	28	51	27	28	30	31	30	28	26	279
	\$ 0	\$ 129	\$ 233	\$ 145	\$ 151	\$ 163	\$ 167	\$ 163	\$ 151	\$ 142	\$ 1444

Exhibit 6

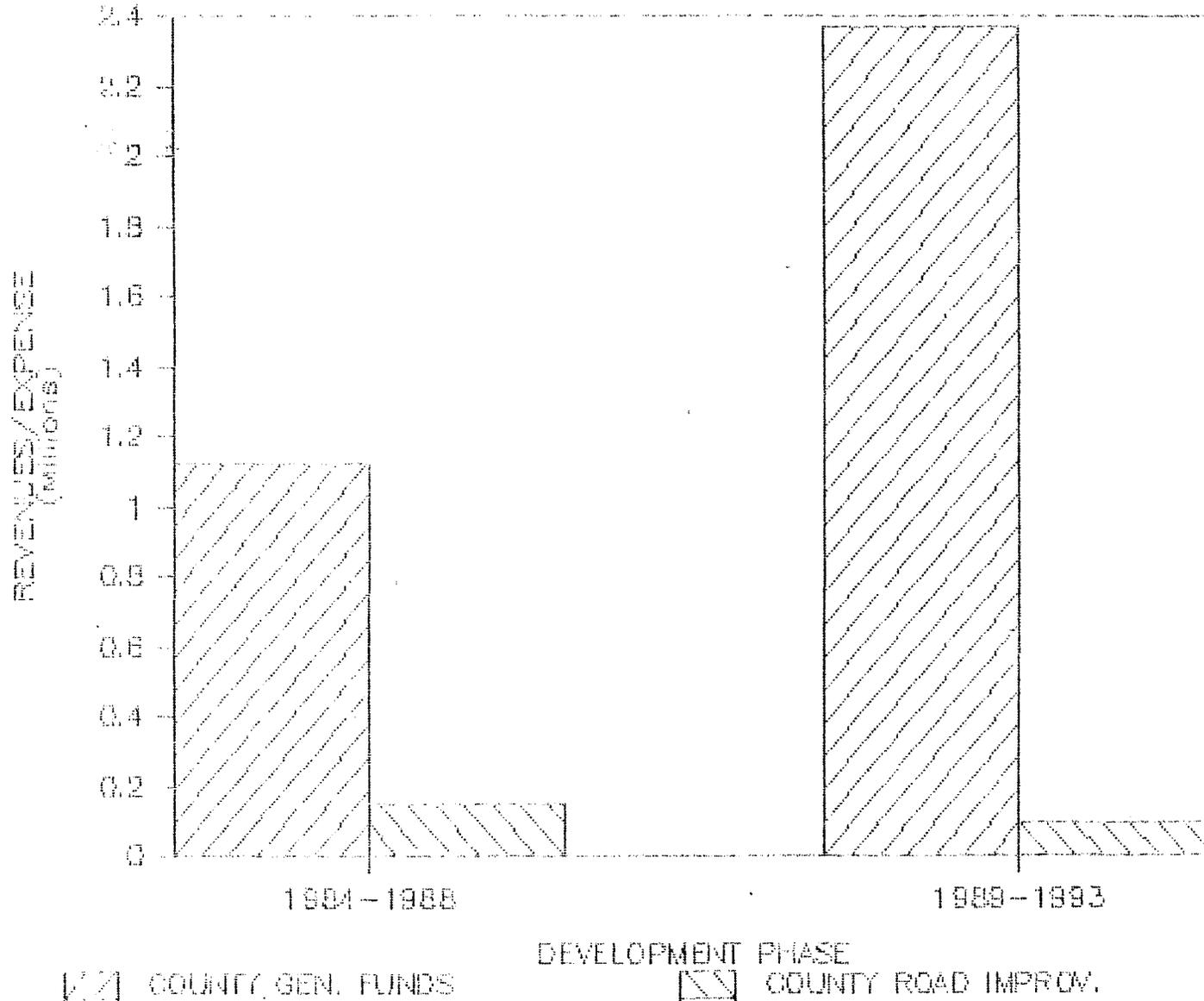
SEMAHMOO RESORT - FISCAL IMPACT
 SALES TAX - REVENUE SHARING
 (000) - 1984 DOLLARS

	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	
Permanent Residents (%/Total Units)											
Spit Condos	-	6%/30	7%/95	8%/150	9%/200	10%/250	10%/300	10%/350	10%/350	10%/350	10%/350
Upland Condos	-	15%/40	20%/75	25%/110	30%/155	35%/205	40%/255	40%/305	40%/395	40%/480	
Lots	0/25	15%/75	25%/130	30%/195	35%/270	40%/340	45%/405	50%/470	50%/530	50%/585	
Total (Ave 3 per unit)	0	57	162	294	477	698	943	1176	1374	1559	
Ave. Sales Per Resident/Year	<u>8</u>										
Total Retail Sales	0	456	1296	2352	3816	5584	7544	9408	10992	12472	
City (50%)	0	228	648	1176	1908	2792	3772	4704	5496	6236	
County (75%)	0	342	972	1764	2862	4188	5653	7056	8244	9354	
State (100%)	0	456	1296	2352	3816	5584	7544	9408	10992	12472	
Number of Seasonal Units	25	126	246	357	466	562	646	733	817	895	
Seasonal Residents (3.5/Unit)	0	441	861	1250	1631	1967	2261	2565	2860	3133	
Total Retail Sales (3/Year)	0	1764	3444	5000	6524	7868	9044	10260	11440	12532	
City (50%)	0	882	1722	2500	3262	3934	4522	5130	5720	6266	
County (75%)	0	1323	2583	3750	4893	5901	6783	7695	8580	9399	
State (100%)	0	1764	3444	5000	6524	7868	9044	10260	11440	12532	
Hotel Guest Nights	-	-	45450	88200	91620	95580	100260	100260	100260	100260	
Sales Revenue (\$75/Guest Night)	-	-	3409	6615	6872	7169	7520	7520	7520	7520	
Additional Tourist Day Visits/Year	0	0	50000	110000	125000	130000	135000	140000	145000	150000	
Sales Revenue (\$10/per Capita)	0	0	500	1100	1250	1300	1350	1400	1450	1500	
											<u>Total</u>
<u>Sales Tax Revenue</u>											
City (.85%)	0	9	53	97	113	129	146	159	172	183	1061
County (.51%)	0	2	11	20	24	28	32	36	39	42	234
State (6.5%)	0	144	562	979	1200	1425	1655	1858	2041	2212	12076
	0	155	626	1096	1337	1582	1833	2053	2252	2437	13371
<u>State Revenue Sharing</u>											
City (\$40%/Capita)	0	2	6	12	19	28	38	47	55	62	269
<u>Transient/Convention Tax</u>											
City (2% of Inn generated sales tax)	0	0	4	9	9	9	10	10	10	10	71

Exhibit 7

SEMIANMOO RESORT -- FISCAL IMPACT

COUNTY: REVENUE vs. ROAD IMPROV. EXPENSE



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Transportation Impact Analysis

SEMIAHMOO SPIT MASTER PLAN UPDATE

Prepared for:
Rimland Pacific, Inc.

March 2014

Prepared by:



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Table of Contents

EXECUTIVE SUMMARY	ii
INTRODUCTION.....	4
Project Description.....	4
Study Scope.....	4
Study Area	4
EXISTING AND FUTURE BASELINE CONDITIONS.....	6
Roadway Network.....	6
Traffic Volumes	7
Traffic Operations	11
Intersection Traffic Safety	12
Non-motorized Facilities	13
Transit Service	14
Ferry Service.....	14
PROJECT IMPACTS AND MITIGATIONS	15
Trip Generation	15
Trip Distribution & Assignment	16
Traffic Volumes	16
Traffic Operations	19
Site Vehicular and Pedestrian Circulation	22
Traffic Safety.....	23
Transit and Ferry Service	23
FINDINGS AND RECOMMENDATIONS.....	24
Mitigation Plan	24

Appendix

- Appendix A: Traffic Counts
- Appendix B: Pipeline Development Trip Assignment
- Appendix C: LOS Definitions
- Appendix D: LOS Worksheets

Figures

Figure 1. Site Vicinity	5
Figure 2. Existing Weekday PM Peak Hour Traffic Volumes	9
Figure 3. Future (2023) Without-Project Peak Hour Traffic Volumes.....	10
Figure 4. Project Trip Distribution and Assignment	18
Figure 5. Future (2023) With-Project PM Peak Hour Traffic Volumes	21

Tables

Table 1. Mitigation Timing & Proportionate Share	iii
Table 2. Existing and Future Baseline Weekday PM Peak Hour LOS Summary	11
Table 3. Three-Year Collision Summary – 2010 to 2012	12
Table 4. Estimated Weekday PM Peak Hour Trip Generation.....	16
Table 5. Weekday PM Peak Hour Traffic Volume Impact at Study intersections	17
Table 6. Future (2023) Weekday PM Peak Hour LOS Summary	19
Table 7. Transportation Mitigation Improvements.....	26
Table 8. Mitigation Timing & Proportionate Share	27

Executive Summary

This section provides an executive summary of the Transportation Impact Study for the Project identified in the Semiahmoo Spit Master Plan Update through a set of frequently asked questions (FAQs).

Where is the Project located?

The proposed development Project is located on the Semiahmoo Spit which is between Semiahmoo Bay and Drayton Harbor, within the City of Blaine in the Master Plan area for the Resort Semiahmoo Planned Community. The Project site is located on the southeast side of Semiahmoo Parkway across from the Semiahmoo Resort.

What is the Project land use and trip generation?

The proposed Project would develop up to 220 resort residential units and up to 60,000 square-feet of supporting commercial. Based on ITE *Trip Generation*, the proposed developments would generate a total of 313 net new weekday PM peak hour trips (183 inbound/130 outbound).

What are the existing and future baseline conditions in the study area?

All study intersections are currently operating at LOS C or better during the weekday PM peak hour with the exception of the Birch Bay-Lynden Rd/Portal Way intersection, which operates at LOS E. Whatcom County plans to construct a traffic signal and provide turn lanes at the Birch Bay-Lynden Rd/Portal Drive intersection by 2014.

Weekday PM peak hour operations at the Peace Portal Drive/Bell Road and Birch Bay-Lynden Road/Blaine Road intersections would degrade to LOS E under future 2023 without-Project weekday PM peak hour conditions. Transportation improvements have been identified at both of these intersections, but were not assumed as part of the future analysis. With construction of the transportation improvements, both locations would meet the current LOS standards. It is anticipated that the Peace Portal Drive/Bell Road intersection would fall below the current LOS D standard by 2022 with a traffic volume increase of approximately 375 vehicles. The Birch Bay-Lynden Road/Blaine Road intersection would fall below the current standard by 2018 with a traffic volume increase of approximately 190 vehicles.

Would the Project have any transportation impacts?

Traffic associated with the development of the Project is anticipated to degrade the operation of the intersections of Lincoln Road/Harborview Road from LOS D to LOS F and Drayton Harbor Road/Blaine Road from LOS D to LOS F. In addition, the Peace Portal Drive/Bell Road and Birch Bay-Lynden Road/Blaine Road intersections are forecasted to operate at LOS E with or without the Project. Capacity improvements would be necessary to improve operations to acceptable levels.

In addition, the Project would increase vehicular and pedestrian volumes along Semiahmoo Parkway along the spit. Given that the roadway and pedestrian facilities don't meet current design standards, the City is concerned with pedestrian safety. This increase in volumes could result in the potential for safety issues.

What is the mitigation plan?

Long range plans for the improvements have been developed for all locations operating below acceptable levels; however, these improvements are currently unfunded and it is unknown if they would be funded and completed prior to the development. The Project could mitigate its impacts by contributing funds, covering its proportionate share of the cost of the improvement, to be used toward the completion of the improvement in the future. Other options would be for the Project to implement a portion of the improvement, or an interim improvement. The following provides a brief summary of the recommended mitigation plan. Additional detail is provided in the findings and recommendations chapter.

Table 1. Mitigation Timing & Proportionate Share

Improvement Location	Recommended Improvement	Timing of Mitigation Need ¹		Planning Level Estimated Cost	Proportionate Share based on Total Traffic ⁴			Proportionate Share based on Growth Traffic ⁵		
		Year ²	Volume Growth Trigger		Percent Project Share of Total	Project Cost Share	Cost Per Trip	Percent Project Share of Growth	Project Cost Share	Cost Per Trip
Lincoln Rd/Harborview Rd	All-way stop control. Additional warning signs or flashing light may be needed along Harborview Road.	2021	565	\$5,000	26%	\$1,300	\$4.15	40%	\$2,000	\$6.39
Drayton Harbor Rd/Blaine Rd	Provide a southbound right-turn lane	2022	450	\$100,000	12%	\$12,000	\$38.34	28%	\$28,000	\$89.46
Peace Portal Dr/Bell Rd	Install traffic signal (\$250k). The City also planned improvement to install westbound and northbound right-turn lanes to improve intersection alignment, safety, and drainage. In this study, northbound left-turn lane was used rather than right-turn lane to improve operations (\$75k).	2020	380	\$325,000	8%	\$26,000	\$83.07	23%	\$74,750	\$238.82
Birch Bay-Lynden Rd/Blaine Rd	Install a single lane roundabout.	2016	160	\$750,000	9%	\$67,500	\$215.65	26%	\$195,000	\$623.00
Semiahmoo Parkway (Spit)	Separate drive lane and pedestrian path along Semiahmoo Parkway to maximum extent feasible along the approximate 700' narrow segment of roadway at the neck of the Spit.	2016 ³		\$125,000	62%	\$77,500	\$247.60	75%	\$93,750	\$299.52
					Total	\$184,300	\$588.82	Total	\$393,500	\$1,257.19

1. This represents the approximate year that the impact would be triggered and mitigation would be needed as well as the volume increase that triggers the need for improvement.
 1. The year was developed based assuming a consistent pace of growth between 2013 and 2023. Faster growth would trigger the need for improvements sooner.
 2. This is an existing issue, which the Project would add to; therefore, steps towards improvements should be made at the outset of development.
 3. Project Share = Project Volume / Total With-Project (2023)
 4. Project Share in Growth = Project Volume / (Total With-Project (2023) - Existing Volume (2013)).

To further refine a developments proportional share impacts, an origin-destination (OD) study or sensitivity analysis should be conducted. This would identify a Project's specific share of traffic impacting locations requiring mitigation.

Introduction

The purpose of this transportation impact analysis (TIA) is to identify potential transportation-related impacts associated with the proposed Semiahmoo Spit Master Plan Update. As necessary, mitigation measures are identified that would offset or reduce significant impacts.

Project Description

The proposed development is located on the Semiahmoo Spit which is between Semiahmoo Bay and Drayton Harbor, within the City of Blaine in the Master Plan area for the Resort Semiahmoo Planned Community. The Project site is located on the southeast side of Semiahmoo Parkway across from the Semiahmoo Resort.

Currently, there is a hotel, marina, and some residential development on the Spit. The proposed Project would develop up to 220 resort residential units and up to 60,000 square-feet of supporting commercial. The only vehicular access to the Spit is via Semiahmoo Parkway. Figure 1 illustrates the Project site and the surrounding vicinity. The anticipated completion of the Project is 2023.

Study Scope

The scope of the analysis was developed after consultation with the City of Blaine, Department of Public Works. This study evaluates weekday PM peak hour intersection operations in the area surrounding the proposed Semiahmoo Spit development. The study area primarily focuses on the main intersections along Semiahmoo Parkway, Drayton Harbor Road, Blaine Road, and Birch Bay-Lynden Road. Traffic volume forecasts account for specific development plans within Blaine and Whatcom County.

Study Area

The analysis focuses on the weekday PM peak period (4:00 to 6:00 p.m.) operations at nine study intersections. This PM peak period represents the highest cumulative total traffic for the adjacent street system providing a conservative timeframe for level of service (LOS) analysis. Based on coordination with City staff, the study intersections include:

1. Semiahmoo Parkway/Drayton Harbor Road
2. Semiahmoo Parkway/Shintaffer Road
3. Lincoln Road/Harborview Road
4. Drayton Harbor Road/Blaine Road
5. Peace Portal Drive/Bell Road
6. Birch Bay-Lynden Road/Harborview Road
7. Birch Bay-Lynden Road/Blaine Road
8. Drayton Harbor Rd/Shintaffer Road
9. Birch Bay-Lynden Road/Portal Way

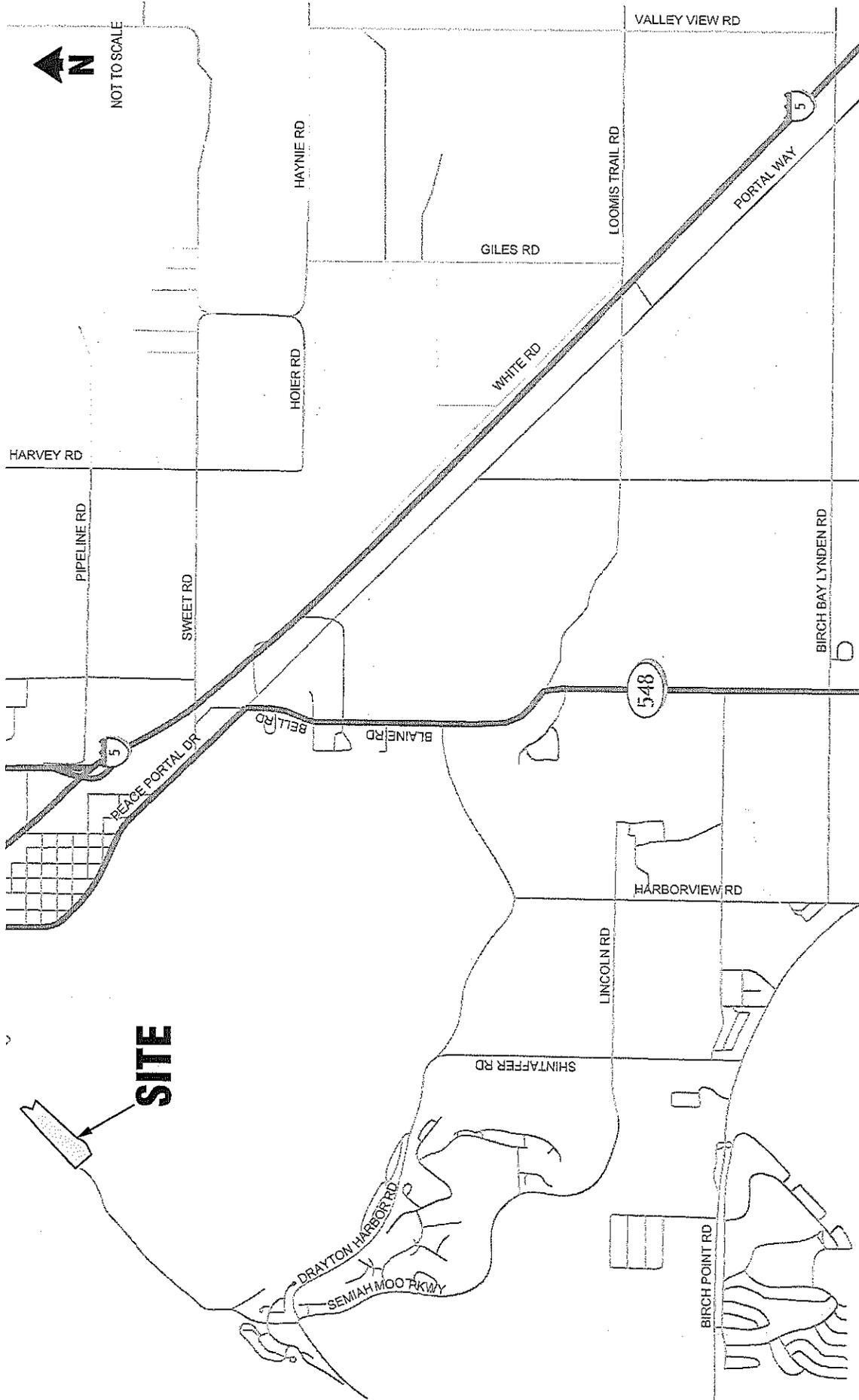
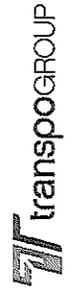


FIGURE 1

Site Vicinity
 Semiahmoo Spit Buildout



Existing and Future Baseline Conditions

This section describes existing and future baseline conditions within the identified study area. Characteristics are provided for the roadway network, existing traffic volumes, traffic operations, traffic safety, non-motorized facilities, and ferry service.

Roadway Network

The Project site is located in the City of Blaine on the Semiahmoo Spit. The major roadways within the study area include:

Semiahmoo Parkway/Lincoln Road is a two-lane collector that extends from Harborview Road into west Blaine. The roadway is called Lincoln Road to the east of Shintaffer Road, and Semiahmoo Parkway to the west. In the Project vicinity, Semiahmoo Parkway (on the spit) has no shoulders, curbs, gutters, or sidewalks. Upland of the spit, paved shoulders exist along both sides of the road, with no, curbs, gutters, or sidewalks. The posted speed limit is 35 mph.

Shintaffer Road is a two-lane collector that runs north-south from Drayton Harbor Road to Birch Bay Drive. Unpaved shoulders exist along both sides of Shintaffer Road in the proposed Project vicinity, with no curb, gutter or sidewalks. The posted speed limit is 35 mph.

Harborview Road is a two-lane, north-south collector that extends from Drayton Harbor Road south to Birch Bay Drive. Within the study area, there are unpaved shoulders with no curb along both sides of the street. The posted speed limit is 40 mph.

Birch Bay-Lynden Road is a two-lane collector that runs east-west from Harborview Road to the City of Lynden. Intermittent paved shoulders exist within the Project vicinity with no curb, gutter or sidewalks provided. The posted speed limit is 40 to 50 mph.

Drayton Harbor Road is a two-lane collector that runs from Blaine Road (SR 548) into west Blaine. Unpaved shoulders exist along both sides of the road in the proposed Project vicinity, with no curbs on either side. The posted speed limit is 25 to 40 mph.

Blaine Road/Bell Road/Peace Portal Drive (SR 548) is a two-lane state highway that connects to I-5 to the north within downtown Blaine. Unpaved shoulders exist along both sides of the road in the proposed Project vicinity, with no curbs on either side. The posted speed limit is 35 mph to 45 mph.

Planned Improvements

The City of Blaine and Whatcom County's transportation plans and Six-Year Transportation Improvement Programs (TIP) were reviewed to identify any intersection or roadway improvements that are likely to occur within the year 2023 development horizon.

The only funded improvement within the study area is the signalization of the Birch Bay-Lynden Rd/Portal Way intersection as outlined in the Whatcom County Six-Year (2013-2018) TIP. This project includes installation of a traffic signal as well as new turn lanes, with completion anticipated by 2014. Given that this project is funded and planned to be installed prior to the 2023 horizon year, it was accounted for in the future conditions analysis.

The City of Blaine's Six-Year (2013-2018) TIP includes two additional improvement projects within the study area that are currently not funded. These are described below but were not included in the operations analysis.

- Semiahmoo Spit Pedestrian Path Safety Improvements Phase 1 (from the County Park to 0.5 miles north) – The safety improvements include traffic/pedestrian separation enhancements with the addition of curb, landscape, and other amenities as well as site-specific repairs to pedestrian facilities and signage. Construction is anticipated in 2016 with an estimated cost of \$115,000.
- Bell Road/Peace Portal Drive Intersection Improvements – Improvements include additional right-turn lanes for the westbound and northbound approaches. Construction is anticipated in 2019 with an estimated cost of \$75,000.

In addition, long-range transportation plans for the study area were reviewed to understand potential improvements that are being considered. The City's *Comprehensive Plan* and *Birch Bay Transportation Planning Study* and County's *Transportation Impact Fee Program* discuss the need for the following improvements within the study area:

- Extension of Lincoln Road between Harborview Road and Blaine Road
- Widen Blaine Road to four lanes with shoulders and bike lanes
- Drayton Harbor Road/Harborview Road: Install traffic signal and provide channelization
- Lincoln Road/Harborview Road: Install traffic signal and provide channelization
- Peace Portal Drive/Bell Road: Install traffic signal and provide channelization
- Blaine Road/Drayton Harborview Road: Install traffic signal and provide channelization
- Birch Bay-Lynden Road/Blaine Road: Install roundabout or traffic signal and channelization

The improvements outlined in the County's and City's TIP and described in the long-range plans are unfunded and timing is unknown; therefore, the analysis of future operations did not include these improvements to provide for a conservative analysis of future conditions.

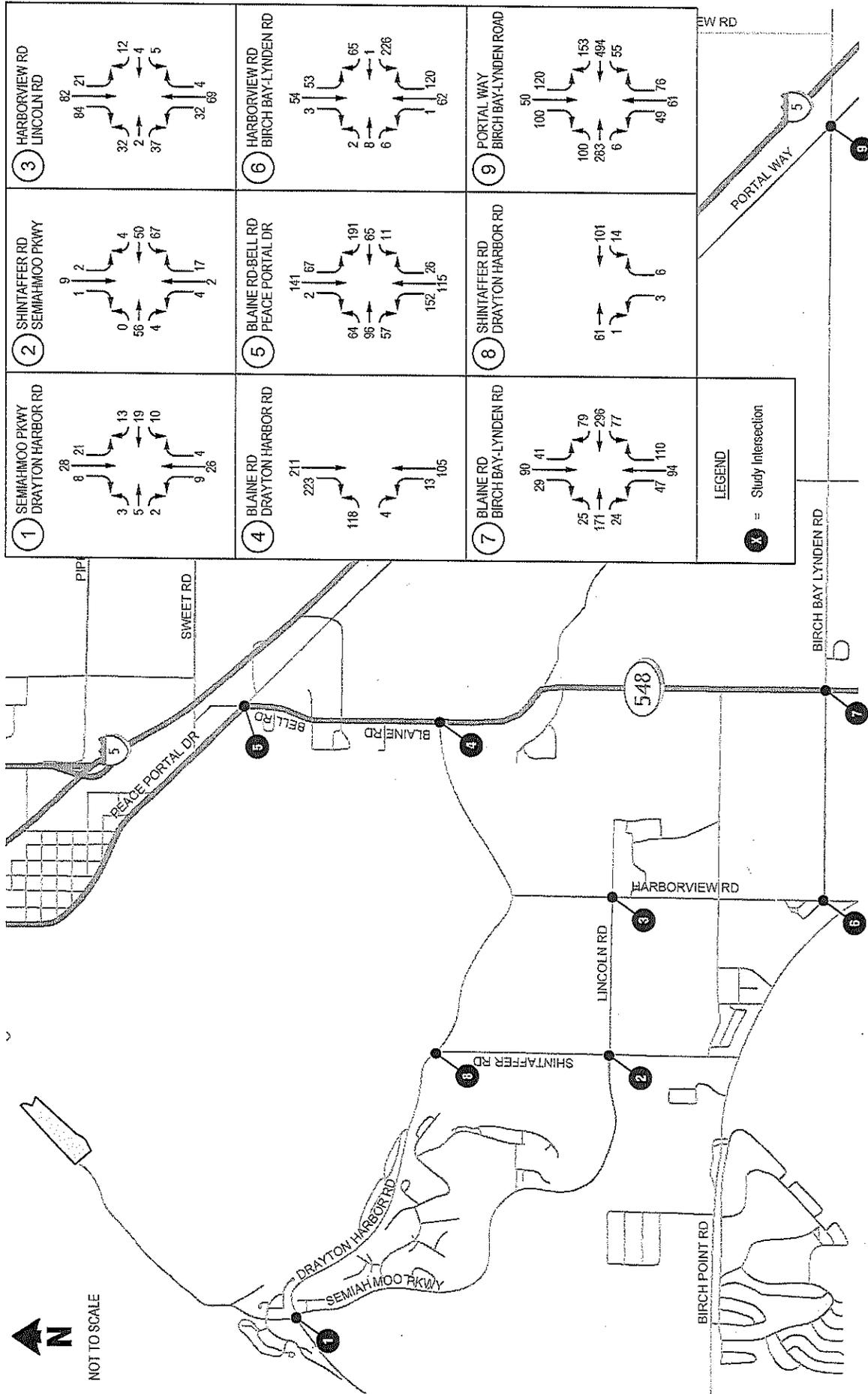
Traffic Volumes

As discussed previously, this traffic analysis focuses on the weekday PM peak hour when traffic conditions would be greatest. At the outset of this TIA the Semiahmoo Resort was closed with a partial opening in August 2013. The Resort is one of the highest traffic generators in the study area and since it is not anticipated to be fully operational until 2014, the TIA relies on data collected in March 2009 when the Resort was open. Based on coordination with City staff, the March 2009 data is the most recent available turning movement counts in the study area. At study intersections where historical counts were not available, weekday PM peak period turning movement counts were collected in August 2013, as appropriate adjustments were made to account for the operations of the Resort. March 2009 intersection turning movement counts were grown by two percent per year until year 2013 to reflect growth that may have occurred since 2009. Intersection turning movement traffic volume worksheets are provided in Appendix A. Existing weekday PM peak hour traffic volumes are summarized on Figure 2 and were used to establish existing traffic conditions.

Two percent per year growth was also applied to 2013 traffic volumes to forecast future (2023) background conditions. The two percent per year growth rate accounts for parcels that have no specifically defined project such as Zone 20, 23, 28, and 29 in the Semiahmoo Master Plan. Traffic from other planned and approved developments within the study area was added to the background conditions to develop the future baseline (without-Project) traffic volumes. Future developments specifically included in the forecasts were:

- Seagrass Cottages (37 trips)
- Horizons at Semiahmoo (199 Trips)
- Carnoustie (Zone 26) (42 trips)
- Marin (Lot 3) (30 trips)
- Drayton Hillside III (56 trips)
- Ridge at Semiahmoo (30 trips)

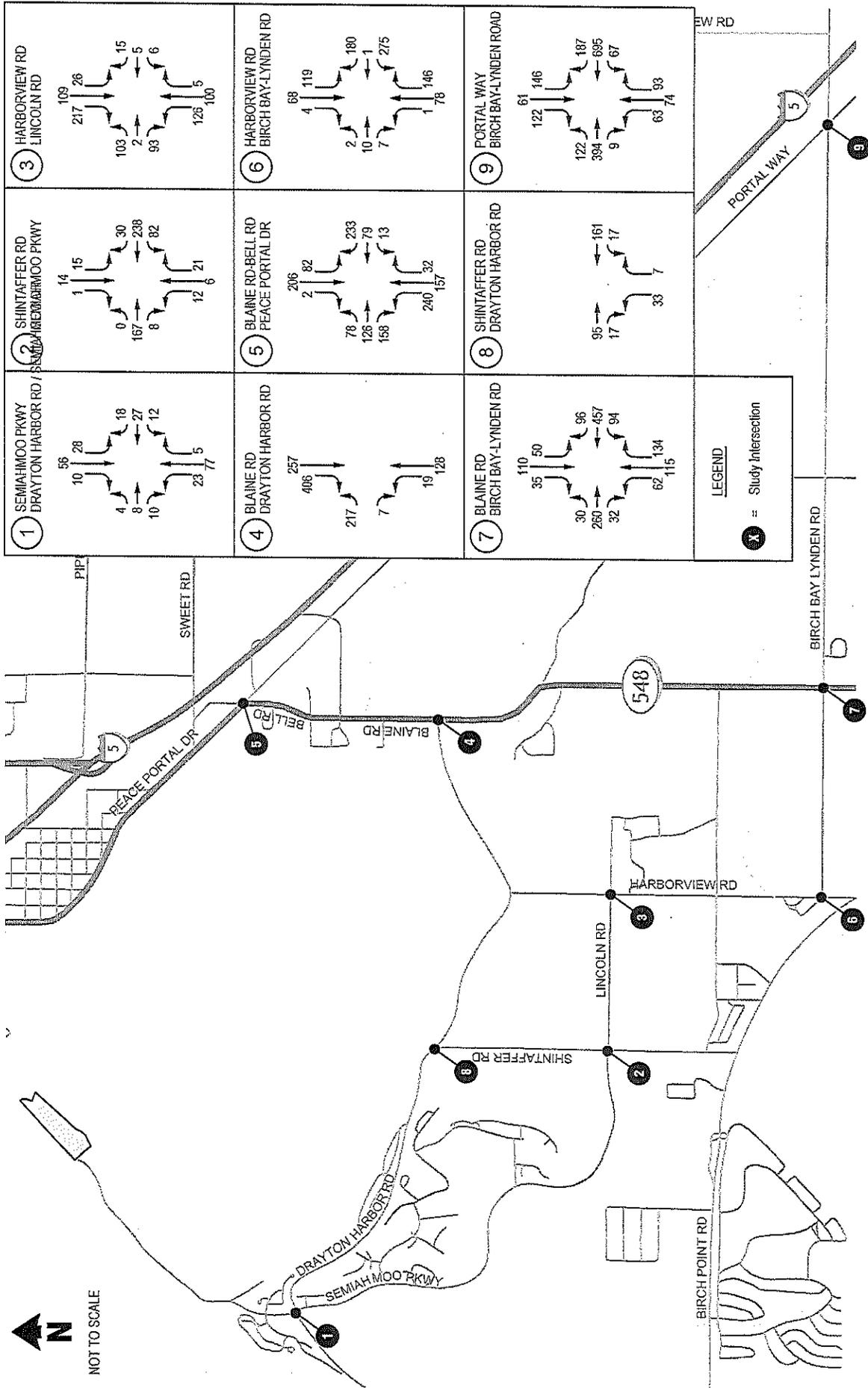
The total weekday PM peak hour trip generation for each project is shown parenthesis. Appendix B provides the trip assignment for the pipeline projects at the study intersections. Future without Project traffic volumes are shown on Figure 3.



2013 Existing Weekday PM Peak Hour Traffic Volumes

FIGURE

2



2023 Without-Project Weekday PM Peak Hour Traffic Volumes

FIGURE

3

Traffic Operations

Weekday PM peak hour existing and future baseline traffic operations were evaluated at the study intersections based on levels of service (LOS). The LOS analysis method was based on procedures identified in the 2010 *Highway Capacity Manual* (HCM) and evaluated using Synchro version 8.0.

All of the study intersections are currently un-signalized. All-way stop controlled and signalized intersection LOS is expressed in terms of the weighted average control delay of the overall intersection. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement). Traffic operations for an intersection can be described alphabetically with a range of levels of service (LOS A through F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. As described in the City of Blaine's *Comprehensive Plan*, September 2006, the City maintains an LOS D standard for intersections within the Urban Growth Area (UGA) during the weekday peak period. The Peace Portal Drive/Bell Road is a Washington State Department of Transportation (WSDOT) intersection and has a current LOS D standard. Appendix C contains a detailed explanation of LOS criteria and definitions.

Table 2 summarizes the existing and future baseline weekday PM peak hour LOS at study intersections. The detailed LOS worksheets are included in Appendix D. As noted previously, the Birch Bay-Lynden Road/Portal Way intersection is assumed to be signalized based on the County's planned improvement, which is anticipated to be completed by 2014.

Table 2. Existing and Future Baseline Weekday PM Peak Hour LOS Summary

Intersection	2013 Existing			2023 Baseline		
	LOS ¹	Delay ²	WM ³	LOS	Delay	WM ³
1. Semiahmoo Dr/Semiahmoo Pkwy	A	7	-	A	8	-
2. Semiahmoo Pkwy/Shintaffer Rd	B	11	SB	C	18	SB
3. Lincoln Rd/Harborview Rd	B	12	EBL	C	24	EBL
4. Drayton Harbor Rd/Blaine Rd	B	14	EB	D	26	EB
5. Peace Portal Dr/Bell Rd	B	14	-	E	41	-
6. Birch Bay-Lynden Rd/Harborview Rd	B	10	-	B	12	-
7. Birch Bay-Lynden Rd/Blaine Rd	C	19	-	E	42	-
8. Drayton Harbor Rd/Shintaffer Rd ⁴	A	8	-	A	8	-
	A	9	WB	A	9	WB
9. Birch Bay-Lynden Rd/Portal Way ⁵	A	9	NB	A	9	NB
	E	46	-	C	23	-

Source: *Highway Capacity Manual*, 2010 and Transpo Group, 2013

Note: **Bold**: Indicates location would not meet the current LOS standard.

1. Level of service (LOS), based on 2010 *Highway Capacity Manual* methodology.

2. Average delay in seconds per vehicle. Delay is provided for the worse movement at side-street stop controlled intersections and the overall intersection for all-way stop and signal controlled locations.

3. Worst movement reported for side-street stop controlled intersections where EB = eastbound approach, EBL = eastbound left-turn movement, WB = westbound approach, and SB = southbound approach. "-" = not applicable for all-way stop controlled intersections.

4. The Drayton Harbor Road/Shintaffer Road operates as three side-street stop controlled intersections and was analyzed as such.

5. The 2023 baseline analysis assumes installation of traffic signals as well as new turn lanes, which is a fully funded project part of the Whatcom County TIP with construction proposed in 2013.

As shown in Table 2, all study intersections are currently operating at LOS C or better during the weekday PM peak hour with the exception of the Birch Bay-Lynden Rd/Portal Way intersection. This intersection currently operates at LOS E, below the established LOS D standard. The City and County are aware of the poor operations at this location and as noted in the discussion of planned improvements, a signal is planned at the Birch Bay-Lynden Rd/Portal Way intersection. Installation of a traffic signal would improve operations at this intersection to meet current LOS standards.

With the addition of future growth at the study intersections, weekday PM peak hour operations at the Peace Portal Drive/Bell Road and Birch Bay-Lynden Road/Blaine Road intersections would degrade to LOS E, which is below the LOS D standard.

The Birch Bay-Lynden Rd/Portal Way intersection operations are shown to improve in 2023 as compared to existing conditions due to installation of the traffic signal and construction of turn lanes at this location.

As discussed previously, transportation improvements have been identified at the Peace Portal Drive/Bell Road and Birch Bay-Lynden Road/Blaine Road intersections; a roundabout at Birch Bay-Lynden Road/Blaine Road and turn lanes and a signal at Peace Portal Drive/Bell Road. Construction of a roundabout at the Birch Bay-Lynden Road/Blaine Road intersection would improve operations to meet the current LOS standards. The City of Blaine TIP identifies turn lanes at the Peace Portal Drive/Bell Road intersection for construction by 2019, which would improve operations but a traffic signal would be necessary to improve operations to an acceptable LOS D or better condition.

Additional analysis was completed to identify when improvements would likely be needed at the Peace Portal Drive/Bell Road and Birch Bay-Lynden Road/Blaine Road intersections. The evaluation shows that by 2022 (with an increase in traffic volumes of approximately 375 vehicles) improvements would be needed at the Peace Portal Drive/Bell Road intersection. At the Birch Bay-Lynden Road/Blaine Road intersection, improvements would be needed by 2018 (accounting for an increase of approximately 190 vehicles).

Intersection Traffic Safety

To evaluate traffic safety at intersections, collision data for the most recent three-year period was obtained from Whatcom County and WSDOT. Specifically, the data was reviewed for the period between January 1, 2010 and December 31, 2012 to identify if any locations were found to have a high number of collisions that might indicate a safety issue. Each study intersection was reviewed to understand average number of collisions per year and a collision rate based on the number of collisions per million entering vehicles (MEV) at each intersection. When intersections have a collision rate that exceeds 1.0 collision per MEV, further investigation is typically necessary to determine if an adverse condition exists. In addition, the data was reviewed to identify if any fatalities or collisions occurred involving pedestrians or bicyclists. Table 3 provides a summary of collision history within the study area including annual average and collisions per MEV.

Table 3. Three-Year Collision Summary – 2010 to 2012

Location	Number of Collisions			Total	Annual Average	Collisions per MEV ¹
	2010	2011	2012			
1. Semiahmoo Dr/Semiahmoo Pkwy	1	0	0	1	0.33	0.62
2. Semiahmoo Pkwy/Shintaffer Rd	0	1	0	1	0.33	0.42
3. Lincoln Rd/Harborview Rd	1	0	1	2	0.67	0.48
4. Drayton Harbor Rd/Blaine Rd	0	1	1	2	0.67	0.27
5. Peace Portal Dr/Bell Rd	2	0	1	3	1.00	0.28
6. Birch Bay-Lynden Rd/Harborview Rd	2	1	0	3	1.00	0.46
7. Birch Bay-Lynden Rd/Blaine Rd	2	2	0	4	1.33	0.34
8. Drayton Harbor Rd/Shintaffer Rd	0	0	0	0	0.00	0.00
9. Birch Bay-Lynden Rd/Portal Way	3	1	2	6	2.00	0.35

Source: Whatcom County and WSDOT, 2013

1. Million Entering Vehicles

No fatalities or collisions involving pedestrians or bicyclists were reported at the study intersections. The majority of the collisions within the study area were related to vehicle turning and right-of-way not being granted, which is typical of stop controlled intersections.

Within the analysis time period, the two intersections with the highest number of collisions occurred at the Birch Bay-Lynden Road/Portal Way intersection with an average of 2.0 collisions per year and at the Birch Bay-Lynden Road/Blaine Road intersection with an average of 1.3 collisions per year. The other study intersections experienced an average of less than or equal to 1.0 collision per year. By incorporating the traffic volume at the intersection, the rate of collisions per million entering vehicles (MEV) allows a uniform standard for evaluating collision history. As discussed above, a collision rate at intersections greater than 1.0 collision per MEV is typically considered for further review. At all study locations, the collision per MEV are less than 1.0.

The data demonstrates a low occurrence of collisions which is typical of low volume intersections and roads. Higher accident rates would be expected with higher volumes of traffic and pedestrians; specifically where those volumes exceed design standards at key locations.

Non-motorized Facilities

The study area has both regional recreation and community trails. Regional recreational trails have a county-wide significance drawing users from throughout the region and community trails linking neighborhoods, major parks, and other destinations throughout the City.

A description of the pedestrian and bicycle facilities on the Spit and within the immediate vicinity of the site is provided below.

Semiahmoo Parkway. The primary non-motorized facility on the Spit is the over one mile paved pathway that is parallel to Semiahmoo Parkway beginning at the County Park and ending at the water tower at the northern portion of the Spit. This paved path is separated from Semiahmoo Parkway by a grassy swale near the County Park and then has little to no separation from the road along the narrow neck portion of the Spit for approximately one-third of a mile. There are curb stops separating the pedestrian path along a short section in the Spit neck area. South of the County Park to the Blaine City limits, the paved path is separated from the road for approximately 2.4 miles. There is also a striped shoulder for cyclists along Semiahmoo Parkway between Shintaffer Road and the City limits (0.5 miles) and the County Park and the City limits (2.4 miles).

Semiahmoo Spit Loop Trail. There is a shoreline loop trail that goes around the entire Spit and is primarily paved/hard surfaces along Drayton Harbor and gravel/soft surfaces along Semiahmoo Bay. This trail is approximately 1.25-miles.

Coast Millennium Trail. This trail is a 50-mile regional trail overlay that seeks to connect trails as far south as Skagit County all the way to the Canadian border. Within the study area, the Coast Millennium Trail is an eight foot paved trail on the south side of the Spit (Drayton Harbor side) that transitions to gravel leading to the ferry. Beginning at water tower, the trail is gravel. The approximate distance across this gravel area to the Plover Ferry access is 240-feet. The Coast Millennium Trail travels from the Semiahmoo Spit across Drayton Harbor on the foot-ferry¹ then along Marine Drive and to the United States/Canadian border. On the north side of Spit, Coast Millennium Trail connects back to the southerly side midway down the Spit as a primitive two to three foot wide gravel/dirt trail for a distance of approximately 300-feet (i.e., Plover Ferry access to the north Semiahmoo Resort Hotel deck).

¹ The foot-ferry is seasonal and provides a pedestrian link between Semiahmoo Spit and the Wharf District or West Blaine to Central Blaine.

The Resort Semiahmoo Master Plan includes standards for trail improvements within the Spit. As development occurs, shoreline public trails will be improved and the public easement dedicated as plats are completed.

Outside of the Spit within the study area, there are generally no sidewalk facilities. There is an approximately one-quarter mile section of sidewalk along Semiahmoo Parkway south of the County Park. In addition, pedestrian spaces within the county exist as a paved shoulder where available.

Transit Service

Resort Semiahmoo has a shuttle service between the hotel and the golf course clubhouse for guests who wish to play golf. The proposed developments are within the service area of the Whatcom Transit Authority (WTA). Resort Semiahmoo contributes a tax of 0.06-percent of all retail sales and construction activities to support WTA. WTA does not have a scheduled route serving the Resort Semiahmoo area because there is insufficient ridership to support bus services at this time. The Resort is in an area served by Dial-a-Ride bus service. This service is available on Mondays and Thursdays only.

Ferry Service

Excursion passenger ferry service is provided seasonally between the Spit across Drayton Harbor to Blaine on Fridays, Saturdays and Sundays between Memorial Day and Labor Day. The ferry is owned by the City of Blaine and leased to the Drayton Harbor Maritime Society. It operates from a ramp and float at the tip of the Spit, which was constructed in 2005.

Project Impacts and Mitigations

This section documents Project-generated impacts on the surrounding transportation system and at the study intersections if the Project was completed as forecasted. First, Project peak hour traffic volumes are estimated, distributed, and assigned to the study area. Next, future 2023 traffic volumes with the Project are projected and potential impact to operations, non-motorized facilities, parking, transit, and ferry are identified.

Trip Generation

Trip generation for the proposed Project was calculated using standard rates from the Institute of Transportation Engineers (ITE) *Trip Generation*, 9th Edition. Tenants for the commercial uses have not been identified; therefore, based on coordination with the Project team a mix of retail, restaurant, and office uses were assumed. In addition, there is no resort residential ITE land use; therefore, condominium/townhouse was used. It is likely that the resort residential units would be a second/vacation home and trip generation would be lower especially during the weekday PM peak hour when work commute trips would be limited. Specifically, rates from the ITE land use Residential Condominium/Townhouse (LU #230), Specialty Retail (LU #826), Quality Restaurant (#931), High Turnover (Sit-Down) Restaurant (#932), and General Office (#710) as they most closely represent the proposed residential development.

ITE *Trip Generation* is based on isolated suburban locations and does not take into consideration the Spit resort community or the mixed-use nature of the site. The retail/restaurant uses are intended to support the residential and hotel components on the Spit and are not planned as destination uses. Therefore, it is anticipated that a majority of restaurant and retail customers would be from the hotel and residences.

An approximately 15 percent reduction in vehicle trips was taken to account for local walking and biking trips that occur between uses within the Semiahmoo Spit. The 15 percent reduction is slightly less than used in 1985 Semiahmoo Spit and Uplands Master Plan in consideration of the proposed Project size and land use mix². This is likely a conservative estimate of walking and biking trips since the commercial components are planned to support the residential and hotel uses. In addition, some travel to and from the Spit would be via ferry, which is not accounted for by the 15 percent reduction. Based on the 15 percent vehicle trip reduction, approximately 28 of the total 115 residential trips would be walking or biking. The 28 non-motorized residential trips would be distributed to the restaurant and retail components within the Spit. No vehicle trip reduction was taken for the office use.

Table 4 summarizes the resulting trip generation estimates for the full-buildout of the Semiahmoo Spit. As shown, the proposed Project would generate a total of 313 net new weekday PM peak hour trips (183 inbound/130 outbound). The analysis of Project impacts is based on a maximum land use scenario to provide a worst case understanding of transportation impacts.

² The 1985 Semiahmoo Spit and Uplands Master Plan assumed a 25 percent reduction in vehicle trips to account for local walking and biking trips.

Table 4. Estimated Weekday PM Peak Hour Trip Generation

Land Use	Size	Rate ¹	Total Vehicle Trips	Vehicle Trip Reduction	Net New Vehicle Trips Total	In	Out	Equivalent Unit per Trip
Residential Condo/Townhouse (#230)	220 du	0.52	115	-28	87	58	29	2.5 du
Commercial Uses								
Specialty Retail (#826)	39,000 sf	2.71	106	-12	94	41	53	410 sf
Quality Restaurant (#931)	14,000 sf	7.49	105	-12	93	62	31	390 sf
High Turnover (Sit-Down) restaurant (#932)	4,000 sf	9.85	39	-4	35	21	14	110 sf
General Office (#710)	3,000 sf	1.49	4	0	4	1	3	750 sf
Total Project Trips			369	-56	313	183	130	

Source: Transpo Group, August 2013. Notes: sf = square-feet, du = dwelling units

1. Trips rates from ITE *Trip Generation*, 9th Edition based on regression equation for residential condo/townhouse (#230) and average rates for other uses.

Trip Distribution & Assignment

Trips were distributed based on travel patterns used for the 1985 Semiahmoo Spit and Uplands Master Plan, existing travel patterns, consideration of the site characteristics as well as coordination with City staff. Figure 4 illustrates the anticipated Project travel patterns. The distribution patterns show that 15 percent would travel to and from the south, 40 percent southeast to and from Birch Bay-Lynden Road and Blaine Road, and 45 percent to and from the northeast.

The net new PM peak hour Project trip generation volumes were assigned to the roadway network based on the distribution patterns. The specific Project trip assignment is shown on Figure 4.

It should be noted that the City has requested an origin-destination (OD) or sensitivity study be conducted (preferably during the peak summer months) to refine the Project's trip assignment. This could result in a revised distribution pattern that would change the Project's proportional share at the impacted locations. The City is requesting that this OD or sensitivity study be conducted with the first development application.

Traffic Volumes

Project traffic volumes were added to the future baseline traffic volumes to form the basis of the with-Project analysis. Figure 4 shows the weekday PM peak hour traffic volumes at the study intersections. Table 5 summarizes the anticipated traffic volume impacts of the proposed Project. The percent Project share presents the proposed Project volumes divided by the total future with-Project traffic volumes at the study intersections. The Project share in growth represents the proposed Project volumes divided by the total future growth with the Project (i.e., future with-Project volumes minus existing volumes) anticipated at the study intersections.

As noted previously, the trip distribution is based on travel patterns identified in the 1985 Semiahmoo Spit and Uplands Master Plan, existing travel patterns, consideration of the site characteristics as well as coordination with City staff. Conducting an origin-destination study on the Semiahmoo Spit during peak summer conditions would provide more specific detail of current travel patterns for this area. Changes in travel patterns would result in different traffic volume impacts (or Project proportionate shares) than identified in Table 5.

Table 5. Weekday PM Peak Hour Traffic Volume Impact at Study Intersections

Study Intersections/Roadway Segment	Existing Volume (2013)	Pipeline Volume	Background Growth	Total Baseline (2023)	Project Volume	Total With-Project (2023)	Project Share ¹ in Growth ²	Project Share in Growth ²	Future With-Project LOS ³
1. Semiahmoo Dr/ Semiahmoo Pkwy	148	97	33	278	313	591	53%	71%	A
2. Semiahmoo Pkwy/ Shintaffer Rd	216	331	47	594	301	895	34%	44%	D
3. Lincoln Rd/ Harborview Rd	384	339	84	807	285	1,092	26%	40%	F
4. Drayton Harbor Rd/ Blaine Rd	674	212	148	1,034	141	1,175	12%	28%	E
5. Peace Portal Dr/Bell Rd	987	204	215	1,406	126	1,532	8%	23%	E
6. Birch Bay-Lynden Rd/ Harborview Rd	601	160	130	891	150	1,041	14%	34%	C
7. Birch Bay-Lynden Rd/ Blaine Rd	1,083	156	236	1,475	141	1,616	9%	26%	E
8. Drayton Harbor Rd/ Shintaffer Rd	186	104	40	330	7	337	2%	5%	A
9. Birch Bay-Lynden Rd/ Portal Way	1,547	148	338	2,033	125	2,158	6%	20%	C
Semiahmoo Parkway (Spit) ⁴	91	71	31	193	313	506	62%	75%	-

Source: Transpo Group, August 2013

1. Project Share = Project Volume / Total With-Project (2023)
2. Project Share in Growth = Project Volume / (Total With-Project (2023) - Existing Volume (2013))
3. For context, the with-Project level of service (LOS) is shown.
4. This segment listed as the primary roadway access to proposed Project.

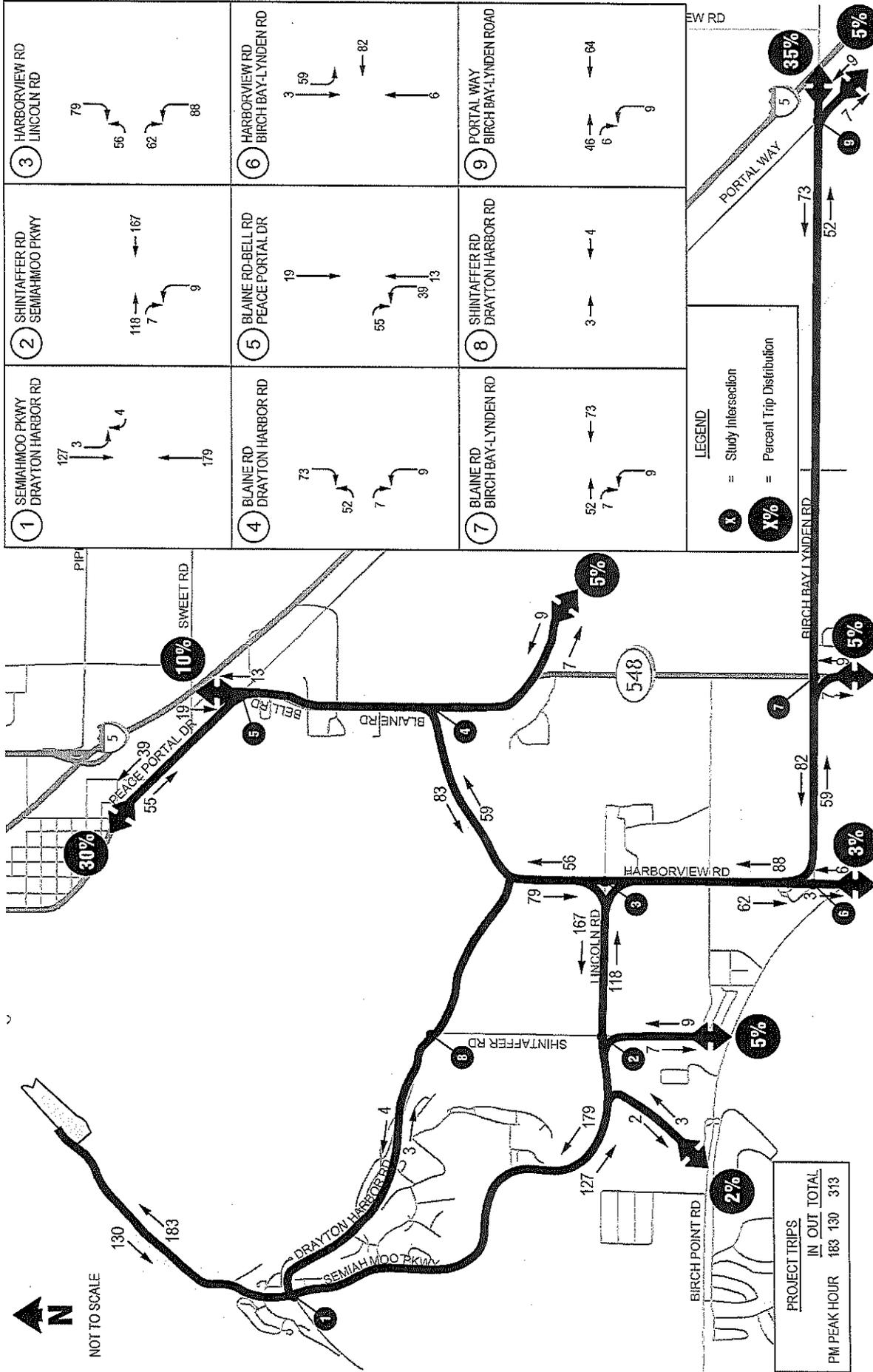


FIGURE 4

Weekday PM Peak Hour Project Trip Distribution and Assignment



As shown in Table 5, Project traffic would increase traffic volumes by approximately 2 to 50 percent at the study intersections in 2023. The greatest volume increase would occur closest to the Project site at Semiahmoo Drive/Semiahmoo Parkway where the Project would approximately double the weekday PM peak hour traffic volume. Future growth will exceed 4,000 vpd (vehicles per day) at project build out along Semiahmoo Parkway, which exceeds WSDOT design standards for rural roadways with less than 12 foot lanes and 8 foot shoulders. The City is requesting separation between drive lanes and pedestrian path improvements to the maximum extent feasible within the area at the neck of the Spit.

The operational impacts as a result of increases in traffic volumes are discussed in the following section.

Traffic Operations

An intersection operations analysis was conducted in the study area to evaluate the future (2023) weekday PM peak hour conditions with the development of the Project. Intersection operations were calculated using the LOS methodology described previously. Table 6 provides a comparison between the future with and without-Project conditions. Detailed LOS worksheets are included in Appendix D.

Table 6. Future (2023) Weekday PM Peak Hour LOS Summary

Intersection	Without-Project			With-Project		
	LOS ¹	Delay ²	WM ³	LOS	Delay	WM ³
1. Semiahmoo Dr/Semiahmoo Pkwy	A	8	-	A	10	-
2. Semiahmoo Pkwy/Shintaffer Rd	C	18	SB	D	28	SB
3. Lincoln Rd/Harborview Rd	C	24	EBL	F	78	EBL
4. Drayton Harbor Rd/Blaine Rd	D	26	EB	E	46	EB
5. Peace Portal Dr/Bell Rd	E	41	-	E	45	-
6. Birch Bay-Lynden Rd/Harborview Rd	B	12	-	C	16	-
7. Birch Bay-Lynden Rd/Blaine Rd	E	42	-	E	46	-
8. Drayton Harbor Rd/Shintaffer Rd ⁴	A	8	-	A	8	-
	A	9	WB	A	9	WB
9. Birch Bay-Lynden Rd/Portal Way ⁵	A	9	NB	A	9	NB
	C	23	-	C	25	-

Source: *Highway Capacity Manual*, 2010 and Transpo Group, 2013

Note: **Bold**: Indicates location would not meet the current LOS standard.

1. Level of service (LOS), based on 2010 *Highway Capacity Manual* methodology.

2. Average delay in seconds per vehicle. Delay is provided for the worse movement at side-street stop controlled intersections and the overall intersection for all-way stop and signal controlled locations.

3. Worst movement reported for side-street stop controlled intersections where EB = eastbound approach, EBL = eastbound left-turn movement, WB = westbound approach, and SB = southbound approach. "-" = not applicable for all-way stop controlled intersections.

4. The Drayton Harbor Road/Shintaffer Road operates as three side-street stop controlled intersections and was analyzed as such.

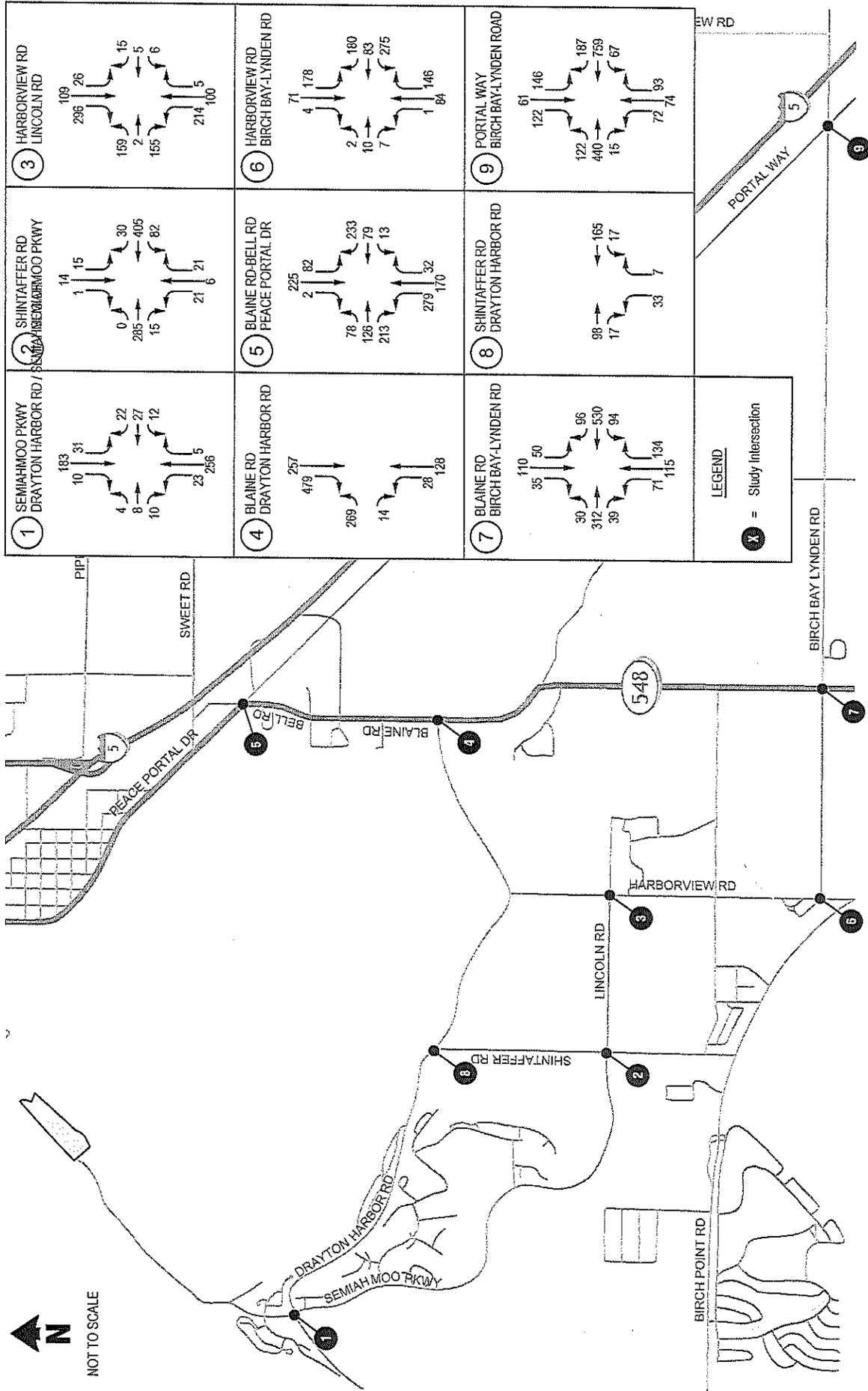
5. The 2023 analysis assumes installation of traffic signals as well as new turn lanes, which is a fully funded project part of the Whatcom County TIP with construction proposed in 2014.

As shown in the table, the following locations would not meet the LOS D threshold:

- Lincoln Road/Harborview Road
- Peace Portal Drive/Bell Road
- Drayton Harbor Road/Blaine Road
- Birch-Bay-Lynden Road/Blaine Road

Both the Peace Portal Drive/Bell Road and Birch Bay-Lynden Road/Blaine Road intersections would operate at LOS E with or without the Project with the Project adding three to four seconds of additional delay.

There are no funded improvements at these locations; however, there are improvements identified in long-range plans that would improve operations to acceptable levels. A detailed mitigation plan including specific improvements, projection share, and timing of implementation is provided in the last chapter of this report.



2023 With-Project Weekday PM Peak Hour Traffic Volumes

FIGURE

5

Site Vehicular and Pedestrian Circulation

Semiahmoo Parkway is the primary access for the length of the Spit, approximately 1 mile, where it narrows from two 12 foot lanes to two 10 foot lanes with no shoulders. An approximately 700 foot segment of the spit narrows to just over 40 feet in width which severely constrains the ability to do anything but marginal separation improvements. The project will increase vehicular traffic from the existing 1000 (approximate) vehicles per day (vpd) to over 4000-5000 vpd.

Semiahmoo Parkway as it exists today meets design standards for lane width but does not have the required shoulder width. This is considered a minor to moderate deficiency as shoulders become increasingly important with higher volumes. With additional development on the Semiahmoo Spit, increases in vehicular and pedestrian traffic, both crossing and adjacent, would result in additional exposure to both vehicular and pedestrian safety issues.

Based on a review of the *Blaine Non-Motorized Transportation Plan*, February 2009 multi-use paths are recommended to be 8-12-feet wide with a desired 12-foot separation from the roadway. A review of WSDOT's July 2012 standards, recommends a 10-foot wide minimum path and approximately 5-foot minimum separation from the roadway. Given the sensitive nature of the surrounding area including the close proximity of shorelines and limited available land, it is not possible to meet the roadway standards; however, improvements could be made to the maximum extent feasible to better meet the intent of the standards.

A "maximum extent feasible improvement" should be considered that would meet key safety necessities and the intent of the standards. The 700 foot segment through the isthmus would require an alternative cross section. The specific extent of these improvements would need to be determined through additional engineering, environmental, and archaeological studies given the sensitive nature of the challenges in the area. Preliminary analyses have identified widening Semiahmoo Parkway to the maximum extent feasible could include widening the approximate 700 foot segment through the isthmus to provide up to an additional three feet of shoulder separation, which could include a concrete barrier between the pedestrian path and roadway. This would provide improved circulation and safety for pedestrians. Appendix E provides a preliminary evaluation of the cross section for the approximate 700-foot section of Semiahmoo Parkway discussed above.

As part of the projects, on-site pedestrian and bicycle facilities would be provided including sidewalk and pathway connections to and from different portions of both the site and the Resort area. The network of trails and pathways connecting the residential areas with the commercial area and the hotel coupled with the relatively short distance between uses results in a greater likelihood that residents will chose to walk rather than drive between the residential areas and commercial and marina uses.

The Spit currently includes a traffic circle as you enter the Resort area. This traffic circle denotes the end of the public roadway and entry to the Resort area, providing access to the private parking lots on the Spit. Traffic circles are generally adequate for lower volume roads such as the less than 5,000 vpd anticipated for this project. As traffic volumes increase, consideration may be given to stop or yield control on all approaches. An operations analysis of this location shows that it operates at LOS A with the proposed Project.

Traffic Safety

Traffic generated by the proposed development would likely result in a proportionate increase in the probability of traffic accidents. There is currently a low occurrence of collisions in the study area. Specific impacts to safety based on the projected increases in traffic volumes is unknown; however, vehicular and pedestrian volumes would increase along Semiahmoo Parkway and as discussed previously there are sections of the paved pathway that are considered substandard with little to no separation from the travel way. This increase in vehicular and pedestrian traffic would result in increased exposure and potential safety issues to pedestrians along the Semiahmoo Parkway path.

Transit and Ferry Service

The existing transit service is anticipated to be adequate and can accommodate the Semiahmoo Master Plan. As discussed previously, ferry service between the Spit and downtown Blaine currently operates on a seasonal basis and only on certain days of the week. The ramp and float system at the Spit could serve as the Semiahmoo terminal for future water taxi service between Semiahmoo and downtown Blaine as envisioned in the City's Wharf District Master Plan. Expanding the ferry service by including daily scheduled trips especially during the peak use season, would have a positive effect to traffic and parking in the Semiahmoo Resort Village.

Findings and Recommendations

This transportation impact analysis summarizes the traffic impacts of the proposed Project identified in the Semiahmoo Spit Master Plan Update. General findings include:

- Project traffic would increase traffic volumes from 2 to 50 percent of the total weekday PM peak hour traffic volume at the study intersections in 2023. The greatest volume impact would occur closest to the Project sites at Semiahmoo Drive/Semiahmoo Parkway.
- With the addition of Project traffic, the Lincoln Road/Harborview Road goes from LOS D to LOS F and the Drayton Harbor Road/Blaine Road goes from LOS D to LOS F.
- The Peace Portal Drive/Bell Road and Birch-Bay-Lynden Road/Blaine Road would operate at LOS E with or without the Project.
- Semiahmoo Parkway road section through the neck of the spit does not meet the design standards from the 1985 Resort Semiahmoo Master Plan (page 7.11); however, the current constructed roadway and pedestrian pathway was accepted by the City of Blaine as part of Phase I Final PUD #1 Semiahmoo Spit approval (Ordinance 1754). Preliminary analyses have identified widening Semiahmoo Parkway to the maximum extent feasible, providing an additional three foot shoulder separation between the drive lane and the pedestrian path along the approximate 700 foot segment through the isthmus. This would provide improved circulation and safety for pedestrians.

Mitigation Plan

As discussed above, the Project would impact traffic operations at four study intersections that do not meet LOS standards along with increasing vehicular traffic which results in volumes that exceed the design standards. Vehicular traffic along Semiahmoo Parkway (Spit) can be accommodated but will increase potential conflict between vehicles and pedestrians at the neck of the Spit. Transportation impacts could be mitigated through one of the following approaches through coordination with the City:

- Contributing their proportionate share toward the future improvement
- Building a portion of the improvement
- Providing an interim improvement

Table 7 provides detail related to the proposed mitigation measures for impacted locations and how those improvements would improve levels of service. Appendix D provides the detailed LOS worksheets associated with the recommended mitigations.

Table 8 provides the timing for when mitigation improvements would likely be needed and two options for calculating out the Project's proportionate share. Timing of mitigation in Table 8 was determined through a straight line growth assumption between the existing and future year of development. This is identified as a specific horizon year as well as an approximately growth in traffic volume. As development occurs, traffic increases related to each proposed land use can be calculated through the use of ITE Trip Generation or through a general trip equivalency, which is listed below for the uses evaluated in this analysis.

- Residential Condo/Townhouse: 2.5 dwelling Unit per additional trip
- Specialty Retail: 410 sf per additional trip
- Quality restaurant: 390 sf per additional trip

- Restaurant: 110 sf per additional trip
- General Office: 750 sf per additional trip

Since the development will likely be phased, this mitigation plan could be used to assist in allocating costs of mitigation proportionally amongst developers. The proportional share calculations are based on the general distribution patterns assumed in this analysis, which are consistent with 1985 Semiahmoo Spit and Uplands Master Plan. The City has requested an origin-destination (OD) study, or a sensitivity analysis, be conducted (preferably during the peak summer months) to refine the Project's trip assignment. This could result in a revised distribution pattern that would change the Project's proportional share at the impacted locations. This OD study, or a sensitivity analysis, should be conducted with the first development application.

Table 7. Transportation Mitigation Improvements

Location	Impact Type	2023 LOS ¹		Recommended Improvement	2023 Mitigated LOS
		Baseline	With-Project		
3. Lincoln Rd/Harborview Rd	Operations	C	F	All-way stop control. Additional warning signs or flashing light may be needed along Harborview Road.	C
4. Drayton Harbor Rd/Blaine Rd	Operations	D	E	Provide a southbound right-turn lane	C
5. Peace Portal Dr/Bell Rd	Operations	E	E	Install traffic signal. The City also plans to install westbound and northbound right-turn lanes to improve intersection alignment, safety, and drainage. In this study, a northbound left-turn lane was used rather than a right-turn lane to improve operations.	B
7. Birch Bay-Lynden Rd/Blaine Rd [†]	Operations	E	E	Install a single lane roundabout	B
Semiahmoo Parkway (Spit)	Safety	NA	NA	Separate drive lane and pedestrian path along Semiahmoo Parkway to maximum extent feasible along the approximate 700' narrow segment of roadway at the neck of the Spit.	NA

1. Level of service (LOS), based on 2010 Highway Capacity Manual methodology. NA = Not applicable, impact is not an operational issue.

Table 8. Mitigation Timing & Proportionate Share

Improvement Location	Recommended Improvement	Timing of Mitigation Need ¹		Planning Level Estimated Cost	Proportionate Share based on Total Traffic ⁴			Proportionate Share based on Growth Traffic ⁵		
		Year ²	Volume Growth Trigger		Percent Project Share of Total	Project Cost Share	Cost Per Trip	Percent Project Share of Growth	Project Cost Share	Cost Per Trip
Lincoln Rd/Harborview Rd	All-way stop control. Additional warning signs or flashing light may be needed along Harborview Road.	2021	565	\$5,000	26%	\$1,300	\$4.15	40%	\$2,000	\$6.39
Drayton Harbor Rd/Blaine Rd	Provide a southbound right-turn lane Install traffic signal (\$250k). The City also planned improvement to install westbound and northbound right-turn lanes to improve intersection alignment, safety, and drainage. In this study, northbound left-turn lane was used rather than right-turn lane to improve operations (\$75k).	2022	450	\$100,000	12%	\$12,000	\$38.34	28%	\$28,000	\$89.46
Peace Portal Dr/Bell Rd		2020	380	\$325,000	8%	\$26,000	\$83.07	23%	\$74,750	\$238.82
Birch Bay-Lyndene Rd/Blaine Rd	Install a single lane roundabout. Separate drive lane and pedestrian path along Semiahmoo Parkway to maximum extent feasible along the approximate 700' narrow segment of roadway at the neck of the Spit.	2016	160	\$750,000	9%	\$67,500	\$215.65	26%	\$195,000	\$623.00
Semiahmoo Parkway (Spit)		2016 ³		\$125,000	62%	\$77,500	\$247.60	75%	\$93,750	\$299.52
				Total	\$184,300	\$588.82	Total	\$393,500	\$1,257.19	

1. This represents the approximate year that the impact would be triggered and mitigation would be needed as well as the volume increase that triggers the need for improvement.
 2. The year was developed based assuming a consistent pace of growth between 2013 and 2023. Faster growth would trigger the need for improvements sooner.
 3. This is an existing issue, which the Project would add to; therefore, steps towards improvements should be made at the outset of development.
 4. Project Share = Project Volume / Total With-Project (2023)
 5. Project Share in Growth = Project Volume / (Total With-Project (2023) - Existing Volume (2013)).

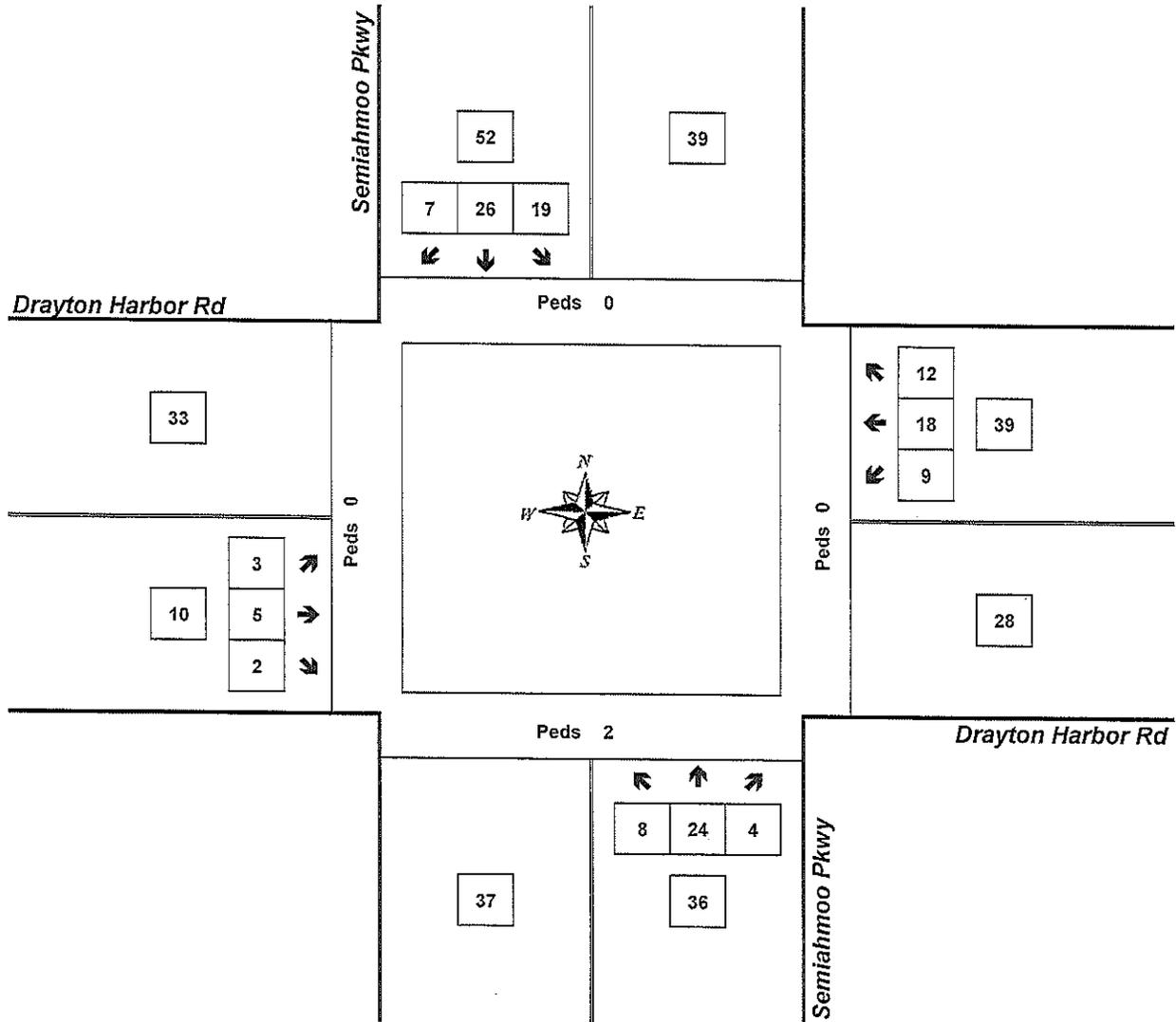
Peak Hour Summary



Mark Skaggs
(206) 251-0300

Semiahmoo Pkwy & Drayton Harbor Rd

4:30 PM to 5:30 PM
Tuesday, March 17, 2009



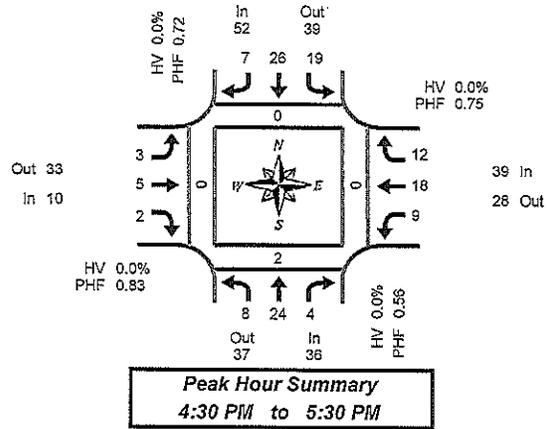
Approach	PHF	HV%	Volume
EB	0.83	0.0%	10
WB	0.75	0.0%	39
NB	0.56	0.0%	36
SB	0.72	0.0%	52
Intersection	0.88	0.0%	137

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



Semiahmoo Pkwy & Drayton Harbor Rd

Tuesday, March 17, 2009
4:00 PM to 6:00 PM

15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Semiahmoo Pkwy				Southbound Semiahmoo Pkwy				Eastbound Drayton Harbor Rd				Westbound Drayton Harbor Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	0	5	2	0	4	6	0	0	1	1	2	0	0	3	3	0	27	0	0	0	0
4:15 PM	0	2	0	0	2	3	0	0	1	2	2	0	1	4	3	0	20	0	0	0	0
4:30 PM	2	11	3	0	2	6	1	0	0	2	0	0	2	4	3	0	36	0	1	0	0
4:45 PM	0	4	0	0	4	6	2	0	0	0	2	0	2	5	1	0	26	0	0	0	0
5:00 PM	3	5	1	0	6	9	3	0	2	1	0	0	3	3	3	0	39	0	1	0	0
5:15 PM	3	4	0	0	7	5	1	0	1	2	0	0	2	6	5	0	36	0	0	0	0
5:30 PM	4	3	1	0	1	5	2	0	0	5	2	0	2	3	2	0	30	0	0	0	0
5:45 PM	2	4	3	0	3	5	1	0	0	3	1	0	2	1	4	0	29	0	0	0	0
Total Survey	14	38	10	0	29	45	10	0	5	16	9	0	14	29	24	0	243	0	2	0	0

Peak Hour Summary 4:30 PM to 5:30 PM

By Approach	Northbound Semiahmoo Pkwy				Southbound Semiahmoo Pkwy				Eastbound Drayton Harbor Rd				Westbound Drayton Harbor Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	36	37	73	0	52	39	91	0	10	33	43	0	39	28	67	0	137	0	2	0	0
%HV	0.0%				0.0%				0.0%				0.0%				0.0%				
PHF	0.56				0.72				0.83				0.75				0.88				

By Movement	Northbound Semiahmoo Pkwy				Southbound Semiahmoo Pkwy				Eastbound Drayton Harbor Rd				Westbound Drayton Harbor Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	8	24	4	36	19	26	7	52	3	5	2	10	9	18	12	39	137
PHF	0.67	0.55	0.33	0.56	0.68	0.72	0.58	0.72	0.38	0.63	0.25	0.83	0.75	0.75	0.60	0.75	0.88

Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Semiahmoo Pkwy				Southbound Semiahmoo Pkwy				Eastbound Drayton Harbor Rd				Westbound Drayton Harbor Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	2	22	5	0	12	21	3	0	2	5	6	0	5	16	10	0	109	0	1	0	0
4:15 PM	5	22	4	0	14	24	6	0	3	5	4	0	8	16	10	0	121	0	2	0	0
4:30 PM	8	24	4	0	19	26	7	0	3	5	2	0	9	18	12	0	137	0	2	0	0
4:45 PM	10	16	2	0	18	25	8	0	3	8	4	0	9	17	11	0	131	0	1	0	0
5:00 PM	12	16	5	0	17	24	7	0	3	11	3	0	9	13	14	0	134	0	1	0	0

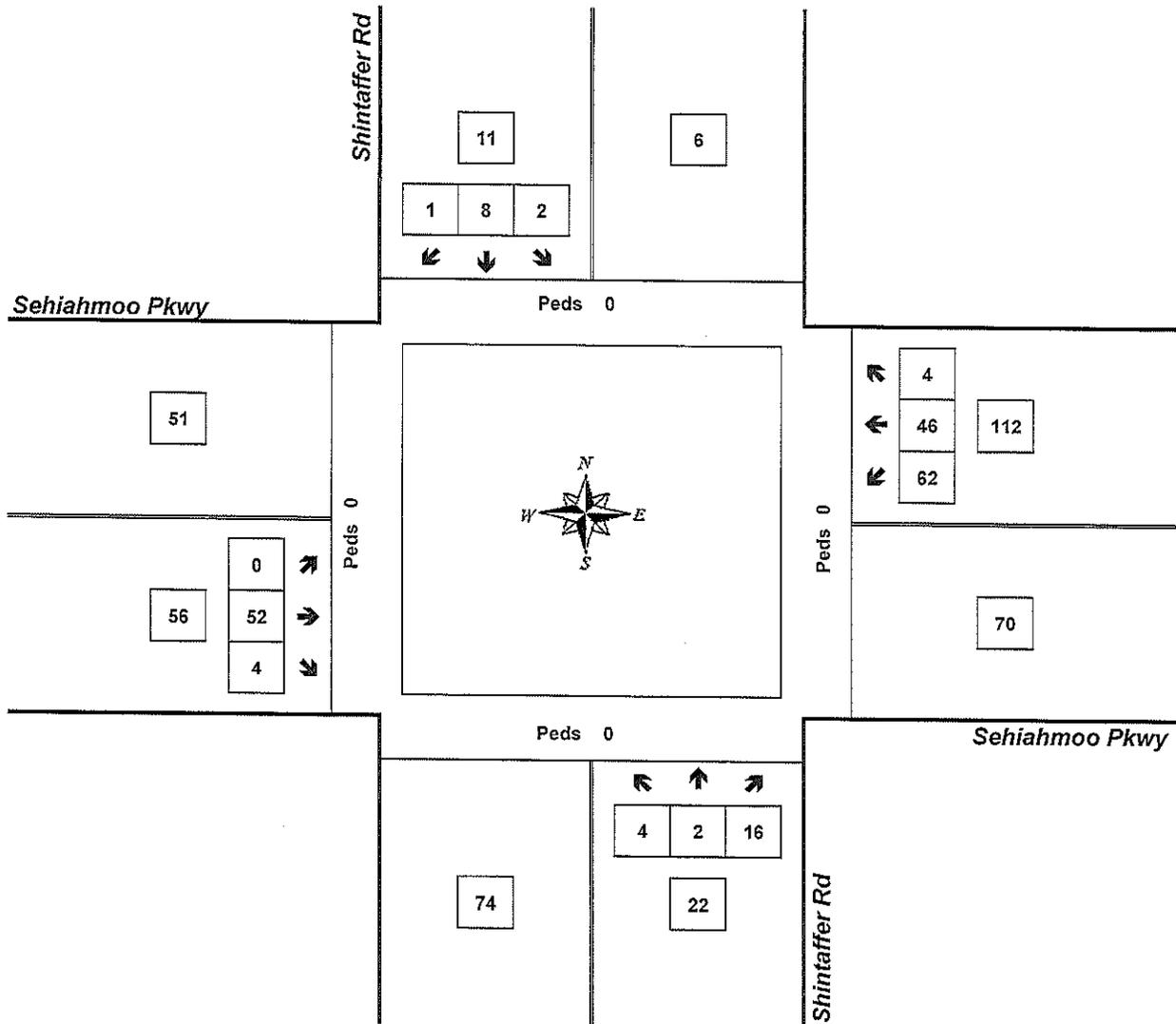
Peak Hour Summary



Mark Skaggs
(206) 251-0300

Shintaffer Rd & Seiahmoo Pkwy

4:30 PM to 5:30 PM
Tuesday, March 17, 2009



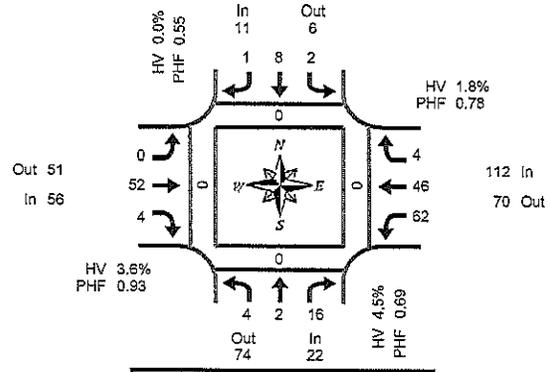
Approach	PHF	HV%	Volume
EB	0.93	3.6%	56
WB	0.78	1.8%	112
NB	0.69	4.5%	22
SB	0.55	0.0%	11
Intersection	0.82	2.5%	201

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



Shintaffer Rd & Seiahmoo Pkwy

Tuesday, March 17, 2009

4:00 PM to 6:00 PM

Peak Hour Summary
4:30 PM to 5:30 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Shintaffer Rd				Southbound Shintaffer Rd				Eastbound Seiahmoo Pkwy				Westbound Seiahmoo Pkwy				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	0	1	6	0	0	2	1	0	0	6	0	0	23	13	0	1	52	0	0	0	0
4:15 PM	1	1	6	1	0	1	1	0	0	15	0	0	8	11	0	0	44	0	0	0	0
4:30 PM	2	1	5	0	0	1	1	0	0	15	0	2	20	15	1	2	61	0	0	0	0
4:45 PM	0	0	5	1	0	0	0	0	0	13	2	0	10	7	1	0	38	0	0	0	0
5:00 PM	1	1	3	0	2	2	0	0	0	14	0	0	15	9	1	0	48	0	0	0	0
5:15 PM	1	0	3	0	0	5	0	0	0	10	2	0	17	15	1	0	54	0	0	0	0
5:30 PM	3	0	2	0	0	0	0	0	0	12	1	0	11	13	0	0	42	0	0	0	0
5:45 PM	0	1	8	0	1	0	0	0	0	4	2	0	15	15	0	0	46	0	0	0	0
Total Survey	8	5	38	2	3	11	3	0	0	89	7	2	119	98	4	3	385	0	0	0	0

Peak Hour Summary

4:30 PM to 5:30 PM

By Approach	Northbound Shintaffer Rd				Southbound Shintaffer Rd				Eastbound Seiahmoo Pkwy				Westbound Seiahmoo Pkwy				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	22	74	96	1	11	6	17	0	56	51	107	2	112	70	182	2	201	0	0	0	0
%HV	4.5%				0.0%				3.6%				1.8%				2.5%				
PHF	0.69				0.55				0.93				0.78				0.82				

By Movement	Northbound Shintaffer Rd				Southbound Shintaffer Rd				Eastbound Seiahmoo Pkwy				Westbound Seiahmoo Pkwy				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	4	2	16	22	2	8	1	11	0	52	4	56	62	46	4	112	201
PHF	0.50	0.50	0.60	0.69	0.25	0.40	0.25	0.55	0.00	0.87	0.50	0.93	0.78	0.77	1.00	0.78	0.82

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Shintaffer Rd				Southbound Shintaffer Rd				Eastbound Seiahmoo Pkwy				Westbound Seiahmoo Pkwy				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	3	3	22	2	0	4	3	0	0	49	2	2	61	46	2	3	195	0	0	0	0
4:15 PM	4	3	19	2	2	4	2	0	0	57	2	2	53	42	3	2	191	0	0	0	0
4:30 PM	4	2	16	1	2	8	1	0	0	52	4	2	62	46	4	2	201	0	0	0	0
4:45 PM	5	1	13	1	2	7	0	0	0	49	5	0	53	44	3	0	182	0	0	0	0
5:00 PM	5	2	16	0	3	7	0	0	0	40	5	0	58	52	2	0	190	0	0	0	0

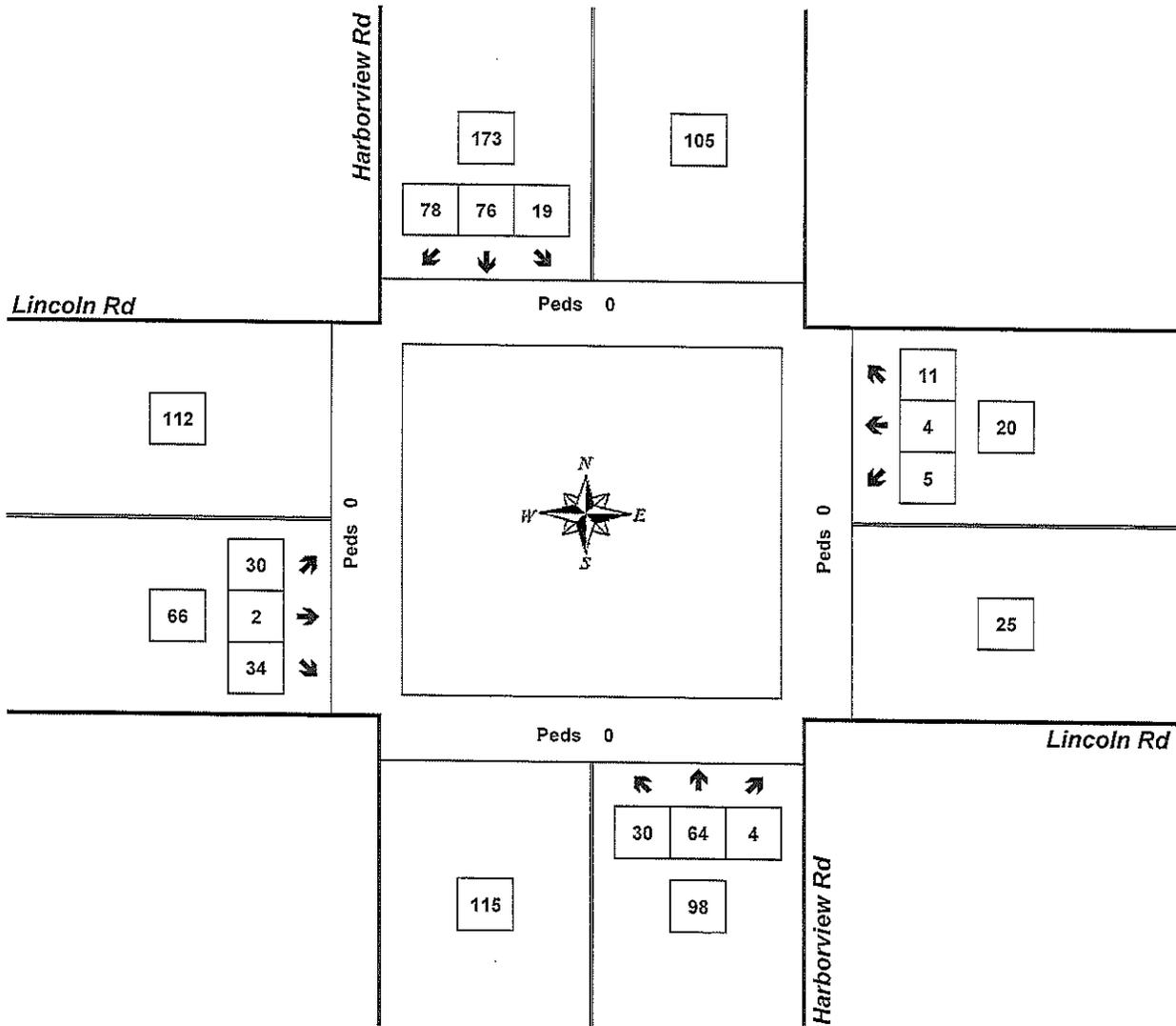
Peak Hour Summary



Mark Skaggs
(206) 251-0300

Harborview Rd & Lincoln Rd

4:00 PM to 5:00 PM
Tuesday, March 17, 2009



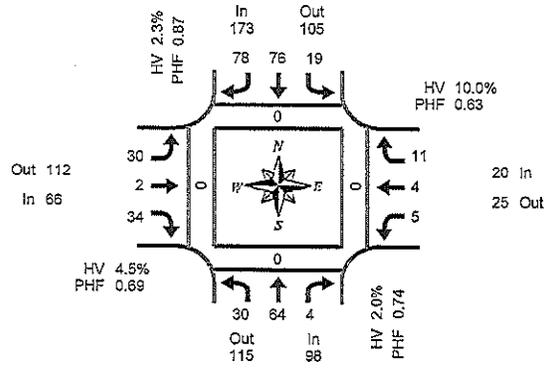
Approach	PHF	HV%	Volume
EB	0.69	4.5%	66
WB	0.63	10.0%	20
NB	0.74	2.0%	98
SB	0.87	2.3%	173
Intersection	0.84	3.1%	357

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



Peak Hour Summary
4:00 PM to 5:00 PM

Harborview Rd & Lincoln Rd

Tuesday, March 17, 2009

4:00 PM to 6:00 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Harborview Rd				Southbound Harborview Rd				Eastbound Lincoln Rd				Westbound Lincoln Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	5	14	2	2	5	22	23	1	8	0	4	0	2	0	1	1	86	0	0	0	0
4:15 PM	10	22	1	0	6	19	16	1	10	1	13	2	1	2	5	1	106	0	0	0	0
4:30 PM	6	17	0	0	2	18	26	2	7	1	9	0	2	1	3	0	92	0	0	0	0
4:45 PM	9	11	1	0	6	17	13	0	5	0	8	1	0	1	2	0	73	0	0	0	0
5:00 PM	7	14	2	1	1	19	16	0	9	2	10	0	1	0	2	0	83	0	0	0	0
5:15 PM	4	11	1	0	3	17	17	0	5	2	6	0	1	0	4	0	71	0	0	0	0
5:30 PM	10	6	2	0	4	12	14	0	6	0	6	0	1	1	2	0	64	0	0	0	0
5:45 PM	10	10	1	0	4	18	13	0	10	0	5	0	0	0	3	0	74	0	0	0	0
Total Survey	61	105	10	3	31	142	138	4	60	6	61	3	8	5	22	2	649	0	0	0	0

Peak Hour Summary

4:00 PM to 5:00 PM

By Approach	Northbound Harborview Rd				Southbound Harborview Rd				Eastbound Lincoln Rd				Westbound Lincoln Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	98	115	213	2	173	105	278	4	66	112	178	3	20	25	45	2	357	0	0	0	0
%HV	2.0%				2.3%				4.5%				10.0%				3.1%				
PHF	0.74				0.67				0.69				0.63				0.84				

By Movement	Northbound Harborview Rd				Southbound Harborview Rd				Eastbound Lincoln Rd				Westbound Lincoln Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	30	64	4	98	19	76	78	173	30	2	34	66	5	4	11	20	357
PHF	0.75	0.73	0.50	0.74	0.79	0.96	0.75	0.87	0.75	0.50	0.65	0.69	0.63	0.50	0.55	0.63	0.84

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Harborview Rd				Southbound Harborview Rd				Eastbound Lincoln Rd				Westbound Lincoln Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	30	64	4	2	19	76	78	4	30	2	34	3	5	4	11	2	357	0	0	0	0
4:15 PM	32	64	4	1	15	73	71	3	31	4	40	3	4	4	12	1	354	0	0	0	0
4:30 PM	26	53	4	1	12	71	72	2	26	5	33	1	4	2	11	0	319	0	0	0	0
4:45 PM	30	42	6	1	14	65	60	0	25	4	30	1	3	2	10	0	291	0	0	0	0
5:00 PM	31	41	6	1	12	66	60	0	30	4	27	0	3	1	11	0	292	0	0	0	0

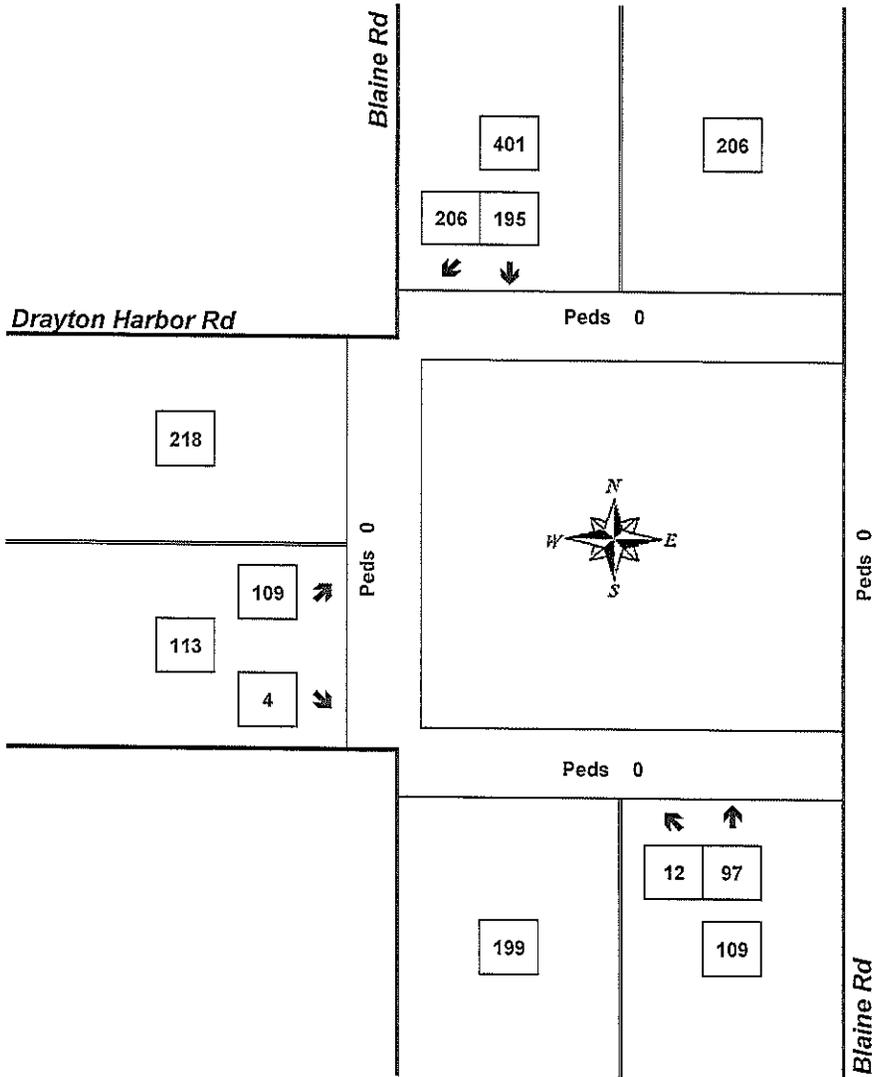
Peak Hour Summary



Mark Skaggs
(206) 251-0300

Blaine Rd & Drayton Harbor Rd

4:15 PM to 5:15 PM
Tuesday, March 17, 2009



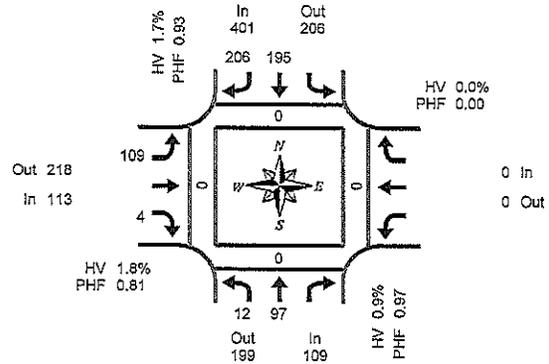
Approach	PHF	HV%	Volume
EB	0.81	1.8%	113
WB	0.00	0.0%	0
NB	0.97	0.9%	109
SB	0.93	1.7%	401
Intersection	0.92	1.6%	623

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



Blaine Rd & Drayton Harbor Rd

Tuesday, March 17, 2009

4:00 PM to 6:00 PM

Peak Hour Summary
4:15 PM to 5:15 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Blaine Rd			Southbound Blaine Rd			Eastbound Drayton Harbor Rd			Westbound Drayton Harbor Rd			Interval Total	Pedestrians Crosswalk			
	L	T	HV	T	R	HV	L	R	HV	In	Out	Total		North	South	East	West
4:00 PM	2	18	0	44	46	3	28	1	0	0	0	0	139	0	0	0	0
4:15 PM	3	24	0	51	52	1	26	0	0	0	0	0	156	0	0	0	0
4:30 PM	5	22	0	53	55	3	35	0	0	0	0	0	170	0	0	0	0
4:45 PM	0	27	1	37	46	2	23	1	1	1	1	1	134	0	0	0	0
5:00 PM	4	24	0	54	53	1	25	3	1	1	1	1	163	0	0	0	0
5:15 PM	2	36	0	37	51	0	23	1	0	0	0	0	150	0	0	0	0
5:30 PM	4	28	0	42	43	0	20	1	0	0	0	0	138	0	0	0	0
5:45 PM	2	25	0	29	51	1	30	1	0	0	0	0	138	0	0	0	0
Total Survey	22	204	1	347	397	11	210	8	2	2	2	2	1,188	0	0	0	0

Peak Hour Summary

4:15 PM to 5:15 PM

By Approach	Northbound Blaine Rd				Southbound Blaine Rd				Eastbound Drayton Harbor Rd				Westbound Drayton Harbor Rd			Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total		North	South	East	West
Volume	109	199	308	1	401	206	607	7	113	218	331	2	0	0	0	0	0	0	0	
%HV	0.9%				1.7%				1.6%				0.0%			1.6%	0	0	0	0
PHF	0.97				0.93				0.81				0.00			0.92	0	0	0	0

By Movement	Northbound Blaine Rd			Southbound Blaine Rd			Eastbound Drayton Harbor Rd			Westbound Drayton Harbor Rd			Total
	L	T	Total	T	R	Total	L	R	Total	In	Out	Total	
Volume	12	97	109	195	206	401	109	4	113	0	0	0	623
PHF	0.60	0.90	0.97	0.90	0.94	0.93	0.78	0.33	0.81	0.00	0.00	0.00	0.92

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Blaine Rd			Southbound Blaine Rd			Eastbound Drayton Harbor Rd			Westbound Drayton Harbor Rd			Interval Total	Pedestrians Crosswalk			
	L	T	HV	T	R	HV	L	R	HV	In	Out	Total		North	South	East	West
4:00 PM	10	91	1	185	199	9	112	2	1	0	0	0	599	0	0	0	0
4:15 PM	12	97	1	195	206	7	109	4	2	0	0	0	623	0	0	0	0
4:30 PM	11	109	1	181	205	6	106	5	2	0	0	0	617	0	0	0	0
4:45 PM	10	115	1	170	193	3	91	6	2	0	0	0	585	0	0	0	0
5:00 PM	12	113	0	162	198	2	98	6	1	0	0	0	589	0	0	0	0



Prepared for: **The Transpo Goup**

Traffic Count Consultants, Inc.

Phone: (425) 861-8866 FAX: (425) 861-8877 E-Mail: TC2inc@aol.com

WBE/DBE

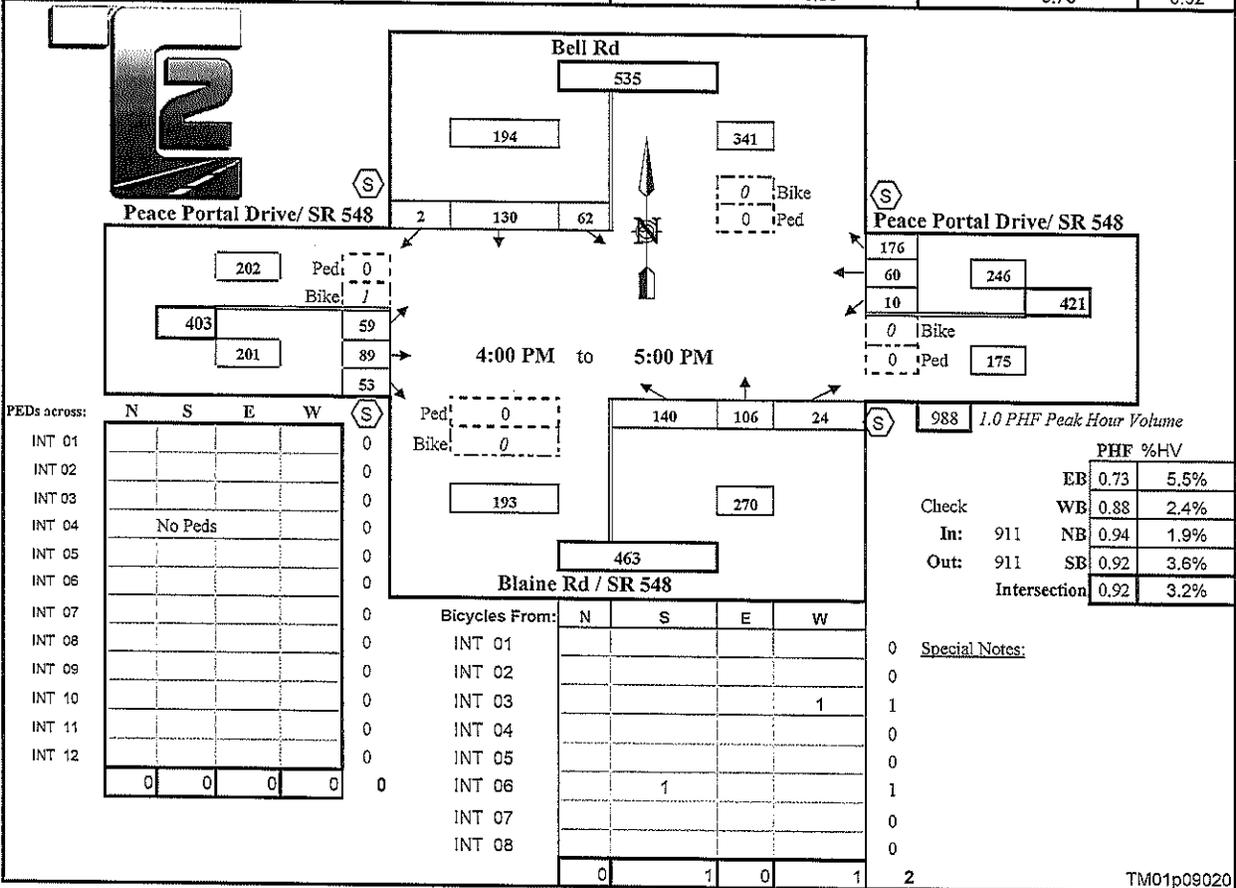
Intersection: Peace Portal Drive @ Blaine Rd / Bell Rd
 Location: Blaine

Date of Count: Tues 3/24/09
 Checked By: LBP

Time Interval Ending at	From North on (SB) Bell Rd				From South on (NB) Blaine Rd / SR 548				From East on (WB) Peace Portal Drive/ SR 548				From West on (EB) Peace Portal Drive/ SR 548				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	14	34	1	3	35	25	11	2	2	21	35	3	33	22	14	247
4:30 P	2	16	30	1	2	38	30	4	1	1	16	53	5	8	22	15	234
4:45 P	1	20	33	0	0	35	29	5	1	4	14	39	3	6	24	12	221
5:00 P	2	12	33	0	0	32	22	4	2	3	9	49	0	12	21	12	209
5:15 P	0	16	26	1	0	42	23	5	1	1	23	52	1	15	22	9	235
5:30 P	0	10	29	3	2	28	31	13	0	2	24	53	1	7	25	8	233
5:45 P	1	7	20	0	0	25	39	2	0	0	10	39	0	15	19	10	186
6:00 P	0	6	33	1	0	27	37	3	2	1	8	58	2	13	12	11	210
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total Survey	8	101	238	7	7	262	236	47	9	14	125	378	15	109	167	91	1775
Peak Hour: 4:00 PM to 5:00 PM																	

Total	7	62	130	2	5	140	106	24	6	10	60	176	11	59	89	53	911
Approach	194			270					246				201				911
%HV	3.6%			1.9%					2.4%				5.5%				3.2%
PHF	0.92			0.94					0.88				0.73				0.92



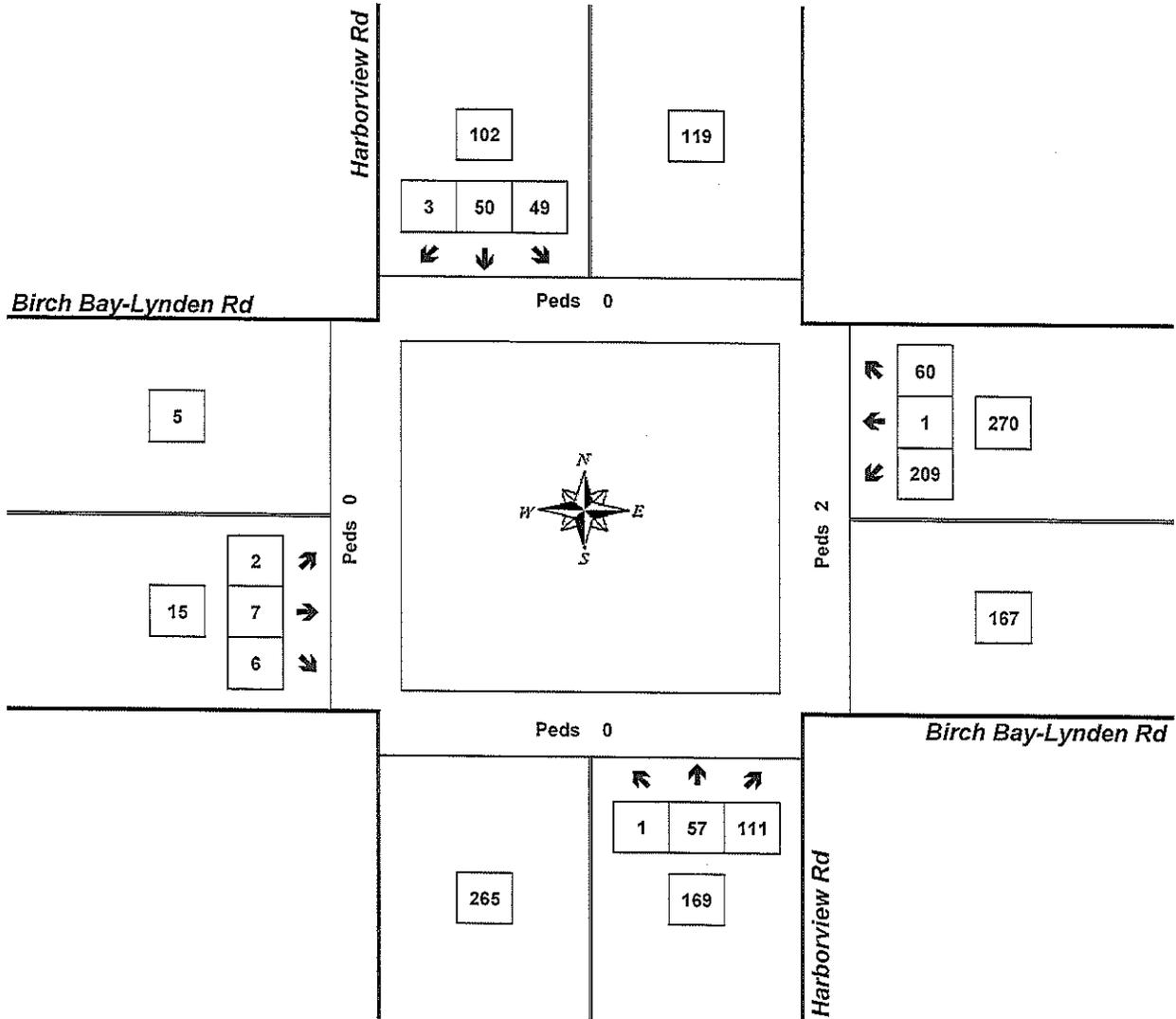
Peak Hour Summary



Mark Skaggs
(206) 251-0300

Harborview Rd & Birch Bay-Lynden Rd

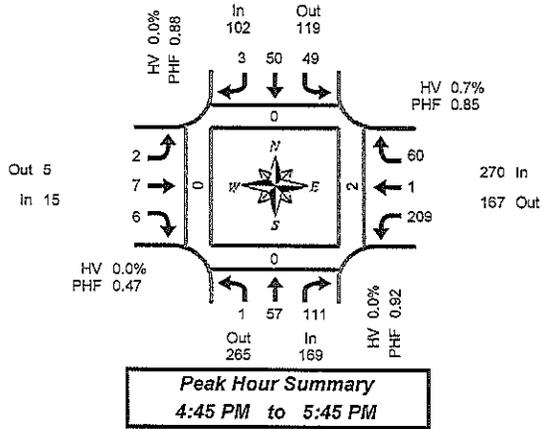
4:45 PM to 5:45 PM
Tuesday, March 17, 2009



Approach	PHF	HV%	Volume
EB	0.47	0.0%	15
WB	0.85	0.7%	270
NB	0.92	0.0%	169
SB	0.88	0.0%	102
Intersection	0.95	0.4%	556

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Harborview Rd & Birch Bay-Lynden Rd

Tuesday, March 17, 2009
4:00 PM to 6:00 PM

15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Harborview Rd				Southbound Harborview Rd				Eastbound Birch Bay-Lynden Rd				Westbound Birch Bay-Lynden Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	3	9	26	1	9	16	0	0	0	1	3	0	37	2	20	1	126	0	0	0	0
4:15 PM	0	12	23	2	17	14	1	2	0	1	0	0	55	1	9	1	133	0	0	0	0
4:30 PM	0	12	27	0	8	13	0	1	1	1	1	0	47	2	12	0	124	1	0	1	0
4:45 PM	1	11	25	0	11	12	1	0	0	2	2	0	48	0	17	0	130	0	0	0	0
5:00 PM	0	18	26	0	15	13	1	0	1	3	4	0	47	1	9	0	137	0	0	0	0
5:15 PM	0	15	31	0	12	12	1	0	0	1	0	0	55	0	15	1	142	0	0	2	0
5:30 PM	0	13	29	0	11	13	0	0	1	1	0	0	59	0	20	1	147	0	0	0	0
5:45 PM	1	12	21	0	10	8	0	0	0	0	1	0	44	3	17	0	117	0	0	0	0
Total Survey	5	102	208	3	93	101	4	3	3	10	11	0	392	9	118	4	1,056	1	0	3	0

Peak Hour Summary 4:45 PM to 5:45 PM

By Approach	Northbound Harborview Rd				Southbound Harborview Rd				Eastbound Birch Bay-Lynden Rd				Westbound Birch Bay-Lynden Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	169	265	434	0	102	119	221	0	15	5	20	0	270	167	437	2	556	0	0	2	0
%HV	0.0%				0.0%				0.0%				0.7%				0.4%				
PHF	0.92				0.88				0.47				0.85				0.95				

By Movement	Northbound Harborview Rd				Southbound Harborview Rd				Eastbound Birch Bay-Lynden Rd				Westbound Birch Bay-Lynden Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	1	57	111	169	49	50	3	102	2	7	6	15	209	1	60	270	556
PHF	0.25	0.79	0.90	0.92	0.82	0.98	0.75	0.88	0.50	0.58	0.38	0.47	0.89	0.25	0.75	0.85	0.95

Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Harborview Rd				Southbound Harborview Rd				Eastbound Birch Bay-Lynden Rd				Westbound Birch Bay-Lynden Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	4	44	101	3	45	55	2	3	1	5	6	0	187	5	58	2	513	1	0	1	0
4:15 PM	1	53	101	2	51	52	3	3	2	7	7	0	197	4	46	1	524	1	0	1	0
4:30 PM	1	56	109	0	46	50	3	1	2	7	7	0	197	3	52	1	533	1	0	3	0
4:45 PM	1	57	111	0	49	50	3	0	2	7	6	0	209	1	60	2	556	0	0	2	0
5:00 PM	1	58	107	0	48	46	2	0	2	5	5	0	205	4	60	2	543	0	0	2	0

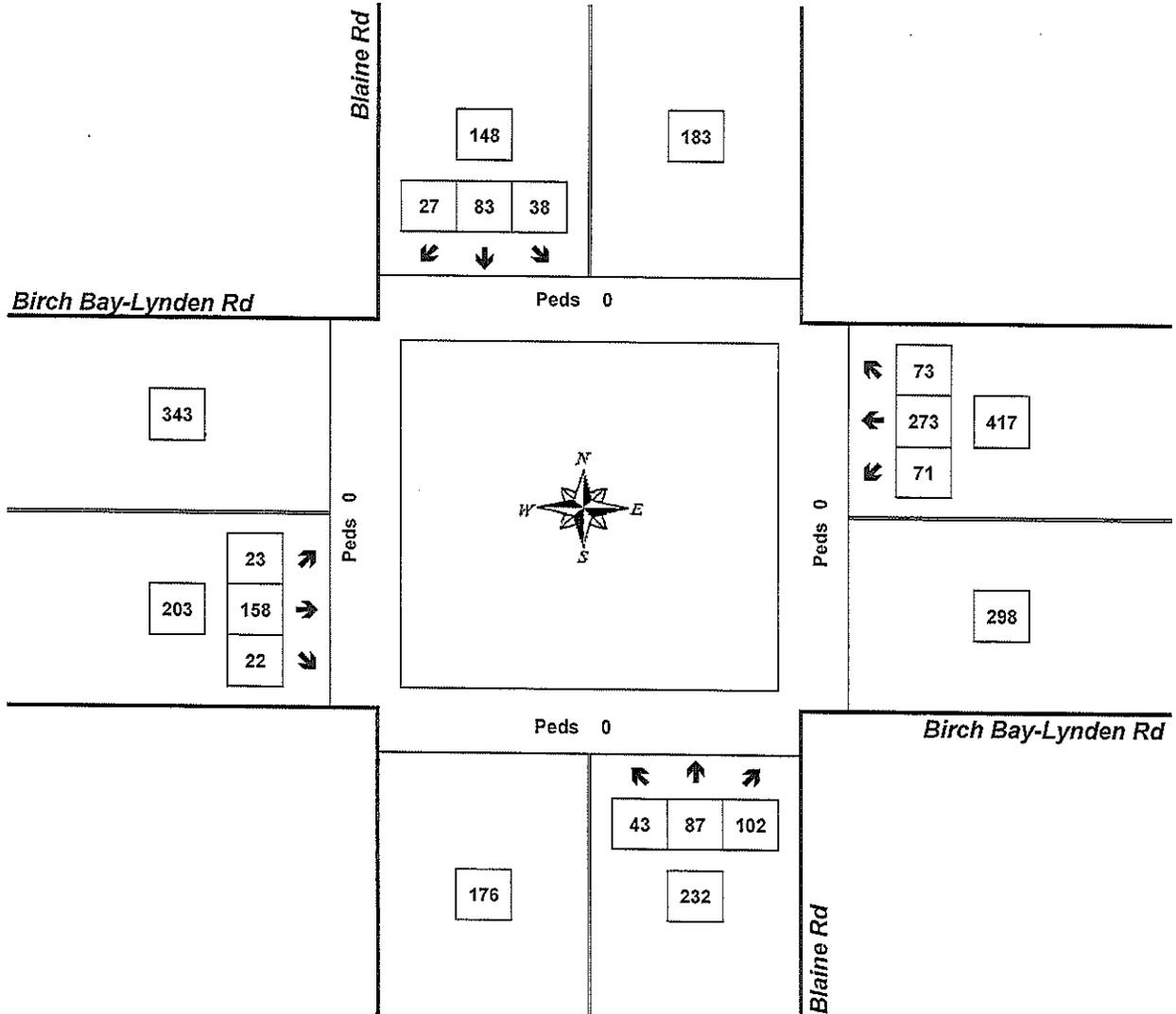
Peak Hour Summary



Mark Skaggs
(206) 251-0300

Blaine Rd & Birch Bay-Lynden Rd

5:00 PM to 6:00 PM
Tuesday, March 17, 2009



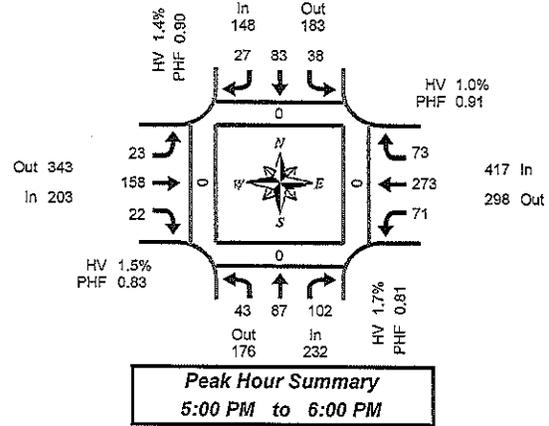
Approach	PHF	HV%	Volume
EB	0.83	1.5%	203
WB	0.91	1.0%	417
NB	0.81	1.7%	232
SB	0.90	1.4%	148
Intersection	0.95	1.3%	1,000

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



Blaine Rd & Birch Bay-Lynden Rd

Tuesday, March 17, 2009
4:00 PM to 6:00 PM

15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Blaine Rd				Southbound Blaine Rd				Eastbound Birch Bay-Lynden Rd				Westbound Birch Bay-Lynden Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	7	15	12	2	11	22	10	3	6	35	5	2	9	60	16	1	208	0	0	0	0
4:15 PM	7	24	5	0	11	19	11	0	6	33	10	3	18	61	20	0	225	0	0	0	0
4:30 PM	9	20	18	1	16	28	11	0	4	42	10	0	14	72	15	0	259	0	0	0	0
4:45 PM	12	12	9	1	9	21	9	0	9	36	6	0	11	66	16	1	216	0	0	0	0
5:00 PM	10	25	33	2	8	20	11	0	7	41	6	0	17	61	20	0	259	0	0	0	0
5:15 PM	10	21	22	1	9	18	6	1	7	46	8	1	18	74	21	1	260	0	0	0	0
5:30 PM	11	26	33	0	8	20	7	0	6	33	3	2	19	73	22	3	263	0	0	0	0
5:45 PM	12	13	14	1	13	25	3	1	3	38	5	0	17	65	10	0	218	0	0	0	0
Total Survey	78	158	146	8	85	173	68	5	48	304	53	8	123	532	140	6	1,908	0	0	0	0

Peak Hour Summary 5:00 PM to 6:00 PM

By Approach	Northbound Blaine Rd				Southbound Blaine Rd				Eastbound Birch Bay-Lynden Rd				Westbound Birch Bay-Lynden Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	232	176	408	4	148	183	331	2	203	343	546	3	417	298	715	4	1,000	0	0	0	0
%HV	1.7%				1.4%				1.5%				1.0%				1.3%				
PHF	0.81				0.90				0.83				0.91				0.95				

By Movement	Northbound Blaine Rd				Southbound Blaine Rd				Eastbound Birch Bay-Lynden Rd				Westbound Birch Bay-Lynden Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	43	87	102	232	38	83	27	148	23	158	22	203	71	273	73	417	1,000
PHF	0.90	0.78	0.77	0.81	0.73	0.83	0.61	0.90	0.82	0.66	0.69	0.83	0.93	0.92	0.83	0.91	0.95

Rolling Hour Summary 4:00 PM to 6:00 PM

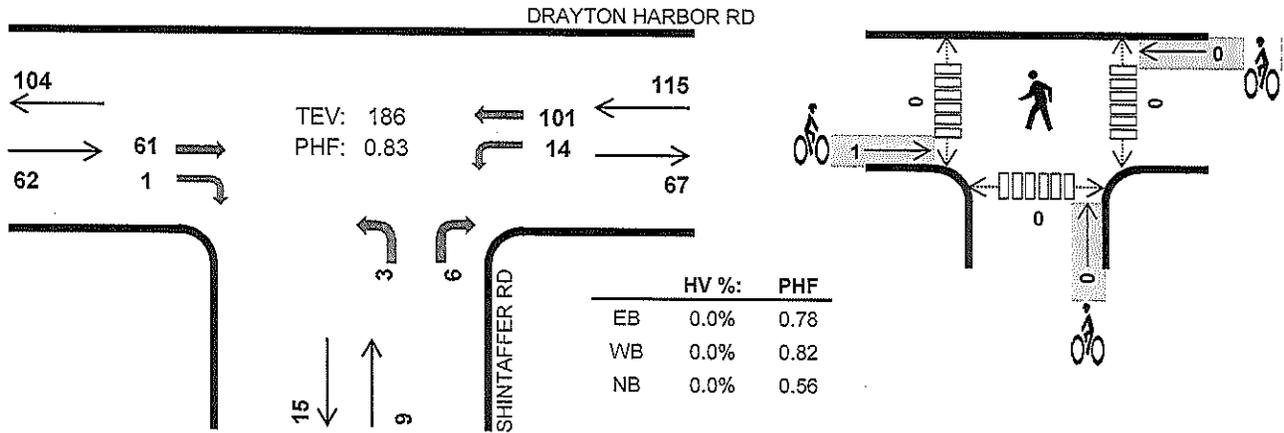
Interval Start Time	Northbound Blaine Rd				Southbound Blaine Rd				Eastbound Birch Bay-Lynden Rd				Westbound Birch Bay-Lynden Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	35	71	44	4	47	90	41	3	25	146	31	5	52	259	67	2	908	0	0	0	0
4:15 PM	38	81	65	4	44	88	42	0	26	152	32	3	60	260	71	1	959	0	0	0	0
4:30 PM	41	78	82	5	42	87	37	1	27	165	30	1	60	273	72	2	994	0	0	0	0
4:45 PM	43	86	97	4	34	79	33	1	29	156	23	3	65	274	79	5	998	0	0	0	0
5:00 PM	43	87	102	4	38	83	27	2	23	158	22	3	71	273	73	4	1,000	0	0	0	0

SHINTAFFER RD DRAYTON HARBOR RD



Peak Hour

Date: Thu, Aug 08, 2013
Peak Hour: 5:00 PM to 6:00 PM

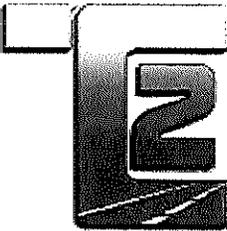


Two-Hour Count Summaries

Interval Start	DRAYTON HARBOR RD			DRAYTON HARBOR RD			SHINTAFFER RD			SHINTAFFER RD			Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
4:00 PM	0	10	1	0	11	0	3	0	1	0	0	0	
4:15 PM	0	17	3	3	22	0	3	0	1	0	0	0	
4:30 PM	0	17	0	4	12	0	2	0	2	0	0	0	
4:45 PM	0	18	0	1	17	0	1	0	2	0	0	0	
5:00 PM	0	16	0	1	24	0	3	0	1	0	0	0	151
5:15 PM	0	17	0	4	31	0	0	0	4	0	0	0	170
5:30 PM	0	9	0	4	23	0	0	0	0	0	0	0	176
5:45 PM	0	19	1	5	23	0	0	0	1	0	0	0	186
Count Total	0	123	5	22	163	0	12	0	12	0	0	0	337
Peak Hr	0	61	1	14	101	0	3	0	6	0	0	0	186

Note: Two-hour count summary volumes include heavy vehicles but excludes bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
Count Total	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0
Peak Hr	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0



Prepared for: **JAKE Traffic Engineering, Inc**
Traffic Count Consultants, Inc.

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WBE/DBE

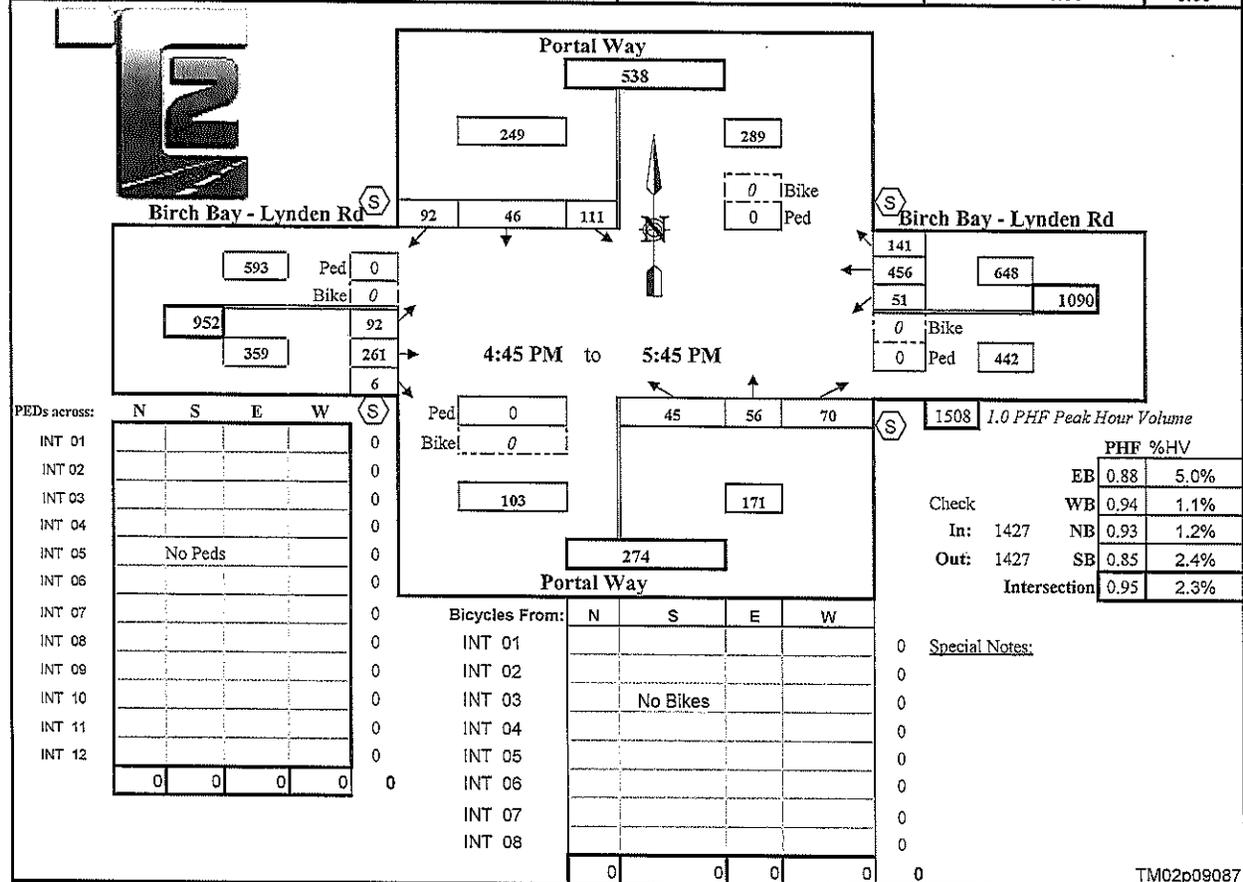
Intersection: Portal Way @ Birch Bay - Lynden Rd
 Location: Birch Bay

Date of Count: Wed 12/2/09
 Checked By: LBP

Time Interval Ending at	From North on (SB) Portal Way				From South on (NB) Portal Way				From East on (WB) Birch Bay - Lynden Rd				From West on (EB) Birch Bay - Lynden Rd				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	3	28	10	16	0	10	9	18	1	8	79	26	3	15	70	3	292
4:30 P	3	25	7	14	0	14	10	21	2	5	93	37	2	23	73	2	324
4:45 P	4	19	9	21	1	9	18	22	0	14	86	44	4	28	64	2	336
5:00 P	2	16	11	19	0	7	17	19	3	11	104	39	5	15	66	4	328
5:15 P	2	28	12	22	0	11	16	14	3	16	119	37	8	27	75	0	377
5:30 P	1	36	9	28	1	14	11	16	1	19	121	31	2	21	68	2	376
5:45 P	1	31	14	23	1	13	12	21	0	5	112	34	3	29	52	0	346
6:00 P	0	19	3	24	0	8	15	20	2	14	115	38	1	25	44	3	328
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total Survey	16	202	75	167	3	86	108	151	12	92	829	286	28	183	512	17	2708
Peak Hour:		4:45 PM				to		5:45 PM									

Total	6	111	46	92	2	45	56	70	7	51	456	141	18	92	261	6	1427
Approach	249				171				648				359				1427
%HV	2.4%				1.2%				1.1%				5.0%				2.3%
PHF	0.85				0.93				0.94				0.88				0.95



Highway Capacity Manual 2010

Signalized intersection level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* (Transportation Research Board, 2010).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F ¹	>80	Forced flow (congested and queues fail to clear)

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

Unsignalized intersection LOS criteria can be further reduced into three intersection types: all-way stop, two-way stop, and roundabout control. All-way stop and roundabout control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F ¹	>50

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

HCM 2010 AWSC

Semiahmo Spitt Master Plan
Existing (2013) Weekday PM Peak Hour

1: Semiahmo Pkwy & Semiahmo Dr/Drayton Harbor Rd

Intersection		Intersection Delay, s/veh												SBR	
Intersection LOS		A												7.3	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SB	SBT	SBR
Vol, veh/h	3	5	2	10	19	13	9	26	4	21	28	8	NB	1	8
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	NB	0.88	0.88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	NB	0	0
Mgmt Flow	3	6	2	11	22	15	10	30	5	24	32	9	NB	1	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	0	1	NB	0	0
Approach	EB	WB	WB	EB	NB	NB	WB	WB	EB	SB	SB	SB	SB	SB	SB
Opposing Approach	1	1	1	1	1	1	1	1	1	1	1	1	NB	1	1
Conflicting Lanes	1	1	1	1	1	1	1	1	1	1	1	1	NB	1	1
Conflicting Approach Left	1	1	1	1	1	1	1	1	1	1	1	1	NB	1	1
Conflicting Lanes Left	1	1	1	1	1	1	1	1	1	1	1	1	NB	1	1
Conflicting Approach Right	1	1	1	1	1	1	1	1	1	1	1	1	NB	1	1
Conflicting Lanes Right	1	1	1	1	1	1	1	1	1	1	1	1	NB	1	1
HCM Control Delay	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	NB	7.4	A
HCM LOS	A	A	A	A	A	A	A	A	A	A	A	A	NB	A	A
Lane	NBLn1	NBLn2	NBLn3	NBLn4	NBLn5	NBLn6	NBLn7	NBLn8	NBLn9	NBLn10	NBLn11	NBLn12	NBLn13	NBLn14	NBLn15
Vol Left, %	23%	30%	30%	24%	37%										
Vol Thru, %	67%	50%	45%	24%	49%										
Vol Right, %	10%	20%	25%	31%	14%										
Sign Control	Stop	Stop	Stop	Stop	Stop										
Traffic Vol by Lane	39	10	42	57	28										
LT Vol	28	5	19	28	8										
Through Vol	4	2	13	8											
RT Vol	9	3	10	21											
Lane Flow Rate	44	11	48	65											
Geometry Grp	1	1	1	1											
Degree of Uplift (X)	0.05	0.013	0.052	0.072											
Departure Headway (Hd)	4.036	4.665	3.959	4.024											
Convergence, Y/N	Yes	Yes	Yes	Yes											
Cap	884	873	889	888											
Service Time	2.074	2.123	2.091	2.059											
HCM Lane V/C Ratio	0.05	0.013	0.053	0.073											
HCM Control Delay	7.3	7.2	7.2	7.4											
HCM Lane LOS	A	A	A	A											
HCM 95th-ile Q	0.2	0	0.2	0.2											

--: Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC

Semiahmo Spitt Master Plan
Existing (2013) Weekday PM Peak Hour

2: Shintaffer Rd & Semiahmo Pkwy/Lincoln Rd

Intersection		Intersection Delay, s/veh												SBR	
Intersection LOS		3.9												11.1	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SB	SBT	SBR
Vol, veh/h	0	56	4	67	50	4	4	2	17	2	9	1	NB	2	9
Peak Hour Factor	0	0	0	0	0	0	0	0	0	0	0	0	NB	0	0
Heavy Vehicles, %	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	NB	Free	Free
Mgmt Flow	0	0	0	0	0	0	0	0	0	0	0	0	NB	0	0
Number of Lanes	0	0	0	0	0	0	0	0	0	0	0	0	NB	0	0
Storage Length	-	-	-	100	-	-	-	-	-	-	-	-	NB	-	-
Veh In Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	NB	-	0
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	NB	-	0
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82	NB	82	82
Heavy Vehicles, %	4	4	4	4	2	2	2	2	2	2	2	2	NB	2	2
Mgmt Flow	0	68	5	82	61	5	5	2	21	2	11	1	NB	2	11
Major/Minor	Major1	Major2	Major3	Major4	Major5	Major6	Major7	Major8	Major9	Major10	Major11	Major12	Minor1	Minor2	Minor3
Conflicting Flow All	68	0	0	73	0	0	304	300	71	309	300	65	NB	227	227
Stage 1	-	-	-	-	-	-	71	71	-	82	73	-	NB	82	73
Stage 2	-	-	-	-	-	-	239	229	-	3.345	3.345	-	NB	3.5	4
Follow-up Headway	2.238	-	-	2.218	-	-	3.545	4.045	-	3.345	3.5	-	NB	3.3	4
Pot Capacity-1 Maneuver	1523	-	-	1527	-	-	642	607	-	983	647	-	NB	616	1007
Stage 1	-	-	-	-	-	-	931	830	-	780	720	-	NB	780	720
Stage 2	-	-	-	-	-	-	763	708	-	931	838	-	NB	931	838
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-	NB	-	-
Max Capacity-1 Maneuver	1523	-	-	1527	-	-	606	574	-	983	605	-	NB	583	1007
Max Capacity-2 Maneuver	-	-	-	-	-	-	606	574	-	983	605	-	NB	583	1007
Stage 1	-	-	-	-	-	-	931	830	-	780	681	-	NB	780	681
Stage 2	-	-	-	-	-	-	710	671	-	909	838	-	NB	909	838
Approach	EB	WB	WB	EB	NB	NB	WB	WB	EB	SB	SB	SB	SB	SB	SB
HCM Control Delay, s	0	4.1	4.1	4.1	9.4	9.4	4.1	4.1	4.1	4.1	4.1	4.1	NB	11.1	B
HCM LOS	A	A	A	A	A	A	A	A	A	A	A	A	NB	B	B
Minor Lane / Major Mvmt	NBLn1	NBLn2	NBLn3	NBLn4	NBLn5	NBLn6	NBLn7	NBLn8	NBLn9	NBLn10	NBLn11	NBLn12	NBLn13	NBLn14	NBLn15
Capacity (veh/h)	840	1523	-	-	1527	-	-	1527	-	808	-	-	-	-	-
HCM Lane V/C Ratio	0.033	0	-	-	0.054	-	-	0.054	-	0.024	-	-	-	-	-
HCM Control Delay (s)	9.4	0	-	-	7.481	-	-	7.481	-	11.1	-	-	-	-	-
HCM Lane LOS	A	A	-	-	A	-	-	A	-	B	-	-	-	-	-
HCM 95th-ile Q(veh)	0.104	0	-	-	0.169	-	-	0.169	-	0.074	-	-	-	-	-

--: Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC
3: Harborview Rd & Lincoln Rd

HCM 2010 TWSC
4: Blaine Rd & Drayton Harbor Rd

Semiahmoo Spit Master Plan
Existing (2013) Weekday PM Peak Hour

Semiahmoo Spit Master Plan
Existing (2013) Weekday PM Peak Hour

Intersection
Intersection Delay, s/veh 3.5

Intersection
Intersection Delay, s/veh 2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	32	2	37	5	4	12	32	59	4	21	82	84
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	None	Stop	Stop	None	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	100	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	0	0	-	0	0	-	0	0	-
Grade, %	-	0	-	0	0	-	0	0	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	5	5	5	10	10	10	2	2	2	2	2	2
Mvmt Flow	38	2	44	6	5	14	38	82	5	25	98	100

Movement	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	118	0	0	4	13	105	0	0	223
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	None	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	0	-	0	0	0	0	0	-
Grade, %	0	0	-	-	-	-	-	-	0
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	128	4	14	14	114	229	242	242	242

Major/Minor	Minor1	Major1	Major2									
Conflicting Flow All	388	381	148	382	409	85	198	0	0	87	0	0
Stage 1	198	189	-	161	161	-	-	-	-	-	-	-
Stage 2	170	163	-	221	248	-	-	-	-	-	-	-
Follow-up Headway	3,545	4,045	3,345	3,59	4,09	3,39	2,218	-	-	2,218	-	-
Pot Capacity-1 Maneuver	583	561	891	582	520	952	1375	-	-	1509	-	-
Stage 1	797	732	-	823	750	-	-	-	-	-	-	-
Stage 2	825	758	-	764	687	-	-	-	-	-	-	-
Time blocked-Platoon, %	550	535	891	514	496	952	1375	-	-	1509	-	-
Mov Capacity-1 Maneuver	550	535	-	514	496	-	-	-	-	-	-	-
Mov Capacity-2 Maneuver	775	718	-	800	729	-	-	-	-	-	-	-
Stage 1	785	737	-	710	674	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Major/Minor	Minor2	Major1	Major2	
Conflicting Flow All	493	351	472	0
Stage 1	351	-	-	-
Stage 2	142	-	-	-
Follow-up Headway	3,518	3,318	2,209	-
Pot Capacity-1 Maneuver	535	692	1095	-
Stage 1	713	-	-	-
Stage 2	885	-	-	-
Time blocked-Platoon, %	528	692	1095	-
Mov Capacity-1 Maneuver	528	-	-	-
Mov Capacity-2 Maneuver	713	-	-	-
Stage 1	873	-	-	-
Stage 2	-	-	-	-

Approach
HCM Control Delay, s
HCM LOS

Approach
HCM Control Delay, s
HCM LOS

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBL1	EBL2	WBL1	SBL	SBT	SBR
Capacity (veh/h)	1375	-	-	550	768	691	1509	-	-
HCM Lane V/C Ratio	0.028	-	-	0.046	0.077	0.038	0.017	-	-
HCM Control Delay (s)	7.693	-	-	11.9	10.1	10.4	7.428	0	-
HCM Lane LOS	A	-	-	B	B	B	A	A	-
HCM 95th %ile Q(veh)	0.085	-	-	0.145	0.25	0.112	0.051	-	-

Minor Lane / Major Mvmt	NBL	NBT	EBL1	EBL2	WBL1	SBL	SBT	SBR
Capacity (veh/h)	1095	-	-	532	-	-	-	-
HCM Lane V/C Ratio	0.013	-	-	0.249	-	-	-	-
HCM Control Delay (s)	8.331	0	A	B	-	-	-	-
HCM Lane LOS	A	A	A	B	-	-	-	-
HCM 95th %ile Q(veh)	0.039	-	-	0.977	-	-	-	-

Notes
- : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

Notes
- : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

HCM 2010 AWSC
5: Blaine Rd/Bell Rd & Peace Portal Dr

Semiahmooc Spit Master Plan
Existing (2013) Weekday PM Peak Hour

Intersection													
Intersection Delay, s/Veh													
Intersection LOS													
Movement													
Vol, veh/h	64	98	57	11	65	191	152	115	28	67	141	2	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	8	6	6	2	2	2	2	2	2	2	4	4	4
Mvmt Flow	70	104	62	12	71	208	165	125	28	73	153	2	2
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0	0

Approach													
Opposing Approach													
Conflicting Approach Left													
Conflicting Lanes Left													
Conflicting Approach Right													
Conflicting Lanes Right													
HCM Control/Delay													
HCM LOS													
Approach	WB	EB	WB	NB	SB	WB	NB	SB	WB	NB	SB	WB	NB
Opposing Approach	1	2	1	1	1	1	1	1	1	1	1	1	1
Conflicting Approach Left	1	1	1	1	1	1	1	1	1	1	1	1	1
Conflicting Lanes Left	1	1	1	1	1	1	1	1	1	1	1	1	1
Conflicting Approach Right	1	1	1	1	1	1	1	1	1	1	1	1	1
Conflicting Lanes Right	1	1	1	1	1	1	1	1	1	1	1	1	1
HCM Control/Delay	12.5	14.1	14.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1
HCM LOS	B	B	B	C	C	C	C	C	C	C	C	C	C

Lane													
Vol Left, %													
Vol Thru, %													
Vol Right, %													
Sign Control													
Traffic Vol by Lane													
LT Vol													
RT Vol													
Lane Flow Rate													
Geometry Grip													
Degree of U/I (X)													
Departure Headway (Hd)													
Convergence, Y/N													
Cap													
Service Time													
HCM Lane V/C Ratio													
HCM Control Delay													
HCM Lane LOS													
HCM 85th-ile Q													
Vol Left, %	52%	40%	60%	0%	4%	4%	32%	32%	32%	32%	32%	32%	32%
Vol Thru, %	39%	0%	24%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%
Vol Right, %	9%	0%	100%	72%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Sign Control	Stop												
Traffic Vol by Lane	293	160	57	287	210	210	210	210	210	210	210	210	210
LT Vol	115	96	0	65	141	141	141	141	141	141	141	141	141
RT Vol	152	64	0	11	67	67	67	67	67	67	67	67	67
Lane Flow Rate	318	174	62	200	208	208	208	208	208	208	208	208	208
Geometry Grip	2	7	7	5	2	2	2	2	2	2	2	2	2
Degree of U/I (X)	0.54	0.342	0.106	0.473	0.402	0.402	0.402	0.402	0.402	0.402	0.402	0.402	0.402
Departure Headway (Hd)	6.104	7.072	6.152	5.87	6.338	6.338	6.338	6.338	6.338	6.338	6.338	6.338	6.338
Convergence, Y/N	Yes												
Cap	592	508	582	612	568	568	568	568	568	568	568	568	568
Service Time	4.183	4.814	3.894	3.911	4.382	4.382	4.382	4.382	4.382	4.382	4.382	4.382	4.382
HCM Lane V/C Ratio	0.537	0.343	0.107	0.474	0.401	0.401	0.401	0.401	0.401	0.401	0.401	0.401	0.401
HCM Control Delay	16.1	13.5	9.8	14.1	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8
HCM Lane LOS	C	B	A	B	B	B	B	B	B	B	B	B	B
HCM 85th-ile Q	3.2	1.5	0.4	2.5	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9

Notes
--: Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error: Computation Not Defined

HCM 2010 AWSC
6: Harborview Rd & Birch Bay Lynden Rd

Semiahmooc Spit Master Plan
Existing (2013) Weekday PM Peak Hour

Intersection													
Intersection Delay, s/Veh													
Intersection LOS													
Movement													
Vol, veh/h	2	8	8	228	1	65	1	65	1	62	120	53	54
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	1	1	1	0	0	0	0	0	0	0
Mvmt Flow	2	8	8	238	1	68	1	68	1	65	125	56	57
Number of Lanes	0	1	0	0	1	1	0	1	1	1	1	0	1

Approach													
Opposing Approach													
Conflicting Approach Left													
Conflicting Lanes Left													
Conflicting Approach Right													
Conflicting Lanes Right													
HCM Control/Delay													
HCM LOS													
Approach	WB	EB	WB	NB	SB	WB	NB	SB	WB	NB	SB	WB	NB
Opposing Approach	2	1	1	1	1	1	1	1	1	1	1	1	1
Conflicting Approach Left	1	1	1	1	1	1	1	1	1	1	1	1	1
Conflicting Lanes Left	1	1	1	1	1	1	1	1	1	1	1	1	1
Conflicting Approach Right	1	1	1	1	1	1	1	1	1	1	1	1	1
Conflicting Lanes Right	1	1	1	1	1	1	1	1	1	1	1	1	1
HCM Control/Delay	8.7	11.2	11.2	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
HCM LOS	A	B	B	A	A	A	A	A	A	A	A	A	A

Lane													
Vol Left, %													
Vol Thru, %													
Vol Right, %													
Sign Control													
Traffic Vol by Lane													
LT Vol													
RT Vol													
Lane Flow Rate													
Geometry Grip													
Degree of U/I (X)													
Departure Headway (Hd)													
Convergence, Y/N													
Cap													
Service Time													
HCM Lane V/C Ratio													
HCM Control Delay													
HCM Lane LOS													
HCM 85th-ile Q													
Vol Left, %	2%	0%	12%	100%	0%	48%	48%	48%	48%	48%	48%	48%	48%
Vol Thru, %	98%	0%	50%	0%	0%	49%	49%	49%	49%	49%	49%	49%	49%
Vol Right, %	0%	100%	38%	0%	100%	3%	3%	3%	3%	3%	3%	3%	3%
Sign Control	Stop												
Traffic Vol by Lane	63	120	18	227	65	110	110	110	110	110	110	110	110
LT Vol	62	0	8	1	0	54	54	54	54	54	54	54	54
RT Vol	1	0	2	228	0	53	53	53	53	53	53	53	53
Lane Flow Rate	68	128	17	239	68	116	116	116	116	116	116	116	116
Geometry Grip	7	6	6	7	7	6	6	6	6	6	6	6	6
Degree of U/I (X)	0.102	0.169	0.028	0.386	0.087	0.183	0.183	0.183	0.183	0.183	0.183	0.183	0.183
Departure Headway (Hd)	5.333	4.819	5.504	5.308	4.603	5.697	5.697	5.697	5.697	5.697	5.697	5.697	5.697
Convergence, Y/N	Yes												
Cap	645	740	644	616	772	628	628	628	628	628	628	628	628
Service Time	3.281	2.577	3.593	3.571	2.365	3.752	3.752	3.752	3.752	3.752	3.752	3.752	3.752
HCM Lane V/C Ratio	0.102	0.17	0.028	0.388	0.088	0.185	0.185	0.185	0.185	0.185	0.185	0.185	0.185
HCM Control Delay	8.9	8.6	8.7	12.2	7.8	10	10	10	10	10	10	10	10
HCM Lane LOS	A	A	A	B	A	A	A	A	A	A	A	A	A
HCM 85th-ile Q	0.3	0.5	0.1	1.8	0.3	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

Notes
--: Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error: Computation Not Defined

HCM 2010 AWSC
7: Blaine Rd & Birch Bay Lynden Rd

HCM 2010 AWSC
9: Portal Way & Birch Bay Lynden Rd

Semiahmoo Spitt Master Plan
Existing (2013) Weekday PM Peak Hour

Semiahmoo Spitt Master Plan
Existing (2013) Weekday PMPeak Hour

Intersection	19.1											
Intersection Delay, s/veh	C											
Intersection LOS	C											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	25	171	24	77	296	79	47	94	110	41	90	29
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	1	1	1	2	2	2	1	1	1
Mgmt Flow	28	180	25	81	312	83	49	99	116	43	95	31
Number of Lanes	0	1	1	0	1	0	0	1	1	0	0	0

Intersection	45.8											
Intersection Delay, s/veh	E											
Intersection LOS	E											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	100	283	6	55	494	153	49	61	78	120	50	100
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	5	5	5	1	1	1	1	1	1	2	2	2
Mgmt Flow	105	298	8	58	520	161	52	64	80	128	53	105
Number of Lanes	0	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	WB	NB	SB	SB
Opposing Approach	WB	EB	WB	NB	SB	NB
Opposing Lanes	1	2	2	1	1	1
Conflicting Approach Left	SB	NB	NB	WB	WB	WB
Conflicting Lanes Left	1	1	2	2	1	1
Conflicting Approach Right	NB	SB	SB	WB	EB	EB
Conflicting Lanes Right	1	1	1	1	2	2
HCM Control Delay	13.5	28.5	14.6	12.8		B
HCM LOS	B	B	D	B		B

Approach	EB	WB	WB	NB	SB	SB
Opposing Approach	WB	EB	WB	NB	SB	NB
Opposing Lanes	2	1	1	2	2	1
Conflicting Approach Left	SB	NB	NB	WB	WB	WB
Conflicting Lanes Left	2	1	1	1	2	2
Conflicting Approach Right	NB	SB	SB	WB	EB	EB
Conflicting Lanes Right	1	2	2	2	1	1
HCM Control Delay	47.4	63.3	63.3	19	15.3	C
HCM LOS	E	F	F	C	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	NBLn2	EBLn2	WBLn2	SBLn2
Vol Left, %	19%	13%	0%	17%	26%	0%	0%	100%	0%
Vol Thru, %	37%	87%	0%	65%	56%	33%	73%	0%	76%
Vol Right, %	44%	0%	100%	17%	18%	41%	2%	0%	24%
Sign Control	Stop								
Traffic Vol by Lane	251	198	24	452	160	188	389	55	647
LT Vol	94	171	0	296	90	61	283	0	494
Through Vol	110	0	24	79	29	76	6	0	153
RT Vol	47	25	0	77	41	49	100	55	0
Lane Flow Rate	264	208	25	476	168	198	409	58	661
Geometry Grp	2	7	7	5	2	6	6	7	7
Degree of Utl(X)	0.461	0.393	0.043	0.777	0.313	0.468	0.89	0.129	1
Departure Headway (Hd)	6.284	6.852	6.071	5.879	8.681	8.5	7.825	8.019	7.334
Convergence, Y/N	Yes								
Cap	573	524	588	614	537	419	463	447	497
Service Time	4.338	4.808	3.824	3.921	4.74	6.838	5.86	5.768	5.093
HCM Lane Y/C Ratio	0.461	0.393	0.043	0.775	0.313	0.468	0.883	0.13	1.37
HCM Control Delay	14.5	14	9.1	26.5	12.8	19	47.4	42	67.7
HCM Lane LOS	B	B	A	D	B	C	E	B	F
HCM 95th-ile Q	2.4	1.9	0.1	7.3	1.3	2.4	9.5	0.4	13.5

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	NBLn2	EBLn2	WBLn2	SBLn2
Vol Left, %	26%	25%	100%	100%	0%	26%	25%	100%	0%
Vol Thru, %	33%	73%	0%	76%	0%	33%	73%	0%	33%
Vol Right, %	41%	2%	0%	24%	0%	41%	2%	0%	67%
Sign Control	Stop								
Traffic Vol by Lane	188	389	55	647	120	188	389	55	647
LT Vol	61	283	0	494	0	61	283	0	494
Through Vol	76	6	0	153	0	76	6	0	153
RT Vol	49	100	55	0	120	49	100	55	0
Lane Flow Rate	198	409	58	661	129	198	409	58	661
Geometry Grp	6	6	7	7	7	6	6	7	7
Degree of Utl(X)	0.468	0.89	0.129	1	0.313	0.468	0.89	0.129	1
Departure Headway (Hd)	8.5	7.825	8.019	7.334	8.926	8.5	7.825	8.019	7.334
Convergence, Y/N	Yes								
Cap	419	463	447	497	464	419	463	447	497
Service Time	6.838	5.86	5.768	5.093	6.062	6.838	5.86	5.768	5.093
HCM Lane Y/C Ratio	0.468	0.883	0.13	1.37	0.312	0.468	0.883	0.13	1.37
HCM Control Delay	19	47.4	42	67.7	15.7	19	47.4	42	67.7
HCM Lane LOS	C	E	B	F	C	C	E	B	F
HCM 95th-ile Q	2.4	9.5	0.4	13.5	1.3	2.4	9.5	0.4	13.5

Notes: --: Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error: Computation Not Defined

Notes: --: Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error: Computation Not Defined

HCM 2010 AWSC
10: Shintaffer Rd & Drayton Harbor Rd

Semiahmoo Spit Master Plan
Existing (2013) Weekday PM Peak Hour

Intersection: 7.5
Intersection Delay, s/veh: A

Movement	EBT	EBR	WBT	WBR	NBT	NBR
Vol, veh/h	61	1	0	161	3	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	73	1	0	122	4	0
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	NB
Conflicting Lanes	1	1	0
Conflicting Approach Left	0	NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB	0	WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.4	7.6	7.5
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	NBLn2	EBLn2	WBLn2
Vol Left, %	100%	0%	0%	0%	0%	0%
Vol Thru, %	0%	98%	100%	0%	98%	100%
Vol Right, %	0%	2%	0%	0%	2%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	3	62	101	3	62	101
LT Vol	0	61	101	0	61	101
Through Vol	0	1	0	0	1	0
RT Vol	3	0	0	3	0	0
Lane Flow Rate	4	75	122	4	75	122
Geometry Grp	1	1	1	1	1	1
Degree of U/I (X)	0.004	0.093	0.134	0.004	0.093	0.134
Departure Headway (Hd)	4.435	3.986	3.981	4.435	3.986	3.981
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	787	899	907	787	899	907
Service Time	2.517	2.01	1.977	2.517	2.01	1.977
HCM Lane V/C Ratio	0.005	0.093	0.135	0.005	0.093	0.135
HCM Control Delay	7.5	7.4	7.6	7.5	7.4	7.6
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-ile Q	0	0.3	0.5	0	0.3	0.5

Notes
 --: Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC
11: Shintaffer Rd

Semiahmoo Spit Master Plan
Existing (2013) Weekday PM Peak Hour

Intersection: 5
Intersection Delay, s/veh

Movement	WBL	WBR	NBL	NBR	SBL	SBT
Vol, veh/h	14	0	3	6	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	0	None	None	None	None	None
Storage Length	0	0	0	0	0	0
Veh in Median Storage, #	0	0	0	0	0	0
Grade, %	0	0	0	0	0	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	17	0	4	7	0	1

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	8	7	0
Stage 1	7	-	-
Stage 2	1	-	-
Follow-up Headway	3.5	3.3	2.2
Plat Capacity-1 Maneuver	1018	1081	1621
Stage 1	1021	-	-
Stage 2	1028	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	1018	1081	1621
Mov Capacity-2 Maneuver	1018	-	-
Stage 1	1021	-	-
Stage 2	1028	-	-

Approach	W/B	N/B	S/B
HCM Control Delay, s	8.6	0	0
HCM LOS	A	-	-

Minor Lane / Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	1018	1621	-
HCM Lane V/C Ratio	-	0.017	-	-
HCM Control Delay (s)	-	8.0	0	-
HCM Lane LOS	-	A	A	-
HCM 95th-ile Q (veh)	-	0.051	0	-

Notes
 --: Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC **Semihamoo Spit Master Plan**
12: Shintaffer Rd & Drayton Harbor Rd **Existing (2013) Weekday PM Peak Hour**

Intersection: 0.9
 Intersection Delay, s/veh

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol. veh/h	61	0	14	101	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Vol. in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	73	0	17	122	0	7

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	73
Stage 1	-	-	73
Stage 2	-	-	155
Follow-up Headway	-	2.2	3.5
Pol Capacity-1 Maneuver	-	1540	785
Stage 1	-	-	955
Stage 2	-	-	878
Time blocked-Platoon, %	-	-	-
Max Capacity-1 Maneuver	-	1540	756
Max Capacity-2 Maneuver	-	-	756
Stage 1	-	-	955
Stage 2	-	-	867

Approach: EB WB NB
 HCM Control Delay, s: 0 0.9 8.6
 HCM LOS: A

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	995	-	-	1540	-
HCM Lane V/C Ratio	0.007	-	-	0.011	-
HCM Control Delay (s)	8.6	-	-	7.564	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %ile Q(veh)	0.022	-	-	0.033	-

Notes: -- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC
2: Shintaffer Rd & Semiahmoo Pkwy/Lincoln Rd

HCM 2010 AWSC
1: Semiahmoo Pkwy & Semiahmoo Dr/Drayton Harbor Rd

Semiahmoo Spitt Master Plan
Baseline (2023) Weekday PM Peak Hour

Semiahmoo Spitt Master Plan
Baseline (2023) Weekday PM Peak Hour

Intersection		2.8															
Intersection Delay, s/veh																	
Intersection LOS		A															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR					
Vol, veh/h	4	8	10	12	27	18	23	77	5	28	58	10					
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88					
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0					
Mvmt Flow	5	9	11	14	31	20	26	87	6	32	64	11					
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0					
Approach	EB	WB	WB	EB	WB	WB	NB	NB	SB	SB	SB	SB					
Opposing Approach	WB	1	1	1	1	1	1	1	1	1	1	1					
Opposing Lanes	1	1	1	1	1	1	1	1	1	1	1	1					
Conflicting Approach Left	SB	NB	NB	1	1	1	1	1	1	1	1	1					
Conflicting Lanes Left	1	1	1	1	1	1	1	1	1	1	1	1					
Conflicting Approach Right	NB	SB	SB	1	1	1	1	1	1	1	1	1					
Conflicting Lanes Right	1	1	1	1	1	1	1	1	1	1	1	1					
HCM Control Delay	7.4	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8					
HCMLOS	A	A	A	A	A	A	A	A	A	A	A	A					

Intersection		7.8															
Intersection Delay, s/veh																	
Intersection LOS		A															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR					
Vol, veh/h	4	8	10	12	27	18	23	77	5	28	58	10					
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88					
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0					
Mvmt Flow	5	9	11	14	31	20	26	87	6	32	64	11					
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0					
Approach	EB	WB	WB	EB	WB	WB	NB	NB	SB	SB	SB	SB					
Opposing Approach	WB	1	1	1	1	1	1	1	1	1	1	1					
Opposing Lanes	1	1	1	1	1	1	1	1	1	1	1	1					
Conflicting Approach Left	SB	NB	NB	1	1	1	1	1	1	1	1	1					
Conflicting Lanes Left	1	1	1	1	1	1	1	1	1	1	1	1					
Conflicting Approach Right	NB	SB	SB	1	1	1	1	1	1	1	1	1					
Conflicting Lanes Right	1	1	1	1	1	1	1	1	1	1	1	1					
HCM Control Delay	7.4	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8					
HCMLOS	A	A	A	A	A	A	A	A	A	A	A	A					

Major/Minor		Minor1																Minor2															
Conflicting Flow All		327																735															
Stage 1																		209															
Stage 2																		518															
Follow-up Headway		2,236																3,545															
Pot Capacity-1 Maneuver		1,221																338															
Stage 1																		786															
Stage 2																		535															
Time blocked-Platoon, %																		304															
Mov Capacity-1 Maneuver		1,221																304															
Mov Capacity-2 Maneuver																		786															
Stage 1																		478															
Stage 2																		750															
Approach	EB	WB	WB	EB	WB	WB	NB	NB	SB	SB	SB	SB																					
HCM Control Delay, s	0			1.8			13.6																										
HCMLOS				B			C																										

Minor Lanes / Major/Minor		Minor1																Minor2															
Capacity (veh/h)		465																322															
HCM Lane V/C Ratio		0.102																0.074															
HCM Control Delay (s)		13.6																7.864															
HCM Lane LOS		B																A															
HCM 95th %ile Q(veh)		0.34																0.238															
Notes		--: Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined																															

HCM 2010 TWSC
3: Harborview Rd & Lincoln Rd

Semiahmoo Spitt Master Plan
Baseline (2023) Weekday PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	103	2	93	6	5	15	126	100	5	26	109	217
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	None	Free	Free	Free	Free	Free	Free
RT Channelized	100	-	-	-	-	-	100	-	-	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh In Median Storage, #	-	-	-	-	-	-	-	-	-	-	-	-
Grade, %	-	-	-	-	-	-	-	-	-	-	-	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	123	2	111	7	6	18	150	119	6	31	130	258

Minor/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	755	746	259	799
Stage 1	321	321	422	422
Stage 2	434	425	377	450
Follow-up Headway	3,645	4,045	3,345	3,59
Pd Capacity-1 Maneuver	321	338	772	294
Stage 1	694	646	594	575
Stage 2	595	591	629	558
Time blocked-Paloon, %	-	-	-	-
Mov Capacity-1 Maneuver	273	286	772	221
Mov Capacity-2 Maneuver	273	286	221	237
Stage 1	596	628	518	501
Stage 2	502	507	522	542

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.1	14.7	4.7	0.6
HCM LOS	C	B	A	A

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBL1/2	WBL1/2	NBL1	SBL	SBT	SBR
Capacity (veh/h)	1170	-	-	273	511	401	1462	-	-
HCM Lane V/C Ratio	0.128	-	-	0.299	0.301	0.077	0.021	-	-
HCM Control Delay (s)	8.529	-	-	23.7	15.1	14.7	7.518	0	-
HCM Lane LOS	A	-	-	C	C	B	A	A	-
HCM 95th %ile Q(veh)	0.44	-	-	1.22	1.258	0.25	0.065	-	-

Notes
--: Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error: Computation Not Defined

HCM 2010 TWSC
4: Blaine Rd & Drayton Harbor Rd

Semiahmoo Spitt Master Plan
Baseline (2023) Weekday PM Peak Hour

Movement	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	217	0	7	19	128	0	257	405	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	None	Free	Free	None	Free	Free	None
RT Channelized	-	-	-	-	-	-	-	-	-
Storage Length	0	-	-	-	-	-	-	-	-
Veh In Median Storage, #	0	-	-	-	-	-	-	-	-
Grade, %	0	-	-	-	-	-	-	-	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	236	8	21	139	279	441	279	441	0

Minor/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	680	500	721	0
Stage 1	500	-	-	-
Stage 2	180	-	-	-
Follow-up Headway	3,518	3,318	2,209	-
Pd Capacity-1 Maneuver	417	571	885	-
Stage 1	609	-	-	-
Stage 2	851	-	-	-
Time blocked-Paloon, %	-	-	-	-
Mov Capacity-1 Maneuver	406	571	885	-
Mov Capacity-2 Maneuver	406	-	-	-
Stage 1	609	-	-	-
Stage 2	829	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.8	1.2	0
HCM LOS	D	A	A

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBL1/2	WBL1/2	NBL1	SBL	SBT	SBR
Capacity (veh/h)	885	-	-	410	-	-	-	-	-
HCM Lane V/C Ratio	0.023	-	-	0.594	-	-	-	-	-
HCM Control Delay (s)	9.165	-	-	25.8	-	-	-	-	-
HCM Lane LOS	A	-	-	D	-	-	-	-	-
HCM 95th %ile Q(veh)	0.072	-	-	3.721	-	-	-	-	-

Notes
--: Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error: Computation Not Defined

HCM 2010 AWSC

5: Blaine Rd/Bell Rd & Peace Portal Dr

Semiahmoo Spit Master Plan
Baseline (2023) Weekday PM Peak Hour

Intersection	41.1											
Intersection Delay, s/veh	E											
Intersection LOS	E											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	78	126	158	13	79	233	240	157	32	82	208	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	6	6	6	2	2	2	2	2	2	4	4	4
Mount Floor	85	137	172	14	68	253	261	171	35	69	224	2
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	WB	WB	NB	NB	SB	SB	SB	SB	SB	SB
Opposing Approach	WB	EB	EB	WB	SB	SB	NB	NB	NB	NB	NB	NB
Opposing Lanes	1	2	2	1	1	1	1	1	1	1	1	1
Conflicting Approach Left	SB	NB	NB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Conflicting Lanes Left	1	1	1	2	2	2	1	1	1	1	1	1
Conflicting Approach Right	NB	SB	SB	WB	WB	WB	EB	EB	EB	EB	EB	EB
Conflicting Lanes Right	1	1	1	1	1	1	2	2	2	2	2	2
HCM Control Delay	19.5	33.6	33.6	71.3	71.3	71.3	31.8	31.8	31.8	31.8	31.8	31.8
HCM LOS	C	D	D	F	F	F	D	D	D	D	D	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	56%	38%	0%	4%	4%	26%	26%	26%
Vol Thru, %	37%	62%	0%	24%	71%	71%	71%	71%
Vol Right, %	7%	0%	100%	72%	1%	1%	1%	1%
Sign Control	Stop							
Traffic Vol by Lane	429	204	158	325	200	200	200	200
LT Vol	157	126	0	79	208	2	2	2
Through Vol	32	0	158	233	2	2	2	2
RT Vol	240	78	0	13	82	0	0	0
Lane Flow Rate	468	222	172	353	315	315	315	315
Geometry Grp	2	7	7	5	2	2	2	2
Degree of Util (X)	1	0.551	0.387	0.775	0.739	0.739	0.739	0.739
Departure Headway (Hd)	8.029	8.938	8.118	8.015	8.441	8.441	8.441	8.441
Convergence, Y/N	Yes							
Cap	452	401	445	456	432	432	432	432
Service Time	6.054	8.728	5.837	6.015	6.447	6.447	6.447	6.447
HCM Lane V/C Ratio	1.031	0.554	0.387	0.774	0.729	0.729	0.729	0.729
HCM Control Delay	71.3	22.3	15.9	33.6	31.8	31.8	31.8	31.8
HCM Lane LOS	F	C	C	D	D	D	D	D
HCM 95th-ile Q	12.9	3.2	1.8	6.7	5.9	5.9	5.9	5.9

Notes: --: Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error: Computation Not Defined

HCM 2010 AWSC

6: Harborview Rd & Birch Bay Lynden Rd

Semiahmoo Spit Master Plan
Baseline (2023) Weekday PM Peak Hour

Intersection	12.2											
Intersection Delay, s/veh	B											
Intersection LOS	B											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	2	10	7	275	1	180	1	78	146	119	68	4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	1	1	1	0	0	0	0	0	0
Mount Floor	2	11	7	289	1	189	1	82	154	125	72	4
Number of Lanes	0	1	0	0	1	1	0	1	1	1	0	1

Approach	EB	WB	WB	WB	NB	NB	SB	SB	SB	SB	SB	SB
Opposing Approach	WB	EB	EB	WB	SB	SB	NB	NB	NB	NB	NB	NB
Opposing Lanes	2	1	1	1	1	1	1	1	1	1	1	1
Conflicting Approach Left	SB	NB	NB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Conflicting Lanes Left	1	2	2	1	1	1	1	1	1	1	1	1
Conflicting Approach Right	NB	SB	SB	WB	WB	WB	EB	EB	EB	EB	EB	EB
Conflicting Lanes Right	2	1	1	1	1	1	2	2	2	2	2	2
HCM Control Delay	9.6	13.2	13.2	9.9	9.9	9.9	12.7	12.7	12.7	12.7	12.7	12.7
HCM LOS	A	B	B	A	A	A	B	B	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	1%	0%	11%	100%	0%	0%	62%	62%
Vol Thru, %	89%	0%	53%	37%	0%	0%	36%	36%
Vol Right, %	0%	100%	37%	0%	100%	2%	2%	2%
Sign Control	Stop							
Traffic Vol by Lane	79	146	19	276	180	191	191	191
LT Vol	78	0	10	1	0	68	0	0
Through Vol	0	146	7	0	160	4	4	4
RT Vol	1	0	2	275	0	119	0	0
Lane Flow Rate	83	154	20	291	189	201	201	201
Geometry Grp	7	7	6	7	7	6	6	6
Degree of Util (X)	0.144	0.235	0.035	0.51	0.269	0.352	0.352	0.352
Departure Headway (Hd)	6.224	5.507	6.347	6.325	5.114	6.295	6.295	6.295
Convergence, Y/N	Yes							
Cap	578	652	563	572	703	573	573	573
Service Time	3.937	3.241	4.393	4.054	2.843	4.325	4.325	4.325
HCM Lane V/C Ratio	0.144	0.236	0.036	0.509	0.269	0.351	0.351	0.351
HCM Control Delay	10	9.9	9.6	15.5	9.7	12.7	12.7	12.7
HCM Lane LOS	A	A	A	C	A	A	A	A
HCM 95th-ile Q	0.5	0.9	0.1	2.9	1.1	1.6	1.6	1.6

Notes: --: Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error: Computation Not Defined

HCM 2010 AWSC
7: Blaine Rd & Birch Bay Lynden Rd

Semtahmoo Spit Master Plan
Baseline (2023) Weekday PM Peak Hour

Intersection	41.7											
Intersection Delay, s/veh	E											
Intersection LOS	E											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol veh/h	30	260	32	94	457	98	62	115	134	50	110	35
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mount Flux	32	274	34	69	481	101	65	121	141	53	118	37
Number of Lanes	0	1	1	0	1	0	0	1	1	0	0	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	NB	SB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	WB	EB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	23.4	66.5	24.3	17.8
HCM LOS	C	F	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	20%	10%	0%	15%	26%
Vol Thru, %	37%	90%	0%	71%	56%
Vol Right, %	43%	0%	100%	15%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	311	290	32	647	195
LT Vol	115	260	0	457	110
Through Vol	134	0	32	96	35
RT Vol	62	30	0	84	50
Lane Flow Ratio	327	305	34	681	205
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.671	0.664	0.066	1	0.450
Departure Headway (Hd)	7.384	7.832	7.079	7.029	7.99
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	891	461	566	518	452
Service Time	5.419	5.572	4.819	5.092	6.03
HCM Lane V/C Ratio	0.655	0.662	0.067	1.315	0.454
HCM Control Delay	24.3	24.8	10.3	66.5	17.6
HCM Lane LOS	C	C	B	F	C
HCM 95th-Pe Q	4.9	4.8	0.2	13.8	2.3

Notes: --: Volume Exceeds Capacity, S: Delay Exceeds 300 Seconds, Error: Computation Not Defined

HCM 2010 Signalized Intersection Summary
9: Portal Way & Birch Bay Lynden Rd

Semtahmoo Spit Master Plan
Baseline (2023) Weekday PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	122	394	9	67	695	167	69	74	93	146	61	122
Volume (veh/h)	7	4	14	3	8	18	5	2	12	1	6	16
Number	0	0	0	0	0	0	0	0	0	0	0	0
Initial Q (Op), veh	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Peak-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h	181.0	181.0	190.0	188.1	188.1	188.1	188.1	188.1	190.0	186.3	186.3	190.0
Lanes	1	1	0	1	1	1	1	1	0	1	1	0
Cap, veh/h	161	922	20	91	903	769	84	144	0	192	257	0
Arrive On Green	0.09	0.52	0.52	0.05	0.48	0.48	0.05	0.08	0.00	0.11	0.14	0.00
Sat Flow, veh/h	1723	1765	33	1792	1881	1599	1792	1881	0	1774	1863	0
Grp Volume(s), veh/h	128	0	424	71	732	197	66	78	0	154	64	0
Grp Sat Flow(s), veh/h	1723	0	1803	1792	1881	1599	1792	1881	0	1774	1863	0
Q Serve(g_s), s	4.8	0.0	9.7	2.6	21.9	4.8	2.4	2.6	0.0	5.6	2.0	0.0
Cycle Q Clear(g_c), s	4.8	0.0	9.7	2.6	21.9	4.8	2.4	2.6	0.0	5.6	2.0	0.0
Prop In Lane	1.00	0.00	0.02	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Lane Grp Cap(c), veh/h	161	0	942	91	903	768	84	144	0	192	257	0
V/C Ratio(X)	0.80	0.00	0.45	0.78	0.81	0.28	0.78	0.54	0.00	0.80	0.25	0.00
Avail Cap(c_s), veh/h	162	0	1033	293	1135	965	162	539	0	214	590	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(i)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	0.0	9.9	31.1	14.7	10.2	31.3	29.5	0.0	28.9	25.5	0.0
Incr Delay (d2), s/veh	19.4	0.0	0.3	13.0	3.6	0.2	14.5	3.1	0.0	17.6	0.5	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% Back of Q (p0%), veh/h	2.9	0.0	3.9	1.5	10.1	1.7	1.4	1.4	0.0	3.4	1.0	0.0
Lane Grp Delay (d), s/veh	48.8	0.0	10.2	44.1	19.3	10.4	45.8	32.6	0.0	46.5	28.0	0.0
Lane Grp LOS	D	B	B	D	B	B	D	C	D	D	C	C
Approach Vol, veh/h	552	192	18.8	1000	18.8	18.8	38.8	38.8	0	40.5	40.5	0
Approach Delay, s/veh	B	B	B	B	B	B	D	D	D	D	D	D
Approach LOS	B	B	B	B	B	B	D	D	D	D	D	D
Time	7	4	3	8	5	2	1	2	1	6	6	0
Assigned Phs	10.2	38.8	7.4	35.8	7.1	9.1	11.2	13.2	0	11.2	13.2	0
Phs Duration (G+Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Change Period (Y+Rc), s	7.0	38.0	9.0	40.0	6.0	19.0	8.0	21.0	0	8.0	21.0	0
Max Green Setting (Gmax), s	6.8	11.7	4.6	23.9	4.4	4.8	7.8	4.0	0	7.8	4.0	0
Max Q Clear Time (g_c+H), s	0.0	10.0	0.0	7.9	0.0	0.6	0.0	0.6	0	0.0	0.6	0
Green Ext Time (g_e), s												
Intersection Summary	22.7											
HCM 2010 Ctrl Delay	C											
HCM 2010 LOS	C											
Notes												

Intersection	2
Intersection Delay, s/veh	
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	95	17	0	161	33	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	114	20	0	194	40	0
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	NB
Opposing Lanes	1	1	0
Conflicting Approach Left	0	NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB	0	WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.8	8.3	8.1
HCM LOS	A	A	A

Lane	NBL	EBL	WBL	NBT
Vol Left, %	100%	0%	0%	0%
Vol Thru, %	0%	85%	100%	0%
Vol Right, %	0%	15%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	33	112	161	0
LT Vol	0	85	161	0
Through Vol	0	17	0	0
RT Vol	33	0	0	0
Lane Flow Rate	40	135	194	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.053	0.151	0.219	0.053
Departure Heatway (Hd)	4.801	4.023	4.071	4.801
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	760	880	873	760
Service Time	2.801	2.1	2.134	2.801
HCM Lane V/C Ratio	0.053	0.153	0.222	0.053
HCM Control Delay	8.1	7.8	8.3	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-ile Q	0.2	0.5	0.8	0.2

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane / Major Mvmt	NBT	NBR	WBLNT	SEL	SBT
Capacity (veh/h)	-	-	847	1572	-
HCM Lane V/C Ratio	-	-	0.022	-	-
HCM Control Delay (s)	-	-	8.9	-	-
HCM Lane LOS	-	-	A	-	-
HCM 95th-ile Q(veh)	-	-	0.066	-	-

Notes
 - : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

Intersection	8.1
Intersection Delay, s/veh	
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	95	17	0	161	33	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	114	20	0	194	40	0
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	NB
Opposing Lanes	1	1	0
Conflicting Approach Left	0	NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB	0	WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.8	8.3	8.1
HCM LOS	A	A	A

Lane	NBL	EBL	WBL	NBT
Vol Left, %	100%	0%	0%	0%
Vol Thru, %	0%	85%	100%	0%
Vol Right, %	0%	15%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	33	112	161	0
LT Vol	0	85	161	0
Through Vol	0	17	0	0
RT Vol	33	0	0	0
Lane Flow Rate	40	135	194	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.053	0.151	0.219	0.053
Departure Heatway (Hd)	4.801	4.023	4.071	4.801
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	760	880	873	760
Service Time	2.801	2.1	2.134	2.801
HCM Lane V/C Ratio	0.053	0.153	0.222	0.053
HCM Control Delay	8.1	7.8	8.3	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-ile Q	0.2	0.5	0.8	0.2

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane / Major Mvmt	NBT	NBR	WBLNT	SEL	SBT
Capacity (veh/h)	-	-	847	1572	-
HCM Lane V/C Ratio	-	-	0.022	-	-
HCM Control Delay (s)	-	-	8.9	-	-
HCM Lane LOS	-	-	A	-	-
HCM 95th-ile Q(veh)	-	-	0.066	-	-

Notes
 - : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

HCM 2010 TWSC
 12: Shintaffer Rd & Drayton Harbor Rd
 Semiahmoo Spit Master Plan
 Baseline (2023) Weekday PM Peak Hour

Intersection:
 Intersection Delay, s/veh: 0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol veh/h	95	0	17	181	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Vel in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	114	0	20	184	0	8

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	114	0
Stage 1	-	-	114	-
Stage 2	-	-	235	-
Follow-up Headway	-	2.2	3.5	3.3
Pot Capacity-1 Maneuver	-	1488	652	944
Stage 1	-	-	916	-
Stage 2	-	-	809	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	-	1488	642	944
Mov Capacity-2 Maneuver	-	-	642	-
Stage 1	-	-	916	-
Stage 2	-	-	787	-

Approach	EB	WB	WB	NB
HCM Control Delay, s	0	0.7	0.7	8.8
HCM LOS	A	A	A	A

Minor Lane / Major Mvmt	NBLT	EBT	EBR	WBL	WBT
Capacity (veh/h)	944	-	-	1488	-
HCM Lane V/C Ratio	0.009	-	-	0.014	-
HCM Control Delay (s)	8.0	-	-	7.453	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %ile Q(veh)	0.027	-	-	0.042	-

Notes: --: Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error: Computation Not Defined

HCM 2010 AWSC

Semiahmoo Spit Master Plan
1: Semiahmoo Pkwy & Semiahmoo Dr/Drayton Harbor Rd Future (2023) With-Project Weekday PM Peak Hour

Intersection Delay, s/veh 9.8
Intersection LOS A

Movement	EBL	EBT	EBR	EBL	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	8	10	12	27	27	22	23	255	5	31	183	10
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	9	11	14	31	25	28	291	8	35	208	11	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	0	1	0

Approach	EB	WB	EB	WB	NB	WB	NB	SB	NB	SB
Opposing Approach	1	1	1	1	1	1	1	1	1	1
Opposing Lanes	1	1	1	1	1	1	1	1	1	1
Conflicting Approach Left	1	1	1	1	1	1	1	1	1	1
Conflicting Lanes Left	1	1	1	1	1	1	1	1	1	1
Conflicting Approach Right	1	1	1	1	1	1	1	1	1	1
Conflicting Lanes Right	1	1	1	1	1	1	1	1	1	1
HCM Control Delay	8.3	8.6	8.6	8.6	10.3	10.3	9.6	9.6	9.6	9.6
HCM LOS	A	A	A	A	B	B	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	NBLn2	EBLn2	WBLn2	SBLn2
Vol Left, %	6%	18%	20%	14%				
Vol Thru, %	90%	36%	44%	82%				
Vol Right, %	2%	45%	35%	4%				
Sign Control	Stop	Stop	Stop	Stop				
Traffic Vol by Lane	284	22	61	224				
LT Vol	256	8	27	183				
Through Vol	5	10	22	10				
RT Vol	23	4	12	31				
Lane Flow Rate	323	25	69	255				
Geometry Grp	1	1	1	1				
Degree of U/I (K)	0.396	0.035	0.097	0.317				
Departure Headway (Hd)	4.418	5.04	5.028	4.482				
Convergence, Y/N	Yes	Yes	Yes	Yes				
Cap	813	707	711	802				
Service Time	2.445	3.084	3.076	2.511				
HCM Lane V/C Ratio	0.397	0.035	0.097	0.318				
HCM Control Delay	10.3	8.3	8.6	9.6				
HCM Lane LOS	B	A	A	A				
HCM 95th-Pile Q	1.9	0.1	0.3	1.4				

Notes
- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC

Semiahmoo Spit Master Plan
2: Shintaffer Rd & Semiahmoo Pkwy/Lincoln Rd Future (2023) With-Project Weekday PM Peak Hour

Intersection Delay, s/veh 2.9

Movement	EBL	EBT	EBR	EBL	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	285	15	82	405	30	0	21	6	21	15	14	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Stop	Stop	Stop	Stop	Stop	Stop						
RT Channelized	-	-	-	-	-	-	-	None	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	100	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	-	-	-	-	-	-	-	-	-
Grade, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	4	4	4	4	4	4	4	2	2	2	5	5	0
Mvmt Flow	0	348	18	100	494	37	26	7	25	18	17	1	1

Major/Minor	Major1	Minor1	Minor2	Minor2
Conflicting Flow All	530	0	388	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2,238	-	2,218	-
Pol Capacity-1 Maneuver	1027	-	1193	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time Bucket-Peak, %	-	-	-	-
Mov Capacity-1 Maneuver	1027	-	1193	-
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	EB	WB	NB	WB	NB	SB
HCM Control Delay, s	0	1.3	1.3	1.3	22.9	20.4	20.4	D
HCM LOS					C	D	D	

Minor Lane / Major Mvmt	NBLn1	EBLn1	WBLn1	SBLn1	NBLn2	EBLn2	WBLn2	SBLn2
Capacity (veh/h)	259	1027	-	-	1183	-	-	189
HCM Lane V/C Ratio	0.726	-	-	-	0.084	-	-	0.193
HCM Control Delay (s)	22.9	0	-	-	8.294	-	-	28.4
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th-Pile Q (veh)	0.847	0	-	-	0.274	-	-	0.681

Notes
- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC
3: Harborview Rd & Lincoln Rd

HCM 2010 TWSC
4: Blaine Rd & Drayton Harbor Rd

Semlahmoo Spit Master Plan
Future (2023) With-Project Weekday PM Peak Hour

Semlahmoo Spit Master Plan
Future (2023) With-Project Weekday PM Peak Hour

Intersection: 10
Intersection Delay, s/veh

Intersection: 11.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	159	2	155	6	5	15	214	100	5	26	109	296
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	100	-	-	-	-	-	100	-	-	-	-	-
Veh In Median Storage, #	0	0	0	0	0	0	0	0	0	0	0	0
Grade, %	84	84	84	84	84	84	84	84	84	84	84	84
Peak Hour Factor	5	5	5	10	10	10	2	2	2	2	2	2
Heavy Vehicles, %	189	2	185	7	6	18	255	119	6	31	130	352
Mvmt Flow												

Movement	EBL	EBR	NBL	NBT	SBL	SBR
Vol, veh/h	269	14	28	128	257	479
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	-	-	-	-	-
Storage Length	0	-	-	-	-	-
Veh In Median Storage, #	0	0	0	0	0	0
Grade, %	92	92	92	92	92	92
Peak Hour Factor	2	2	1	1	2	2
Heavy Vehicles, %	292	15	39	139	279	521
Mvmt Flow						

Major/Minor	Minor1	Major1	Minor2	Major2
Conflicting Flow All	1011	1003	305	1176
Stage 1	368	368	632	632
Stage 2	643	635	461	544
Follow-up Headway	3.445	4.045	3.345	4.09
Pot Capacity-1 Maneuver	215	239	727	185
Stage 1	546	616	455	462
Stage 2	457	468	565	506
Time blocked-Platoon, %	# 163	177	727	109
Mov Capacity-1 Maneuver	# 163	177	109	137
Mov Capacity-2 Maneuver	494	597	348	353
Stage 1	337	358	407	490
Stage 2				

Major/Minor	Minor2	Major2
Conflicting Flow All	740	540
Stage 1	540	800
Stage 2	200	-
Follow-up Headway	3.518	2.209
Pot Capacity-1 Maneuver	384	542
Stage 1	584	827
Stage 2	834	-
Time blocked-Platoon, %	369	542
Mov Capacity-1 Maneuver	369	827
Mov Capacity-2 Maneuver	584	-
Stage 1	584	-
Stage 2	801	-

Approach: EB
HCM Control Delay, s: 46.4
HCM LOS: E

Approach: EB
HCM Control Delay, s: 46.1
HCM LOS: E

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBL1	EBL2	WBL1	WBL2	SBL	SBT	SBR
Capacity (veh/h)	1081	-	-	163	382	241	1462	-	-	-
HCM Lane V/C Ratio	0.236	-	-	0.774	0.654	0.128	0.021	-	-	-
HCM Control Delay (s)	9.354	-	-	77.6	30.8	22.1	7.516	0	-	-
HCM Lane LOS	A	-	-	F	D	C	A	A	-	-
HCM 95th %ile Q(veh)	0.917	-	-	4.953	4.471	0.435	0.065	-	-	-

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBL1	EBL2	SBL	SBR
Capacity (veh/h)	827	-	-	375	-	-	-
HCM Lane V/C Ratio	0.037	-	-	0.82	-	-	-
HCM Control Delay (s)	9.519	-	-	46.1	-	-	-
HCM Lane LOS	A	-	-	E	-	-	-
HCM 95th %ile Q(veh)	0.114	-	-	7.325	-	-	-

Notes
--: Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Notes
--: Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 AWSC

5. Blaine Rd/Bell Rd & Peace Portal Dr

Semiahmoo Spitt Master Plan
Future (2023) With-Project Weekday PM Peak Hour

Future (2023) With-Project Weekday PM Peak Hour

Intersection													
Intersection Delay, s/veh													
Intersection LOS													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SB
Vol, veh/h	78	126	213	13	79	233	279	170	32	82	225	2	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	6	6	6	2	2	2	2	2	2	4	4	4	4
Mvmt Flow	85	137	232	14	86	253	303	185	35	89	245	2	2
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	NB	SB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	21.8	39	73.3	39.9
HCM LOS	C	E	F	E

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	56%	38%	0%	4%	27%	
Vol Thru, %	35%	62%	0%	24%	73%	
Vol Right, %	7%	0%	100%	72%	1%	
Sign Control	Stop	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	481	204	213	325	309	
LT Vol	170	128	0	79	225	
Through Vol	32	0	213	233	2	
RT Vol	279	78	0	13	82	
Lane Flow Rate	523	222	232	353	306	
Geometry Grp	2	7	7	5	2	
Degree of Upl (X)	1	0.587	0.534	0.815	0.811	
Departure Headway (Hd)	8.42	9.203	6.311	6.307	6.691	
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	
Cap	434	392	435	438	416	
Service Time	6.462	6.943	6.052	6.348	6.732	
HCM Lane V/C Ratio	1.205	0.969	0.533	0.806	0.808	
HCM Control Delay	73.3	23.4	20.2	39	39.9	
HCM Lane LOS	F	C	C	E	E	
HCM 95th-ile Q	12.6	3.4	3.1	7.5	7.3	

Notes
--: Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error: Computation Not Defined

HCM 2010 AWSC

6. Harborview Rd & Birch Bay Lynden Rd

Semiahmoo Spitt Master Plan
Future (2023) With-Project Weekday PM Peak Hour

Future (2023) With-Project Weekday PM Peak Hour

Intersection													
Intersection Delay, s/veh													
Intersection LOS													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SB
Vol, veh/h	2	10	7	215	83	180	1	64	148	178	71	4	4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	1	1	1	0	0	0	0	0	0	0
Mvmt Flow	2	11	7	289	87	189	1	88	154	187	75	4	4
Number of Lanes	0	1	0	0	1	1	0	1	1	0	1	0	1

Approach	WB	EB	NB	SB
Opposing Approach	WB	EB	NB	SB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	10.2	18.1	10.7	15.9
HCM LOS	B	C	B	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	1%	0%	11%	77%	0%	70%
Vol Thru, %	99%	0%	53%	23%	0%	28%
Vol Right, %	0%	100%	37%	0%	100%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	85	146	19	356	180	253
LT Vol	84	0	10	83	0	71
Through Vol	0	146	7	0	180	4
RT Vol	1	0	2	275	0	178
Lane Flow Rate	89	154	20	377	189	266
Geometry Grp	7	7	6	7	7	6
Degree of Upl (X)	0.168	0.254	0.038	0.68	0.284	0.489
Departure Headway (Hd)	6.663	5.944	6.873	6.493	5.386	6.613
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	537	602	518	558	665	543
Service Time	4.42	3.701	4.953	4.238	3.14	4.653
HCM Lane V/C Ratio	0.168	0.256	0.039	0.676	0.284	0.49
HCM Control Delay	10.8	10.7	10.2	22	10.3	15.9
HCM Lane LOS	B	B	B	C	B	C
HCM 95th-ile Q	0.6	1	0.1	5.2	1.2	2.7

Notes
--: Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error: Computation Not Defined

HCM 2010 AWSC
7- Blaine Rd & Birch Bay Lynden Rd

Semiannual Spilt Master Plan
Future (2023) With-Project Weekday PM Peak Hour

Intersection	46											
Intersection Delay, s/veh	E											
Intersection LOS	E											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol veh/h	30	312	39	94	530	98	71	115	134	50	110	35
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	1	1	1	2	2	2	1	1	1
Mount Flow	32	328	41	98	558	101	75	121	141	53	116	37
Number of Lanes	0	1	1	0	1	0	0	0	1	0	0	1
Approach	WB			WB			NB			SB		
Opposing Approach	EB			EB			SB			NB		
Opposing Lanes	2			2			1			1		
Conflicting Approach Left	SB			NB			WB			WB		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			2		
HCM Control Delay	32.9			68.3			27.9			18.8		
HCM LOS	D			F			D			C		
Lane	NBLn1			EBLn2			WBLn1			SBLn1		
Vol Left, %	22%			9%			0%			13%		
Vol Thru, %	36%			91%			0%			74%		
Vol Right, %	42%			0%			100%			13%		
Sign Control	Stop			Stop			Stop			Stop		
Traffic Vol by Lane	320			342			39			720		
LT Vol	115			312			0			530		
Through Vol	134			0			39			98		
RT Vol	71			30			0			94		
Lane Flow Ratio	337			360			41			758		
Geometry Grp	2			7			5			2		
Degree of Util (X)	0.718			0.766			0.082			1		
Departure Headway (ft)	7.657			7.958			7.213			7.364		
Convergence, Y/N	Yes			Yes			Yes			Yes		
Cap	472			454			466			493		
Service Time	5.711			5.717			4.971			5.448		
HCM Lane V/C Ratio	0.714			0.763			0.083			1.538		
HCM Control Delay	27.9			35.4			10.6			68.3		
HCM Lane LOS	D			E			B			F		
HCM 95th-Hile Q	5.6			7.2			0.3			13.5		

Notes: -- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary
9- Portal Way & Birch Bay Lynden Rd

Semiannual Spilt Master Plan
Future (2023) With-Project Weekday PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	122	440	15	67	759	187	72	74	93	146	61	122
Volume (veh/h)	7	4	14	3	8	18	5	2	12	1	6	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Prod-Site Adj(A_pb-T)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/m	191.0	161.0	190.0	168.1	188.1	188.1	188.1	188.1	190.0	166.3	166.3	190.0
Lanes	1	1	0	1	1	1	1	1	0	1	1	0
Cap, veh/h	160	939	32	92	937	797	98	141	0	191	239	0
Arrive On Green	0.09	0.54	0.54	0.05	0.50	0.50	0.05	0.07	0.00	0.11	0.13	0.09
Sat Flow, veh/h	1723	1729	60	1792	1881	1599	1792	1881	0	1774	1663	0
Grp Volume(v), veh/h	128	0	479	71	799	197	76	78	0	154	84	0
Grp Sat Flow(s), veh/h/m	1723	0	1799	1792	1881	1599	1792	1881	0	1774	1663	0
Q Serve(g.s), s	5.1	0.0	11.8	2.8	26.2	5.0	3.0	2.8	0.0	6.0	2.2	0.0
Cycle Q Clear(g.c), s	5.1	0.0	11.8	2.8	26.2	5.0	3.0	2.8	0.0	6.0	2.2	0.0
Prop In Lane	1.00	0.00	0.03	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Lane Grp Crg(c), veh/h	160	0	971	92	937	797	98	141	0	191	239	0
V/C Ratio(X)	0.80	0.00	0.49	0.77	0.85	0.25	0.78	0.55	0.00	0.81	0.27	0.00
Avail Cap(c.a), veh/h	171	0	971	228	1064	904	152	505	0	201	553	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(f)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	31.4	0.0	10.2	33.2	15.5	10.2	33.0	31.6	0.0	30.8	27.8	0.0
Incr Delay (dI), s/veh	22.0	0.0	0.4	12.9	6.2	0.2	12.4	3.4	0.0	26.3	0.6	0.0
Initial Q Delay(dQ), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/h	3.2	0.0	4.8	1.6	12.7	1.7	1.6	1.5	0.0	3.7	1.0	0.0
Lane Grp Delay (d), s/veh	53.4	0.0	10.6	48.1	21.7	10.3	45.4	34.9	0.0	51.1	28.4	0.0
Lane Grp LOS	D	B	B	D	C	B	D	C	C	D	D	C
Approach Vol, veh/h	607			1067			154			218		
Approach Delay, s/veh	19.6			21.2			40.1			44.5		
Approach LOS	B			C			D			D		
Time	7			4			3			8		
Assigned Phs	10.6			42.2			7.8			39.2		
Phi Duration (G+Y+Rc), s	4.0			4.0			4.0			4.0		
Change Period (Y+Rc), s	7.0			38.0			9.0			40.0		
Max Green Setting (Gmax), s	7.1			13.8			4.8			28.2		
Max Q Clear Time (g_c+H), s	0.0			11.0			0.0			7.0		
Green Ext Time (g_e), s	0.0			11.0			0.0			7.0		
Intersection Summary	24.6											
HCM 2010 CH Delay	C											
HCM 2010 LOS	C											
Notes												

Intersection	2											
Intersection Delay, s/veh	2											

Intersection	A											
Intersection LOS	A											

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	17	0	33	7	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Vol in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Movmt Flow	20	0	40	8	0	20

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	96	17	33	0	0	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	0	0	0	0	0
Movmt Flow	118	20	40	0	0	0
Number of Lanes	1	0	1	1	0	0

Major/Minor	Minor1	Major2
Conflicting Flow All	64	44
Stage 1	44	-
Stage 2	20	-
Follow-up Headway	3.5	-
Pot Capacity-1 Maneuver	947	-
Stage 1	984	-
Stage 2	1008	-
Time blocked-Platoon, %	-	-
Mov Capacity-1 Maneuver	947	-
Mov Capacity-2 Maneuver	947	-
Stage 1	984	-
Stage 2	1008	-

Major/Minor	Minor1	Major2
Conflicting Flow All	100%	0%
Vol Left, %	0%	85%
Vol Right, %	0%	15%
Sign Control	Stop	Stop
Traffic Vol by Lane	33	115
LT Vol	0	98
Through Vol	0	17
RT Vol	33	0
Lane Flow Rate	40	139
Geometry Grp	1	1
Degrees of Uplift (X)	0.053	0.155
Departure Headway (hd)	4.82	4.03
Convergence, Y/N	Yes	Yes
Cap	747	878
Service Time	2.82	2.108
HCM Lane V/C Ratio	0.054	0.158
HCM Control Delay	8.1	7.9
HCM Lane LOS	A	A
HCM 95th-ile Q	0.2	0.5

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A	-	-

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	947	1572	-
HCM Lane V/C Ratio	-	-	0.022	-	-
HCM Control Delay (s)	-	-	8.9	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th-ile Q(veh)	-	-	0.065	0	-

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	947	1572	-
HCM Lane V/C Ratio	-	-	0.022	-	-
HCM Control Delay (s)	-	-	8.9	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th-ile Q(veh)	-	-	0.065	0	-

Notes
 - : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error: Computation Not Defined

Notes
 - : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error: Computation Not Defined

HCM 2010 TWSC
 12: Shintlaifer Ext & Drayton Harbor Rd
 Future (2023) With-Project Weekday PM Peak Hour
 Semiahmoo Spit Master Plan

Intersection
 Intersection Delay, s/veh 0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	98	0	17	165	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh In Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	118	0	20	199	0	8

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	358
Stage 1	-	-	118
Stage 2	-	-	240
Follow-up Headway	-	2.2	3.5
Pot Capacity-1 Maneuver	-	1483	644
Stage 1	-	-	912
Stage 2	-	-	805
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	1483	634
Mov Capacity-2 Maneuver	-	-	634
Stage 1	-	-	912
Stage 2	-	-	783

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	8.9
HCM LOS	-	A	-

Minor Lane / Major Mvmt	NBLN1	EBT	EBR	WBL	WBT
Capacity (veh/h)	939	-	-	1483	-
HCM Lane V/C Ratio	0.009	-	-	0.014	-
HCM Control Delay (s)	8.9	-	-	7.482	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %ile Q(veh)	0.027	-	-	0.042	-

Notes
 -: Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 AWSC

Semiahmoo Spit Master Plan
1: Semiahmoo Pkwy & Semiahmoo Dr/Drayton Harbor

Future (2023) Mitigated With-Project Weekday PM Peak Hour

Intersection	Delay, s/veh	Movement											
Intersection LOS	A	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	8	10	12	27	22	22	23	25	5	31	183	10
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Minor Flow	5	0	11	14	31	25	25	26	291	6	35	208	11
Number of Lanes	0	1	0	0	1	0	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	NB	SB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	8.6	10.3	9.8
HCM LOS	A	A	B	A

Lane	NBLnt	EBLnt	WBLnt	SBLnt
Vol Left, %	8%	18%	20%	14%
Vol Thru, %	90%	35%	44%	82%
Vol Right, %	2%	45%	35%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	284	22	61	224
LT Vol	256	8	27	183
Through Vol	5	10	22	10
RT Vol	23	4	12	31
Lane Flow Rate	323	25	69	255
Geometry Grp	1	1	1	1
Degree of Upl (X)	0.386	0.035	0.097	0.317
Departure Headway (Hd)	4.418	5.04	5.028	4.482
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	813	707	711	802
Service Time	2.445	3.084	3.076	2.511
HCM Lane V/C Ratio	0.397	0.035	0.097	0.318
HCM Control Delay	10.3	8.3	8.6	9.6
HCM Lane LOS	B	A	A	A
HCM 95th Stile Q	1.9	0.1	0.3	1.4

Notes: --: Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error: Computation Not Defined

HCM 2010 TWSC

Semiahmoo Spit Master Plan
2: Shintaffer Rd & Semiahmoo Pkwy/Lincoln Rd

Future (2023) Mitigated With-Project Weekday PM Peak Hour

Intersection	Delay, s/veh	Movement											
Intersection LOS	A	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	285	15	82	495	30	21	6	21	15	14	14	1
Peak Hour Factor	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Minor Flow	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Lanes	0	348	16	100	494	37	26	7	26	18	17	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	NB	SB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	0	1.3	22.9	28.4
HCM LOS	D	C	C	D

Lane	NBLnt	EBLnt	WBLnt	SBLnt
Vol Left, %	259	1027	1193	180
Vol Thru, %	0.226	0	0.084	0.193
Vol Right, %	22.9	0	8.294	28.4
Sign Control	C	A	A	D
Traffic Vol by Lane	0.847	0	0.274	0.691
LT Vol	0	0	0	0
Through Vol	0	0	0	0
RT Vol	0	0	0	0
Lane Flow Rate	0	0	0	0
Geometry Grp	0	0	0	0
Degree of Upl (X)	0	0	0	0
Departure Headway (Hd)	0	0	0	0
Convergence, Y/N	0	0	0	0
Cap	0	0	0	0
Service Time	0	0	0	0
HCM Lane V/C Ratio	0	0	0	0
HCM Control Delay	0	0	0	0
HCM Lane LOS	0	0	0	0
HCM 95th Stile Q	0	0	0	0

Notes: --: Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error: Computation Not Defined

HCM 2010 AWSC

3: Harborview Rd & Lincoln Rd

Semiahmoo Spiti Master Plan
Future (2023) Mitigated With-Project Weekday PM Peak Hour

23.3
Intersection Delay, s/veh
C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	159	2	155	6	5	15	214	100	5	26	109	295
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	5	5	5	10	10	10	2	2	2	2	2	2
Mvmt Flow	189	2	185	7	6	18	255	119	6	31	130	352
Number of Lanes	1	1	0	0	1	0	1	1	0	0	0	1
Approach	EB	WB	WB	EB	WB	WB	NB	NB	SB	NB	SB	SB
Opposing Approach	1	2	2	2	2	2	1	1	2	2	2	2
Conflicting Lanes Left	1	NB	NB	EB	EB	EB	WB	WB	1	1	1	1
Conflicting Lanes Right	2	SB	SB	WB	WB	WB	EB	EB	2	2	2	2
Conflicting Lanes Right	14.2	11.8	11.8	1	1	15.4	36.5	36.5	2	2	2	2
HCM LOS	B	B	B	B	B	B	C	C	E	E	E	E

Line	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol/Leif, %	100%	0%	100%	0%	0%	23%	0%	0%
Vol Thru, %	0%	95%	0%	1%	19%	25%	0%	0%
Vol Right, %	0%	5%	0%	99%	53%	66%	0%	0%
Sign Control	Stop							
Traffic Vol by Lane	214	105	153	157	26	431	0	0
L1 Vol	0	100	0	2	5	109	0	0
Through Vol	0	5	0	155	15	289	0	0
RT Vol	214	0	159	0	6	28	0	0
Lane Flow Rate	255	125	189	187	31	513	0	0
Geometry Sm	7	7	7	7	7	6	6	6
Degree of Util (%)	0.509	0.231	0.405	0.337	0.07	0.866	0	0
Departure Headway (ft)	7.189	6.644	7.704	6.866	8.134	6.078	0	0
Convergence, Y/N	Yes							
Cap	497	536	464	550	442	590	0	0
Service Time	4.895	4.44	5.498	4.278	6.154	4.156	0	0
HCM Lane V/C Ratio	0.513	0.233	0.407	0.34	0.97	0.899	0	0
HCM Control Delay	17.3	11.5	15.7	12.6	11.8	36.5	0	0
HCM Lane LOS	C	B	C	B	B	E	0	0
HCM 95th-ile Q	2.8	0.9	1.9	1.5	0.2	9.7	0	0

Notes: --: Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC

4: Blaine Rd & Drayton Harbor Rd

Semiahmoo Spiti Master Plan
Future (2023) Mitigated With-Project Weekday PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	289	14	28	128	257	479
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	-	-
Grade, %	0	-	-	-	-	-
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	1	1	2	2
Mvmt Flow	292	15	30	139	279	521
Major/Minor	Minor2	Major1	Major1	Minor2	Minor2	Major2
Conflicting Flow All	479	279	279	0	-	-
Stage 1	279	-	-	-	-	-
Stage 2	200	-	-	-	-	-
Fork-up Headway	3.518	3.318	2.289	-	-	-
Pot Capacity-1 Maneuver	545	760	1289	-	-	-
Stage 1	768	-	-	-	-	-
Stage 2	834	-	-	-	-	-
Time blocked-Platoon, %	-	-	-	-	-	-
Mov Capacity-1 Maneuver	531	760	1289	-	-	-
Rev Capacity-2 Maneuver	531	-	-	-	-	-
Stage 1	768	-	-	-	-	-
Stage 2	813	-	-	-	-	-
Approach	EB	NB	NB	SB	SB	0
HCM Control Delay, s	20.2	-	14	-	-	-
HCM LOS	C	-	-	-	-	-

Minor Lane / Major Minut	NBL	EBLn1	SBT	SBR
Capacity (veh/h)	1289	-	539	-
HCM Lane V/C Ratio	0.024	-	0.571	-
HCM Control Delay (s)	7.86	0	20.2	-
HCM Lane LOS	A	A	C	-
HCM 95th-ile Q(veh)	0.073	-	3.562	-

Notes: --: Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary
5: Blaine Rd/Bell Rd & Peace Portal Dr

Future (2023) Mitigated With-Project Weekday PM Peak Hour

HCM 2010 AWSC
6: Harborview Rd & Birch Bay Lynden Rd

Future (2023) Mitigated With-Project Weekday PM Peak Hour

Semtahmoo Spit Master Plan

Future (2023) Mitigated With-Project Weekday PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (veh/h)	78	128	213	13	79	233	278	170	32	82	225	2
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Q ₀), veh	0	0	0	0	0	0	0	0	0	0	0	0
Peak-Bike Adj(A _{pbT})	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/n	190.0	179.2	179.2	190.0	186.3	186.3	186.3	190.0	190.0	182.7	190.0	190.0
Lanes	0	1	1	0	1	1	1	1	0	0	1	0
Cap. veh/h	245	298	418	138	465	435	642	771	146	276	875	5
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	393	1987	1524	92	1893	1583	1128	1524	288	288	1335	10
Grp Volume(V), veh/h	222	0	232	100	0	253	303	0	220	336	0	0
Grp Sat Flow(s), veh/h/n	1480	0	1524	1795	0	1583	1128	0	1812	1643	0	0
Q Serve(g _s), s	1.8	0.0	4.7	0.0	0.0	5.0	8.1	0.0	2.5	0.0	0.0	0.0
Cycle Q Clear(g _c), s	4.2	0.0	4.7	1.5	0.0	5.0	12.2	0.0	2.5	4.1	0.0	0.0
Prop In Lane	0.38	1.00	0.14	1.00	0.14	1.00	1.00	0.16	0.26	0.01	0.01	0.01
Lane Grp Cap(c _g), veh/h	543	0	418	603	0	435	642	0	916	958	0	0
V/C Ratio(X)	0.41	0.00	0.55	0.17	0.00	0.58	0.47	0.00	0.24	0.35	0.00	0.00
Avail Cap(c _a), veh/h	883	0	795	1015	0	828	1095	0	1642	1686	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(f)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	11.0	0.0	11.3	16.1	0.0	11.4	9.1	0.0	5.1	5.5	0.0	0.0
Incst Delay (d ₂), s/veh	0.5	0.0	1.2	0.0	0.0	1.2	0.5	0.0	0.1	0.2	0.0	0.0
Initial Q Delay(d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/h	1.5	0.0	1.8	0.8	0.0	1.8	1.9	0.0	0.8	1.3	0.0	0.0
Lane Grp Delay (d _g), s/veh	11.5	0.0	12.5	16.3	0.0	12.8	9.7	0.0	5.2	5.7	0.0	0.0
Lane Grp LOS	B	B	B	B	B	B	A	A	A	A	A	A
Approach Vol, veh/h	454		353		523		338		5.7			
Approach Delay, s/veh	12.0		12.0		7.8		5.7					
Approach LOS	B		B		A		A					
Timer	4		8		2		6					
Assigned Phs	14.0		14.0		22.4		22.4		4.0		4.0	
Phs Duration (G+Y+Rc), s	4.0		4.0		4.0		4.0		33.0		33.0	
Change Period (Y+Rc), s	19.0		19.0		16.2		16.2		3.0		3.0	
Max Green Setting (G _{max}), s	8.7		7.0		4.3		4.3					
Max Q Clear Time (g _{c+H}), s	3.0		3.0									
Green EXT Time (g _e), s												
Intersection Summary	9.4											
HCM 2010 Ctrl Delay	A											
HCM 2010 LOS	A											
Notes												

Intersection	15.8											
Intersection Delay, s/veh	C											
Intersection LOS	C											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol veh/h	2	10	7	275	83	169	1	84	146	178	71	4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	1	1	1	0	0	0	0	0	0
Mvmt Flow	2	11	7	289	87	189	1	88	154	187	75	4
Number of Lanes	0	1	0	0	1	1	0	1	1	0	1	0
Approach	EB	WB	WB	EB	SB	SB	EB	SB	SB	EB	SB	SB
Opposing Approach	WB	2	1	1	1	1	1	1	1	1	1	1
Conflicting Lanes	SB	1	1	1	1	1	1	1	1	1	1	1
Conflicting Approach Left	1	1	1	1	1	1	1	1	1	1	1	1
Conflicting Lanes Left	1	1	1	1	1	1	1	1	1	1	1	1
Conflicting Approach Right	1	1	1	1	1	1	1	1	1	1	1	1
Conflicting Lanes Right	1	1	1	1	1	1	1	1	1	1	1	1
HCM Control Delay	10.2	18.1	18.1	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7
HCM LOS	B	B	C	B	B	B	B	B	B	B	B	C
Lane	NBL1	NBL2	EBL1	WBL1	WBL2	SBL1	SBL2					
Vol Left, %	1%	0%	0%	11%	77%	0%	70%					
Vol Thru, %	99%	0%	53%	23%	0%	26%						
Vol Right, %	0%	100%	37%	0%	100%	2%						
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop						
Traffic Vol by Lane	85	146	19	358	160	253						
LT Vol	84	0	10	83	0	71						
Through Vol	0	146	7	0	180	4						
RT Vol	1	0	2	275	0	178						
Lane Flow Ratio	89	154	20	377	189	268						
Geometry Grp	7	7	6	7	7	6						
Degree of Util (X)	0.166	0.254	0.038	0.68	0.284	0.489						
Departure Headway (H _d)	6.663	5.944	6.873	6.493	5.398	6.613						
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes						
Cap	537	602	518	558	665	543						
Service Time	4.42	3.701	4.953	4.238	3.14	4.683						
HCM Lane V/C Ratio	0.166	0.256	0.039	0.876	0.284	0.489						
HCM Control Delay	10.8	10.7	10.2	22	10.3	15.9						
HCM Lane LOS	B	B	B	C	B	C						
HCM 85th-ile Q	0.8	1	0.1	5.2	1.2	2.7						
Notes	--: Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error: Computation Not Defined											

LANE SUMMARY

Site: 2023

Intersection 1
Roundabout

Approach	Lane 1 ^d	Lane 2 ^d	Lane 3 ^d	Lane 4 ^d	Lane 5 ^d	Lane 6 ^d	Lane 7 ^d	Lane 8 ^d	Lane 9 ^d	Lane 10 ^d	Lane 11 ^d	Lane 12 ^d	Lane 13 ^d	Lane 14 ^d	Lane 15 ^d	Lane 16 ^d	Lane 17 ^d	Lane 18 ^d	Lane 19 ^d	Lane 20 ^d	Lane 21 ^d		Lane 22 ^d	
																					Full	Part	Full	Part
South: Blaine Rd	337	2.0	0.408	100	10.7	LOS B	2.6	66.1	1600	0.0	0.0													
Approach	337	2.0	0.408		10.7	LOS B	2.6	66.1																
East: Birch Bay-Lyndén Rd	755	1.0	0.1058	0.716	100	10.2	LOS B	8.4	211.6	Full	1600	0.0	0.0											
Approach	755	1.0	0.176		10.2	LOS B	8.4	211.6																
North: Blaine Rd	205	1.0	0.578	0.355	100	13.1	LOS B	2.3	58.6	Full	1600	0.0	0.0											
Approach	205	1.0	0.355		13.1	LOS B	2.3	58.6																
West: Birch Bay-Lyndén Rd	401	2.0	0.959	0.418	100	8.3	LOSA	2.8	70.6	Full	1600	0.0	0.0											
Approach	401	2.0	0.418		8.3	LOSA	2.8	70.6																
Intersection	1701	1.4	0.716		10.2	LOS B	8.4	211.6																

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
 Roundabout LOS Method: Same as Signalised Intersections.
 Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
 LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersections).
 Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 Gap-Acceptance Capacity: SIDRA Standard (Abpeik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
 d Dominant lane on roundabout approach

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SIDRA INTERSECTION 6
 Project: Warradale - Warradale - Project 1313176.00 - Semahmoo Spit, Blaine Rd, Birch Bay-Lyndén Rd, 8000159, THE TRANSPO GROUP NETWORK / IPC

HCM 2010 Signalized Intersection Summary

9: Portal Way & Birch Bay Lynden Rd
 Future (2023) Mitigated With-Project Weekday PM Peak Hour
 Semahmoo Spit Master Plan

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Volume (veh/h)	122	440	15	67	759	167	72	74	93	146	61	122
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (tbl), veh	0	0	0	0	0	0	0	0	0	0	0	0
Peak-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/s	181.0	181.0	190.0	188.1	188.1	188.1	188.1	188.1	190.0	186.3	186.3	190.0
Lanes	1	1	0	1	1	1	1	1	1	1	1	1
Cap. veh/h	160	939	32	92	937	797	86	141	0	191	239	0
Arrive On Green	0.09	0.54	0.54	0.05	0.50	0.50	0.05	0.07	0.00	0.11	0.13	0.00
Sat Flow, veh/h	1723	1739	60	1792	1881	1599	1792	1881	0	1774	1863	0
Grp Volume(s) veh/h	128	0	479	71	799	197	76	78	0	154	64	0
Grp Sat Flow(s) veh/h/s	1723	0	1799	1792	1881	1599	1792	1881	0	1774	1863	0
Q Serve(s), s	5.1	0.0	11.8	2.8	26.2	5.0	3.0	2.8	0.0	6.0	2.2	0.0
Cycle Q Clear(g_c), s	5.1	0.0	11.8	2.8	26.2	5.0	3.0	2.8	0.0	6.0	2.2	0.0
Prop In Lane	1.00	1.00	0.03	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Lane Grp Cap(c), veh/h	160	0	971	92	937	797	86	141	0	191	239	0
V/C Ratio(X)	0.80	0.00	0.49	0.77	0.85	0.25	0.78	0.55	0.00	0.81	0.27	0.00
Avail Cap(c_a), veh/h	171	0	971	228	1084	904	152	505	0	201	553	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	31.4	0.0	10.2	33.2	15.5	10.2	33.0	31.8	0.0	30.8	27.8	0.0
Inc Delay (d2), s/veh	22.0	0.0	0.4	12.9	6.2	0.2	12.4	3.4	0.0	20.3	0.8	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (q_b), s/veh	3.2	0.0	4.8	1.9	12.7	1.7	1.6	1.5	0.0	3.7	1.0	0.0
Lane Grp Delay (d), s/veh	53.4	0.0	10.6	46.1	21.7	10.3	45.4	34.9	0.0	51.1	28.4	0.0
Lane Grp LOS	D	D	B	D	C	B	D	C	C	D	D	C
Approach Vol, veh/h	807	186	1087	212	1087	154	218	154	46.1	218	44.5	0
Approach Delay, s/veh	19.6	B	21.2	C	21.2	C	44.5	44.5	D	44.5	D	D
Approach LOS	B	B	C	C	C	C	D	D	D	D	D	D

Time	Assigned Phs	Phs Duration (G-Y+Rc), s	Phs Duration (Y+Rc), s	Change Period (Y+Rc), s	Max Green Setting (Gmax), s	Max Q Clear Time (G_c+H), s	Green Ext Time (G_c), s
7	4	10.8	42.2	7.6	39.2	7.9	9.3
4	3	4.0	4.0	4.0	4.0	4.0	4.0
3	6	7.0	38.0	9.0	40.0	6.0	19.0
2	5	4.8	28.2	4.8	28.2	5.0	4.8
1	8	0.0	11.0	0.0	7.0	0.0	0.5

Intersection Summary
 HCM 2010 Ctrl Delay 24.6 C
 HCM 2010 LOS C

HCM 2010 AWSC

10. Shintaffer Rd & Drayton Harbor Rd

Semiahmoo Spit Master Plan
Future (2023) Mitigated With-Project Weekday PM Peak Hour

HCM 2010 TWSC
11. Shintaffer Rd & Shintaffer Ext

Semiahmoo Spit Master Plan
Future (2023) Mitigated With-Project Weekday PM Peak Hour

Intersection		8.1		A	
Intersection Delay, s/veh		8.1		A	
Intersection LOS		A		A	
Movement	EBT	EBR	WBL	WBT	NBR
Vol, veh/h	98	17	0	165	33
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	0	0	0	0
Mvmt Flow	118	20	0	199	40
Number of Lanes	1	0	0	1	0
Approach	EB	WB	NB	NB	NB
Opposing Approach	WB	EB	WB	EB	0
Conflicting Lanes	1	85%	100%	0%	0%
Conflicting Approach Left	0	0%	15%	0%	0%
Conflicting Lanes Left	0	Stop	Stop	Stop	Stop
Conflicting Approach Right	NB	98	115	165	33
Conflicting Lanes Right	1	0	98	165	0
HCM Control Delay	7.9	0	17	0	0
HCM LOS	A	A	A	A	A
Lane	NBLn1	EBLn1	WBLn1	NBLn1	NBLn1
Vol Left, %	100%	0%	0%	0%	0%
Vol Thru, %	0%	85%	100%	0%	0%
Vol Right, %	0%	0%	15%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	33	115	165	33	33
LT Vol	0	98	165	0	0
Through Vol	0	17	0	0	0
RT Vol	33	0	0	0	0
Lane Flow Rate	40	139	199	40	40
Geometry Grp	1	1	1	1	1
Degree of Uln (X)	0.053	0.155	0.225	0.053	0.053
Departure Headway (Hd)	4.82	4.03	4.073	4.82	4.82
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	747	878	873	747	747
Service Time	2.82	2.106	2.137	2.82	2.82
HCM Lane V/C Ratio	0.054	0.158	0.228	0.054	0.054
HCM Control Delay	8.1	7.9	8.3	8.1	8.1
HCM Lane LOS	A	A	A	A	A
HCM 95th-ile Q	0.2	0.5	0.9	0.2	0.2
Notes	- : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined				

Intersection		2		A	
Intersection Delay, s/veh		2		A	
Intersection LOS		A		A	
Movement	WBL	WBR	NBT	SBL	SBT
Vol, veh/h	17	0	33	7	17
Peak Hour Factor	0	0	0	0	0
Heavy Vehicles, %	0	0	0	0	0
Mvmt Flow	0	0	0	0	0
Number of Lanes	0	0	0	0	0
Approach	WBL	WBR	NBT	SBL	SBT
Opposing Approach	WBL	WBR	NBT	SBL	SBT
Conflicting Lanes	0	0	0	0	0
Conflicting Approach Left	0	0	0	0	0
Conflicting Lanes Left	0	0	0	0	0
Conflicting Approach Right	0	0	0	0	0
Conflicting Lanes Right	0	0	0	0	0
HCM Control Delay	0	0	0	0	0
HCM LOS	A	A	A	A	A
Lane	WBLn1	WBLn1	NBLn1	SBLn1	SBLn1
Vol Left, %	100%	0%	0%	0%	0%
Vol Thru, %	0%	0%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%
Sign Control	Stop	Stop	Free	Free	Free
Traffic Vol by Lane	17	0	33	7	17
LT Vol	0	0	0	0	0
Through Vol	0	0	0	0	0
RT Vol	17	0	33	7	17
Lane Flow Rate	17	0	33	7	17
Geometry Grp	1	1	1	1	1
Degree of Uln (X)	0.053	0.155	0.225	0.053	0.053
Departure Headway (Hd)	4.82	4.03	4.073	4.82	4.82
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	747	878	873	747	747
Service Time	2.82	2.106	2.137	2.82	2.82
HCM Lane V/C Ratio	0.054	0.158	0.228	0.054	0.054
HCM Control Delay	8.1	7.9	8.3	8.1	8.1
HCM Lane LOS	A	A	A	A	A
HCM 95th-ile Q	0.2	0.5	0.9	0.2	0.2
Notes	- : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined				

HCM 2010 TWSC
 12: Shintaffer Ext & Drayton Harbor Rd
 Future (2023) Mitigated With-Project Weekday PM Peak Hour
 Semiahmoo Spill Master Plan

Intersection
 Intersection Delay, s/veh 0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, Veh/h	99	0	17	105	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
MaxFlw	118	0	20	199	0	8

	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	118	0	358
Stage 1	-	-	-	118
Stage 2	-	-	-	240
Follow-up Headway	-	2.2	-	3.5
Port Capacity-1 Maneuver	-	1483	-	644
Stage 1	-	-	-	912
Stage 2	-	-	-	805
Time blocked-Platoon, %	-	-	-	624
Max Capacity-1 Maneuver	-	1483	-	634
Max Capacity-2 Maneuver	-	-	-	912
Stage 1	-	-	-	793
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	8.9
HCM LOS	-	A	A

Minor Lane / Major Mvmt	NBL/T	EBT	EBR	WBL	WBT
Capacity (veh/h)	939	-	-	1483	-
HCM Lane V/C Ratio	0.009	-	-	0.014	-
HCM Control Delay (s)	8.9	-	-	7.462	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %ile Q(veh)	0.027	-	-	0.042	-

Notes
 - : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

PRELIMINARY CONSTRUCTION ESTIMATE					
Semiahmoo Spit					
RPAC0001			Road Length: 625 ft.		
March 5, 2014					
Item #	Description	Unit	Unit Price	Qty.	Total
1 EARTHWORK					
1.01	Clearing and Grubbing	Ac.	8,000.00	0.2	\$1,492
1.02	Stripping	C.Y.	10.00	208	\$2,083
1.03	Excavation	C.Y.	4.00	93	\$370
1.04	Embankment	C.Y.	4.00	93	\$370
1.05	Rock Excavation	C.Y.	50.00	0	\$0
					\$4,316
2 ROADWAY					
2.01	Gravel Base	Ton	15.00	264	\$3,958
2.02	C.S.T.C.	Ton	20.00	45	\$903
2.03	Cl. "B" A.C. Pavement	Ton	85.00	346	\$29,416
2.04	Curb and Gutter	L.F.	15.00	0	\$0
2.05	Concrete Sidewalk	S.Y.	30.00	0	\$0
2.06	Concrete Barrier Curb, Type 2	L.F.	50.00	625	\$31,250
2.07	Retaining Wall/Rockery	S.F.	20.00	0	\$0
					\$65,527
3 DRAINAGE					
3.01	Ditch	L.F.	15.00	648	\$9,720
3.02	Storm Pipe	L.F.	35.00	0	\$0
3.03	Select Backfill	Ton	18.00	0	\$0
3.04	Catch Basins	Ea.	2,000.00	0	\$0
3.05	Stormwater Treatment	L.S.	5,000.00	1	\$5,000
3.06	Stormwater Detention	L.S.	0.00	1	\$0
3.07	Erosion Control	L.S.	5,000.00	1	\$5,000
3.08	Sidewalk Drain	L.F.	12.00	0	\$0
3.09	Lot Drain	Ea.	250.00	0	\$0
3.10	Quarry Spall	Ton	25.00	25	\$625
					\$20,345
4 WATER					
4.01	Water Pipe (small)	L.F.	35.00	0	\$0
4.02	Water Pipe (large)	L.F.	50.00	0	\$0
4.03	Valves	Ea.	1,500.00	0	\$0
4.04	Select Backfill	Ton	18.00	0	\$0
4.05	Fire Hydrant	Ea.	3,500.00	0	\$0
4.06	Lot Service and Meter	Ea.	750.00	0	\$0
					\$0
5 SEWER					
5.01	Sewer Pipe	L.F.	40.00	0	\$0
5.02	Sewer Depth (extra depth)	L.F.	25.00	0	\$0
5.03	Select Backfill	Ton	18.00	0	\$0
5.04	Manhole (standard)	Ea.	2,500.00	0	\$0
5.05	Manhole (deep)	Ea.	3,500.00	0	\$0
5.06	Lot Service	Ea.	500.00	0	\$0
					\$0
6 ANCILLARY WORK					
6.01	Utilities (trenching & electric)	L.F.	25.00	0	\$0
6.02	Utility Crossing		500.00	0	\$0
6.03	Illumination	Ea.	5,000.00	0	\$0
6.04	Signs and Pavement Markings	L.F.	2.00	625	\$1,250
6.05	Landscaping	SF	6.00	0	\$0
6.06	Wetland Mitigation	SF	3.00	0	\$0
6.07	Specialty Item		0.00	0	\$0
					\$1,250
SUBTOTAL					\$91,438
STATE SALES TAX:					8.5%
CONSTRUCTION TOTAL:					\$99,210
					Cost/Foot
					\$159
ENGINEERING/SURVEYING:					15.0%
					\$13,716
CONTINGENCY:					10.0%
					\$9,144
PROJECT TOTAL:					\$122,070



NOTICE OF MITIGATED DETERMINATION OF NONSIGNIFICANCE (MDNS) AND WITHDRAWAL OF DETERMINATION OF SIGNIFICANCE

City of Blaine CDS 435 Martin Street, Suite 3000 Blaine, Washington 98230

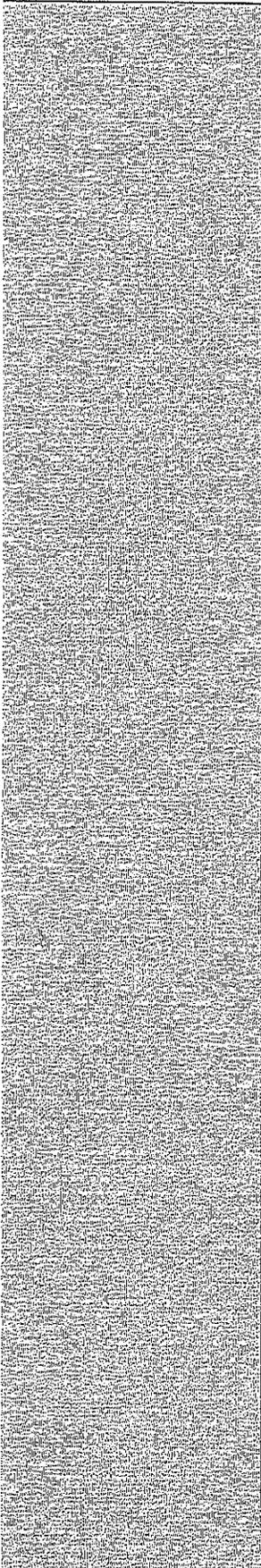
Project Name	Resort Semiahmoo Master Plan Update Zoning Text Amendment and Comprehensive Plan Amendment
Project Description	An application for a change to the Resort Semiahmoo Master Plan, a Zoning Text Amendment and a Comprehensive Plan Amendment. Formerly, the proposal included three development projects (Semiahmoo Resort Village, Burnside Village, and Semiahmoo Marina-Phase 2). The development proposals have all been withdrawn. No development activity is proposed. The current proposal includes changes to the Resort Semiahmoo Master Plan text and images, and to the Zoning Code for the Marine Planned Recreation Zoning District. The proposal also adopts the Resort Semiahmoo Master Plan into the City of Blaine Comprehensive Plan.
Proponent	DBW Whatcom LLC
Location	The proposal revises rules and regulations which affect the northern tip of Semiahmoo Spit including the Marine Planned Recreation zoning district
Lead Agency	City of Blaine
Determination	The lead agency has determined that this project does not have a probable significant adverse impact on the environment with the addition of mitigating conditions to the development approval. A Determination of Significance previously issued on July 31, 2009 is hereby withdrawn. An environmental impact statement (EIS) is not required under RCW 43.21C.030 (2) (c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. The Semiahmoo Spit and Uplands Master Plan Final Environmental Impact Statement (1985) is incorporated by reference. The Final EIS details a variety of impacts and mitigation relevant to the plan for construction of a residential resort community. Information on the process and the project, including the Final EIS, is available to the public upon request at the City of Blaine, Community Development Services office and on the City website www.cityofblaine.com .

Mitigation Measures

1. Applicants for future development projects that include excavation activity shall submit a report to the SEPA Official prepared by a qualified archeologist evaluating the potential impacts of the development activity to known or anticipated cultural resources. Report preparation shall include consultation with the Lummi Schelangen Department and the State Department of Archeology and Historic Preservation.
2. Applicants for future projects that include demolition of a building associated with the Alaska Packers' Cannery facilities shall submit a report to the SEPA Official prepared by a qualified historian evaluating the potential impacts of the development activity to known or anticipated historical resources. Report preparation shall include consultation with the State Department of Archeology and Historic Preservation.
3. The eighty-eight street-level, general commercial and public parking spaces illustrated in the plan are conceptual only; however, parking available for general use including public parking with limited restriction is of significant importance. Parking available for general use including public parking with limited restriction shall be provided as a part of each development area. Area A and B shall provide a combined minimum of 10 parking spaces in close proximity to the parking located across from the Marin Condominium buildings prior to or concurrent with removal of the existing spaces in that

same location. Areas C, and D shall allocate a minimum of 25-percent of all street-level outdoor parking spaces to general use, limited restriction parking. Limited restriction means that hourly and day-long general use shall be permitted, but that the developer may implement limits on over-night, or over-sized vehicle parking, as may be determined necessary and as agreed to in writing by the City Community Development Director.

4. The existing marina parking may not be removed or closed until an alternate parking lot is constructed containing at least 115 spaces as shown in the proposed Master Plan amendment. Construction of said shall be to the satisfaction of the City Community Development Director. The area proposed for future Phase 1 marina parking shall not be developed with any other use without approval by the Blaine City Council of a Master Plan amendment designating adequate alternative Phase 1 marina parking.
5. All development on Semiahmoo Spit that generate additional traffic shall contribute fair-share funding towards improvements of pedestrian, bicycle and vehicular transportation facilities on Semiahmoo Spit based on fee schedule developed by the City. Improvements within the narrowest section of the spit landform (approximate 700-foot section) shall create vehicle/pedestrian separation to the extent feasible. Specific elements to be considered shall be the possible widening of the multi-modal trail to ten feet, possible horizontal and/or vertical separation between the road and trail, and/or possible widening of the roadway to include shoulders, bike lanes and/or wider travel lanes.
6. Planning and approval of Planned Unit Developments for Area A and Area B shall consider and include to the extent feasible increased shoulder width along Semiahmoo Parkway and trail realignment away from the road and public parking.
7. Applicants for future development projects shall coordinate in an effort with the City and Whatcom County to develop a fee schedule to provide fair-share funding for improvements to Lincoln Road and Harborview Road intersection; Drayton Harbor Road and Blaine Road intersection; and, Birch Bay-Lynden Road and Blaine Road intersections, and fees shall be paid pursuant to that fee schedule prior to issuance of building permit(s) for said development. Improvements shall be based on the final Traffic Impact Assessment approved by the City SEPA Official. Improvements may be modified as determined appropriate by the SEPA Official in consultation with the Whatcom County Engineer at the time of implementation.
8. Applicants for future development projects shall coordinate in an effort with the City to develop a fee schedule to provide fair-share funding for improvements to the Peace Portal Drive/Blaine Road/Bell Road intersection, and fees shall be paid pursuant to that fee schedule prior to issuance of building permit(s) for said development. Improvements shall be based on the final Traffic Impact Assessment approved by the City SEPA Official. Improvements may be modified as determined appropriate by the SEPA Official in consultation with the City Public Works Director at the time of implementation.
9. An Origin-Destination Study shall be prepared by the applicant or proponent of future development project(s) during a peak traffic and usage month for Semiahmoo Spit, typically the summer months, to assess the proportional share calculations included in the Transportation Impact Analysis for accuracy and to better inform the fair-share funding determination for intersection improvements.
10. A final Traffic Impact Assessment shall be prepared to the satisfaction of the City SEPA Official prior to development of a fee schedule for the traffic improvement fair-share funding.



Comment Period
Responsible Official

There is no comment period on this revised MDNS.
Michael Jones, AICP
Community Development Director, City of Blaine

435 Martin Street, Suite 3000, Blaine, WA 98230
Phone: 360-332-8311 ext. 3317
Fax: 360-543-9978
Email: mjones@cityofblaine.com

Appeal

This determination may be appealed by letter to the SEPA Official at the address noted above. Such an appeal would need to be made by the end of the business day on **December 23, 2013**. Appeals must include a specific factual objection. Questions should be directed to the responsible official noted above.

Signature: *M. Jones* Date: 12/9/13

