

# Port Angeles Boat Haven Master Plan Phase II

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## Port of Port Angeles Mission Statement

To Serve the Citizens of Clallam County by:

providing the facilities and services required to support waterborne and airborne commerce and transportation; developing and expanding opportunities associated with the Port's properties; promoting and encouraging industrial, commercial and recreational development — all in a manner that will enhance the quality of life within the Port District

July 2004

# Boat Haven Master Plan

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# Executive Summary

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## Introduction

The Port of Port Angeles Boat Haven has been repaired and upgraded on a project by project as-needed basis over the years. In 1999 the Port of Port Angeles set out to establish a 15 – 20 year plan to upgrade the facility. This plan is the result of that effort. The marina basin and surrounding uplands were evaluated to determine their existing conditions. An Advisory Committee comprised of interested parties worked together over a three-year period to clarify specific issues and concerns to be incorporated in a Consensus Master Plan. This master plan provides a general analysis of the costs to construct various elements of the upgrades, provides a recommended time frame to implement those changes and suggests sources of funding for each type of improvement.

## Findings

A condition survey conducted in 2000 found the Marina to be in fair condition. There has been limited maintenance to the facility over the years. Floats in the West End of the marina were upgraded in the past 10 years. Pilings throughout the marina are in fairly good condition. A new seaplane dock was constructed in the last few years. The east portion of the marina is in the greatest need for upgrading and maintenance.

Changes in uses of the marina have affected the overall moorage vacancy rates. Commercial uses have declined over the past five years. Meanwhile the marina has seen a growing demand for larger recreational slips.

The uplands adjacent to the marina are experiencing change. The Port recently acquired the woodchip facility to the west. The log yard to the east has been declining in its use.

The Port owned and operated boat yard has seen a steady decline in use over the past 5 years. The existing facilities for recreational boaters need repair and modernization.

## Conclusions

Now is the time for the Port to look ahead to the future of the Boat Haven. Factors influencing a need for change include the decline in commercial uses, increased demand for larger slips, aging of the in water facilities, and changes of the upland uses.

The proposed Consensus Master Plan and associated Capital Facilities Plan included in the 2004 Boat Haven Master Plan identifies 13 potential projects for work in water and upland at the facility over the next 15 years. These projects are identified in order of priorities due to maintenance issues and funding sources. However, the Port may determine the priority for any particular project may change based upon changes in funding sources, demand for facilities, or increased need for a particular facility. The most critical need will be to upgrade the in water facilities at the East End of the marina. In order to pursue this project the Port will need to consider increasing moorage rates in the marina to offset the costs for the construction. A proposed rate increase schedule, phased in over time is included as part of this master plan recommendation and supported by the members of the Advisory Committee.

The Boat Haven facility will continue to be a great asset for the community of Port Angeles. Incremental changes over time will greatly enhance the facility and ensure it will be available for a long period of time.

# Chapter 1: Introduction

The Port of Port Angeles owns and operates Port Angeles Boat Haven located in Port Angeles Harbor on the industrial waterfront west of downtown Port Angeles. The 34.5-acre facility encompasses in-water commercial and recreational moorage, two boat launches, an upland boatyard with work areas, a mixture of upland marina support services such as retail and hospitality, and support infrastructure that includes parking, roads, and utilities. Both the moorage systems and upland infrastructure have been developed over a long period of time. The eastern section of Boat Haven was constructed in the 1950's and construction of the western section followed. To date, development has occurred on a project-by-project basis.



Several issues have resulted in the need for an over-all master plan for the facility. The demand for moorage at Boat Haven has declined in recent years, resulting in less than full occupancy. Additionally, portions of the moorage system are approaching the end of their design life and will need replacement in the near future. A key objective of the Port is to examine reconfiguration of the moorage to both improve efficiency and accommodate larger vessels.

The Port maintains parking areas, restrooms and yacht club building and parks adjacent to the Marina Facility. The Port is also considering acquisition of additional pieces of land adjacent to existing facilities. Modifications for enhancing the upland portions of Boat Haven have also been included in the Port's *Comprehensive Park and Recreation Plan 2000 - 2005*.

Given the need to assess facilities and determine how to proceed with both in-water and upland redevelopment and renovation, as well as replacement of the aging infrastructure the Port determined that a master plan should be prepared. The goals of the master planning effort were defined to be:

1. *Determine the current market trends and demands for in-water moorage and boatyard services in the area.*
2. *Determine a preferred option for redevelopment of the in-water moorage and upland work areas.*
3. *Develop options for modifying and developing the upland areas to enhance opportunities at the Boat Haven facility.*

In order to accomplish this goal, the following information was collected and produced in the December 2000 Draft Port Angeles Boat Haven Master Plan:

1. *Evaluation of the condition of the existing infrastructure.*
2. *Completion of a moorage market demand and analysis.*
3. *Completion of a boatyard demand and analysis.*
4. *Identification of master plan elements.*
5. *Development of concept sketches for the master plan elements.*
6. *Preparation of a draft master plan.*

*7. Collection of public and agency input on the draft plan.*

*8. Preparation of the draft final master plan.*

The Draft Master Plan also included 4 different marina layouts and associated costs and finance implications for Port Angeles Boat Haven. In December 2000 the Commissioners were presented with the Draft Master Plan. They recommended the creation of an advisory committee to ensure any proposed changes to the Port Angeles Boat Haven address the needs and interests of the existing users and community. The Port created the Port Angeles Boat Haven Advisory Committee. This Committee was asked to:

- 1. Evaluate the long-term Capital Improvement Plan.*
- 2. Continue work on the Ten-Year Strategic Plan.*
- 3. Provide insight and recommendations for the Master Plan.*

The Advisory Committee met over a two-year period, developing a planning recommendation and addressing maintenance issues. As a result of these meetings the Advisory Committee prepared a Consensus Master Plan.

In the fall of 2003 the Port engaged Reid Middleton to assist with the evaluation of the Consensus Master Plan. This revised scope of services details Reid Middleton's activities to complete Phase II of the Boat Haven Master Plan and assumes that the conceptual alternative entitled the "Consensus Vision Plan" prepared by the Boat Haven Advisory Committee would be evaluated as the preferred alternative. The Reid Middleton tasks completed in this Phase II included:

- 1. Provide technical and financial review of the Consensus Vision Plan Alternative.*
- 2. Prepare a revised Master Plan with cost estimates, financial analysis and a Capital Facility Plan, and*
- 3. Submit the Plan to the Port Commissioners for final approval.*

This document contains the results of this Phase II Master Planning effort for the Port Angeles Boat Haven. The market demand study prepared for the Phase I Master Plan has been included in this document. The information has been reviewed and confirmed by BST Associates. The document also contains the Condition Assessment prepared by Eschelon Engineering in 2000. New to this study is the evaluation of regulatory issues, a new preferred Marina Layout and an opinion of probable costs, proposed upland development and an opinion of probable costs, and a Capital Facility Plan. The appendix to this document contains Boat House Policies prepared by the Advisory Committee. These policies have been presented to the Commissioners and were adopted on February 9, 2004.

Appendix A contains minutes from all the Advisory Committee Reports in which these policies were discussed.

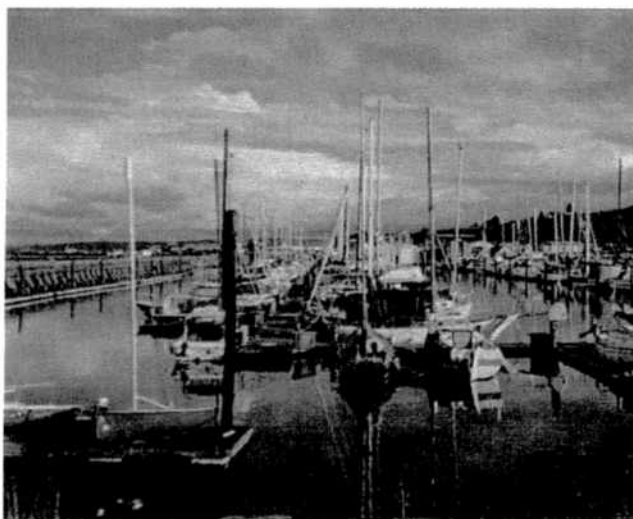


## Chapter 2: Existing Conditions

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### Background

The Port Angeles Boat Haven, typical of many marine facilities in Western Washington, originated as a commercial moorage facility. To encourage and promote commercial fishing and other waterborne commerce, the U.S. Army Corps of Engineers funded Boat Haven and many other marina basins in Puget Sound. Construction of the eastern section of the Boat Haven Marina began in the 1950's and construction of the western section followed.



The Boat Haven marina is a dredged basin that provides commercial, recreational, and transient moorage, as well as moorage for boathouses. The adjacent upland area encompasses associated facilities and services that have been added over many years. To the west of the marina, the upland area is developed with a paved parking lot, restroom building, boat ramp, and yacht club building. A boat yard, marine services, boat ramp, paved parking, restrooms, and the Harbormaster's Office occupy the upland area east of the marina. Together, the in-water and upland facilities encompass approximately 34.5-acres.

The Boat Haven includes State of Washington Department of Natural Resources (DNR) aquatic lands, managed by the Port of Port Angeles through a Port Management Agreement (PMA).

Demand for moorage at the 520-slip (approximately 450 slips plus side-ties) Boat Haven Marina has declined in recent years as a result of the opening of other marinas and the decline of both commercial and sport fishing in the Strait of Juan de Fuca. The July 2000 moorage vacancy rate was 20 percent. In May 2004, the moorage vacancy rate was 18 percent though it dipped to approximately 30 percent in the winter.

Land uses adjacent to Boat Haven reflect the setting within the Port Angeles' industrial waterfront. The Port recently purchased the 18-acre woodchip facility and pier to the west. The Port of Port Angeles' log storage and privately owned fuel tank facilities are located to the east. Marine Drive and a steep wooded slope border Boat Haven on the south. A single-family residential area is located atop the bluff, overlooking the marina.

A more detailed description of the existing facility follows. For purposes of this discussion, "Boat Haven Marina" or "marina" refers specifically to the 520-slip in-water marina. The term "The Boat Haven" is used to refer to the entire 34.5-acre in-water and upland facility.

### In-water Facilities

#### Infrastructure

The Boat Haven Marina is a 520-slip facility located on the south side of Port Angeles Harbor. The marina is configured as a single basin, with a rip-rap shoreline and is protected by

east and west pile-supported breakwaters. The marina is separated into three main moorages: a mixed recreational and commercial moorage section on the east, a central section occupied by boathouses, and a mixture of recreational and commercial moorage, with some boathouses, in the western section. A new seaplane float has recently been installed within the central section, at the end of the existing K/L boathouse float.



The moorage floats in the eastern portion of the marina consist of docks A/B, C/D, E/F, and G/H. These units are timber floats with Styrofoam blocks providing the floatation. These floats were installed in the 1970's.

The boathouse floats in the center portion of the marina consist of I/J Dock and K/L Dock. The float section between these two docks is a concrete pontoon type system connected with wood walers and metal through-rods. The lateral I/J and K/L docks are the older timber with Styrofoam type construction. The new 8-foot by 30-foot seaplane docking float is framed with ACZ treated Douglas fir and uses encapsulated Styrofoam for flotation.

Docks M/N, O/P, and Q/R, located in the western portion of the basin, are constructed of concrete pontoons with timber walers and metal thru-rods connecting the individual concrete pontoons. Timber piling anchor the float systems into place.

Echelon Engineering, on June 22 and 23, 2000, conducted a field investigation dive survey. The field survey accomplished a sample investigation

of the in-water infrastructure. The sample survey covered the inspection of 125 of the approximately 250 float anchor pile at the marina. A cursory inspection of the underwater structure of the timber and concrete float units was also conducted.

Overall, the inspection of the piling showed them to be in fair to good condition. Of the 125 piling inspected, over 93 percent were found to have sustained minor to no damage, with a cross-sectional area remaining of 90 percent or greater. Of the eight piling that had less than 90 percent cross-sectional area remaining, five of these are located at C/D Dock.

Cursory inspections of the existing float systems showed that the older timber floats in the eastern section appear to be in fair condition considering their age. The float freeboard has been maintained at a good enough level that the timber has not been subject to submersion, thus extending the life of the timber members. The Styrofoam appears to have been wrapped on the top, bottom, and long sides of the billets. The ends of the billets do not have such wraps and evidence of marine organisms burrowing into these ends was noted in the survey. The complete results of the underwater survey are included in Appendix A.

In addition to regular moorage, the in-water facilities at the Boat Haven consist of a sewage pump-out station, two public boat launch ramps, a fuel float, a fixed pier with net float, and transient moorage facilities.



The western public boat ramp is an "outside" two-lane, seasonal ramp. Because the ramp is

exposed, the floats are removed in the winter. This ramp is in relatively good condition, and the area surrounding it (“Boat Ramp Park”) has been recently renovated. The eastern public boat ramp is an “inner” ramp, situated within the Boat Haven. This ramp is smaller, but can be used year-round as it is located in a protected area. Use in the summer is restricted, however, due to parking conflicts.

A fixed working pier with work float is located on the inside of the east peninsula, adjacent to the fuel float at the entrance to the marina.



The existing fuel float is located just inside the entrance to the marina. The facility is in need of repair. Currently, use of the fuel float by large boats results in congestion at the marina entrance.

## Marine Environment

The Boat Haven is a dredged basin situated in an urban, heavily industrialized marine port. The adjacent upland is devoid of significant vegetation. The most current detailed information regarding the marine environment at the Boat Haven is contained in the Biological Evaluation prepared for the Port of Port Angeles Boathouse Relocation/Seaplane Float Installation Project published by Marine Surveys & Assessments in March 2001. Information from this document limited to the area in the vicinity of the seaplane float and is summarized below.

## Water Depth

In the vicinity of the seaplane float, the water measures 14 to 16 feet millw.

## Water Quality

The Boat Haven exists in an urban, heavily industrialized marine port. Harbor water-quality is heavily degraded and exceeded accepted standards set by the Washington State Department of Ecology for low dissolved oxygen in 1996 and 1998. It exceeded accepted standards for Total PCBs in 1996 (this was later determined, however, to be an inappropriate application of the standards).

## Substrate

The substrate in the vicinity of the new float (e.g., central section of the marina) is thick mud for a minimum of 18 inches deep. A small amount of shell (mostly old barnacle shells) was found around pile. The type of substrate found along the perimeter of the marina has not been identified.

## Macroalgae/Eelgrass

Small remnants of drift and attached Laminariales sp. were found intermittently in the vicinity of the seaplane float. In addition to the unhealthy specimens of macroalgae, a diatom film on top of the mud was noted throughout the survey.

## Invertebrate/Vertebrate Species

*Benthos:* Horse clams were found in moderate numbers in the vicinity of the seaplane float, with thousands of mysid shrimp swarming above the benthos. Hermit, red rock and graceful crabs were observed using a prolific amount of trash and debris as habitat. Where debris was not covering the substrate, characteristic “volcanoes” of blue mud shrimp were found. Several species of anemones and starfish were found in moderate quantities. No other invertebrates and no vertebrate species were noted.

*Piling and Floats:* The same starfish and anemones were found on the piles and floats. Hermit crabs, polychaete tubeworms and colonial tunicates were also common.

### **Threatened and Endangered Species**

Threatened and Endangered Species listed under the federal Endangered Species Act as potentially found in the Boat Haven area include:

1. *Hood Canal summer-run Chum salmon (Oncorhynchus keta).*
2. *Puget Sound Chinook salmon (Oncorhynchus tshawytscha).*
3. *Steller sea lion (Eumetopias jubatus).*
4. *Humpback whale (Megaptera novaeangliae).*
5. *Pacific Leatherback turtle (Dermochelys coriacea).*
6. *Bull trout (Salvelinus confluentus).*
7. *Bald eagles (Haliaeetus leucocephalus).*
8. *Marbled murrelets (Brachyramphus marmoratus).*

Adult Chinook may migrate through Port Angeles Harbor in May or June and juvenile Chinook may migrate through in early spring. There is no spawning habitat in the project area for listed salmon.

Steller sea lions, Humpback whales, and Leatherback turtles are unlikely to be found in the immediate project area. There are no documented haul-outs for Stellar sea lions near the project site, although sea lions are seen in the Strait of Juan de Fuca and Puget Sound in the winter, where their visits are transitory.

Bull trout have been documented in the lower Dungeness/Gray Wolf River.

In 2001, there were no Bald eagle nests within one mile of the project site, although USFWS has indicated that wintering Bald eagles may occur in this area.

Marbled murrelets do make use of near-shore habitat in the Port Angeles Harbor area, although much less so in the winter than in the summer. In 2001, there was no designated critical habitat within five miles of the project site, and there were no nests close to the project site.

In 2001, the only documented Forage fish spawning beach near the Boat Haven was a sand-lance spawning beach located approximately 1-1/4 miles across Port Angeles Bay on the south side of Ediz Hook.

### **Upland Facilities and Infrastructure**

The Boat Haven provides both upland support services for the marina and marine-related facilities.



Marina support services and infrastructure include water, electricity, and fuel services. Restroom, waste and trash disposal facilities are located in both the east and west sections of the marina. The western restroom facilities are smaller than the eastern and include a single shower for tenants and a public use restroom. Waste and trash disposal services are provided for Boat Haven tenants only. Currently, there is a problem with unauthorized use of trash disposal facilities by the general public.

Marine-related commercial activities located in the Boat Haven include marine supply and charter service, bait and tackle businesses, and restaurants.

A 1.50-acre public boatyard providing maintenance and repair for vessels less than 65 feet in length is located adjacent to the east section of the marina. The boatyard facilities include a 200-ton marine railway, a 70-ton mobile straddle hoist, and covered storage.

Paved parking areas, Boat Ramp Park, East Breakwater Park, and portions of Perimeter Promenade Path are also located within the Boat Haven facility. The Harbor Master's Office is located on the tip of the eastern peninsula, adjacent to the marina entrance.

A large, aboveground City of Port Angeles water transmission line runs along the north edge of Marine Drive, between the existing sidewalk and the shoreline.

### **Access**

Marine access to the Boat Haven is provided through a single entrance located between the east and west breakwaters.



Marine Drive provides vehicle access to and around the Boat Haven. Boat Haven Drive provides access to the east side of the marina and extends west along the eastern peninsula to the Harbor Master's Office and east breakwater area.

The Port Angeles Waterfront Trail, also located on Marine Drive, provides bicycle and pedestrian access to and between the areas of the marina, as well as to other destinations along the Port Angeles Waterfront.

### **Fire/Emergency Services**

The City of Port Angeles Fire and Emergency Services Department provides fire and emergency services.

### **Water**

The City of Port Angeles Utility Department provides water service.

### **Sewer**

The City of Port Angeles Utility Department provides sewer service.

### **Solid Waste**

The City of Port Angeles Utility Department provides solid waste service.

### **Electricity**

The City of Port Angeles Electric Utility provides electricity to the head of ramps at Boat Haven.

### **Other**

Telephone services are provided by Quest. There is no cable available at the Boat Haven.

# Chapter 3: Land Use Regulatory Framework

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The Boat Haven is located within the City of Port Angeles, and is subject to the City's land use, building, and engineering codes and standards, as well as to Washington State and federal regulations related to over-water and in-water work.

## City of Port Angeles

The City of Port Angeles *Comprehensive Plan*, zoning, and Shoreline Management Program policies and procedures in place at the time a specific development is proposed will provide the basic regulatory framework, especially for upland uses. A summary of these policies and regulations follows:

### City of Port Angeles Comprehensive Plan

The City of Port Angeles *Comprehensive Plan* designates the Boat Haven site as "Industrial".

### City of Port Angeles Zoning and Off-Street Parking Requirements

The Boat Haven is located within the City of Port Angeles's IH – Heavy Industrial zoning district (Chapter 17.34 of the Municipal Code). Marinas and boat havens are a permitted use, as they are considered part of the working harbor. The IH zone is considered the City's least restrictive industrial zone and provides "...for heavy industrial uses with direct access to major transportation facilities, design standards for greater truck traffic, and buffers for non-industrial uses unless deemed impractical." Uses such as sale of marine supplies, incidental retail sales, and restaurants are, however, identified as "Conditional Uses" which require a public hearing before the Planning Commission.

The Zoning Code is unclear as to whether the term "marina" refers only to the moorage slips, or includes the larger facility with its associated upland uses. The Planning Director will be required to make an interpretation at such time as new or expanded upland uses are proposed.

Within the IH zone, buildings must be setback a minimum of 30 feet from any public right-of-way, and 15 feet from any property line abutting commercial or residential zones. Buffers are required between industrial and other uses "*...in order to mitigate nuisance and hazardous characteristics such as noise, particulate matter in the air, water or odor pollution, objectionable visual material, or other such impacts*". Given the adjacent industrial development to the east and west of Boat Haven, the only potential buffer requirement would relate to residential development atop the bluff to the south. The IH zoning regulations are attached as *Appendix D*.

Off-street parking requirements are contained in Chapter 14.40 of the Municipal Code. No specific standards are identified for marina slips or lineal feet of moorage. City staff has stated that boathouses used as living space will likely be considered residential units and must meet the residential parking standard. The standard for parks and playgrounds is determined by Planning Commission review.

If any new uses within Boat Haven were to either permanently displace any existing parking or generate additional demand for parking, the Planning Director would determine the number of additional spaces required, or the matter would go before the Planning Commission for review.

## **City of Port Angeles Shoreline Master Program**

Because the Boat Haven is situated on and within 200 feet of the shoreline of the Strait of Juan de Fuca, the facility is subject to the policies and standards of the City of Port Angeles Shoreline Master Program (as amended in June, 2000) in addition to the development regulations contained in the City's Municipal Code cited above.

The *City of Port Angeles Shoreline Master Program* designates the Boat Haven uplands as an "Urban" environment, and the water area as an "Urban Harbor". The *Master Program* contains both policies and specific use regulations for "Boating Facilities", which include marinas. Chapter 6 of the *Master Program* establishes policies and procedures for specific activities and uses. Compliance with these policies and procedures, is mandatory. Where a conflict arises between applicable codes, the more stringent standard applies. These policies and use regulations, included as *Appendix B*, generally strive to protect biologic productivity including riparian habitat and wetlands, minimize adverse impacts on erosion, littoral transport and accretion shoreforms, require aesthetic compatibility with the area and no unreasonable impairment of shoreline views, encourage public access and enjoyment of the shoreline, require adequate sewage disposal (pump-out) facilities, and limit live-a-boards.

A Shoreline Permit will be required from the City of Port Angeles for any upland or inwater project. The project identified in the permit must be consistent with the policies and use regulations of the *City of Port Angeles Shoreline Master Program*. An environmental analysis will be required associated with a project permit under the guidelines of the State Environmental Policy Act (SEPA) as discussed below.

## **City of Port Angeles Building and Fire Codes**

All new structures at the Boat Haven must comply with the requirements of the City of Port Angeles Building and Fire Codes.

## **State Regulations**

### **State Environmental Policy Act (SEPA)**

A project or plan prepared by the Port of Port Angeles will be subject to SEPA analysis. The Port is authorized by State law to act as its own lead agency. That means that whenever the Port requests a land use permit such as a shoreline permit from the City, it will be required to fulfill the environmental documentation requirements of SEPA. The port is authorized to prepare and submit to the State Department of Ecology either an environmental checklist or an environmental impact statement depending upon the complexity of the project. The preparation of SEPA documentation is required of a plan or a permit application.

### **Department of Ecology 401 Water Quality Certification**

The 401 Water Quality Certification for in-water projects is typically issued in conjunction with the U.S. Army Corps of Engineers permit process described below. Upland issues associated with 401-water quality certification are handled directly by DOE on an individual basis.

### **Department of Fish and Wildlife, Hydraulic Project Approval (HPA)**

Any form of work that uses, diverts, obstructs, or changes the natural flow or bed of any fresh water or saltwater of the state, requires a hydraulic project approval (HPA) from the Washington State Department of Fish and Wildlife. Saltwater activities requiring HPA include construction of bulkheads, fills, boat launches, piers, dry docks, artificial reefs, dock floats, marinas, placement of utility lines, pile driving, and dredging. The state jurisdiction for an HPA is proposed construction

or work waterward of the mean higher high water line in salt water. (See Chapter 220-110 WAC.)

A JARPA application will be required for in-water projects at the Port Angeles Boat Haven. Drawings of the proposed project are submitted along with the JARPA form to DFW for review and permit issuance.

## **Federal Regulations**

### ***US Army Corps of Engineers***

A Section 10 permit is issued for piers and docks and a Section 404 permit is issued for fill. Bulkhead work is usually subject to both a Sections 10 and a Section 404 permit. However, bulkhead repair and maintenance or dock and pier maintenance is usually subject to a Nationwide 3 permit for repair and maintenance of existing structures. This is a modified permit process unlike the individual permits issued by the Corps. There are no notice procedures and the Corps authorizes the work so long as the project complies with the methods defined for Nationwide 3 Permits. The type of in-water work anticipated at Boat Haven may require a combination of nationwide and individual permits. A full analysis of the permitting requirements will be prepared at the time of beginning the design process for float reconfigurations.

The Corps must coordinate its efforts with two other federal agencies. Since the listing of salmon under the Endangered Species Act (ESA), projects requiring federal permits or involving federal dollars must also submit a Biological Evaluation to comply with ESA requirements.

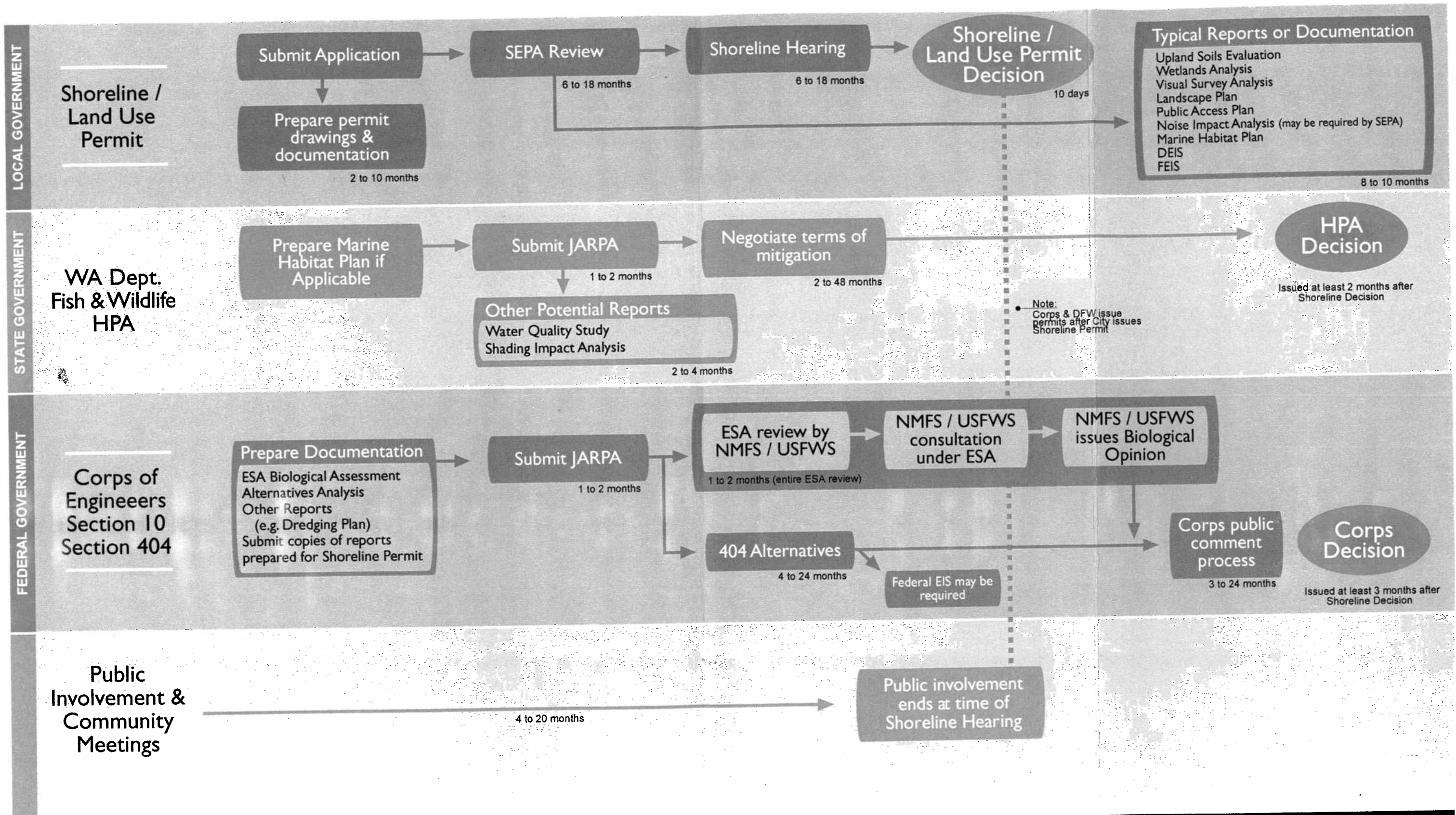
National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Services (USFWS) are given responsibility for review of the Endangered Species Act (ESA) "taking" permits. They do not issue permits – they give authorization that a permit may be issued without violation of the ESA. Typically, a Biological Evaluation (BE) is

performed by a biologist on behalf of the applicant and the BE report is submitted to the Corps, who will review the BE and send their approval to the NMFS/USFWS. NMFS and USFWS will review the Corps decision and if they concur with the Corps decision, will provide a letter of concurrence. Currently, those projects with federal permits or federal funding are required to prepare a Biological Evaluation. Where a project only requires a Nationwide permit, the applicant may be required to prepare an abbreviated form of the BE report and an informal ESA consultation is done. The BE report will be included as part of the permitting documentation to the Corps.

The application for Corps permits require the preparation of a JARPA application (same as the one submitted for an HPA) and a set of drawings (same as the one submitted for an HPA) and a BE.

A flowchart demonstrating the typical coordination of local, state and federal flowcharts is found in *Figure 3-1*.





# Chapter 4: Market Analysis for Marina and Boatyards

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## Introduction

The following Demand Analysis prepared by Greg Easton of Property Counselors is based on information found in Port Angeles Boat Haven Master Plan Phase I dated December 11, 2000. The study analyzes moorage and boatyard facility demand at Boat Haven. Paul Sorenson, of BST Associates, reviewed and concurred with the marina demand findings of the analysis. The information provided in Easton's report is reproduced in full here.

The Master Plan for the Port Angeles Boat Haven Marina is intended to provide the Port of Port Angeles a plan to enhance the existing facility in a way that meets the needs of current and future users and is operationally and financially sustainable. An analysis of the market for moorage and marine services is essential in determining potential levels of use and operating revenues. This report documents the results of the market analysis. The analysis is organized according to moorage demand and boatyard services. In each case, the analysis addresses current utilization, demand growth factors, competitive development, and projected demand.



## Moorage Demand

### Occupancy Trends

The 520-slip Boat Haven Marina has experienced increasing vacancy in recent years. Much of this increase can be attributed to changes in commercial and sport fisheries in the area.

1. *With the opening of the marina at Neah Bay, 25 tribal fishing vessels relocated.*
2. *With continued decline in the commercial salmon fishery, the number of commercial vessels has declined from approximately 150 five or six years ago to approximately 40 today.*
3. *Fishing restrictions have dramatically reduced the amount of sport fishing in the area.*

The vacancy rate at the end of July was approximately 20 percent, including broadside moorage.

Table 4-1 summarizes the occupancy patterns for both Boat Haven and the Port operated John Wayne Marina in Sequim. The John Wayne Marina is much newer than Boat Haven and is largely recreational vessels, but it is located only 20 miles east of Port Angeles, and it does provide some indications of local market conditions. As shown in the table, John Wayne has only seasonal vacancy, and is typically full in the prime boating months. A large portion of the Boat Haven vacancies are in the 20-foot to 40-foot slip length, and in fact is concentrated in the 20-foot to 30-foot lengths.

**Table 4-1**

***John Wayne and Boat Haven Marina Occupancy Comparison  
July 2000***

<b>Slip Length</b>	<b>21' – 40'</b>	<b>41' – 60'</b>	<b>BroadSide</b>	<b>60'+</b>	<b>Total</b>
<b>Vacant</b>					
John Wayne	1	4	2	0	7
Boat Haven	68	6	19	0	93
	<b>69</b>	<b>10</b>	<b>21</b>	<b>0</b>	<b>100</b>
<b>Occupied</b>					
John Wayne	178	55	60	0	293
Boat Haven	279	100	40	0	419
	<b>457</b>	<b>155</b>	<b>100</b>	<b>0</b>	<b>712</b>
<b>Total</b>					
John Wayne	179	59	62	0	300
Boat Haven	347	106	59	0	512
	<b>526</b>	<b>165</b>	<b>121</b>	<b>0</b>	<b>812</b>
<b>Wait List</b>					
John Wayne	22	15	2	0	39
Boat Haven	-	-	-	-	-
	<b>22</b>	<b>15</b>	<b>2</b>	<b>0</b>	<b>39</b>
<b>Wait List &amp; Occupied</b>					
John Wayne	200	70	62	0	332
Boat Haven	279	100	40	0	419
	<b>479</b>	<b>170</b>	<b>102</b>	<b>0</b>	<b>751</b>
<b>Total Less Wait List &amp; Occupied</b>					
	<b>47</b>	<b>(5)</b>	<b>19</b>	<b>0</b>	<b>61</b>

## Current Service Area

The area from which marina users are drawn is indicated by the addresses of marina tenants. The distribution as of July 2000 is shown in *Table 4-2*.

	Clallam County	Jefferson/ Kitsap	Other Puget Sound	Other
Boat Haven	77.8%	3.4%	7.8%	11%
John Wayne	85.1%	2.4%	5.4%	7.1%

Almost 80 percent of Boat Haven tenants are from Clallam County, as are 85 percent of John Wayne tenants. Additional tenants are drawn from adjacent counties.

The potential to expand the service area is affected by the distance from population centers and from popular cruising destinations. Given the outlook for commercial fishing, it is likely that recreational vessels will take up an increasing share of marina slips. However, the popular cruising destinations of the San Juan and Canadian Gulf Islands are more distance from Port Angeles than marina locations on the northeastern shore of Puget Sound.

## Vessel Registration Trends

Vessel registration trends provide a measure of changes in demand for vessels at the County level. Vessel registrations are recorded at the moorage location of the vessel. *Table 4-3* summarizes changes in the number of registered vessels in Clallam County by size category. As shown in the table, vessel registrations dropped by 407 between 1992 and 1999. There were declines in registration for vessels up to 30 feet in length, and increases in larger vessels.

*Table 4-4* summarizes vessel registration figures for several other Puget Sound counties as well as the State of Washington. Nearby counties, those readily accessible by ferry, are classified as secondary. The remaining Puget Sound area counties are classified as tertiary market areas. The most noteworthy data in this table are the relatively few registered vessels over 60 feet in length – only 31 in the primary and secondary areas.

*Table 4-5* summarizes boat registration data in terms of registered boats per 1,000 population. In 1999, there were 70.1 vessels per 1,000 population in Clallam County versus 48.4 for the secondary areas, 39.5 for the tertiary area, and 43.8 for the State as a whole. The high rate for Clallam is largely due to high local ownership and, to a lesser extent, the use of local marinas by non-local residents. The registration rates by size category are also noteworthy. Overall ownership rates in Clallam County dropped significantly from 1992 through 1999, while they remained somewhat constant statewide. Rates for vessels 40 feet and larger increased in Clallam County, and at a rate greater than for the State as a whole.

Table 4-3

## Boat Registration Trends - Clallam County

	Under 16'	16' to 20'	21' to 30'	31' to 40'	41' to 50'	51' to 60'	Over 60'	Total Reg.	Unreg.	Total	21' to 40'	41' to 60'	Over 60'
1992	2,558	1,735	622	146	28	7	1	5,097	2,725	7,822	768	35	1
1995	2,423	1,609	628	175	40	8	3	4,886	3,826	8,712	803	48	3
1996	2,474	1,566	603	164	43	10	4	4,864	3,149	8,013	767	53	4
1997	2,443	1,605	545	158	44	9	2	4,806	3,324	8,130	703	53	2
1998	2,370	1,603	576	168	44	7	3	4,771	3,666	8,437	744	51	3
1999	2,281	1,607	571	175	46	8	2	4,690	3,977	8,667	746	54	2
<b>Change 1992-1999</b>	<b>(277)</b>	<b>(128)</b>	<b>(51)</b>	<b>29</b>	<b>18</b>	<b>1</b>	<b>1</b>	<b>(407)</b>	<b>1,252</b>	<b>845</b>	<b>(22)</b>	<b>19</b>	<b>1</b>

Source: Washington State Department of Licensing

Table 4-4

## Boat Registration by Market Area

Registered Vessels 1999	Under 16'	16' to 20'	21' to 30'	31' to 40'	41' to 50'	51' to 60'	Over 60'	Total Reg.	Unreg.	Total	21' to 40'	41' to 60'	Over 60'
<b>Primary</b>													
Clallam	2,281	1,607	571	175	46	8	2	4,690	3,977	8,667	746	54	2
<b>Secondary</b>													
Jefferson	952	742	616	249	83	9	5	2,656	2,131	4,787	865	92	5
Kitsap	4,547	4,210	1,962	825	242	37	10	11,833	9,045	20,878	2,787	279	10
Snohomish	10,855	10,036	4,174	838	188	25	14	26,130	18,546	44,676	5,012	213	14
<b>Subtotal</b>	<b>16,354</b>	<b>14,988</b>	<b>6,752</b>	<b>1,912</b>	<b>513</b>	<b>71</b>	<b>29</b>	<b>40,619</b>	<b>29,722</b>	<b>70,341</b>	<b>8,664</b>	<b>584</b>	<b>29</b>
<b>Tertiary</b>													
King	22,611	23,067	9,390	3,273	1,135	227	117	59,820	36,343	96,163	12,663	1,362	117
Skagit	3,051	2,501	1,536	798	286	43	18	8,233	5,753	13,986	2,334	329	18
Pierce	11,808	11,470	3,186	993	294	32	25	27,808	18,978	46,786	4,179	326	25
Whatcom	3,199	2,687	1,650	553	133	18	3	8,243	6,383	14,626	2,203	151	3
<b>Subtotal</b>	<b>40,669</b>	<b>39,725</b>	<b>15,762</b>	<b>5,617</b>	<b>1,848</b>	<b>320</b>	<b>163</b>	<b>104,104</b>	<b>67,457</b>	<b>171,561</b>	<b>21,379</b>	<b>2,168</b>	<b>163</b>
<b>Total</b>	<b>59,304</b>	<b>56,320</b>	<b>23,085</b>	<b>7,704</b>	<b>2,407</b>	<b>399</b>	<b>194</b>	<b>149,413</b>	<b>101,156</b>	<b>250,569</b>	<b>30,789</b>	<b>2,806</b>	<b>194</b>
<b>Washington State</b>	<b>102,198</b>	<b>103,413</b>	<b>33,539</b>	<b>9,252</b>	<b>2,802</b>	<b>481</b>	<b>290</b>	<b>251,975</b>	<b>180,477</b>	<b>432,452</b>	<b>42,791</b>	<b>3,283</b>	<b>290</b>

Table 4-5

Boat Registration Trends Registered Vessels per 1,000 Population

Registered Vessels per 1,000 Population	1992			1995			1999					
	21' to 40'	41' to 60'	Over 60'	Total	21' to 40'	41' to 60'	Over 60'	Total	21' to 40'	41' to 60'	Over 60'	Total
<b>Primary</b>												
Clallam	12.80	0.58	0.02	84.95	12.63	0.75	0.05	76.82	11.15	0.81	0.03	70.10
<b>Secondary</b>												
Jefferson	32.80	2.62	0.09	108.36	31.51	3.43	0.16	104.58	32.52	3.46	0.19	99.85
Kitsap	12.78	1.01	0.05	53.70	12.26	1.09	0.05	53.40	12.13	1.21	0.04	51.52
Snohomish	9.98	0.29	0.01	46.39	9.29	0.35	0.03	47.31	8.59	0.37	0.02	44.80
Subtotal	11.49	0.56	0.02	50.40	10.86	0.66	0.04	50.91	10.32	0.70	0.03	48.38
<b>Tertiary</b>												
King	7.27	0.71	0.05	35.33	7.28	0.75	0.06	36.11	7.55	0.81	0.07	35.67
Skagit	26.55	2.91	0.20	85.69	25.20	3.10	0.14	86.58	23.20	3.27	0.18	81.84
Pierce	6.93	0.45	0.03	41.03	6.66	0.45	0.05	41.62	5.97	0.47	0.04	39.73
Whatcom	15.51	0.70	-	55.41	14.22	0.77	0.02	54.52	13.66	0.94	0.02	51.10
Subtotal	8.34	0.72	0.05	39.73	8.19	0.76	0.06	40.51	8.10	0.82	0.06	39.45
<b>Total</b>	<b>9.13</b>	<b>0.68</b>	<b>0.04</b>	<b>42.99</b>	<b>8.89</b>	<b>0.74</b>	<b>0.05</b>	<b>43.60</b>	<b>8.68</b>	<b>0.79</b>	<b>0.05</b>	<b>42.14</b>
<b>Washington State</b>	<b>7.67</b>	<b>0.50</b>	<b>0.03</b>	<b>44.28</b>	<b>7.55</b>	<b>0.53</b>	<b>0.05</b>	<b>45.04</b>	<b>7.43</b>	<b>0.57</b>	<b>0.05</b>	<b>43.77</b>

## Covered Moorage Market Conditions

The boathouses at Boat Haven provide approximately 75 covered spaces, approximately 18 percent of all moorage. Covered moorage is a relatively scarce resource in Puget Sound

marinas. Table 4-6 summarizes the amount of covered moorage as a percent of total moorage for several Puget Sound Counties. Covered moorage represents approximately 15 percent of total moorage in the area. The share in Clallam County is less than in several other counties.

County	Percent
Clallam	10%
Jefferson	0%
Kitsap	13%
Snohomish	26%
King (Puget Sound)	14%
Skagit	19%
Island	44%
Whatcom	1%
Pierce	30%

Table 4-7 provides a comparison of covered versus open moorage in several specific marinas. Almost 50 percent or more of the moorage in these five marinas is covered. These marinas are generally full, and the relationship between open and covered

slip rental rates probably reflects equilibrium conditions. In absolute terms, covered moorage rental rates exceed open rates by \$1 to \$2 per lineal foot per month. On a percentage basis, covered rates exceed open rates by 20 to 40 percent.

	Slips				Monthly Rental			
	Covered	Open	Total	Covered as %	Covered	Open	Difference	Covered/ Open
Port Orchard	220	126	346	69%	\$5.36	\$4.23	\$1.13	127%
Oak Harbor	183	217	400	46%	\$5.25	\$4.46	\$0.79	117%
LaConner	368	232	600	61%	\$6.36	\$4.48	\$1.88	142%
Edmonds	438	302	740	59%	\$7.50	\$5.30	\$2.18	127%
Des Moines	463	373	836	55%	\$5.44	\$4.39	\$1.05	124%

Source: Property Counselors

## Projected Moorage Demand

Future demand for moorage can be projected based on population growth in the primary, secondary, and tertiary areas; changes in registration rates; and changes in Boat Haven capture rate. Projected population growth rates are shown in *Table 4-8* based on Washington State Office of Financial Management figures.

	2000 -2005	2005 -2010	2010 -2015	2015 -2020
Primary Area	1.3%	0.8%	0.7%	1.1%
Secondary Area	2.3%	1.7%	1.7%	1.4%
Tertiary Area	1.1%	1.0%	1.1%	1.2%

Registration rates are projected to change as recent trends continue.

	20'-40'	40'-60'	60'+
Primary	No Change	Increase 25%	Increase 100%
Secondary	No Change	No Change	No Change
Tertiary	No Change	No Change	No Change

Capture rates for the secondary and tertiary counties are estimated at conservative levels based on current residency data for Boat Haven.

Application of these factors results in the increases in registered vessels in Clallam County over future 5 year intervals as shown in *Table 4-9*.

	2000	2005	2010	2015	2020
<20'	3,986	3,925	3,978	4,014	4,105
21'-40' <sup>1</sup>	608	645	673	682	711
40'-60' <sup>1</sup>	203	226	237	265	291
60'+	3	4	5	6	7
<b>Total</b>	<b>4,800</b>	<b>4,800</b>	<b>4,893</b>	<b>4,971</b>	<b>5,114</b>

1 - Distribution adjusted based on marina occupancy statistics

Together with increased capture of registration growth in other counties, potential increased Clallam County demand would reach the levels shown in *Table 4-10*.

	2000 -2005	2005 -2010	2010 -2015	2015 -2020
<b>20'-40'</b>				
Primary Area	37	28	9	29
Secondary Area	3	2	2	2
Tertiary Area	3	2	2	3
<b>Total</b>	<b>43</b>	<b>32</b>	<b>13</b>	<b>34</b>
<b>40'-60'</b>				
Primary Area	23	11	28	26
Secondary Area	1	1	1	1
Tertiary Area	2	1	1	1
<b>Total</b>	<b>26</b>	<b>13</b>	<b>30</b>	<b>28</b>
<b>60'+</b>				
Primary Area	1	1	1	1
Secondary Area	-	-	-	-
Tertiary Area	-	-	-	-
<b>Total</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>



Assuming Boat Haven captures all of the increased demand in the County, the cumulative demand would reach the levels shown in *Table 4-11*. As shown, moorage demand would grow from the current level of 419 slips to 642 by 2020.

If a reconfiguration of the marina is financially feasible, the number of large slips should be increased. Based on the demand estimates for the year 2020, the distribution of demand shown in *Table 4-10* implies that the mix of slips sizes be:

20-foot to 40-foot: 60%  
Over 40-foot: 40%

The demand for covered moorage will be a function of prices. Applying the average ratio for the Puget Sound region of covered moorage as 15 percent of total, Clallam County could support 113 covered slips at the present time. The number would be considerably higher if covered moorage were viewed as a bargain relative to open moorage rates. A typical spread of \$2 between open and covered moorage would represent a 60 percent differential given current rental rates. This is a large premium and may not be supportable. At the same time, even this differential may not be large enough to fund the necessary capital investment. The relationship between necessary premium and market response should be explored further as design concepts and cost estimates are available.

## Boatyard Facilities Demand

### Existing Facilities

The existing Boat Haven Boatyard includes several marine repair and service facilities at the southeast corner of the moorage basin.

1. 70-ton travel lift
2. 200-ton marina railway (under long-term lease)
3. 1.5-acre yard area
4. Covered boat storage

### Comparison With Other Marinas

Virtually all large marinas (400 or more slips) in Puget Sound have haul-out and service facilities available either as a service of the

**Table 4-11**

**Potential Growth in Demand - Boat Haven**

	Current	2005	2010	2015	2020
<b>Potential Demand</b>					
20'-40'	279	322	354	367	401
40'-60'	100	126	139	169	197
60'+	0	1	2	3	4
BS	40	40 <sup>1</sup>	40 <sup>1</sup>	40 <sup>1</sup>	40 <sup>1</sup>
<b>Total</b>	<b>419</b>	<b>489</b>	<b>535</b>	<b>579</b>	<b>642</b>

1 - Growth in broadside moorage included in other size ranges

The incremental growth can be compared to the current number of vacant slips as shown in *Table 4-12*. With no change in the existing distribution of slips, the existing vacancies could accommodate growth through 2009 for 20-foot to 40-foot slips and 2001 for 40-foot to 60-foot slips (the 75 slip incremental demand by 2010 for 20-foot to 40-foot slips slightly exceeds the current 68 vacancies, while the 26 slip incremental demand by 2008 for 40-foot to 60-foot slips greatly exceeds the current six vacancies).

**Table 4-12**

**Incremental Demand vs. Vacancy - Boat Haven  
Cumulative Growth**

	Vacant	2005	2010	2015	2020
21'-40'	68	43	75	88	122
40'-60'	6	26	39	69	97
60'+	0	1	2	3	4
BS	19	-	-	-	-
<b>Total</b>	<b>93</b>	<b>70</b>	<b>116</b>	<b>160</b>	<b>223</b>

marina or by a private operator. *Table 4-13* compares the characteristics of haul-out facilities and boatyards at several major marinas.

1. *The existing 70-ton travelift is among the largest in Puget Sound marinas, except for 330-ton lift at Port of Port Townsend Boat Yard. Others range from 22 tons at La Conner (Maritime Services) to 77 tons at Swantown Boatworks in Olympia.*
2. *Haul-out rates of \$3.80 per foot (up to 30-foot) to \$5.60 per foot (50-foot and up) are comparable to La Conner Maritime and lower than Port of Port Townsend, Bellingham, Cap Sante, Everett, and Swantown.*
3. *Existing storage yard with 1.5 acres is small in comparison with others, particularly Swantown and Port Townsend.*
4. *Existing storage daily rate is less than that at Cap Sante and Swantown, and higher than others. Long-term rate (after 30 days) should discourage long term use.*
5. *Charges for pressure washing are comparable to others.*
6. *Few private marine trade tenants in boatyard to service vessels, particularly compared to Port Townsend, Everett, and Bellingham. Most work is do-it-yourself or "tail-gate".*

### **Utilization of Existing Facilities**

*Table 4-14* summarizes the utilization of boatyard facilities at Boat Haven and compares it with utilization at Port Townsend facilities, a major marine service center.

1. *Utilization has declined over the past 5 years for 70-ton lifts. Utilization declines match declines in marina occupancy.*

2. *Utilization of 200-ton railway has declined by greater amount. Utilization was seriously affected by opening of 330-ton lift in Port Townsend in 1997.*
3. *Dry storage at \$4.05 per foot per month makes a modest contribution to income. There is limited potential for this use due to availability of wet moorage for small boats.*
4. *The absolute level of haul-out use still good at approximately one haul-out per occupied slip per year.*

### **Conclusions**

Haul-out activity will be closely related to the number of occupied slips in the marina.

Lack of small and medium-sized marine repair businesses at Boat Haven will somewhat limit boat yard activity.

The potential exists to expand dry storage if wet moorage is reconfigured to reduce number of smaller slips.

There is no justification at this time for expanding overall size of boatyard.

There is no opportunity for reducing size of the boatyard without eliminating minimum storage area necessary for boats being serviced.

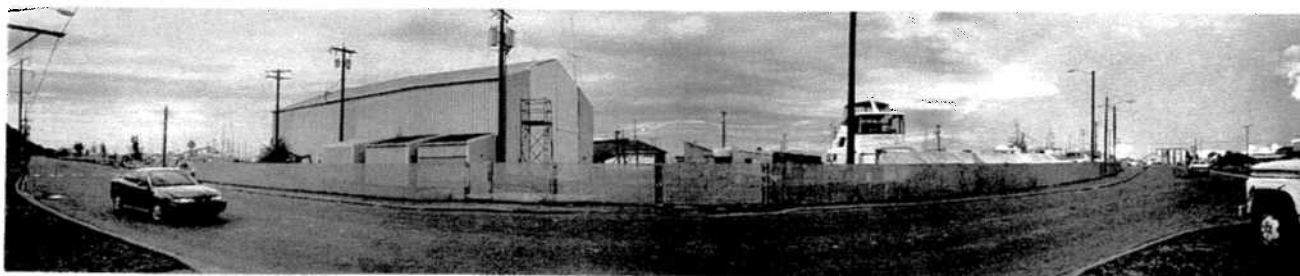


Table 4-13

Comparison of Haul-Out Facilities and Boatyards  
Facilities and Services

	Port Angeles Boat Yard	Port Townsend	Bellingham Boondocks	Anacortes Cap Sante Marina	La Conner Maritime	Everett	Olympia Swantown
<b>Haul Out Capacity</b>							
	70 ton travelift	330 ton travelift	20 ton travelift	55 ton travelift	22 ton travelift	30 ton travelift	77 ton travelift
	200 ton railway	70 ton travelift		2 smaller lifts		36 ton travelift	
		60 ton travelift		3 ton monorail			
<b>Rates - Round Trip</b>							
	up to 30': \$3.80/ft	24' to 40' \$105+\$8/ft	\$5.00/ft+\$20 per additional hour	up to 40': \$5.00/ft	up to 35': \$4.00/ft	\$5.00/ft	up to 39': \$5.25/ft
	30' to 39': \$4.30/ft	over 40': +\$9.00/ft		41' to 60': \$6.00/ft	35' to 50': \$4.50/ft		40' to 49': \$5.75/ft
	40' to 49': \$4.90/ft			over 60': \$6.75/ft	over 50': \$5.00/ft		50' to 60': \$6.25/ft
	50' and up: \$5.60/ft						over 60': \$7.00/ft
<b>Yard Area</b>							
	1.5 acres	10 acres	none			27 vessels	2.9 acres
		200 vessels					45 vessels
<b>Storage Rate</b>							
	(Open) Daily: \$.50/ft 1st 30 days \$1/ft after 30 days (Covered) Daily: \$1/ft 1st 30 days \$1/ft after 30 days	Daily: \$.25/ft 1st 30 days +12.84% after 30 days		Daily: \$.75/ft	Daily: \$.55/ft Monthly: \$4.00/ft	Daily: \$.20/ft	Daily: \$.75/ft Monthly: \$5.25/ft (winter only)
<b>Other Charges</b>							
	Washing machine: \$1.20/ft w/ labor: \$2.40/ft	Washing: \$.75/ft	Washing: \$2/ft	Washing: \$1.75/ft +10 to \$30	Blocking: \$1.00/ft Washing: \$1.32/ft +25\$	Washing (pressure) \$.50/ft (hand scrub) \$.75/ft	Washing: \$1.75/ft +\$25
<b>Private Marine Tenants</b>							
		Numerous		Full Service	Some	Numerous	Some

**Table 4-14**

**Comparison of Haul-Out Facilities and Boatyards Utilization**

Port Angeles Boat Yard					
	1995	1996	1997	1998	1999
70 Ton Lift-Boats Handled ( Round Trip)	429	405	390	356	346
70 Ton Lift-Revenues	\$136,000	\$135,000	\$140,000	\$152,000	\$139,000
200 Ton Marine Way-Boats Handled (approx)	50	50	25	25	25
200 Ton Marine Way Revenue (approx)	\$50,000	\$50,000	\$30,000	\$30,000	\$30,000
Port of Port Townsend Boat Yard					
	1998		1999		
	Boats In	Boat Out	Boats In	Boats Out	
200 Ton Lift	51	48	78	75	
70 Ton Lift	497	487	466	488	
60 Ton Lift	207	184	178	164	



# Chapter 5: Master Planning Elements

The Port of Port Angeles recognizes that far from the purely commercial nature of their historical past, marinas now serve both as a catalyst for economic growth and a venue for public recreation. Marinas have a great potential due to their harbor views and the visual interest they add to waterfront activities. Numerous Ports within the Puget Sound area are currently balancing a mixture of industrial and service oriented businesses on their prime waterfront land.

The Port Angeles Boat Haven, originally a commercial moorage facility, has adapted over time to the influx of recreational and non-industrial uses. The Boat Haven has functioned relatively well in an urban design sense. It serves a mix of boaters and upland users. The basic structure of the facility has met the needs of various groups, however, the Boat Haven is now at a turning point. The change in occupancy rates and moorage demands at the marina, the need for marina renovation, and the increased potential for waterfront activities has resulted in the need to develop a master plan for the facility.

A master plan that addresses both the marina and upland development will appropriately balance the opportunities at the Boat Haven and provide for a cohesive development pattern while maximizing both the economics of the marina and opportunities for the public and its residents.

Specific details of the plan, key to developing a cohesive waterfront facility, include:

1. *Establishing boundaries and locations for particular activities.*
2. *Establishing buffers and selective use of landscaping.*
3. *Developing design elements that tie the*

*commercial waterfront heritage to the modern service-oriented marina.*

4. *Addressing the uniqueness and historical character of Boat Haven.*
5. *Addressing potential economic returns.*

By their very nature, waterfronts are an inter-modal node. There is often the need to focus on potential connections and conflicts between auto, truck, boat, bicycle and pedestrian access and circulation. Public and private spaces must also be clearly defined.

Addressing these design concerns at the Boat Haven will not only improve its appearance and safety but also its function. An updated and more attractive marina and upland development will compete and respond to changing market forces more effectively.

A variety of upland and in-water areas of opportunity were identified at the Boat Haven facility. The Draft Boat Haven Master Plan initially focussed on seven specific elements for discussion; the Advisory Committee expanded the number of elements to thirteen. These thirteen elements are the focus of planning and design discussions, as well as concept sketches in this Master Plan. The thirteen identified Master Plan Elements are as follows and are shown in *Figure 5-1*.

- |                                    |                                |
|------------------------------------|--------------------------------|
| 1. <i>Marina</i>                   | 7. <i>Boatyard dry storage</i> |
| 2. <i>Perimeter Promenade Path</i> | 8. <i>Multi-use facility</i>   |
| 3. <i>Entrances</i>                | 9. <i>Recycling centers</i>    |
| 4. <i>Public parks</i>             | 10. <i>Work Float</i>          |
| 5. <i>Boatyard</i>                 | 11. <i>Fuel float/pier</i>     |
| 6. <i>Future development areas</i> | 12. <i>Parking</i>             |
|                                    | 13. <i>Security</i>            |

These thirteen elements shown in *figure 5-1* have been reorganized in the following way:

~ ***In-Water Facilities***

1. *Marina*
2. *Work Float*
3. *Fuel float/pier*

~ ***Upland Facilities***

1. *Boatyard dry storage*
2. *Multi-use facility*
3. *Recycling centers*
4. *Parking Facilities*
5. *Entrances*
6. *Future development areas*
7. *Security*







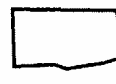




~ ***Public Access Features***

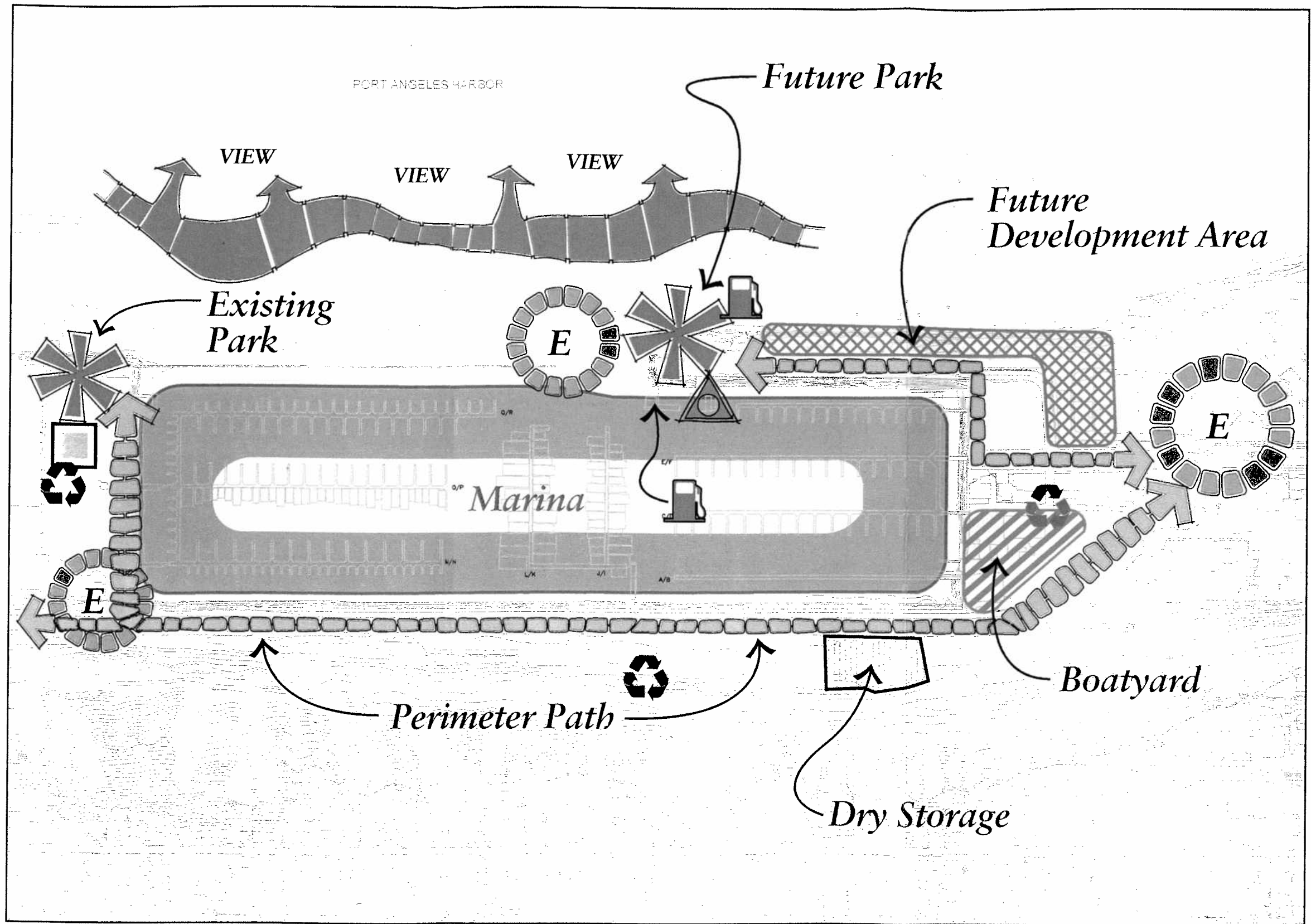
1. *Perimeter Promenade Path*
2. *East Breakwater Park*
3. *Boat Ramp Park*

A description of each element and its relationship to the Master Plan follows. The descriptions include a brief account of the existing element and a discussion of the goals, opportunities, and features for further evaluation for upgrading and improvement possibilities, together with preliminary costs. The listed features for further evaluation provide the basis for development of preliminary opinions of probable cost that are associated with each element. These costs are in the text and are also included in the Capital Facility Plan in Chapter 6 of this report.

It should be noted these concepts and ideas have yet to be tested against myriad land-use regulatory constraints. These are initial concepts that the Advisory Committee recommends be taken forward into the next level of planning and analysis. The Master Plan Elements are divided between in-water, upland, and public access facilities.

**Master Plan Elements:**

- Marina 
- Perimeter Path 
- Entrances 
- Public Parks 
- Boatyard 
- Future Development Area 
- Boat Yard Dry Storage 
- Multi-Use Building  
Restroom / Showers - Laundry  
Public Meeting / Yacht Club 
- Recycling Centers 
- Work Float 
- Fuel Float / Pier 





## In-Water Facilities

### Marina

The Advisory Committee has completed extensive work on the Marina. The Master Plan reflects these discussions and layouts as approved by the Committee. The Advisory Committee also developed new Boat House Policies, included as Appendix B of this Master Plan.

There are currently over 500 moorage slips in the Boat Haven Marina. As previously noted, the eastern portion of the marina and the main laterals along the boathouses in the central portion of the marina are older, timber style floats. The western portion of the marina consists of new concrete floats. The focus of this study has been to maximize the potential layout of vessels based on results of the market analysis and the first phase replacement of the eastern and central marina float systems. Four alternative marina layout options, together with Opinions of Probable Cost, were presented in the 2000 Draft Master Plan. The Advisory Committee then studied the four alternatives in more detail and developed a Consensus Master Plan marina layout.

### Recommended Marina Layout

The recommended marina layout is shown in Figure 5-2. Table 5-1 shows a summary of the total linear feet of moorage for this layout.

Total Moorage - Recommended Layout	
Side-tie Moorage	3,113 LF
Less than 30'	96 slips
30'-39'	67 slips
40' to 49'	69 slips
50' and greater	179 slips
<b>Total</b>	<b>411 slips</b> (includes boat houses)

\* Opinion of Probable Costs includes a 20 percent contingency; 15 percent for permitting, and 15 percent for planning, engineering, and construction supervision services, as well as Washington State taxes for the project. These costs were utilized in the financial analysis for the project.

Opinion of Probable Cost: \$4,147,000\*

### Goals:

1. Develop a preferred marina layout based on market demand and desired in-water services for the marina.
2. Establish a redevelopment schedule based on infrastructure condition and the preferred development plan, with phasing options for replacement of the aging infrastructure, particularly the central and eastern moorage systems.
3. Provide for mixed uses within the marina.
4. Provide measures to minimize conflicts between commercial and recreational tenants, moorage tenants and small boaters, and other mixed uses, while still maintaining flexibility to retain full occupancy and use of the entire facility.
5. Expand opportunities to support large yacht businesses within the Port Angeles area.
6. Maintain or enhance in-water facilities for small boaters, yacht club members, and other public-use groups as feasible within the marina.

### Opportunities:

1. Based on the relatively good condition of the floats and piling throughout the marina, the Port has the opportunity to phase the reconstruction of the marina float system.
2. The selected system layout can be designed to accommodate larger and wider beamed vessels than the existing facility.
3. Through relocation or attrition of the existing boathouses on "O Float", the efficiency of the marina layout can be increased. Opportunities for additional 35' - 50' slips and/or covered moorage can be explored.
4. Provisions for seaplanes, large yachts, and other specialty services can be created at the Boat Haven.

### Features for Further Evaluation:

1. Long-term use and condition of the

*inner harbor small boat ramp.*

- 2. Desired long-term in-water components of the boatyard service.*
- 3. Provisions for additional in-water support services and facilities.*

### **Work Float**

The existing work float is located on the northeast side of the marina, adjacent to the fuel float on the eastern peninsula. The Master Plan proposes to locate a new work float in this area, as well as a second work float in the central section of the marina, adjacent to the Marine Drive entrance.

#### **Goals:**

- 1. Improve customer service*
- 2. Increase revenue opportunity*

#### **Opportunities:**

- 1. Create new work pier with access from both sides.*

**Opinion of Probable Cost:** \$375,000\*

*Renovation of the existing work pier with new cranes and two new staging floats.*

**Opinion of Probable Cost:** \$114,000\*

*Installation of a new work pier adjacent to the Marine Drive entrance.*

### **Fuel Float and Pier**

The Boat Haven Marina now has a fuel float and pier located inside the entrance to the Marina. This facility is in need of repair and upgrade. During evaluation of the fuel float, issues related to size, location and function for the facility were addressed. Retention of the existing fuel float for use by smaller vessels, and construction of a new, outside fuel float for larger vessels, would minimize vessel conflicts.

#### **Goals:**

- 1. Improve access for larger vessels*
- 2. Improve safety at the fueling facility*
- 3. Improve access for small vessels at the existing fuel float (reduced conflicts)*

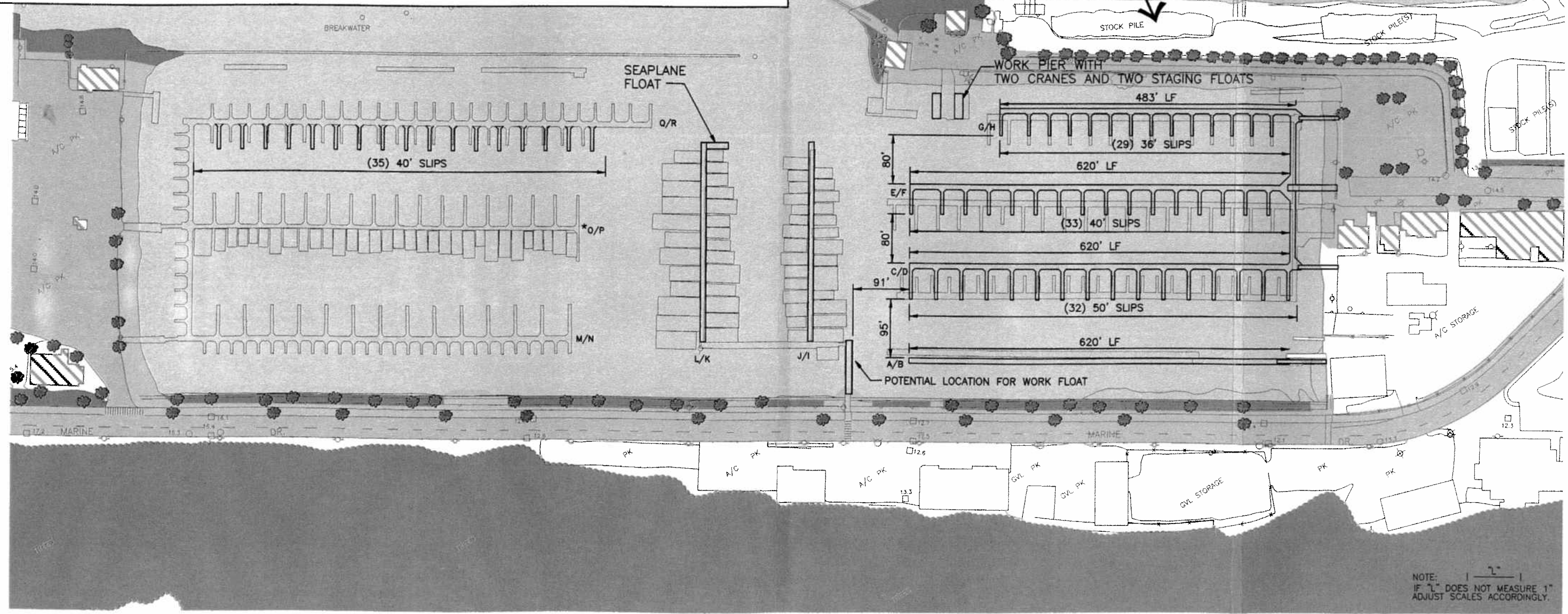
#### **Opportunities:**

- 1. Provide improved fueling facility for larger vessels*
- 2. Reduce congestion at the entrance to the marina*

**Opinion of Probable Cost:** \$415,000\*  
*(excluding landside development costs)*

\* Opinion of Probable Costs includes a 20 percent contingency; 15 percent for permitting, and 15 percent for planning, engineering, and construction supervision services, as well as Washington State taxes for the project. These costs were utilized in the financial analysis for the project.

Summary of number of slips				Summary of linear foot change		
Slip size	Existing	Proposed	Change	Existing	Proposed	Net Change
25	96	96	0	20,180 lf	19,787 lf	-393 lf
30	138	38	-100	<b>Note</b>		
36	0	29	29	Light Lines show existing floats		
40	70	69	-1	<b>Bold</b> Lines show future development		
50	121	153	32	<b>* Note</b>		
60	14	14	0	Attrition or relocation of boathouses on 'O' Float will provide development opportunity for 35' - 50' slips or covered moorage		
70	12	12	0			
total	451	411	-40			
side tie	3,110 lf	3,113 lf	3 lf			



## **Upland Facilities**

### **Boatyard and Dry Storage Area**

Based on the market analysis, the current size and capacity of the boatyard is adequate to support the level of service required at this time for the existing marina tenants and the market demand. Therefore, no expansion of the boatyard is recommended at this time. However, if expansion is required in the future, the Boat Yard Dry Storage area would provide this opportunity. To date, there has been no significant demand for dry storage.

#### **Goal:**

1. *A future Boat Yard expansion location will be determined subject to demand.*

#### **Opportunities:**

1. *All opportunities for development of additional boat yard space will be subject to the availability of land.*

### **Multi-Use Facilities**

There are a number of multi-use facilities at the West End of the Boat Haven. These facilities include the existing Yacht Club, a restroom facility and a laundry facility. These facilities need to be upgraded and improved to provide better facilities for the marina users, and in the case of the Yacht Club and meeting space, provide better facilities for the community. One recommendation may be to consolidate all facilities into one multi-use building.

#### **Goals:**

1. *Provide fully compliant ADA public facilities for all multi-use facilities.*
2. *Provide an improved Restroom Facility.*
3. *Provide an improved Shower Facility.*
4. *Provide an improved Laundry Facility.*

5. *Enhance/expand the existing Yacht Club/Public Meeting space by adding a second story to the building.*

#### **Opportunities:**

1. *Consider remodel of YC building*
2. *Evaluate costs for new Restroom Facilities*

#### **Opinion of Probable Cost\*:**

*\$630,000 - Single Story Building (3,000 s.f.)*

*\$1,424,000 - 2-Story Building (6,000 s.f.)*

### **Recycling Centers**

Currently, there is no central well-organized recycling center for the Boat Haven Facility. In addition, the Boat Haven does not have adequate security to restrict use of a recycling center to users of the Boat Haven. The inclusion of well designed recycling centers at both ends of the Boat Haven Marina will reduce operational costs and provide a necessary service.

#### **Goals:**

1. *Provide access restricted recycling centers at the west and east ends of the Boat Haven Marina.*

#### **Opportunities:**

1. *Reduce operational cost*
2. *Reduce environmental exposure*
3. *Improve Security*

**Opinion of Probable Cost\*:** \$20,000

### **Parking Facilities**

There are four major parking areas associated with the Port Angeles Boat Haven. Large, paved parking lots are situated at both the east and west ends of the marina, and on-street parallel parking

\* Opinion of Probable Costs includes a 20 percent contingency; 15 percent for permitting, and 15 percent for planning, engineering, and construction supervision services, as well as Washington State taxes for the project. These costs were utilized in the financial analysis for the project.

is available along Marine Drive. The fourth parking area is a paved lot owned by the Port on the south side of Marine Drive in the center section. The three Port owned parking areas are paved with striping and include some signage.

Recommendations for these four parking areas are as follows:

**Goals:**

1. *Provide good, defined circulation patterns.*
2. *Provide selective landscaping to break up areas of extensive asphalt.*
3. *Provide adequate parking for moorage and public use.*

**Opportunities:**

1. *Restripe parking to provide boat trailer parking that can be used for overflow marina and public parking and minimize parking conflicts.*
2. *Landscape parking areas.*
3. *Maximize parking availability through shared use and layout.*
4. *Coordinate lighting with other areas of the marina and promenade.*
5. *Subject to available space, provide long term secured parking for a fee.*

**Features for Further Evaluation:**

1. *Landscape design*
2. *Signage*
3. *Paving techniques*
4. *Lighting Design*

**Opinion of Probable Cost\*:**

\$66,000 - *Parking Facility East End (Grind and repave)*

\$183,000 - *West End Parking Facility (Grind and repave)*

**Entrances**

The two upland entrances to Boat Haven are the marina's "front door". The main entrance at the intersection of Marine Drive and Boat Haven Drive conveys an important image to the public and potential users/tenants, as does the westside entrance. The waterside entrance along Marine Drive must also include a definition of the image to be portrayed by the marina. Unifying design elements related to other Port Angeles' waterfront areas may be related to this focus as well.

**Goals:**

1. *Clearly define entrances to the Boat Haven.*
2. *Provide signage improvements that give an updated overall image to the Boat Haven and that address the following objectives:*
  - i. *Allow identification of marina tenant/businesses while maintaining a unified statement.*
  - ii. *Minimize confusion at entrances.*
  - iii. *Establish continuity with other waterfront attractions.*
3. *Improve traffic circulation at the east entrance to ensure safety for pedestrians and bicycles using the marina perimeter pathway.*
4. *Establish landscaping and visual buffers to separate the entry areas from adjacent industrial development and/or marina parking.*

**Opportunities:**

1. *Provide an attractive approach to the Boat Haven.*
2. *Provide attractive coordinated entrance signage system at the Boat Haven, potentially coordinated with signage at other Port Angeles waterfront attractions.*
3. *Provide approach signs and use paving and striping to clearly mark areas for vehicular, bicycle, and pedestrian traffic.*
4. *Extend special design elements and*

\* Opinion of Probable Costs includes a 20 percent contingency; 15 percent for permitting, and 15 percent for planning, engineering, and construction supervision services, as well as Washington State taxes for the project. These costs were utilized in the financial analysis for the project.

*improvements of the perimeter path beyond the entrance areas of the marina to provide a connection to other segments of the waterfront trail.*

- 5. Provide landscaping at the entrance areas creating an attractive front yard to the marina.*
- 6. Provide signage at the waterside entrance consistent with other signs throughout the marina.*

#### **Features for Further Evaluation:**

- 1. Landscape design*
- 2. Signage*
- 3. Paving techniques*
- 4. Lighting Design*

#### **Opinion of Probable Cost\*:**

*\$44,000 - Upland Entrance – East. Includes road realignment.*

*\$27,000 - Upland Entrance – West*

#### **Future Development Areas**

There are a number of upland areas surrounding the existing Boat Haven property that the Port has considered acquiring over the years. Only one such area is shown on the Master Plan at this time. This section identifies potential development options for this site. In the event the Port proceeds with acquisition, it will engage in specific site master planning efforts prior to any development activities. The following is a description of some potential goals associated with potential future development areas.

#### **Goals:**

- 1. Shift retail sales of seafood and restaurant function to a new breakwater "Village" to be developed on the northeast end of the marina.*
- 2. Develop opportunities for office space that*

*may be used for a brokerage service.*

- 3. Provide improved public access*
- 4. Use additional land to provide expansion of parking to serve all functions.*

#### **Opportunities:**

- 1. All opportunities for development of future areas are subject to the availability of land.*

#### **Security**

Control of access to facilities at the Boat Haven has been an on-going problem. Secured access to floats, non-public restrooms, garbage/recycling and other private facilities should be provided.

#### **Goal:**

- 1. Provide secured access to non-public facilities.*

#### **Opportunities:**

- 1. Provide an access control system utilizing gates*
- 2. Install access control gates at the head of each dock*

\* Opinion of Probable Costs includes a 20 percent contingency; 15 percent for permitting, and 15 percent for planning, engineering, and construction supervision services, as well as Washington State taxes for the project. These costs were utilized in the financial analysis for the project.

## Public Access Features

### Perimeter Promenade Path

Currently there is no one continuous, defined path that connects and provides access to the entirety of the Boat Haven. Designated walkways exist in some areas, but the walkways are not part of a formal, defined pedestrian or bicycle system.

The proposed Perimeter Promenade Path provides for pedestrian and bicycle access and connections through Boat Haven, as well as links to other parts of the port Angeles community. Along Marine Drive, the Promenade Path will also be part of the City of Port Angeles Waterfront Trail.

Because of its continuity throughout the Boat Haven, the Promenade Path will serve as the unifying feature for the recommended design elements. The unified design will connect the entirety of the facility, as well as provide a link to other City waterfront features such as the Landing and the City Pier. *Figures 5-3 to 5-5* depict plan views of the Promenade Path, and include more detailed cross sections for locations at the east, west, and Marine Drive sides of the marina.

#### Goals:

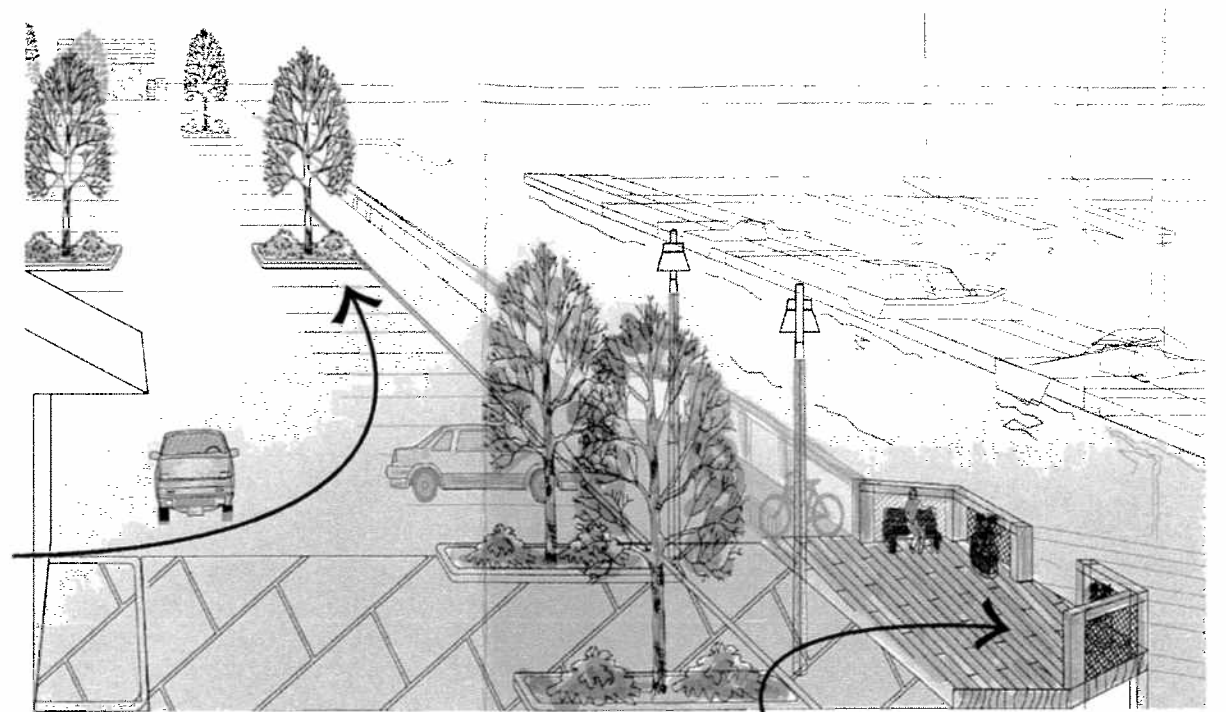
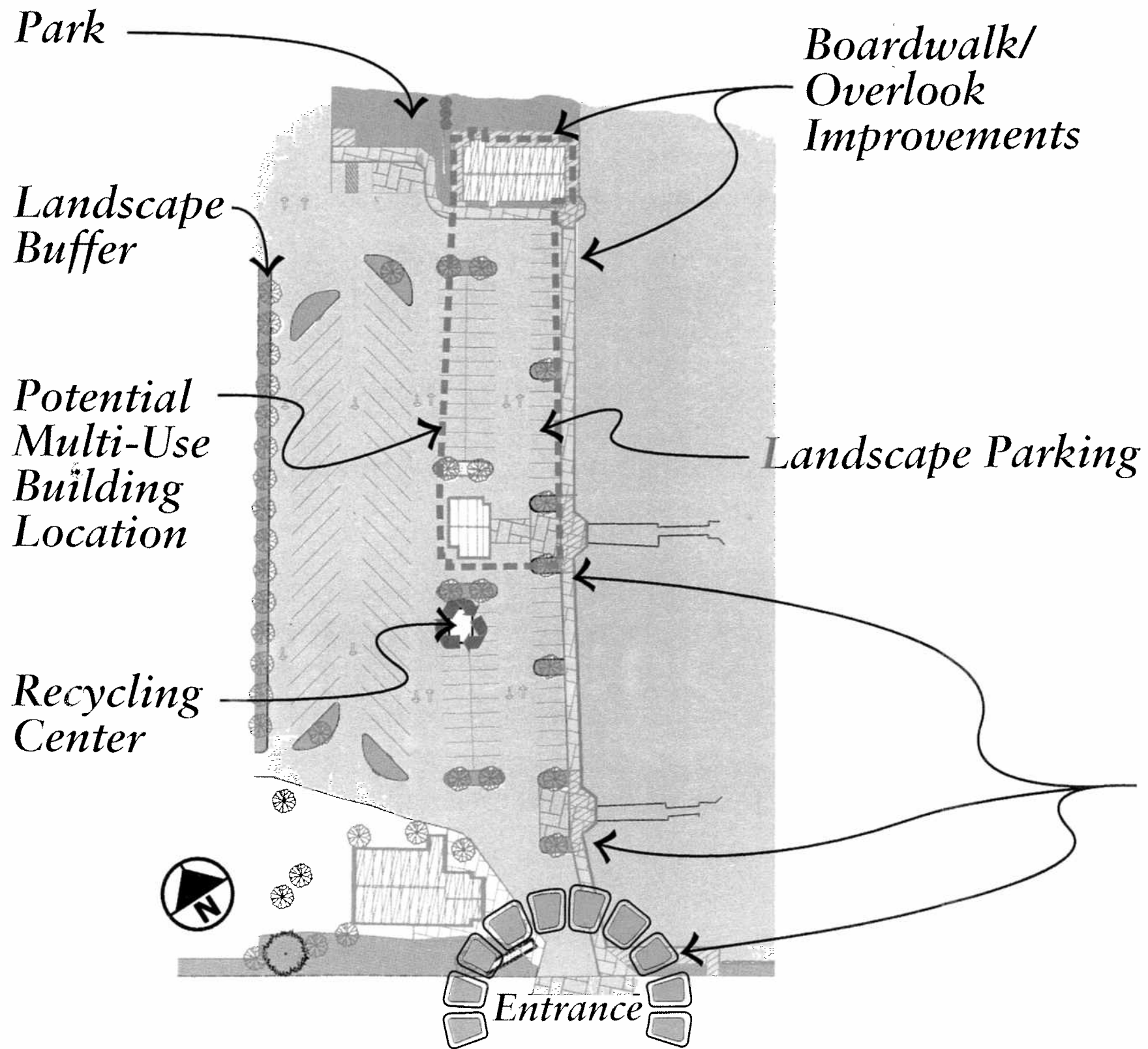
1. *Provide safe and attractive pedestrian and bicycle circulation through and within the Boat Haven.*
2. *Link all areas of the Boat Haven, creating a design element that unifies the Boat Haven and helps to improve the overall image of the facility.*
3. *Make improvements at gangway locations to accomplish the following objectives:*
  - i. *Creation of attractive entrances to the moorage.*
  - ii. *Establishment of public viewpoints.*
  - iii. *Upgrading the overall marina.*
  - iv. *Defining the transition from public to private areas.*
  - v. *Linking the marina to other waterfront*

*attractions such as the Landing and City Pier through use of common materials.*

4. *Clearly define pedestrian access areas to minimize conflicts between marina and upland activities and pedestrian trail users.*
5. *Establish landscape buffers along the perimeter path where it abuts parking and industrial uses.*

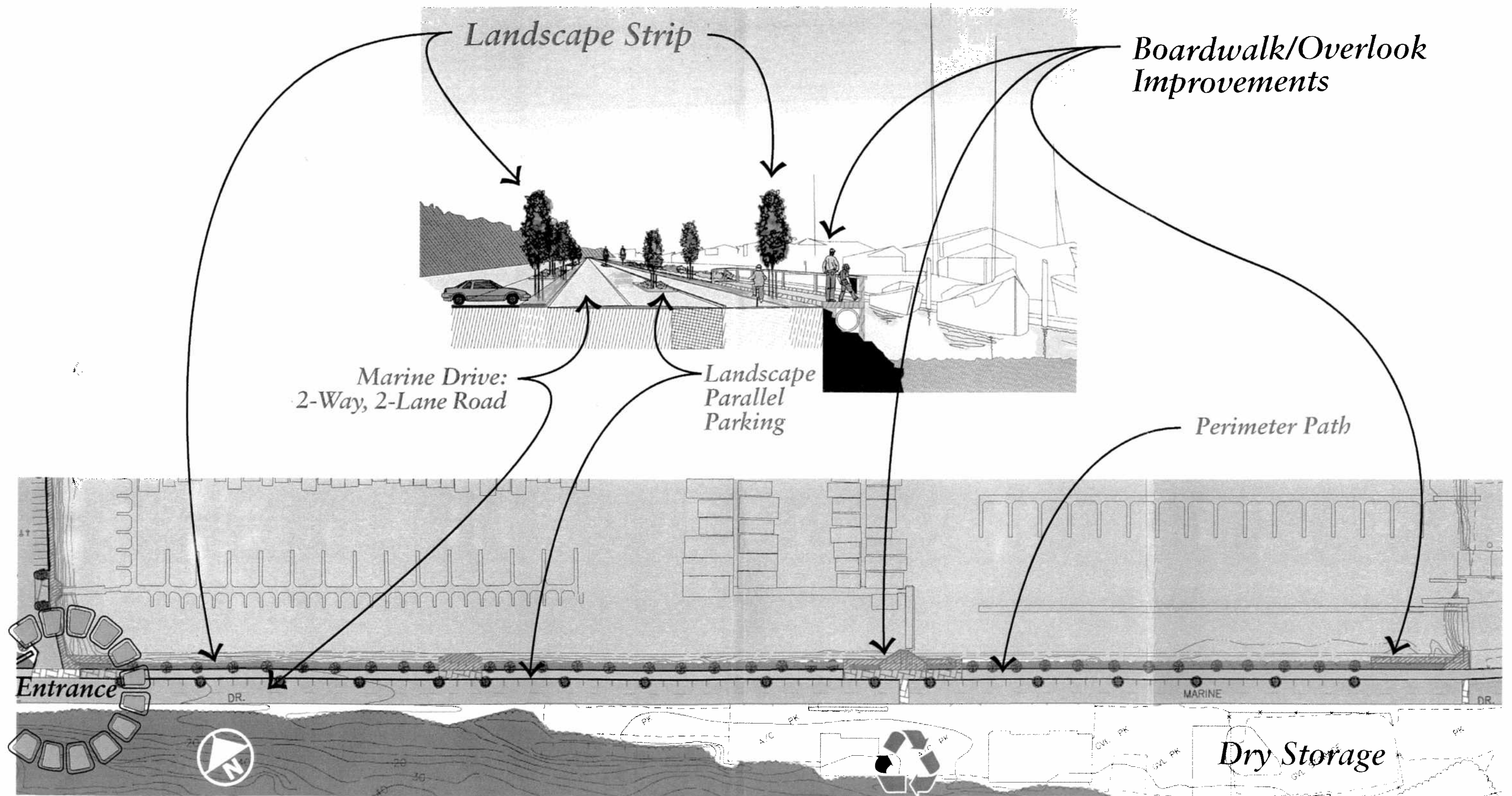
#### Opportunities:

1. *Provide a pathway element that follows the waterfront and connects the entrances of each moorage area.*
2. *Provide viewpoints at two to three locations along Marine Drive to overlook the water, conceal the water transmission line, and establish a unifying design element.*
3. *Create an entrance area where the boardwalk expands out to a small public overlook area at each dock access point. This entrance area could include any of the following elements:*
  - i. *Benches and other coordinated street furniture such as special lighting, signage or banners.*
  - ii. *Paving of fire lanes within parking areas and pedestrian crossings as needed to access the entrance areas and/or restroom facilities.*
  - iii. *Landscaping in the form of planter boxes or hanging baskets.*
  - iv. *Landscaped parking adjacent to these entrance areas.*
4. *Improve the sidewalk along Boat Haven Drive in front of businesses to provide continuity to the walkway and enhance and improve the appearance of this commercial area.*
5. *Landscape parking in the area of Boat Haven Drive.*
6. *Provide landscape visual screening between the Boat Haven and adjacent industrial uses.*
7. *Provide interpretive signage and/or artwork with a focus on the natural and cultural history of the area for the waterfront trail portion of the perimeter path.*



Boardwalk/Overlook  
Improvements







### Features for Further Evaluation:

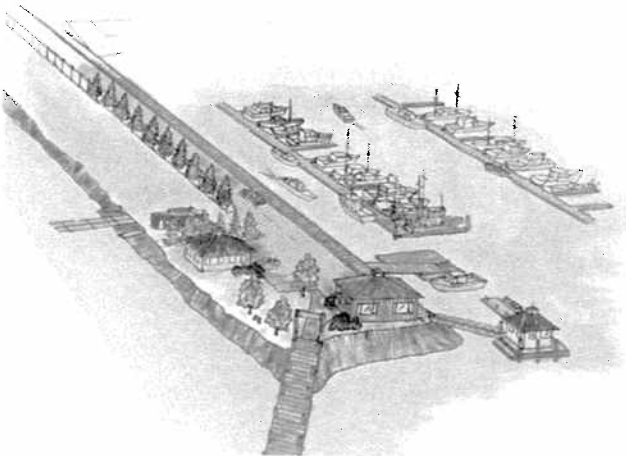
1. *Landscape design*
2. *Benches*
3. *Viewpoint "pocket parks"*
4. *Paving techniques*
5. *Park layout and design*
6. *Lighting Design*
7. *Interpretive Art Features*

### Opinion of Probable Cost\*:

*Range of \$650K - \$1 M - depending on type of surface used. Asphalt is the low end, pavers are on the high end.*

### East Breakwater Park

East Breakwater Park is located on the eastern peninsula adjacent to the east breakwater at the current site of the Harbor Master Building. A small grassy area adjacent to the Harbor Master building with a minimum number of parking spots now provides a limited "public access" and "public viewing" facility for the marina. Recommendations for improving the park and public access area and the adjacent open space and area are outlined. A rendering of one concept for a park at this site is shown below.



### Goals:

1. *Provide open space, public access, recreational, and viewpoint opportunities for the public and marina tenants.*
2. *Help improve the overall attractiveness of the Boat Haven.*
3. *Define pedestrian, bicycle, picnicking, and overlook uses within this area.*
4. *Minimize conflicts between pedestrian and vehicular traffic.*
5. *Improve flexibility and public use of open space.*

### Opportunities:

1. *Construct a new fishing pier on top of the existing breakwater.*
2. *Develop a handicapped accessible overlook as part of the new fishing pier.*
3. *Continue the Promenade Pathway along the front of the Harbormaster's office to the new fishing pier, culminating in a handicapped accessible overlook.*
4. *Use special paving in parking spaces adjacent to open space and the Promenade Pathway to provide a bicycle parking area and to expand the park area.*
5. *Provide benches and picnic tables in the park along the waterfront.*
6. *Use lighting and other street furniture coordinated with the Promenade Path and dock portals.*
7. *Landscape around Port buildings, parking, and storage areas.*
8. *Use landscaping to define areas between the marina and industrial uses adjacent to the Boat Haven.*
9. *Consider a piece of art as a focal point for this park.*

### Features for Further Evaluation:

1. *Landscape design*

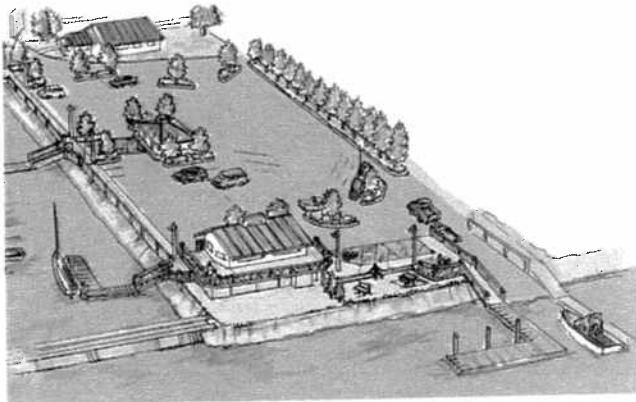
\* Opinion of Probable Costs includes a 20 percent contingency; 15 percent for permitting, and 15 percent for planning, engineering, and construction supervision services, as well as Washington State taxes for the project. These costs were utilized in the financial analysis for the project.

2. Signage
3. Paving techniques
4. Lighting Design
5. Public Art

**Opinion of Probable Cost\*:** \$104,000\*

### **Boat Ramp Park**

Boat Ramp Park is defined as the area around the boat ramp located on the west side of the marina. Boat Ramp Park includes the boat ramp, the boat ramp boarding floats, the small open space between the ramp and the yacht club, and the supporting parking area for the ramp and open space. Adjacent areas and related issues such as the installation of a tree buffer along the west edge of the Boat Haven, access, parking, and potential future yacht club development are all components of the facility that relate to this park area. A rendering of one vision for this area is shown below.



The Port recently received funding from the Interagency Committee on Outdoor Recreation (IAC) to make improvements to Boat Ramp Park.

#### **Goals:**

1. Provide open space, public access, recreational and viewpoint opportunities for the public and marina tenants.

2. Improvements should contribute to the overall attractiveness of the Boat Haven.
3. Define boating, pedestrian, bicycle, picnicking, and overlook uses of the area.
4. Minimize conflicts between pedestrian and vehicular traffic.
5. Improve flexibility and use of open space.
6. Maintain or enhance yacht club facilities and use.

#### **Opportunities:**

1. Continue the Promenade Path along the front of the yacht club to the boat ramp, culminating in a handicapped accessible overlook.
2. Provide informal seating along path near boat ramp.
3. Use special paving in parking spaces adjacent to open space.
4. Provide benches and picnic tables in grassy area near boat ramp.
5. Use lighting and other street furniture coordinated with the perimeter path and dock portals.
6. Develop a public/private partnership to remodel the yacht club to provide a second story meeting space with an option for a public observation deck wrapping around the outer edge of the second story.
7. Use landscape screening to provide privacy for yacht club areas.
8. Landscape around yacht club, parking, and storage areas.
9. Use landscaping to screen industrial uses adjacent to the Boat Haven.

\* Opinion of Probable Costs includes a 20 percent contingency; 15 percent for permitting, and 15 percent for planning, engineering, and construction supervision services, as well as Washington State taxes for the project. These costs were utilized in the financial analysis for the project.

# Chapter 6: Financial Analysis and Capital Facility Planning

The purpose of the financial assessment is to evaluate the ability of the Port of Port Angeles to finance the facility improvements being considered at the Port Angeles Boat Haven. The draft report presented below addresses the planning elements leading to these recommendations and evaluates the ability of the Boat Haven to generate sufficient funds to pay for the proposed improvements.

## Comprehensive Plan Elements

The relevant portions of previous phases of the Boat Haven Comprehensive Plan are reviewed in this section, focusing on demand and recommended slip layout.

### Slip Forecast

Property Counselors prepared a Market Analysis for Marina and Boatyard in December of 2000. This report estimated that the demand for slips would be:

“...With no change in the existing distribution of slips, the existing vacancies could accommodate growth through 2009 for 20’ to 40’ slips and 2001 for 40’ to 60’ slips (the 75 slip incremental demand by 2010 for 20’ to 40’ slips slightly exceeds the current 68 vacancies, while the 26 slip incremental demand by 2008 for 40’ to 60’ slips greatly exceeds the current six vacancies).

If a reconfiguration of the marina is financially feasible, the number of large slips should be increased. Based on the demand estimates for the year 2020, the distribution of demand implies that the mix of slips sizes be:

20-foot to 40-foot: 60%

Over 40-foot: 40%

BST Associates has reviewed the recommendations prepared by Property Counselors and agrees with the conclusion that the Boat Haven should be reconfigured to increase the number of larger slips and decrease the number of smaller slips, since this slip mix meets the demand of future boaters.

Property Counselors recommended a review of the financial feasibility of rebuilding the Boat Haven, which is being undertaken in this study.

### Slip Layout and Construction Cost Estimate

Reid Middleton prepared a series of alternative slip layout plans in conjunction with input from the Steering Committee. The Main Marina Consensus Plan, which is summarized in *Table 6-1*, slightly reduces the number of lineal feet of moorage from 20,180 lineal feet (existing) to 19,787 (proposed). However, the plan reconfigures the marina to better accommodate future demand by:

1. Decreasing the number of 30 foot slips by 100,
2. Increasing the number of 36-foot slips by 29,
3. Decreasing the number of 40-foot slips by 1,
4. Increasing the number of 50-foot slips by 32.

Under the proposed layout, the Boat Haven would have 56% of the slips up to 40 feet in length and 44% of the slips over 40 feet in length. This layout coincides with the demand forecast prepared by Property Counselors. The standard practice in

Comprehensive Plans is for an initial demand forecast to be estimated, which is then followed by a series of iterations of engineering concepts and public review on how best to implement the reconfiguration. In BST Associates opinion, this process was successfully implemented.

Length	Existing	Proposed	Difference
25	96	96	-
30	138	38	(100)
36	-	29	29
40	70	69	(1)
50	121	153	32
60	14	14	-
70	12	12	-
Total	451	411	(40)
Side Tie	3,110	3,113	3
<b>Total Lineal Feet</b>	<b>121</b>	<b>153</b>	<b>32</b>

Source: Reid Middleton, Master Plan Elements - East Boat Haven

The estimated cost for slip reconfiguration is expected to be approximately \$4.1 million, as shown in *Table 6-2*. The full cost of proposed improvements (including other elements of the plan) is estimated to be \$5.1 million.

Improvement	Estimated Cost
Main Marina Consensus Plan Slips et al	\$4,147,000
Fuel Pier Facility (excluding land side development costs)	\$415,000
Renovate Work Pier	\$375,000
New Work Float	\$114,000
<b>Subtotal</b>	<b>\$5,051,000</b>

Source: Reid Middleton, Concept Level Opinion of Probable Construction Costs Financial Assessment

This section provides a review of financial performance and assesses the Port's ability to finance the proposed improvements.

## Historical Financial Performance

As shown in *Table 6-3*, the Boat Haven has consistently operated at a profit after covering operating and maintenance costs, allocated costs and depreciation.

Permanent moorage fees are the largest source of revenue, consistently accounting for 76% of total revenues. The next largest sources of revenues are utilities, transient moorage fees, leases/rentals/other and liveboard fees. However, utilities are essentially breakeven (e.g., revenues cover costs). Excluding utilities, permanent moorage accounts for approximately 91% of remaining revenues.

	2000	2001	2002	2003	Average
<b>Component Revenues</b>					
Moorage					
Permanent	505,249	569,676	582,793	578,825	559,139
Transit	27,757	24,670	28,533	32,222	28,295
Live Aboard Fee	10,996	11,784	11,401	12,515	11,674
Other					
Utilities	97,455	104,674	129,594	128,771	115,124
Leases/Rentals/Other	14,698	14,557	20,009	22,540	17,951
<b>Total</b>	<b>656,155</b>	<b>725,361</b>	<b>772,331</b>	<b>774,873</b>	<b>732,180</b>
<b>Expenses</b>					
Salaries/Benefits/Taxes	165,313	167,866	157,018	164,181	163,595
Maintenance	61,676	39,315	85,795	60,767	61,888
Utilities	103,312	111,385	118,519	122,242	113,864
Other	63,184	33,775	44,778	57,723	49,865
<b>Sub-Total</b>	<b>393,485</b>	<b>352,340</b>	<b>406,110</b>	<b>404,913</b>	<b>389,212</b>
<b>Net Operating Revenue</b>	<b>262,670</b>	<b>373,021</b>	<b>366,221</b>	<b>369,960</b>	<b>342,968</b>
<b>Allocated Expenses</b>					
Allocated Direct Expenses	54,657	57,212	56,793	64,145	58,202
Allocated A&G Expenses	155,597	153,991	158,686	169,354	159,407
Depreciation	42,152	39,273	41,256	37,795	40,119
<b>Sub-Total</b>	<b>252,407</b>	<b>250,476</b>	<b>256,735</b>	<b>271,294</b>	<b>257,728</b>
<b>Net Income</b>	<b>10,263</b>	<b>122,545</b>	<b>109,486</b>	<b>98,666</b>	<b>85,240</b>

Source: Port of Port Angeles Financial Records Revenues

Revenues have grown at an average annual rate of 5.7% per year during the period 2000 through 2003. Much of the growth in revenues is attributable to increases in leases/rental fees and increased user payments for utilities. Permanent moorage revenues grew at 4.6%, due to both increases in moorage rates (which increased at 2.5% per year in recent years) and an increase in the number of boats moored at the Boat Haven (2.1% increase in the number of boats by length).

**Table 6-4**

**Recent Moorage Rate Increases  
at Port Angeles Boat Haven**

Year	Permanent Rate \$/Lineal Foot	Annual Increase
1997	2.72	-
1998	2.79	2.6%
1999	2.87	2.9%
2000	2.95	2.8%
2001	3.05	3.4%
2002	3.13	2.6%
2003	3.18	1.6%
2004	3.24	1.9%
<i>Average</i>	-	<b>2.5%</b>

Source: Port of Port Angeles Financial Records

**Expenses**

Expenses averaged \$389,000 per year during the past four years and have grown only slightly during this period (at 1.0% per year), which is less than the increase experienced at other marinas<sup>1</sup>.

The largest source of expense is payroll (including benefits and taxes), which averaged \$164,000 during the study period. The Port has a long-term relationship with an agent, who provides

24-hour operating service during seven days per week for the Port. This relationship appears to be cost effective in terms of providing quality service at relatively low cost.

The next largest expense is payment for utilities, which averaged \$114,000 per year during the past four years. Payment for utilities has increased at 5.8% per year.

The third largest source of expenses is maintenance, which remained relatively stable at \$62,000 per year during the past four years. Maintenance represents approximately 16% of total expenses, which is reasonable given the facility's age. However, it is expected that there is substantial deferred maintenance at the Boat Haven.

Other expenses (supplies, advertising, outside services, insurance, environmental compliance etc) averaged \$50,000 per year during the past four years.

**~ Allocated Expenses**

Allocated expenses have increased from \$252,000 in 2000 to \$272,000 in 2003 or at 2.4% per year between 2000 and 2003. Allocated expenses include direct expenses provided by administrative staff to the marina, a portion of administrative overhead and depreciation.

**~ Net Income**

The Boat Haven has performed very well financially, averaging \$85,000 per year in net income over the period 2000 through 2003.

**Expected Future Financial Performance**

This section evaluates the financial capability of the Boat Haven to generate sufficient funds to pay for the proposed improvements under consideration.

1. Operating and maintenance costs at the public marinas typically grow at 4% to 8% per year.



## Moorage Demand

The Boat Haven currently has approximately 377 permanent tenants (302 permanent tenants and 75 boat houses) and 520 slips, amounting to a vacancy rate of 28%. In addition, there is no waiting list at the Boat Haven. The proposed reconfiguration will allow the Boat Haven to capture more large boats than would

be allowed under the current configuration.

As shown in *Table 6-5*, BST Associates estimates that the demand for moorage at the Boat Haven could reach 387 boats in 2011, based upon projected growth rates ranging from 1.3% per year for smaller boats up to 4.1% per year for larger boats.

**Table 6-5**

*Demand Forecast for Boat Haven (Number of Boats by Slip Length)*

Length	2004	2005	2006	2007	2008	2009	2010	CAGR
<20	5	5	5	5	5	5	5	1.3%
20-29	46	47	47	48	48	49	50	1.3%
30-39	108	109	111	112	114	115	117	1.3%
40-49	73	74	76	77	79	80	82	1.9%
50-59	56	57	59	60	62	64	65	2.6%
60-69	6	6	6	6	7	7	7	2.6%
70+	8	8	9	9	9	10	10	4.1%
<b>Total</b>	<b>302</b>	<b>307</b>	<b>313</b>	<b>319</b>	<b>324</b>	<b>330</b>	<b>336</b>	

Note: CAGR means compound annual growth rate

Source: BST Associates, based on Port records for April 2004

## Pro Forma Analysis

The expected financial performance of the Boat Haven is presented in Table 6-6, which estimates that the net income will increase from \$165,000 in 2004 to \$252,000 in 2011.

Table 6-6

*Pro Forma Using Existing Moorage Rate Basis*

Category	2004	2005	2006	2007	2008	2009	2010	2011
<b>Revenues</b>								
Moorage								
Permanent	616,656	641,056	666,499	693,032	720,705	749,570	779,683	811,101
Transient	32,960	33,949	34,967	36,016	37,097	38,210	39,356	40,537
Live Aboard Fee	13,390	13,792	14,205	14,632	15,071	15,523	15,988	16,468
Other								
Utilities	132,870	136,856	140,962	145,191	149,546	154,033	158,654	163,413
Leases/ Rentals/Other	23,690	24,401	25,133	25,887	26,663	27,463	28,287	29,136
<b>Total</b>	<b>819,566</b>	<b>850,053</b>	<b>881,766</b>	<b>914,757</b>	<b>949,082</b>	<b>984,799</b>	<b>1,021,968</b>	<b>1,060,654</b>
<b>Expenses</b>								
Salaries/Benefits/Taxes								
Agent	117,600	117,600	117,600	158,045	158,045	158,045	158,045	158,045
Other	47,792	49,226	50,703	52,224	53,790	55,404	57,066	58,778
<b>Sub-Total</b>	<b>165,392</b>	<b>166,826</b>	<b>168,303</b>	<b>210,269</b>	<b>211,835</b>	<b>213,449</b>	<b>215,111</b>	<b>216,823</b>
Maintenance	62,590	64,467	66,401	68,393	70,445	72,559	74,735	74,735
Utilities	125,909	129,687	133,577	137,585	141,712	145,964	150,342	150,342
Other	59,454	61,238	63,075	64,967	66,916	68,924	70,991	70,991
<b>Sub-Total</b>	<b>413,345</b>	<b>422,218</b>	<b>431,356</b>	<b>481,214</b>	<b>490,909</b>	<b>500,895</b>	<b>511,180</b>	<b>512,892</b>
<b>Net Operating Revenue</b>	<b>406,221</b>	<b>427,836</b>	<b>450,410</b>	<b>433,543</b>	<b>458,173</b>	<b>483,904</b>	<b>510,788</b>	<b>547,762</b>
<b>Allocated Expenses</b>								
Allocated Direct Exp.	66,069	68,051	70,093	72,196	74,362	76,592	78,890	81,257
Allocated A&G Exp.	174,435	179,668	185,058	190,610	196,328	202,218	208,284	214,533
<b>Sub-Total</b>	<b>240,504</b>	<b>247,719</b>	<b>255,151</b>	<b>262,805</b>	<b>270,689</b>	<b>278,810</b>	<b>287,174</b>	<b>295,790</b>
<b>Net Income</b>	<b>165,717</b>	<b>180,117</b>	<b>195,259</b>	<b>170,738</b>	<b>187,483</b>	<b>205,094</b>	<b>223,614</b>	<b>251,972</b>
<b>Revenue available for debt service (with coverage at 1.5)</b>	<b>110,478</b>	<b>120,078</b>	<b>130,173</b>	<b>113,825</b>	<b>124,989</b>	<b>136,729</b>	<b>149,076</b>	<b>167,982</b>

Note: This analysis assumes that revenues from permanent moorage rates increase at 2.5% per year (as has occurred during the recent past), and other revenue sources increase at 3% per year. The pro forma assumes that expenses increase as follows. The fee for the agent increases in 2007, and other expenses increase at 3% per year. Finally, the income stream after 2011 is held constant at \$245,872. Source: BST Associates

**Table 6-7**

<b>Rate Assessment to Fund Improvements</b>			
	Existing Rates	Rate Increase Required to Fund	
		Main Marina Consensus Plan	All Improvements
Rate (in 2004 \$)	3.24	4.24	4.83
Increase over existing rates	-	31%	49%
Bond Capacity	2,600,000	4,200,000	5,100,000
Cost of Main Marina Consensus Plan	4,150,000	4,150,000	4,150,000
<b>(Shortfall) / Surplus</b>	<b>(1,550,000)</b>	<b>50,000</b>	<b>950,000</b>
Cost of all Marina Improvements	5,051,000	5,051,000	5,051,000
<b>(Shortfall) / Surplus</b>	<b>(2,451,000)</b>	<b>(851,000)</b>	<b>49,000</b>

Source: BST Associates

The expected bond capacity of the Boat Haven under the existing rate structure is expected to be \$1.7 million, using a debt service coverage factor of 1.5, a term of 20 years and an expected interest rate of 5%. This level of debt service is insufficient to cover the capital requirements proposed for the Boat Haven, which are expected to be \$4.1 million for moorage reconstruction (e.g., Main Marina Consensus Plan) and \$5.0 million including both reconstruction and other amenities. The shortfall for funding under the existing rate structure is:

- ~ **\$1.55 million for the Main Marina Consensus Plan (e.g., bond capacity of \$2.6 million less capital cost of \$4.15 million),**
- ~ **\$2.45 million for all Marina improvements (e.g., bond capacity of \$2.6 million less capital cost of \$5.05 million).**

Rates would need to increase in order to fund the proposed capital improvements:

- ~ **To fund the Main Marina Consensus Plan, rates would need to be 31% higher than today or at \$4.24 per lineal foot,**

- ~ **To fund all of the Marina Improvements, rates would need to be 49% higher than today or at \$4.83 per lineal foot.**

Rates at these levels would bring the Boat Haven into a comparable range with other marina, for example:

- ~ **John Wayne Marina (\$4.39 to \$5.35 per foot depending on length of boat),**
- ~ **Port Townsend Boat Haven (\$4.95 per lineal foot),**
- ~ **Port Ludlow (\$5.72 to \$6.77 per lineal foot depending on length of boat for residents), and numerous other marinas in northern Puget Sound.**

Port Angeles Boat Haven Advisory Committee concurs with adjusting the rate structure to support redevelopment. The Committee recommends to the Port Commission incremental adjustments over a fixed period of time to reach the required rate to pay for redevelopment expenditures.

## Recommendations

The Boat Haven is in the same condition as many other marinas that were built more than 30 years ago. Insufficient funds have been allocated to replace the facility in a manner that meets expected future market conditions.

In order to improve the self-sustainability of the Boat Haven, four recommendations should be considered:

### Operations

Decrease operating and/or allocated costs. However, operating costs appear to be in line with other marinas and may not be able to be further reduced.

Increase moorage rates and consider square footage rates, which should be considered within the context of competitive market rates.

### Capital Budgeting

Capital projects should be re-evaluated and prioritized to reduce the overall capital budget. Opportunities to phase improvements should also be considered.

The Port should seek grant funding but it should be recognized that grant funding for marinas is typically limited to public access, transient moorage facilities and vessel pump-out facilities. There may, however, be an opportunity to obtain Washington State CERB grants and/or US Economic Development Administration grants to help retain and enhance commercial activities at the Boat Haven.

Given the inherent limitations of decreasing costs and obtaining grant funds, the Port should consider raising permanent moorage rates. We would recommend a square-foot based rate structure that covers all operating and maintenance costs, allocated overhead and annualized cost replacement of the facility.

The Cost Replacement rate model works as follows:

1. Determine annual costs
2. Direct operating and maintenance expenses
3. General administrative allocations
4. Adjust to next year based upon historical cost trends.
5. Determine Cost replacement values
6. Annualize based on asset value and longevity of assets.
7. Adjust to next year based upon construction cost index.
8. Contingency Reserve (established as a % of asset value)
9. Total cost to recover (add above three components)
10. Divide by square feet of moorage space and by 12 to obtain \$/Sf/month
11. Recommend a phase in process to allow tenants to adjust.

The reasons for converting to a cost recovery rate model on a square-foot basis are:

1. First, lineal rates are unfair because smaller boats pay higher rates than longer boats when a flat lineal rate is applied.
2. Second, the cost recovery model structure is simple, straightforward, and easy to implement.
3. Third, rates can be phased in over time to minimize the impact on boaters

Port of Port Angeles - Project Priority Listings - Capital Facilities Planning

High: 1 - 5 years  
 Medium: 5 - 10 years  
 Low: 10 - 15 years

Project	Cost	Priority (L, M, H)	Potential Funding Sources
Marina Float Reconfiguration- East End and West End Expansion of Q pier.	\$4.17 million	H Utilities and float conditions extremely poor. Maintenance dollars to increase.	Revenue Bonds w/rate adjustment or GO Bond. Could be phased in 2 - 3 phases. More expensive because increased mobilization and displacement costs. Grants: ED Grants because commercial. BIG for transient.
Recycling Centers (2)	\$20,000	H	Operating Revenue.
Renovation of Existing Work Pier	\$375,000	M	GO Bond or Revenue Bond. Grants: US EDA Grants, CERB grants, Forest Service Grants - Displaced Timber Dollars
Upland Entrance - East. Includes road realignment.	\$44,000	M	Infrastructure Improvements Grants: ISTE, T21
Upland Entrance - West	\$27,000	M	Infrastructure Improvements Grants: ISTE, T21
Parking Facility		M	Operating Revenue.
Multi-Use Facility - Single Story Building (3,000 sf.)	\$630,000	M	Operating Revenue.

Port of Port Angeles - Project Priority Listings - Capital Facilities Planning

High: 1 - 5 years  
Medium: 5 - 10 years  
Low: 10 - 15 years

Project	Cost	Priority (L, M, H)	Potential Funding Sources
Multi-Use Facility - 2-Story Building (6,000 sf.)	\$1,424,000	M	Operating Revenue.
Restroom		L	
Perimeter Promenade Path	\$870,000 -	L to M	Grants: IAC and ALEA.
New Work Float	\$114,000	L Depends upon increased demand from commercial users.	GO Bond or Revenue Bond. Grants: US EDA Grants, CERB grants, Forest Service Grants - Displaced Timber Dollars
Public Park	\$104,000	L	Grants: IAC and ALEA.
Fuel Pier Facility - New Facility for Commercial Facilities:	\$415,000	L	GO Bond or Revenue Bond.

## Conclusion:

The Port Angeles Boat Haven is at a turning point. While most of the in-water facilities are generally in good condition, attention should be given to the facility to ensure a long life. The bulk of any funds spent on Boat Haven will likely be dedicated to the in-water portion of the facility. However, the uplands provide great opportunities, and not necessarily expensive ones. Improving the overall physical look and conditions of the uplands could be achieved over time at relatively reasonable costs including potential grant funding for public access facilities.

Our investigation of the in-water infrastructure for this project found that the older eastern portions of the marina moorage system are in generally good condition given their age. It is likely that with some additional piling installation, the float systems have approximately ten years life remaining. The western portion of the marina system was upgraded in 1985 and in the early 90's. This portion of the marina is in relatively good condition.

However, the market demand study for the Boat Haven indicates that the facility could have a higher occupancy and generate more income with a reconfiguration of the slip sizes. Given that even a renovation of an existing moorage facility requires a detailed financial plan and a lengthy permitting process, now is the time to determine a preferred redevelopment plan for the marina. With this preferred redevelopment plan, the Port can proceed with confidence in a planned manner in the renovation of the facility.

Overall occupancy of the marina has declined over the past few years. The current vacancy rate at the marina is approximately 30 percent. Almost 80 percent of the tenants within the marina are from local Clallum County. Vacancy increases at the marina are due in part to the opening of the Neah Bay Marina, and the decline in commercial

and sport fishing. In recent years, the overall total boat registration in Clallam County has decreased but the number of registered boats over 40 feet has increased. Future moorage market demands have been predicted utilizing project growth within the county and the trend to larger size vessels.

Based on the predicted growth, the proposed marina layout provides for larger slips than what is currently provided. The layout primarily focuses on the East End of the marina where the maintenance needs are the greatest. Other in-water items identified in the master plan include renovation of the existing work pier, a new work float and a new fueling facility. None of these items are as critical as upgrade and reconfiguration of the floats.

The Port must decide how to proceed with this work. A gap in funding exists between the proposed cost for in-water work and potential revenue at the current rate structure. Although there are opportunities to phase construction, there would still remain a gap. Given the type of marina project proposed, limited grant funding would be available to the Port to cover this funding gap.

By contrast, upland elements of the master plan including the promenade and park features are opportunities for grant funding from state and federal agencies. These improvements may be seen as opportunities to enhance the overall character of the facility.

The Port of Port Angeles has an important facility in the Boat Haven. However, the facilities must be maintained. The Port Angeles Boat Haven master plan examines all existing conditions for both in-water and upland facilities and identifies a potential plan of action for the next 10 – 15 years for the facility. This plan provides a road map for flexible implementation of various elements and projects to ensure the longevity and vitality of this facility.

# Port Angeles Boat Haven Advisory Committee Summary Issues

May 8, 2003

Prepared by Nicole Faghin, Reid Middleton

This document attempts to consolidate the critical master planning issues discussed by the PABHAC over the course of approximately 2 years of meetings. The information was taken directly from minutes at those meetings. Many of the discussion revolved around maintenance issues. Those have not been included unless they related to an overall planning recommendation raised by the committee. For a full review of issues discussed by the Advisory Committee, see the minutes prepared and distributed by the Port Staff.

## 1. Identified Goals for Boat Haven

- Provide jobs for local community and insure proper land use (5/8/01)
- Focus first on immediate concerns and then upland concerns (5/22/01)
- Get one, single permit for a 10 year period to cover all proposed projects (5/22/01)
- Aesthetics, public access, and downtown signage are very important (5/22/01)
- The key should be to identify goals. But, if we give too fine a direction to a future consultant, we may lose a valuable part of the master planning process - they may just give back to us the specific things we told them, and the process becomes designing, not planning; the key should be to identify goals (4/30/02)

## 2. Alternative Visions

- **STMA Waterfront Vision (5/8/01)**
  - Build up east boat haven as shipyard/ship repair, no change to west boat haven
  - Potential industries: More topside repair and better use of travel-lift
  - More companies like Platypus Marine and Pacific Marine Field Service needed
  - Demand will be there as long as oil tankers keep plying the strait
  - Develop accommodations for 5 berths for ship repair, including 1 floating dry dock
  - Pier-side boat repair
  - Key idea: Build new recreational marina @ Rayonier, boat haven stays a 'working' marina
  - Estimate permit process to be completed in 3-4 yrs as a "zonal permit" for entire area
  - DOE/DNR/Fishers have reviewed general proposal already
  - Mitigation: remove old pilings in 1 area while adding equal # of new ones elsewhere
  - "Dressing up" boat haven per RM won't eliminate truck traffic, dust, noise, etc.
  - Estimated cost: \$15 million; \$20 million with covered moorage
  - Estimated rental rates: \$3 - \$3.75 per lineal foot
- **Tom Beard's Vision of Boat Haven (6/19/01)**  
Note: Refer to Tom's letter (included w/ June 5th minutes) for complete details of his plan



- Water changes: Relocate M/N docks, eliminating 20' slips & adding 30' slips on M
  - Remove boathouses from O and establish 40' slips,
  - Remove boathouses from I/J and construct one big boat shed without individual units
  - Keep boathouses on K/L (will provide visual block between pleasure/commercial areas)
  - Convert G/H into guest slips and install seaplane dock at head of G/H
  - Puts transient/plane/fuel/harbor master in same area where marine trades will be built up
  - Follow RM perimeter promenade path west/south aesthetic improvement plans
  - Likes idea of two story yacht club facility w/complete restroom facilities below
  - Expand east BH parking by using portion of area from log yard over to Port's workshops
  - Create expansion of marine services yard for large boats east of Port workshops
  - Use Port's travel lift and eliminate Marine Rail
  - Remove Hegg & Hegg and restaurant buildings
  - Develop public marina trade village along jetty to harbor master's office
- ***Chuck Faires' Vision of Boat Haven***
    - Note: Refer to Chuck's letter (included w/ May 29th minutes) for complete plan details
    - In general agreement with Tom's ideas, including upland plans
      - Move bathroom emphasis to yacht club facility; another two-story, waterfront public facility would be a big plus (weddings, anniversaries, etc.)
    - Simply cannot rent out available 20' slips; add 40' fingers on O dock and 60' slips on E/F
    - Agrees with Tom's plans for I/J, K/L docks
    - Add diagonal north/south fuel dock for big boats next to harbor master's office
    - They have a tough time making the corner to get fuel
    - Keep 70 & 300 ton lifts, remove 200 ton Marine Rail & use real estate more productively
    - Work on 65'+ length boats OK w/boatyard permit if it is less than 10% of total yard activity
    - Establish small pier in area of existing Marine Rail for minor boat repair (run out a crane, pull an engine, etc.)
  - ***Mel Rudin's Vision of Boat Haven (6/261)***
    - Provided detailed, drawn-to-scale boat haven diagram that will be copied and provided to committee members at the next meeting
      - Incorporated many ideas already discussed/presented with goal of keeping costs down
      - Agrees with full restroom/laundry/showers on ground floor of two story yacht club facility
      - Put 50' slips on O/P, 40' slips on M/N and move M/N 10' north
      - Single, covered moorage for I/J, K/L boathouses; 60' slips; move entryway more to center

- 30' slips in A/B/C, side ties on D; shorten end of E/F to maintain 90' spacing
- Crane pier between A/B, C/D or on east C/D
- Concern that may need longer strip on A/B to maneuver with crane pier in place
- Diagonal fuel float with float plane tie-up by harbormaster entrance a good idea
- Possibly flip maintenance float to the west to provide more maneuvering room
- Concern about west winds pinning boats to dock, tough to cast off after refueling
- Place saddles over Rayonier water pipe, add connecting planks & build boardwalk
- Don't take down Hegg & Hegg, but restaurant could be moved
- Building Marina Village along roadway to harbormaster's office is a good idea
- Discussion on whether permitting would allow overhanging, cantilevered buildings
- Dept of Fish & Wildlife difference on set-back
- Working marina vs. environmentally endangered area
- Less expensive to keep buildings on the north side (plumbing, electrical, etc.)
- As log yard operations move west, east maintenance area will open up for dry storage
- Will require relatively long drive for travel lift from boat pickup to dry storage
- Posting signs (like Port Townsend does) would help with any traffic safety problems
- Parking provided between maintenance area and east boat haven, north of boatyard
- Waterfront trail to harbormaster's office
- PABHAC did have a plan, even though the specifics were not completely ironed out
  - One major, unresolved issue: covered moorage and future plans for boat houses
  - Committee was not effectively represented by boat house owners in the past
  - Current committee members take strong issue with previous committee minutes indicating a general consensus to "eliminate boat houses" (8/6/02)

**The following items detailed below are a consolidation of Key Issues discussed over the course of 28 Advisory Committee Meetings.**

### **3. Floats/Slip Sizes**

- Eliminate 20' slips and add 40' slips to west end (5/22/01)
- Reconfiguring now for 30' slips will add revenue now (5/22/01)
- Modify 20' slips, but don't completely eliminate this segment of the market (5/22/01)
- Change fairways, add larger slips, initiate covered moorage, upgrade fire protection, and then begin upland improvements (5/29/01)
- Discussion on whether B dock should go back to side-tie only (7/10/01)
- Remove unused M dock finger ties now and add side ties to provide immediate revenue
  - Idea to use removed finger ties to build fuel float dock extension probably won't work since they are for "light duty" only (7/17/01)
- There are zero people on the 40' waiting list, there are 3 open 40' slips, why build more? The Commission will ask this question and we need to have an answer. (6/4/02)
- For various reasons, people are willing to pay more to moor their boats in west BH. This fact should "reinforce the Master Plan and encourage any effort to redirect or acquire revenue to improve the east side" (7/2/02)

- YMCA Youth Sailing Club interests: There's a shortage of appropriate (40'-50') slips in West BH, but given the Port's financial situation, we may have to focus on small issues instead of big \$ master plan
- Need more turning room on "C" float...possibly remove a couple fingers. (4/8/03)
- Switch "M" float slips from 30' to 25' (4/8/03)
- Keep enough room in the master plan for commercial operations to continue at PABH
  - Federal \$ built the marina for the specific purpose of facilitating commercial operations
  - Consider placing all commercial ops on one finger like at JWM (it's working OK there)
  - A Port "Commercial Use" policy would be nice to have (4/8/03)
- 60' boats only addressed via side-tie spaces in CPD (unless deliberately placed in 50' slip) Should "G" float be changed from 50' to 60' slips? (4/8/03)

#### 4. Boat Houses

- Eliminate west boat houses in exchange for covered moorage on A, C, & D (5/22/01)
- Over 7-10 yr. period, slowly eliminate boathouses & move to covered moorage, phase-in period gives people time to adjust and make the switch, Commissioners would be under heavy public pressure not to do this, include boathouse rules in general boat haven rules & regulations (5/29/01)
- If Port provides \$ for boathouse disposition now vs. tenant-paid disposition later, boathouse owners would have an incentive to voluntarily move out/relocate earlier, phased approach would spread out costs to Port (5/29/01)
- Everyone" wants boathouses to eventually go; do we have more than 30 day obligation? (6/12/01)
- Start buyback of boathouses now by reducing current rent  
For example, reduce rent \$30/month over 100 months yields \$3000 to buy boathouse  
Port leases back purchased boat houses, has access to them, and can inspect, change, etc.  
Require owners to take out renters/lease insurance for liabilities (6/26/01)
- Committee has considered revenue impact of change to sheds (8/7/01)
- Sheds eliminate hassle/cost of continual code/standards enforcement & also improve safety (8/7/01)
- Many of us want to keep boathouses/shelters, but also want to add standards (11/5/02)  
-Sheds can be both structurally sound and aesthetically pleasing
- Need some plan in place for Port to acquire boathouses before pursuing MP. Start now with recommendations to Commission so the Port has control of boathouses. (12/5/02)
- Boathouse owners will meet separately to develop items to present at the workshop, and should potentially develop own standards for existing boathouses. (4/8/03)
- Port ownership of boathouses not supported by some PABHAC members. (4/8/03)

#### 5. Restrooms/Showers

- Need separate restrooms for boatyard and marina on east side. (5/22/01)
- Restaurant should have their own bathroom. (5/22/01)
- Committee wants to apply for BIG grant \$ to pursue bigger (2 showers, washer & dryer) restroom facility on existing west site (similar to east layout), not just one shower

-Smaller, one shower project would be inadequate, eventually replaced, & waste of \$  
Use existing east restroom plan and essentially update costs & duplicate for west  
project (6/12/01)

- Marc Connelly suggested moving restroom location from middle of parking lot to the edge of an extended pedestrian connection to Pocket Park. This move triggers other grant possibilities, frees up parking and improves aesthetics. Promoting idea of a "park" rather than just a restroom benefits boat haven, city & the Port. Could tie in with previous notion of two story yacht club with restroom, showers, laundry facilities on lower floor and public meeting room above. (6/19/01)
- Card locks for tenants for bathrooms and showers would be nice (4/8/03)
- When considering west restrooms/laundry, add consideration of improved garbage facilities (4/8/03)

#### **6. Trash Issues**

- Could we combine all current garbage collection at PABH into one central location? (general answer was No). (5/14/02)
- Problem is starting to get out of control...consider security cameras, chain link fence  
Could get bigger containers (instead of the smaller round ones)  
Could purchase a compactor-container (similar to the one at the Landing) (5/14/02)

#### **7. Security**

- Locations for security: Showers and docks. (12/5/02)
- Would like a combination lock, keys, magnetic swipe card, anything to improve security (12/5/02)
- Change locks on east BH and lock them earlier (starting at 8 PM in winter months) (12/5/02)

#### **8. Yacht Club**

- Provide 2 story building @ yacht club equipped with public meeting rooms. Do not, however, block the view of the harbor (5/22/01)
- Port received a request to extent the Yacht Club lease for an additional 10 years. MSC unanimously (Jeff R. abstained) to approve of Yacht Club's requested lease extension. (7/2/02)

#### **9. Path/Promenade/Park Issues**

- Start with inexpensive path/promenade, get rid of creosote (5/8/01)
- Provide pocket park & promenade
- A boardwalk and benches over the pipeline will allow the city to move the sidewalk and widen the street (4/8/03)

#### **10. Harbor Master Office and Vicinity – East Side**

- Provide "marine village" mixed used businesses along way to harbormaster's office (5/22/01)
- Re-emphasis on desire at Breakwater for "Pike's Place" type market with small shops, etc. (5/29/01)

- Idea of Marina Village was generally accepted by the advisory committee (6/19/01)

#### **11. Signage**

- Reader boards providing locations/directions/information would be a nice addition (5/22/01)
- Request port in-kind removal/repair/replacement of marina main entrance sign  
Current one is in bad shape; new one should have lighting for night viewing  
Jeff will coordinate with public works; Jack volunteered to help with removal (7/17/01)
- Breakwater entrance/ramp heads signage (\$5k) and access pier upgrade (\$6.5k) in the budget are not part of phase II master plan signage. (5/14/02)

#### **12. Community Involvement Issues:**

- Need to involve city/county/chamber/EDC/business community in promoting boat haven (5/8/01)

#### **13. Dry Storage**

- Need more dry storage (5/22/01)

#### **14. Dingy Docks**

- Provide dinghy dock and off-season float at west boat ramp to promote youth sailing. (5/22/01)

#### **15. West Side Parking**

- Consider parking boat trailers south of Marine Drive (6/12/01)

#### **16. East Side Area**

- Need east side pier-side repair as well as upland repair (5/22/01)
- East end will always have upland repairs but won't be exclusively industrial/commercial (6/12/01)

#### **17. Log Yard**

- Pave log yard portion of the jetty instead of paying for water truck & salary (5/22/01)

#### **18. Fire Safety Issues**

- Many concerns about fire safety on boat houses (electrical, fuel, wiring, illegal activities) (6/5/01)
  - Fire department does not have authority on its own to inspect private boathouses, but they can inspect/walk through public common areas
  - The Port, depending on contract details, can probably inspect and invite fire department along for the inspection

#### **19. Marketing Issues**

- After developing consensus committee “vision,” next important step will be marketing. Tie in boat haven with things going on downtown, with the rest of the city & community (6/26/0)

## 20. Grants

- Port should hire a person devoted to grant development; other ports are going after federal \$; local banks are mandated to re-invest in community development (4/30/02)

## 21. Survey Results (2/03)

- Dock security is #1 issue
- Restroom facilities, #2 issue
- Parking Security, #3 issue

## 22. Other Key Issues

- Committee members do not want a “maintenance mode” approach or a costly “bells & whistles” spending approach. They would like one that spends a substantial, but not huge, amount of money (up to 1 million?) on boat haven improvements that we really need, that provide a large “bang for the buck,” and will make a lasting impact and improvement for the next 20 years. (5/8/01)
- Need to continue to treat commercial enterprises equally with recreational activities (5/29/01)
- Relationship of PABH to Elwha Tribe’s Ediz Hook Marina:
  - The Tribe has always approached discussions related to Ediz Hook from the perspective that it was once part of the Tribe’s original homeland (two villages in the PA harbor area)
  - In light of the “Elwha Act of 1992” and agreements with the City of PA, the Tribe will enter into a long term lease with Mr. Brian McGuire for a yacht marina (housing a total of 57 covered slips for high end yachts) after the land is transferred to the Tribe in trust status
  - The Tribe will utilize part of the facility for cultural and economic development purposes
  - What effect would construction of this marina have on PABH?

### Other issues discussed:

#### 23. Permitting

#### 24. Vacancy Rates

#### 25. Maintenance Issues

#### 26. Capital Plans

**APPENDIX B  
BOAT HAVEN BOATHOUSE POLICIES**

**I. BOATHOUSE POLICIES**

**A. POLICY STATEMENT**

In an effort to standardize the appearance and construction of private boathouses, for the purpose of Marina safety and aesthetics, the Port of Port Angeles has established guidelines for the remodeling or reconstruction of these facilities. All boathouse owners must adhere to these guidelines. Any boathouse owner in violation of safety and appearance regulations will be contacted by Marina Management and appropriate corrections will be made in accordance with established guidelines.

**B. RESPONSIBILITIES OF BOATHOUSE OWNER**

1. The exterior appearance of the boathouse must be kept neat and owner will paint boathouse when the appearance dictates such action. All boathouses are to be painted Champion Metal grey or have silver/gray aluminum or galvanized steel siding. Existing boathouses that are beige or blue will be grandfathered until they need repainting. When repainted, they shall be Champion Metal grey. All boathouse roof material will be white or match the boathouse siding. Skylights or sidelights will be clear or translucent white. A clear and unobstructed window on the dockside shall be installed on all boathouses, and the recommended window size is 24" wide x 36" high. The window may be in the personnel door or on the face of the boathouse.
2. Adequate flotation must be installed and maintained to ensure the stability of owner's boathouse and the safety of neighboring boathouses.
3. The boathouse owner is responsible for supplying and maintaining the weatherhead and wire for connection to the main power source. All wiring shall be installed in accordance with the current Uniform Electrical Code, inspected by the Electrical inspector and approved before connection to the main power source.
4. Installation and upkeep of the water hose or other connection to the main water line will be the responsibility of the boathouse owner. No permanent connection to the Port water mains will be allowed. Connections to the water service shall be disconnected when water tanks have been filled.
5. The boathouse owner is responsible for providing and maintaining chain and connectors on the boathouse for attachment to the dock and must be

## PORT OF PORT ANGELES BOATHOUSE POLICIES

approved by Harbormaster. The boathouse must have adequate structural capabilities to accept berthage attachments.

6. Repair and replacement of piling and piling rub blocks, attached at the rear of the boathouse, are the responsibility of the boathouse owner.
7. Removal of snow build-up from rooftops of private boathouses will be the responsibility of the boathouse owner.
8. The use of private boathouses for commercial purposes must be approved in advance, in writing, by the Harbormaster.
9. No part of the boat will extend beyond the boathouse enclosure.
10. Boathouse owners, upon request, will provide the Harbormaster and the Port Angeles Fire Department access to their boathouses for the purpose of fire and safety inspection, compliance with environmental regulations and moorage compliance.
11. Boathouse owners shall comply with these standards not later than three years from date of adoption by the Port of Port Angeles Commission. Failure to meet these standards may result in cancellation of moorage agreement.

### **C. RESPONSIBILITIES OF PORT**

1. The Port will be responsible for supplying and maintaining the main power source.
2. The Port will be responsible for maintaining water lines on the docks.
3. The Port will be responsible for providing connectors on the float for attaching the boathouse to the dock. The Port will execute emergency repairs to boathouse attachments/chains, or will make such repairs on request, at the expense of the boathouse owner.

### **D. COMPLIANCE WITH REGULATIONS**

A boathouse owner shall maintain his/her boathouse in a safe and attractive condition, consistent with the Port's regulations, policies, and procedures. When complaints or discrepancies arise, the Harbormaster should be informed. He will either deal with the problem directly or refer the matter to the Compliance Committee. If the issue remains unresolved, the Harbormaster or Compliance Committee will refer the case to the Marina Manager or Executive Director for final resolution.



## PORT OF PORT ANGELES BOATHOUSE POLICIES

The Compliance Committee is made up of five boathouse owner members: two 3-year positions, two 2-year positions, and one 1-year position.

### **E. RESIDENCY RESTRICTION**

Residency restrictions reflect section 22 of the November 1, 1998 PABH Rules and Regulations.

Boats used for the sole purpose of living aboard will not be permitted in the Boat Haven. Permission to live aboard a vessel for security purposes shall not be construed to create a landlord/tenant relationship under Chapter 59.18 RCW.

### **F. REBUILDING, REMODELING OR REPLACEMENT**

The rebuilding, exterior remodeling, or replacement of private boathouses must be approved in advance, in writing, by the Port Executive Director. A copy of shop drawings must accompany all requests to rebuild or remodel privately owned boathouses. The City of Port Angeles Building Department requires building permits for new construction or remodels. Copies of required permits shall be provided to the Port before construction or repairs are undertaken.

## **II. BOATHOUSE SPECIFICATIONS**

### **A. AUTHORIZATION TO BUILD**

Detailed engineering plans, stamped by a Civil Engineer licensed in the State of Washington, must be submitted to the Port. Plans must be approved in writing by Port Executive Director. Failure to acquire prior authorization from the Port's staff may result in work stoppage and possible eviction. Authorization to build given by the Port shall not guarantee any minimum tenancy. All tenancies for boathouses and berthage are terminable per the moorage agreement.

### **B. BUILDING CODES**

All construction involving private boathouses shall conform to applicable codes of the City of Port Angeles and the Shoreline Management Act.

### **C. BUILDING GUIDELINES**

1. **ELECTRICAL.** The boathouse owner will supply the weatherhead and wire for connection to the main power source. All interior wiring will comply with the Uniform Electrical Code. The Port will supply and maintain the main power source. Service will be limited to what is available on the dock and in most cases cannot be upgraded.

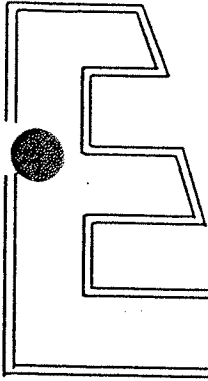
PORT OF PORT ANGELES BOATHOUSE POLICIES

2. **WATERLINE CONNECTION.** The Port will be responsible for waterlines on the docks.
3. **STRUCTURE.** Boathouse owners are responsible for the structural, flotation and general engineering requirements for the boathouse.
4. **ROOFING AND SIDING.** Materials shall be galvanized steel, aluminum, or industrial corrugated sheet metal, with a minimum thickness that complies with the City of Port Angeles' Building Code. All siding shall be installed vertically or in accordance with the manufacturer's recommendations. Roof trusses shall comply with the Uniform Building Code with roof pitch no less than a 4/12 grade.
5. **DECKING.** Deck and flotation supports shall be treated with an approved wood preservative. Interior decking shall be minimum 3/8" plywood.
6. **FLOTATION.** For new construction, flotation shall be (as a minimum) encapsulated expanded polystyrene with minimum density of one pound per cubic foot and a minimum buoyancy of fifty-five pounds per cubic foot. Flotation must be permanently affixed to the underside of the boathouse. For repairs or retrofit, alternative flotation will be evaluated on a case-by-case basis.
7. **ENTRANCE DOOR.** The entrance door shall consist of a roll-up, folding or interior track door and will be fully closeable to within one (1) foot of the water's surface. No outward opening barn door type will be approved. Doors shall be the same color as the building exterior or an approved equal. Fabric doors shall be American Clayworks PAK Knit Shade Fabric, Knit White, or an approved equivalent. Vinyl fabric or tarps are not an approved alternative.
8. **PILING RUB BLOCKS.** Rub blocks at the rear stabilizer piling shall be installed on all boathouses with existing adjacent pilings.
9. **PILING/COLLARS.** In the event the Port determines that the new or remodeled boathouse requires the addition, extraction or relocation of a stabilizer piling, or the installation of a collar or other attachment device to connect the boathouse to the piling, such alteration(s) will be the responsibility of the boathouse owner, at their risk and expense. The Port will be responsible for these improvements if the Port relocates boathouses for the Port's convenience.

### **III. CITIZENS COMPLIANCE COMMITTEE**

A Citizens Compliance Committee will consist of five members that are boathouse owners. The members will consist of 2 three-year positions, 2 two-year positions and 1 one-year position. The Committee will report to the Port Angeles Boat Haven Advisory Committee as appointed by the Port Commission. The Committee will act as a liaison to boathouse owners to encourage compliance with the Boathouse Standards. The Committee does not have enforcement authority to meet standards but will function to assist owners with compliance. Compliance enforcement is the responsibility of the Harbormaster.





# ECHELON ENGINEERING, INC.

Civil/Marine Consulting Engineers

UNDERWATER SAMPLE INSPECTION

OF

PORT OF PORT ANGELES

MARINA

Port Angeles, Washington

Prepared For:

Reid Middleton  
728 134<sup>th</sup> Street SW, Suite 200  
Everett, Washington, 98204

ATTN: Ms. Shannon Kinsella, P.E.

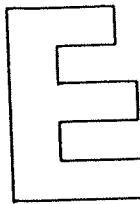
Prepared By:

Echelon Engineering, Inc.  
3837 13th Avenue West, Suite 205  
Seattle, Washington 98119

ATTN: Ms. Shelley D. Sommerfeld, P.E.

President  
Tel: (206) 286-6699

June 2000  
00-2092



# ECHELON ENGINEERING, INC.

Civil/Marine Consulting Engineers

July 6, 2000

Reid Middleton  
728 134<sup>th</sup> Street SW, Suite 200  
Everett, Washington 98204

ATTN: Ms. Shannon Kinsella, PE  
Project Manager

RE: Sample Inspection of Float Anchor Piling, Port of Port Angeles Marina

Dear Ms. Kinsella:

This letter is submitted to document the findings of our recent sample inspection of the Float Anchor Piles, at the Port of Port Angeles Marina. The field investigation was conducted on June 22 and 23, 2000 and covered the inspection of 125 Float Anchor piles selected randomly throughout the facility. All piles received a comprehensive Level I visual inspection. Suspect members were then subjected to Level II inspection techniques, which provides for cleaning and more thorough inspection to further assess the extent of any damage encountered. During the field investigation a cursory inspection of the mooring floats was also carried out to determine the over condition of the submerged portions of the timber framing and Styrofoam floatation and/or the concrete pontoons. As survey of the bottom conditions in the area of the inspected piling was also conducted.

The enclosed drawing provides the identification system used, the location and the rating of the inspected piles. The individual piles inspected within this sample have been numbered consecutively relative to the Port's Float designation system. Representative photographs showing typical conditions found are presented in Appendix A. Detailed inspection results providing the condition of the inspected piles are presented in Table 1 of Appendix C.

The weather conditions at the time of the inspection were overcast and warm. Underwater visibility ranged from 10 - 15 ft. and no significant current was encountered within the marina.

### OBSERVED CONDITIONS

The sampling inspection of the piling within the marina showed them to be in generally fair/good condition. Specific results of the inspection are as follows:

1. The overall condition of the examined piles is fair to good.

2. Of the 125 piles inspected, 75 piles, (60.0%), are undamaged and rated at 100% of their original cross sectional area.
3. Forty-two piles, (33.6%), were found to have sustained minor damage or deterioration and have been rated at 90% remaining area. These piles have sustained either minor mechanical abrasion due to tidal movement of the floats, or marine borer attack in the intertidal and submerged zones.
4. Two piles, (1.6%), were noted to have sustained moderate mechanical abrasion and/or marine borer damage and are rated at 75% of their original cross sectional area.
5. Three piles, (2.4%), have been rated at 50% and three piles, (2.4%), have been rated at 0%. These piles have sustained significant mechanical impact, abrasion and/or marine borer damage.
6. The damage to the individual piles was found to range from the intertidal zone to the mudline. However, the majority of the significant damage was found in the intertidal zone and appears to be due to abrasion of the outer creosote shell of the piles and subsequent marine borer damage. The abrasion has been caused by the floats due to tidal and wave induced movement. Once the protective creosote shell of the piling has been breached the borers have gained access to the untreated core of the piles and caused extensive damage with up to 90% loss of cross sectional area.
7. The damaged piles were found throughout the marina, with the majority of the heavily damaged piles found in the older, eastern half of the facility. Specifically the piling within Moorage Float C were found to be in the worst condition with five of the nine sampled piles (55.5%) rated at 50% or less of their original cross sectional area.
8. A cursory inspection of the mooring floats showed that those in the older eastern section of the marina are constructed with timber framing and Styrofoam floatation. Generally these floats appear to be in fair condition. No evidence of extensive damage or deterioration of the timber framing members was found. Additionally, the majority of the Styrofoam floatation billets were found to be in fair condition. The top, bottom, and long sides of the billets have been wrapped in a plastic wrap, thereby isolating the foam from the marine waters. The ends of the billets do not have such wraps and evidence of marine organism burrowing was noted throughout the inspected floatation. Generally the loss of Styrofoam volume is small relative to the overall size of the billets, and floatation appears adequate at this time. Evidence of damage to several of the plastic wraps was also observed throughout the examined members but appears to be minor at this time.
9. The floats in the newer western portion of the marina are generally constructed with concrete pontoons. These floats were found to be in fair to good condition. No evidence of significant damage or deterioration was noted during the cursory inspection of these members. However, the presence of marine growth limits thorough visual inspection.
10. The mudline or sea bottom throughout the marina was found to be composed of soft sand or silt, mixed with seashells. No sunken vessels or other large debris items were noted during the swim-by of the mudline. Small accumulations of old boating debris such as miscellanies hoses, fittings, batteries and other small items were found primarily under the older eastern floats. Similar debris items were found in other locations beneath the Boathouses and the newer western slips, but in lesser amounts.

## DISCUSSION & RECOMMENDATIONS

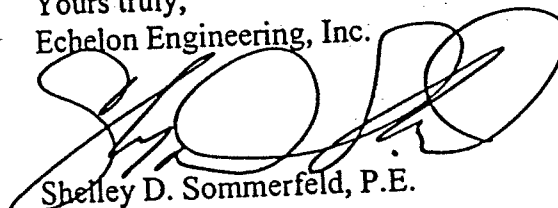
This sample inspection has shown that for their age, the overall condition of the examined piles is fair to good. When considered cumulatively, 119 (95.2%), of the piles have been rated at 75% or greater of their original cross sectional area. A total of 6, (4.8%), piles were found to have sustained significant damage and have been rated at 50% or less of their original area. All of these heavily damaged piles were found in the older eastern portion of the marina, with five of these six piles found in Mooring Float C. Given this finding, further inspection of the piles in Float C should be considered. Additionally, none of the piles supporting the Access Piers located around the perimeter of the marina basin, or the piles which support the boat launch facility located in the southeast corner of the marina were included in this inspection. Evidence of ongoing marine borer damage was noted on several members and if continued use of these facilities is anticipated, inspection and maintenance should be considered.

The condition of the Styrofoam floatation billets under the eastern mooring floats was found to be fair to good. cursory inspection showed the billets to have exposed ends, (i.e. no plastic wrap). Additionally, several of the billets were observed to have loose or damaged wraps. Given that the wrap serves to prevent marine organisms from tunneling through the foam and thereby reducing buoyancy, we would recommend that further inspection be carried out to identify floats with damaged plastic barriers. Maintenance repairs to the wraps may be warranted to prevent further damage in the form of tunneling, which may lead to loss of floatation resulting in the immersion of the float framing members and potential marine borer damage of the timber.

Additionally, once the Master Plan has been completed and after any necessary maintenance has been carried out, we recommend that routine underwater maintenance inspections be scheduled for 3 to 5 year intervals. Given the dynamic nature of the marine environment and the age of the structure, re-inspections within this schedule have proven to be a cost effective component of a facilities preventative maintenance program. These re-inspections, would as in the case of the current inspection, identify any specific member(s) that might require maintenance, and would also serve to monitor the overall condition of the facility.

Once again it has been a pleasure to assist you with this project. Should you have any questions concerning this report, or if we can assist you further, please do not hesitate to contact our office.

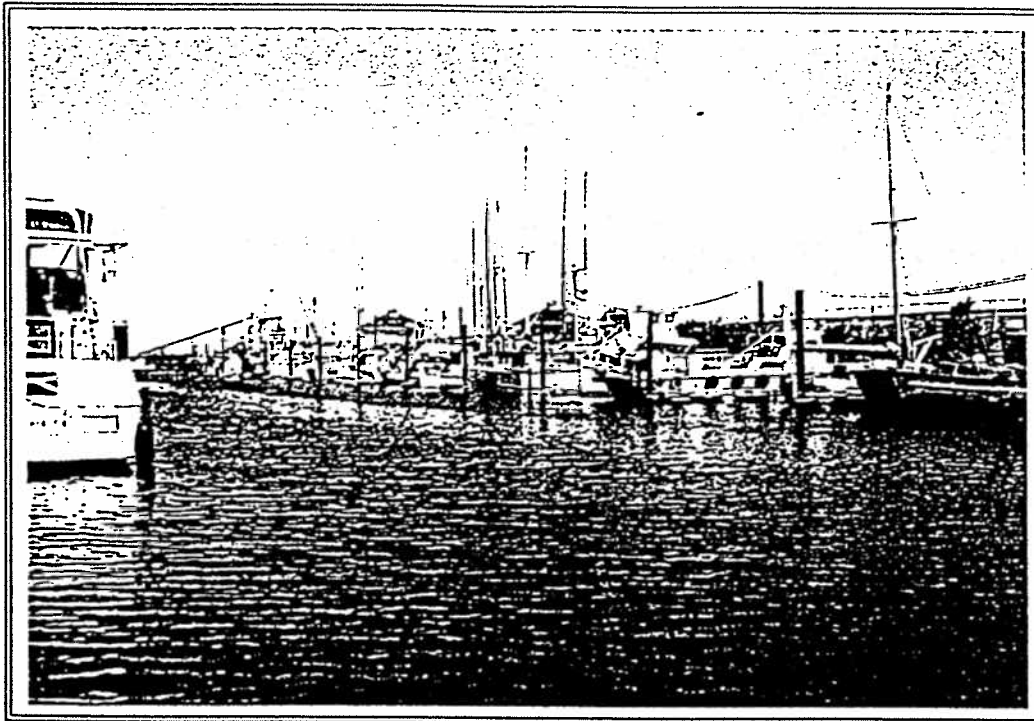
Yours truly,  
Echelon Engineering, Inc.



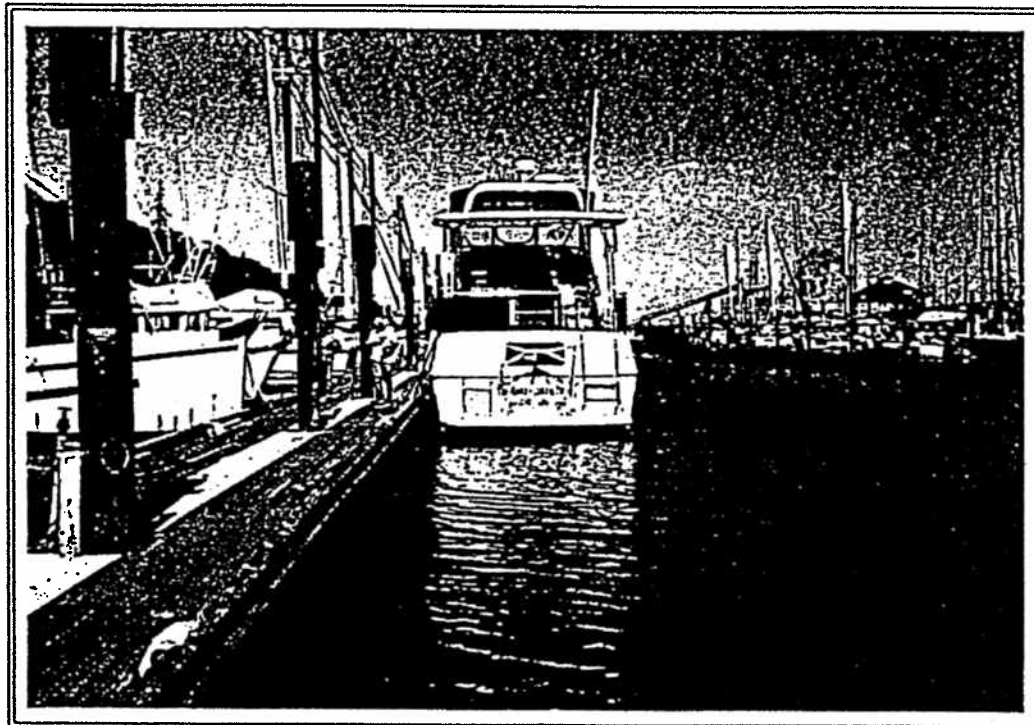
Shelley D. Sommerfeld, P.E.  
President

Enclosures  
SDS/ebv





**PHOTO No. 1:** Port Of Port Angeles Marina, Eastern Portion Looking West - Note Moorage Float (right) which is composed of Floats G & H. Also note the float anchor piling which secure the finger piers along Float G.



**PHOTO No. 2:** Mooring Float E & F Looking West - Note the typical construction of the timber float used in the eastern portion of the marina using internal anchor piling to secure the main float with finger piers extending away from the main section (left). Each finger pier is secured by an anchor pile with anchor loop at it's end.

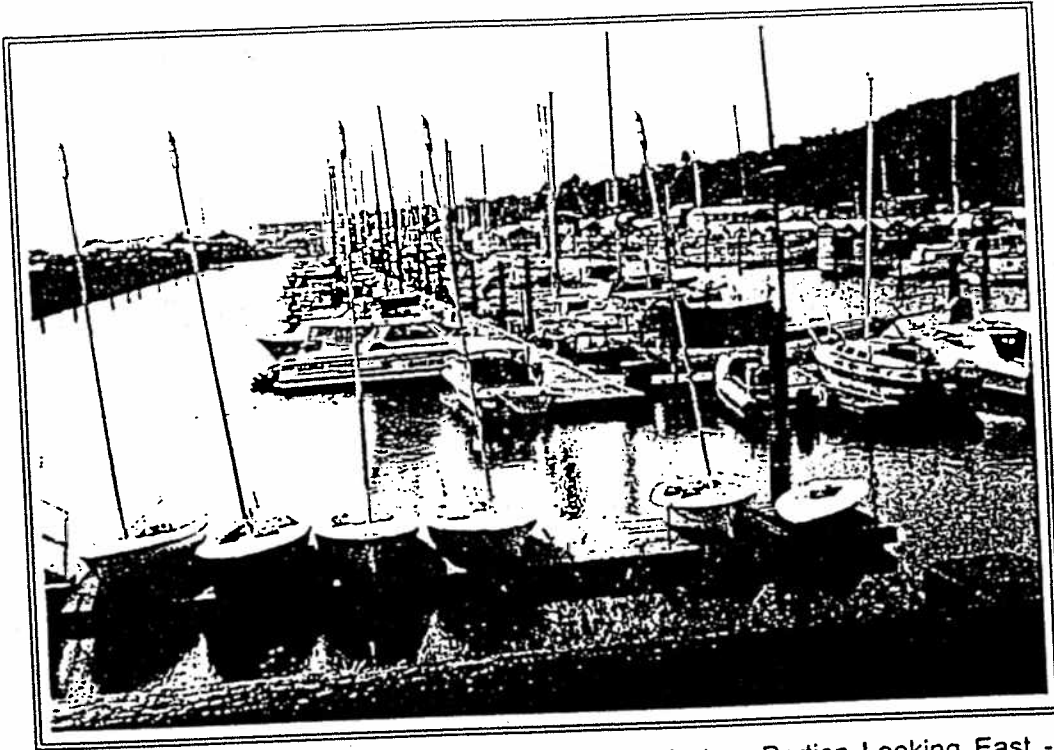


PHOTO No. 3: Port Of Port Angeles Marina Western Portion Looking East - Note Mooring Float R & Q (center) and Float CX extending to the south (right). This portion of the marina has been renewed with concrete floats.

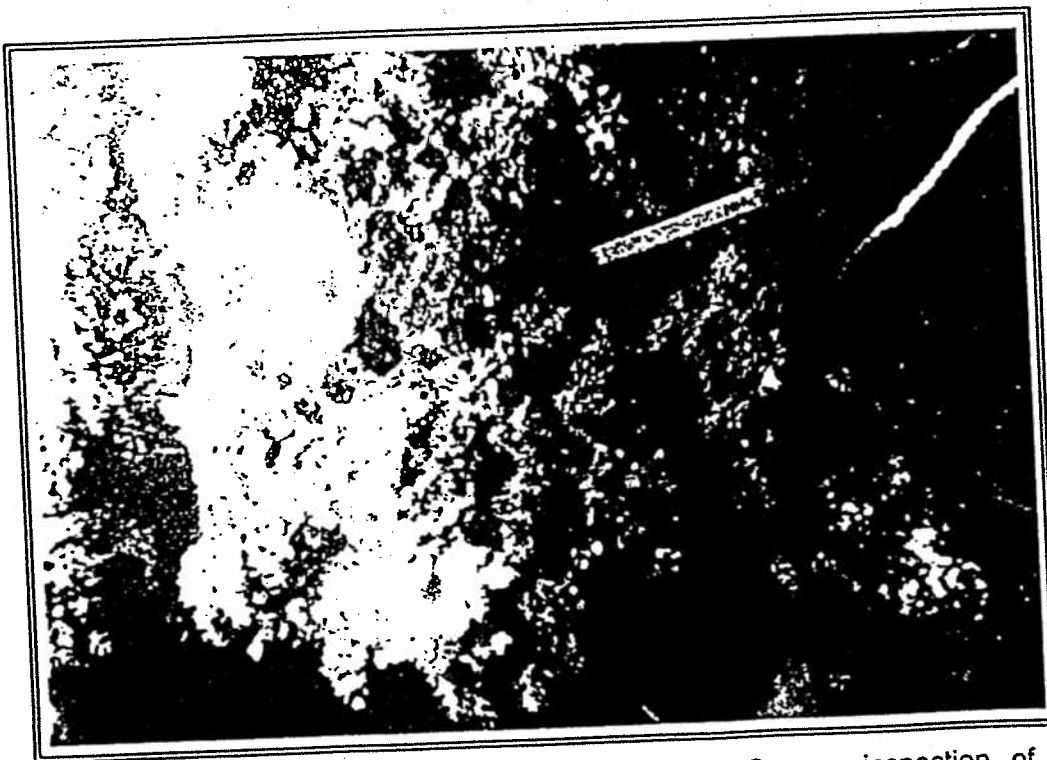


PHOTO No. 4: Mooring Float E & F Floatation - Cursory inspection of the styrofoam floatation showed it to be in fair condition. The individual billets were found to be encapsulation on the top, bottom and two sides. The ends were found to be left open. Inspection of the exposed styrofoam showed minor loss of section was noted as a result burrowing and deterioration caused by marine fouling.



**PHOTO No. 5:** Mooring Float C, Pile 3 - This pile was found to have sustained a 90% marine borer cavity in the intertidal zone and has been rated in the 0% category. Note the screwdriver located in the cavity.



**PHOTO No. 6:** Mooring Float C, Pile 12 - This pile was found to have sustained a crack along it's length. This breach of the protective creosote layer has allowed marine borer infestation resulting in a 30% marine borer cavity. Metal strapping was found to extend from the intertidal zone to the mudline apparently installed as a maintenance repair.



PHOTO No. 7: Mooring Float C, Pile 4 - This pile was found to have sustained abrasion damage along its west side with an estimated 90% marine borer cavity in the intertidal zone. Subsequently, the pile has been rated in the 0% category.



PHOTO No. 8: Mooring Float C, Pile 8 - This pile was also found to have sustained abrasion damage and an estimated 90% marine borer cavity in the intertidal zone. It has also been rated in the 0% category.

**TABLE 1**  
**TIMBER PILE INSPECTION DATA**

PILE LOCATION Pile No.	AREA RATING (%)	CONDITION / DAMAGE	
		Elevation (Chart Datum)	Details / Remarks
<b>MOORAGE FLOAT A</b>			
1	100		
2	100		
3	100		
5	100		
6	100		
7	75	ITZ MDL	20% Abrasion 1% MBC
<b>MOORAGE FLOAT C</b>			
1	50	ITZ 0 / MDL	10% MBC; 5% Abrasion Bankia Attack
2	75	ITZ	10% Abrasion; Bankia Attack
3	0	ITZ	90% MBC; 10% Abrasion
4	0	ITZ	90% MBC; 10% Abrasion
7	90	ITZ	5% Abrasion
8	0	ITZ	90% MBC
11	90	0 / MDL	Bankia Attack
12	50	0'	30% MBC
13	90	ITZ / MDL ITZ	Crack & Metal Strapping Multiple <1% MBC's
<b>MOORAGE FLOAT D</b>			
6	90	ITZ	2% Abrasion
7	90	ITZ	1% Abrasion
8	100	ITZ	
12	100		
13	100		
15	90	MDL	Bankia Attack
16	100		
20	100		
21	100		
22	90	ITZ	1% Abrasion
24	90	ITZ	1% Shake
<b>MOORAGE FLOAT E</b>			
6	100		
7	100		
8	100	ITZ	<1% Abrasion
9	100		
14	90	ITZ	5% Abrasion
15	100	ITZ	<1% Abrasion
16	90	ITZ	2% Abrasion
17	90	ITZ	1% MBC

**TABLE 1  
TIMBER PILE INSPECTION DATA**

PILE LOCATION Pile No.	AREA RATING (%)	CONDITION / DAMAGE	
		Elevation (Chart Datum)	Details / Remarks
<b>MOORAGE FLOAT F</b>			
1	90	ITZ 0'	10% Abrasion Bankia Attack
2	100		
3	100		
4	100	ITZ	<1% MBC Bankia Attack
9	90	ITZ	Bankia Attack
10	90	ITZ	2% Abrasion
11	90	ITZ	Bankia Attack
12	90	ITZ	5% Abrasion; 1% Mechanical
17	90		
18	100		
<b>MOORAGE FLOAT G</b>			
1	90	ITZ MDL	<1% MBC Bankia Attack 1% Shake
3	90	MDL	
6	100		
7	100	ITZ	<1% Abrasion 1% Shake
10	90	0'	
13	100		
15	100		
<b>MOORAGE FLOAT H</b>			
1	90	ITZ	2% Abrasion
3	90	ITZ	2% Abrasion
4	100	ITZ	<1% Abrasion
6	100		
7	100		
8	100		
<b>MOORAGE FLOAT JK</b>			
1	90	ITZ	1% Abrasion
2	50	0 / MDL	30% MBC; Bankia Damage
3	90	ITZ	5% Abrasion
5	100	ITZ	<1% Abrasion
<b>MOORAGE FLOAT J</b>			
1	90	ITZ	2% Abrasion
3	100		
5	90	ITZ	1% Abrasion



**TABLE 1  
TIMBER PILE INSPECTION DATA**

PILE LOCATION Pile No.	AREA RATING (%)	CONDITION / DAMAGE	
		Elevation (Chart Datum)	Details / Remarks
<b>MOORAGE FLOAT P</b>			
1	100	ITZ	<1% Abrasion • 1% Shake; Bankia Attack 5% MBC, 1% Shake
2	90	MDL	
3	90	ITZ	
4	100		
8	100		
9	90	ITZ	1% Shake
10	100		
11	100		
12	100		
16	90	-10'	2% Shake
<b>MOORAGE FLOAT Q</b>			
1	90	ITZ	1% Abrasion
2	100	ITZ	<1% Abrasion
4	90	ITZ	10% Abrasion
5	90	ITZ	1% Abrasion
7	100	ITZ	<1% Abrasion
9	100	ITZ	<1% Abrasion
10	100	ITZ	<1% Abrasion
11	100		
13	100		
15	90	ITZ	1% Shake
17	100	ITZ	<1% Abrasion
19	100	ITZ	<1% Abrasion
20	100		
<b>MOORAGE FLOAT R</b>			
1	90	ITZ	1% Abrasion
2	100	ITZ	<1% Abrasion
<b>MOORAGE FLOAT CX</b>			
1	100	ITZ	<1% Abrasion
3	100	ITZ	<1% Abrasion
4	100		
6	90	ITZ	2% Abrasion



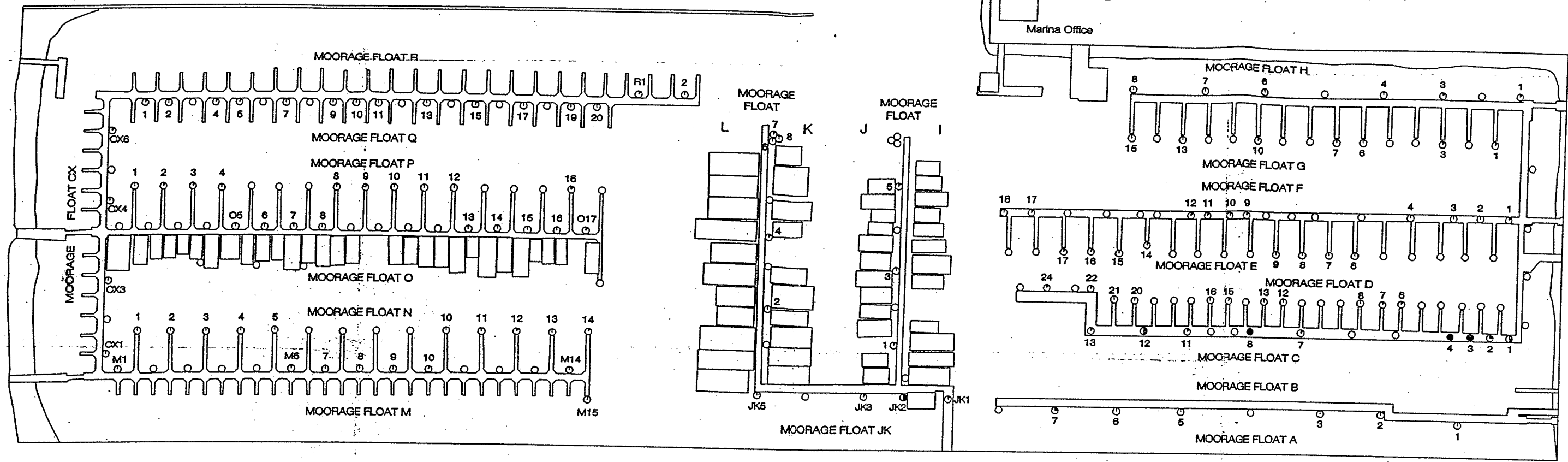


BREAKWATER

Log Yard

Foss Maritime

Marina Office



SHORELINE

# PLAN

## LEGEND

- 5 Pile Number
- Float Anchor Pile (Not Inspected)
- 100% Remaining Cross Sectional Area (Inspected Pile)
- 90% Remaining Cross Sectional Area (Inspected Pile)
- 75% Remaining Cross Sectional Area (Inspected Pile)
- 50% Remaining Cross Sectional Area (Inspected Pile)
- 25% Remaining Cross Sectional Area (Inspected Pile)
- 0% Remaining Cross Sectional Area (Inspected Pile)

Not To Scale

Port of Port Angeles Port Angeles, WA.	
Pile Plan	
Pile Inspection Results Port Angeles Marina	
DATE:	June 2000
PROJECT:	00-2092
SHEET:	1 of 1
DRAWN:	CDV / SDS



CDV, LEE-S, Echelon, Seattle, Inc. 7/7/2000 9:04 AM 2092-SR-1.dwg

CHAPTER 17.34

IH - INDUSTRIAL, HEAVY

Sections:

- 17.34.010 Purpose.
- 17.34.020 Permitted Uses.
- 17.34.030 Accessory Uses.
- 17.34.040 Conditional Uses.
- 17.34.050 Area and Dimensional Requirements.
- 17.34.060 Off-Street Parking.

17.34.010 Purpose. This is the least restrictive industrial zone intended to be the area in which heavy industry could develop causing the least impact on other land uses. Significant adverse impacts can be expected from permitted industrial uses that involve hazardous materials, noise, air and water pollution, shift work around the clock, entertainment businesses with adult-only activities, and outside storage yards and manufacturing activities. This zone provides the basic urban land use pattern for heavy industrial uses with direct access to major transportation facilities, design standards for greater truck traffic, and buffers for nonindustrial uses unless deemed impractical. (Ord. 3123 §19, 10/11/2002; Ord. 3042 §3 (part) 1/28/00; Ord. 2861 §1 (part), 3/17/95; Ord. 2668 §6 (part), 1/17/92)

17.34.020 Permitted Uses.

- A. Automobile body, fender, laundry, paint shops and wrecking yards.
- B. Bakeries, wholesale.
- C. Battery rebuild, tire repair & recapping.
- D. Boiler works.
- E. Book, newspaper & magazine printing & publishing.
- F. Bottling plants, creameries.
- G. Cabinet and carpenter shops.
- H. City pound.
- I. Draying, freight & trucking yards and terminals.
- J. Dry cleaning: clothes, carpets, rugs, laundries.
- K. Night club, pool hall, dance hall, boxing arena, penny arcade, shooting gallery, adult entertainment business, or similar amusement enterprise.
- L. Railroad yard or roundhouse.
- M. Sawmills, paper mills, pulp mills.
- N. Ship building, storage, repair, boat havens, marinas.
- O. Storage yards; building materials, tractors, trucks, boats, equipment.
- P. Transportation or freight terminal.
- Q. Truck, trailer, motorcycle, repairing, overhauling, rental, sales.
- R. Utility buildings and structures.
- S. Veterinary clinics, offices, and kennels.
- T. Warehousing, distributing plants.
- U. Wood products manufacture.
- V. Manufacturing, processing, packing, storage of:
  - 1. alcohol
  - 2. brick, tile or terra-cotta
  - 3. brooms, brushes
  - 4. celluloid or similar cellulose materials
  - 5. cloth, cord or rope
  - 6. concrete
  - 7. electrical products and appliances
  - 8. food and food products
  - 9. kelp reduction
  - 10. lumber
  - 11. machinery

12. paper and pulp
13. prefabricated buildings
14. signs, all types
15. salt works
16. vegetable or other food oil. (Ord. 3059 §4 (part), 7/28/2000; Ord. 3053 §3 6/16/2000; Ord. 3042 §3 (part) 1/28/00 Ord. 2861 §1 (part), 3/17/95; Ord. 2668 §6 (part), 1/17/92; Ord. 1709 §1 (part), 12/22/70)

17.34.030 Accessory Uses. Accessory uses determined by the Planning Director to be compatible with the intent of this Chapter are permitted. (Ord. 2921 §15, 6/28/96)

17.34.040 Conditional Uses.

- A. Distillation of wood, coal or bones or manufacture of any of their by-products.
- B. Fire Stations.
- C. Fuel yards subject to the limitations contained in PAMC 14.21.030 (B).
- D. Gas (illuminating or heating) manufacture or storage subject to the limitations contained in PAMC 14.21.030(A).
- E. Manufacturing, processing, packing, storage of:
  1. asphalt
  2. chemicals
  3. ceramics
  4. drugs, pharmaceuticals
  5. perfumes
  6. paint, lampblack, varnish, oil, turpentine
  7. plastics
  8. soap and soap products, toiletries
  9. tar roofing or waterproofing.
- F. Sale of marine supplies.
- G. Off-premises outdoor advertising signs.
- H. Power, light or steam plant.
- I. Retail uses incidental to a use permitted under Section 17.34.020 when located on the same zoning lot as the permitted use.
- J. Restaurants, cafeterias.
- K. Other uses compatible with the intent of this Chapter. (Ord. 2999 §2 (part), 9/11/98; Ord. 2861 §1 (part), 3/17/95; Ord. 2806 §1, 5/13/94; Ord. 2752 §5, 3/26/93; Ord. 2668 §6 (part), 1/17/92; Ord. 2636 §11, 15/15/91)

17.34.050 Area and Dimensional Requirements.

- A. Minimum lot size: 7,000 sq. ft.
- B. Minimum Yard Requirements: No buildings shall be constructed closer than 30 feet to any public right-of-way line, nor closer than 15 feet to any property line when abutting commercial or residential zones. Unless deemed by the City to be impractical, ineffective, or unnecessary, buffers shall be provided between industrial and other uses in order to mitigate nuisance and hazardous characteristics such as noise, particulate matter in the air, water or odor pollution, objectionable visual material, or other such impacts.
- C. Maximum Building Height: 75 feet. Height in excess of 75 feet may be allowed by conditional use permit and may require increased setbacks.
- D. Maximum Lot Coverage: None. (Ord. 3133, 12/27/2002; Ord. 3042 §3 (part) 1/28/00; Ord. 2861 §1 (part), 3/17/95; Ord. 2837 §4, 9/30/94; Ord. 2668 §6 (part), 1/17/92; Ord. 1709 §1 (part), 12/22/70)

17.34.060 Off-Street Parking. (See Chapter 14.40 PAMC). (Ord. 2668 §6 (part), 1/17/92; Ord. 1709 §1 (part), 12/22/70)