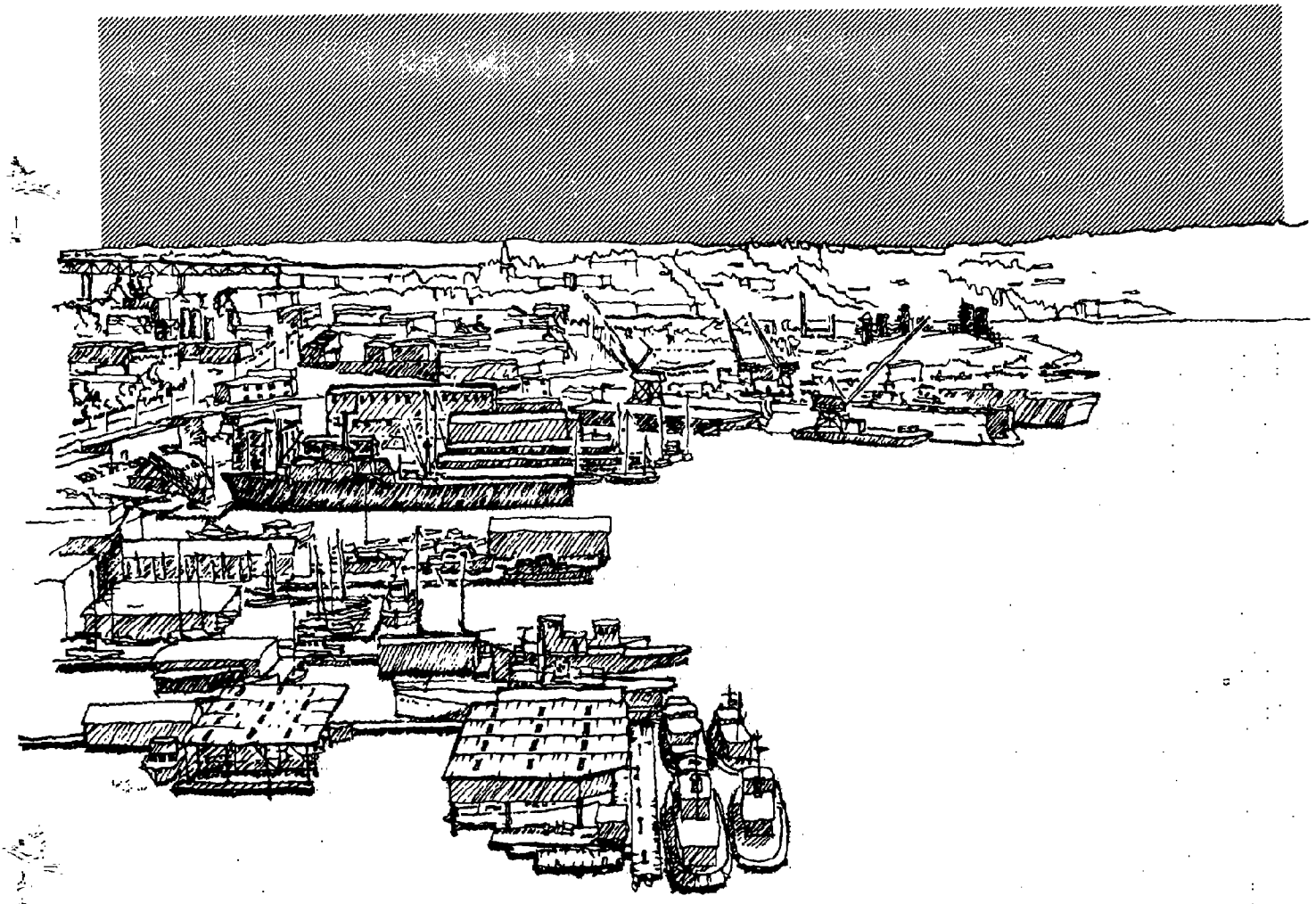

SEATTLE'S COMMERCIAL AND INDUSTRIAL SHORELINES: INVENTORY BACKGROUND REPORT

SEPTEMBER 1983

SEATTLE SHORELINE MASTER PROGRAM REVISION PROJECT

CITY OF SEATTLE
DEPARTMENT OF CONSTRUCTION AND LAND USE
400 MUNICIPAL BUILDING SEATTLE, WA. 98104 (206) 625 5200

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Seattle Department of Construction and Land Use
400 Municipal Building
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August, 1983

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Department of Construction and Land Use
William J. Justen, P.E., Director
Margaret Fleek, Director, Land Use Division

Contributing Staff:

Elsie Hulsizer
Lloyd Skinner
Koko Kobayashi
Daniel Farber
Amy Luersen
Michael Woodland
Denise Lifton
Hermia Ip

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Appendices of computer printouts of each site available on request.

CHAPTER I: INTRODUCTION

Revisions to the Shoreline Master Program

The Shoreline Management Act (RCW 90.58.190) requires that "The Department [of Ecology] and each local government shall periodically review any master program under its jurisdiction and make such adjustments thereto as are necessary."

The Seattle Shoreline Master Program (SSMP) was developed with extensive community involvement, adopted by the City Council and approved by the State Department of Ecology; it became effective in 1977. Although a set of "fine-tuning" amendments to the Master Program was recently adopted, the SSMP has not been revised substantially since its adoption.

That the Seattle Shoreline Master Program (SSMP) would need revising was recognized by the City even before the original Master Program became effective. That program included a Work Program calling for annual review and update of the regulations. The work program pointed out that "Because Shoreline Management is a new field, a major start-up effort is required to design and test operational procedures, develop monitoring and evaluation systems, build an adequate records system and determine basic measures for trends in shoreline uses."

The purpose of this Inventory Background Report is to provide an adequate data base of trends in shoreline uses in order to develop a deliberate and organized approach to revising the SSMP.

The question is often asked as to whether the Shoreline Amendments that the Department of Construction and Land Use (DCLU) is working on are a part of the new Land Use Policies being prepared by the Mayor's Land Use and Transportation Project and the new Land Use Code being prepared by DCLU to implement those polices. The answer is that the new SSMP will be part of the new Title 23 Land Use Code but that no plans have been made to replace the existing Shoreline Goals and Policies of Resolution 25173. The Shoreline Goals and Policies were adopted by the City Council in 1976 after considerable public participation. They are recent enough and general enough to be applicable today.

Although the Goals and Policies do not need replacing, they do need augmentation. Policies written for other portions of the Land Use Code (i.e., Single Family, Multi-Family, Neighborhood Commercial Area Policies) all include implementation guidelines for use in writing the Code itself. DCLU is currently working on a set of Shoreline Implementation Guidelines to fill that gap. The Guidelines will be an intermediate step between the Policies and the Code. Like other implementation guidelines they will eventually become part of the Land Use Code (Shoreline Program) and will be used in discretionary decisions such as shoreline environment redesignations ("rezones"), variances and conditional uses.

In addition to the Shoreline Goals and Policies, DCLU will also rely on the State Shoreline Management Act and the Department of Ecology Guidelines for Development of Master Programs (WAC 173-16) for general guidance in writing the

Implementation Guidelines and the code. Portions of the Land Use Policies for other land use segments of the city will also be used where those policies affect or cover shoreline areas.

DCLU has begun this review by conducting an inventory of Seattle's nonresidential shorelines. Additional work is being done to estimate the future needs of water-dependent commercial, industrial, and recreational uses; to identify the physical requirements such as water depth, water area, and backup land area needed by different shoreline uses; to review the record of shoreline permits requested and granted; and to develop an easier-to-use format for the SSMP. DCLU has also enjoyed the assistance of the Seattle League of Women Voters, which agreed to conduct extensive interviews with 50 water-dependent businesses in Seattle.

Still to be completed is an economic analysis of the impacts of possible restrictions on the use of waterfront property for nonwater-dependent uses. DCLU has funds from a Coastal Zone Management grant to hire an appraiser to study the effect of water-dependency restrictions on property values and property tax revenues. The results of that study are expected in September of this year. DCLU is also exploring obtaining assistance from an economist in the Department of Community Development to compare the local economic contribution of such water-dependent industries as shipyards and seafood processing with nonwater-dependent businesses such as restaurants and retail stores.

In the early stages of this work, DCLU staff limited the scope of the project to include only the nonresidential shorelines of the City. These included Portage Bay, Lake Union, the Ship Canal, the Shilshole area, Elliott Bay, the Central Waterfront, and the Duwamish. The predominantly residential shorelines of Lake Washington and Puget Sound were not inventoried. DCLU will not be proposing any reduction in the areas of Seattle's shorelines now zoned for residential uses.

The Process for Changing the Shoreline Master Program

Both state and local guidelines encourage a thoughtful and deliberative review before changes are made to land use regulations. For revisions to the SSMP, it is anticipated that the steps will be in order as follows:

- land use inventory;
- background reports and proposed implementation guidelines;
- public meetings to gather responses;
- proposed revisions to the SSMP;
- another round of public meetings;
- Mayor's Final Recommendations;
- a Draft Environmental Impact Statement;
- public hearing on DEIS;
- Final EIS;
- City Council review and action; and
- review by the Department of Ecology.

As the ultimate decisionmakers, the Mayor, City Council and State Department of Ecology (DOE) will use all of the background material prepared for that purpose, as discussed above, as well as comments and suggestions of interested citizens.

The legislative framework for the decision is found in the State Shoreline Management Act, the DOE Guidelines for the Development of Shoreline Master Programs (WAC 173.16), the Seattle City Council Resolution 25173 (Shoreline Goals and Policies), and Article XV of the State Constitution governing harbor areas.

Ideally, shoreline decisions will be made in a comprehensive manner, recognizing that certain businesses and uses can locate only on the shoreline, and that changes in one area of the shoreline will have implications for other areas as well.

Commercial and Industrial Shoreline Inventory

The inventory of shoreline sites was performed during the second half of 1982. Each site was visited by DCLU staff members, who carried aerial photos, the official City Land Use Maps, and copies of any shoreline permits issued for the site. Inventory personnel estimated dry and submerged land area; water frontage; uses by percent of site; type of shoreline; number of fishing boats, floating homes, and so forth; and other information relevant to land use and shoreline management. All of this information was then entered into a computer along with information on zoning, the shoreline environment, and any shoreline permits issued for developments on the site.

A full report on inventory methodology is available from the Department of Construction and Land Use. Also available is a site-by-site listing of inventory data; interested citizens are welcome and encouraged to review this information. It is our goal to present the decisionmakers with the most accurate and complete information possible. Therefore, if corrections to this report are necessary as a result of comments from citizens, those corrections will be made in the background reports relayed to the decisionmakers. Depending upon the extent of corrections, they will be done either in the form of an addendum or as an actual revised background report to be given to the decisionmakers.

Current Shoreline Regulations

It is important to understand the context in which revisions to a local master program must be made. Washington State adopted the Shoreline Management Act (RCW 90.58) in 1971. Consistent with other environmental legislation of its day, the SMA established state policy which is protective of the shoreline as a limited resource. For example, the SMA states:

> ... The public's opportunity to enjoy the physical and aesthetic qualities of natural shorelines of the state shall be preserved to the greatest extent feasible consistent with the overall best interest of the state and the people generally. To this end, uses shall be preferred which are consistent with control of pollution and prevention of damage to the natural environment, or are unique to or dependent upon use of the state's shoreline (RCW 90.58.020).

In order to implement its goals of environmental protection and public access to the shoreline, the SMA further specifies that in urban areas uses should be preferred which require a shoreline location (RCW 90.58.100). The intent of this

preference is to promote efficient use of the shoreline by directing water-dependent uses toward already developed areas. The administrative guidelines for developing master programs (WAC 173.16.040) also emphasize that in urban areas a preference should be given to "water-dependent" uses: "Because shorelines suitable for urban uses are a limited resource, emphasis should be given to development within already developed areas and particularly to water dependent industrial and commercial uses requiring frontage on navigable waters."

The SMA established a requirement that local governments develop master programs consistent with the new state law. Seattle's response to the Shoreline Management Act was to develop the SSMP, which became effective in 1977. (From 1971 until 1974, Seattle evaluated permit applications for sites within the shoreline zone by using state guidelines. From 1974 until the SSMP became effective, a draft version of the SSMP was used to administer the program.) The SSMP regulates development within 200 feet of the shoreline, and over water. The regulations are currently chapter 24.60 of the Seattle Municipal Code, and one part of the Zoning Code. In addition, approval by the State Department of Ecology is required before any changes to the Master Program become effective.

The purpose of the SSMP is to "implement the policy and provisions of the Shoreline Management Act of 1971 and the goals and policies of Resolution 25173 by regulating development of the shorelines of the City in order to: (a) preserve, enhance and increase views of the water and access to the water, (b) encourage water-dependent uses, and (c) provide for maximum public use and enjoyment of the shorelines of the city" (SMC 24.60.005).

The SSMP attempts to achieve these purposes by designating seven "environments" along the shoreline. These environments act as overlay zones to supplement the underlying zoning. Each environment identifies uses to be permitted or prohibited. A use must be permitted by both the shoreline environment designation and the underlying zone to be allowed. The seven shoreline environments are: Conservancy-Natural (CN); Conservancy-Management (CM); Urban Residential (UR); Urban Stable (US); Urban Stable-Lake Union (US/LU); Urban Stable-Central Waterfront (US/CW); and Urban Development (UD).

In addition to the regulation of uses permitted, the SSMP establishes requirements for maximum height and lot coverage. The Master Program also attempts to guarantee visual and physical access to the shoreline by setting "view corridor" requirements and provisions for regulated public access to the shoreline for all public property and for nonwater-dependent private property (with some exceptions as provided in 24.60.400 - 24.60.410).

Format of the Background Report

The chapters which follow present the results of the shoreline inventory, and identify some of the important issues facing the different areas. Chapter 2 presents city-wide general findings. Chapters 3-8 offer an analysis of individual areas. These are presented in the order they would be encountered by a visiting ship arriving from the Pacific: Shilshole, Elliott Bay, Central Waterfront, Duwamish, Ship Canal, and Lake Union.

The final section of each area report is devoted to the issues for that area as discerned by DCLU staff during the inventory process, during permit application reviews, from interviews with and questionnaires returned by business and property owners and from discussions with interest groups such as the Seattle Shorelines Coalition, the Seattle Marine Business Coalition, and the Lake Union Association.

Although the issues differ from area to area, a common theme runs throughout: should the "highest and best use" of an individual parcel of property be the major land use control, or should restrictions be placed on uses to ensure a higher public good as embodied in the purposes of the Shoreline Management Act and the Shoreline Goals and Policies? This is true whether the "highest and best use" is perceived to be a restaurant on Lake Union or a heavy nonwater-dependent industry on the Duwamish.

Property owners expect to obtain a reasonable rate of return on their investment. Many see the displacement of a water-dependent use on the shoreline as a natural adjustment in the land market. Unfortunately, the development of nonwater-dependent uses on a site tends to be permanent, and can preclude future development of water-dependent businesses. In places the City may be faced with choosing between short-term economic return and long-term benefits.

Seattle is blessed with a tremendous natural asset in its 95 miles of waterfront. The 36.5 miles covered by the DCLU inventory are some of the most intensively developed shorelines in the entire state, and represent an important economic and historic, as well as physical, resource for the city. In the coming months, the people of Seattle face a challenge, but also an opportunity: to revise our progressive shoreline legislation in ways which address the needs of the future without abandoning the protection of public access and enjoyment embodied in the current Master Program.

CHAPTER 2: GENERAL FINDINGS

I. INTRODUCTION

This chapter of the Background Report will summarize some of the inventory's general and city-wide findings. It will also offer some comparisons of different areas along Seattle's shoreline, and highlight the findings of DCLU's shoreline permit review. Chapters which follow discuss specific shoreline areas.

The inventory project was limited to the non-residential shorelines of Seattle and included Portage Bay, Lake Union, the Ship Canal, the Shilshole area, Elliott Bay, the Central Waterfront, and the Duwamish River. Figure 2-1 illustrates the location of these areas. The areas were further broken down into "geocodes" for closer analysis, as shown in Figure 2-2. Small commercial areas on Lake Washington and Puget Sound were not examined. A total of 789 sites were analyzed, including 375 waterfront sites, 311 upland sites, and 103 street ends or waterways. Water frontage for the shorelines surveyed totaled 192,977 linear feet, or about 36.5 miles. This included 175,685 feet of frontage on waterfront sites, and another 17,292 feet on street ends or waterways. Excluding those street ends, frontage by area was as follows:

TABLE 1
Frontage by Area

AREA	Lineal Frontage	% of Frontage	No of Sites	Average Site Size Sq. Ft.
Portage Bay	8,816	5.0%	50	79,518
Lake Union	25,830	14.7	101	81,638
Ship Canal	26,045	14.8	53	244,383
Shilshole	8,486	4.8	38	139,924
Central Waterfront	7,260	4.1	16	191,068
Elliott Bay (ex.C.W)	17,302	9.9	14	1,433,555
Duwamish River	81,946	46.7	103	528,196
TOTALS	175,685	100.0%	375	

This information is presented graphically in Figure 2-3.

II. WATER DEPENDENCY

Each site was placed into a "water-dependency" category, based on classifications used in the Shoreline Master Program. "Water-dependent" uses are those which are dependent on the water by the "intrinsic nature" of their operations and cannot exist in any other location. Water-dependent uses

Figure 2-1

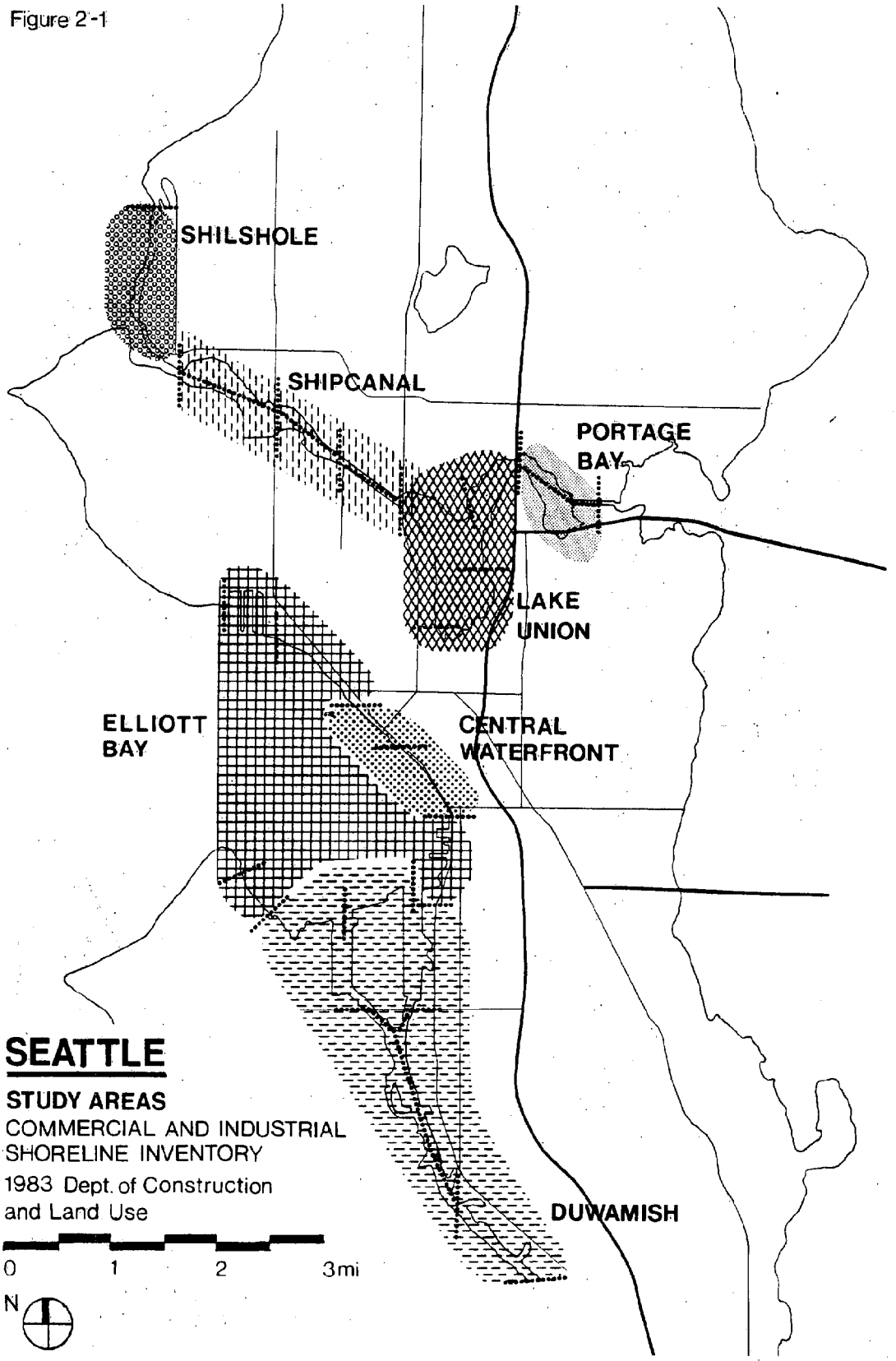
SHILSHOLE
SHIPCANAL
PORTAGE BAY
LAKE UNION
ELLIOTT BAY
CENTRAL WATERFRONT
DUWAMISH
SEATTLE
STUDY AREAS
COMMERCIAL AND INDUSTRIAL SHORELINE INVENTORY
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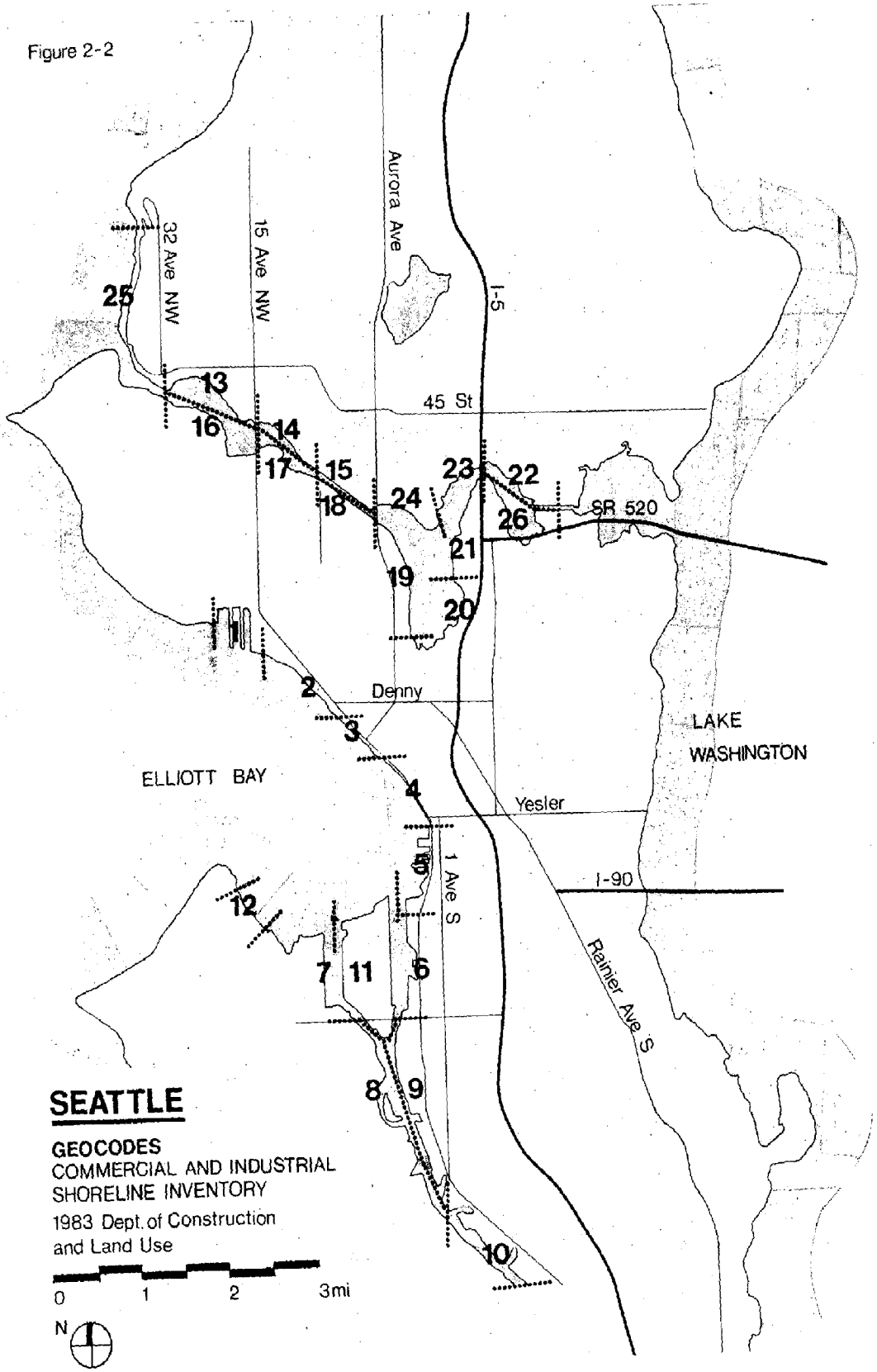
Figure 2-2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15 Ave NW
I-5
45 St
SR 520
Denny
Yesler
I-90
1 Ave S
Rainier Ave S
LAKE
WASHINGTON
ELLIOTT BAY
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FIGURE 2-3

SHORELINE SUBAREAS

PERCENT OF WATER FRONTAGE

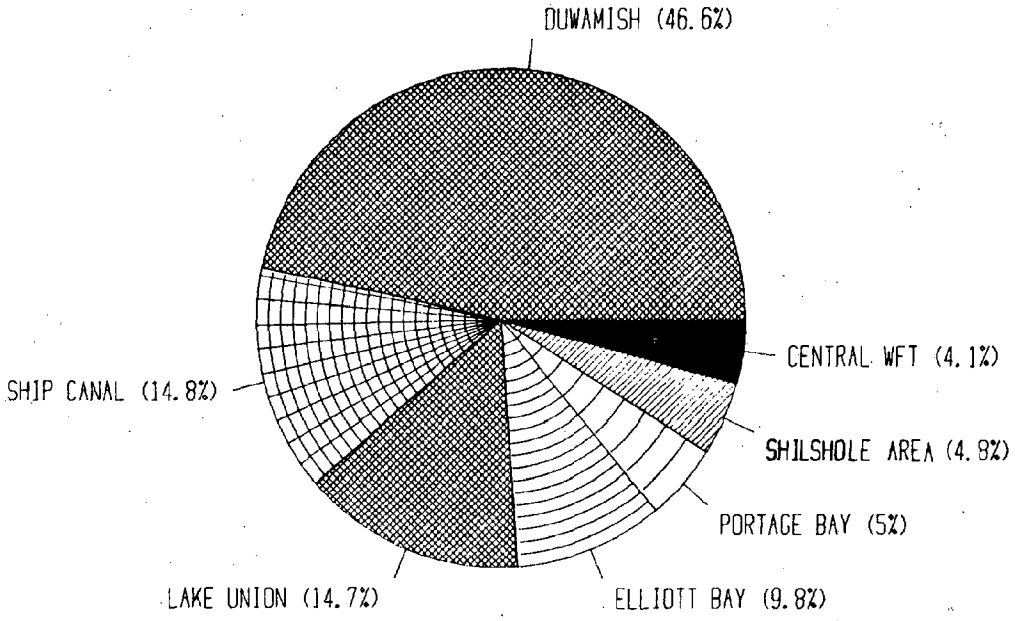


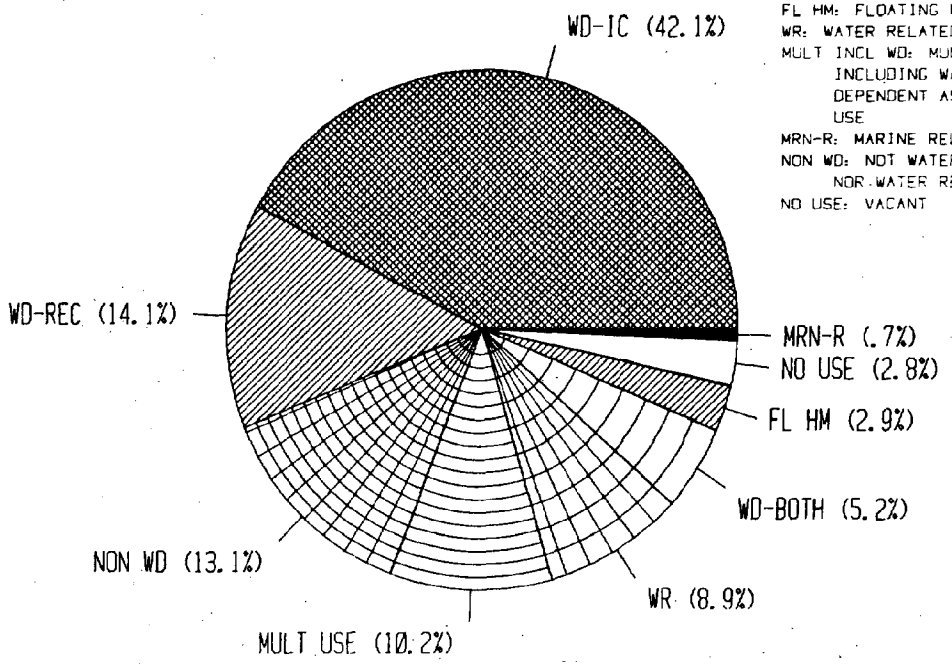
FIGURE 2-4

WATER DEPENDENCY

PERCENT OF WATER FRONTAGE

LEGEND

WD-IC: WATER-DEPENDENT INDUSTRIAL OR COMMERCIAL
WD-REC: WATER-DEPENDENT RECREATIONAL
WD-BOTH: WATER DEPENDENT BOTH INDUSTRIAL/COMMERCIAL AND RECREATIONAL
FL HM: FLOATING HOME
WR: WATER RELATED
MULT INCL WD: MULTI-USE INCLUDING WATER DEPENDENT AS A SECONDARY USE
MRN-R: MARINE RELATED
NON WD: NOT WATER DEPENDENT NOR WATER RELATED
NO USE: VACANT



were divided into "industrial or commercial" (WD-IC) and "recreation" categories (WD-REC). The WD-IC category includes such uses as boat-building, boat service and repair, commercial ship moorage, and commercial float plane docks. Water-dependent recreational uses include pleasure craft marinas and waterfront parks.

Some sites included a combination of industrial and recreational uses (for example, moorage for fishing boats and pleasure boats); these were classified as "water dependent, both I-C and REC" (WD-BOTH).

"Water-related" uses (WR) are those which are not intrinsically dependent on the water but which cannot operate economically without a waterfront location (for example, uses which transport raw materials by barge).

Floating Homes were placed in their own category (FLHM). A new term, "marine-related" (MRN-REL), was used to classify those sites which do not meet the definitions of water-dependent or water-related, but which depend on maritime activity for the sale of their product or service (for example, bait shops, sail lofts, or propeller manufacturing.)

Finally, a category called "multi-use, including water-dependent as a secondary use" (MULTI-INC-WD) was employed. Sites in this category are most frequently office buildings with accessory marinas.

City-wide results for all waterfront sites except street ends were as follows:

TABLE 2
City-Wide Frontage by Water-Dependency Category

Category	Lineal Frontage	% of Frontage	No. of Sites	% of Sites
WD-IC	73,936	42%	81	22%
WD-REC	24,798	14	51	14
WD-BOTH	9,070	5	18	5
WR	15,675	9	25	7
FLHM	5,055	3	51	13
MRN-REL	1,290	1	7	2
MULTI-INC-WD	17,997	10	34	9
NOT WD-WR	21,397	12	90	24
VACANT	6,483	4	18	5
TOTAL	175,685	100%	375	100%

Figure 2-4 illustrates these results graphically.

These figures indicate that 61 percent of the frontage of Seattle's non-residential shorelines is used for water-dependent commercial or recreational activities. While the chapters which follow analyze the individual areas more closely, a brief review indicates that the Ship Canal and

the Duwamish River are the two areas with the highest relative percentage of water-dependent industrial or commercial frontage; 58 percent of the Ship Canal's frontage is devoted to these types of uses, as is 53 percent of the frontage on the Duwamish. Shilshole Marina and Golden Gardens Park dominate the Shilshole area, where 48 percent of the frontage is water-dependent recreational. Portage Bay yacht clubs, marinas, and parks bring recreational frontage there up to 47 percent. Table 3 illustrates city-wide results by area.

TABLE 3
Water Dependency by Area - Percent of Frontage

Area	WD-IC	WD-REC	WD-BOTH	TOT WD IC and REC	NOT-WD
Portage Bay	10%	47%	0	57%	5%
Lake Union	28	24	13	65	5
Ship Canal	58	18	3	79	0
Shilshole Area	0	48	0	48	43
Elliott Bay	17	28	36	81	0
Central W.F.	8	18	0	26	14
Duwamish	53	2	0	55	18
City-wide Averages	42	14	5	61	13

TABLE 4
Inventory Totals: Number of Sites by Use

Use	Predominant Uses		Secondary Uses	
	WF	Upland	WF	Upland
Residential	48	105	29	8
Floating Homes	52		12	
Seafood Products	5		24	1
General Manufacturing	36	31	15	13
Marine Manufacturing	5	2	2	1
Boat Building	9	1	7	1
Ship Building	10		3	
Transportation & Utilities	19	22	21	4
Marine Transportation	17		14	
Container Terminals	10		2	
Wholesale Trade	3	7	15	9
Non-marine Retail	5	10	10	13
Marine Retail	19	10	30	3
Restaurants	12	12	11	3
General Office Space	7	18	10	8
Non-Marine Services	17	46	61	32
Government Services	15	2	3	
Educational Services	1	1	7	2
Marine Services	23	6	57	2
Cultural/Entertainment	25	2	13	1
Marinas	32		51	
Commercial Moorage	3		34	
Open Storage	6	2	12	
Technical Instruments	1	1	2	
Vacant/Underused	18	29	76	4
Street Ends	80		21	
Total Number of Sites	478	307	324	105

III. SHORELINE DISTRICT USES

Table 4 presents inventory results summarizing the types of uses on shoreline district sites. These use categories are based on a modification of the Standard Land Use Classification system. Each site was assigned a primary use, and, if applicable, as many as three secondary uses.

Table 4 indicates that the most common primary uses on waterfront lots were street ends with no use (80 sites), floating homes (52), residential use (48), general manufacturing (36), and marinas (32).

Secondary uses on waterfront sites were most frequently listed as non-marine services (61 sites), marine services (57), marinas (51), and marine retail trade (30).

Upland sites were also assigned a use category. Most commonly listed primary uses on upland sites were residential (105 sites), non-marine services (46), general manufacturing (31), and vacant or under-utilized areas (29). Non-marine services, non-marine retail trade, and general manufacturing were the most frequent secondary uses on upland sites.

IV. STREET ENDS AND WATERWAYS

The 103 street ends and waterways included in the inventory represent a great opportunity for public access to the water. The sites are distributed among the several areas surveyed as follows:

Area	Number of Street Ends or Waterways
Lake Union	39
Portage Bay	11
Ship Canal	13
Shilshole Area	2
Elliott Bay	6
Central Waterfront	7
Duwamish	25

Seventy-three of the street ends were found to be vacant. Of the remaining 30, 17 were classified as WDREC; 5 were WDIC; 5 were NOT WD-WR; and one each were listed as FLHM, MRN-REL, and MULTI-INC-WD. The WDREC category includes both street end parks and street ends used partially for moorage of recreational boats.

V. PERMIT HISTORY

DCLU has prepared an in-depth shoreline permit analysis, which is available under separate cover. That study indicates that since 1971, when the Shoreline Program began, 483 applications have been received for "substantial development" within the Shoreline District area covered by the inventory. These applications were received from 218 of the 788 sites inventoried.

Decisions on the permit applications during these 12 years were made as follows:

Granted outright	57%
Granted with conditions	31%
Denied	4%
Withdrawn	4%
Cancelled	1%
In Process	4%

The reason for the small number of denials appears to be that applicants are required to speak with the City in a pre-application conference prior to filing applications. At the meeting, applications for a use or bulk dimensions differing greatly from the Program are pointed out; thus a change in the proposal is likely to follow to increase the chances of approval. Frequently plans are returned for corrections before a final application is accepted.

An examination of applications indicates that the overwhelming majority of permits were proposing no change in their degree of water-dependence; permits for new water-dependent and water-related uses outnumbered new nonwater-dependent uses by 36 to 18, while no change in water-dependence was indicated in 260 applications processed. These numbers do not correspond to numbers of developments given below since many developments were accomplished with two or more permits.

Despite this preponderance of water-dependent actions, two trends were noted in the permit applications which might cause concern. This first trend is the relative increase in recreational water-dependent developments compared to industrial-commercial developments. Throughout the city 12 sites have applied for totally new recreational developments with only one recreational development being removed whereas 11 sites have applied for totally new industrial-commercial developments with 11 other industrial-commercial developments being removed. The greatest number of totally new recreational developments occured in Lake Union (6) which also experienced the greatest loss of number of industrial-commercial uses (4).

The second trend of concern is the number of applications (12) to change into the category multi-use including a minor water-dependent use. Many of the new recreational developments discussed in the paragraph above were developed as part of a multi-use development. Five applications (four in Lake Union and one in the Ship Canal) were to replace an existing water-dependent industrial commercial use with a totally new multi-use development including recreational moorage. Three applications (on the Central Waterfront, Lake Union, and the Ship Canal) were to add a nonwater-dependent component to an existing water-dependent site. One application (on the Ship Canal) was to replace a nonwater-dependent industrial use with a restaurant, and one was to develop a residential/retail complex on a vacant lot on Lake Union. There was also an application (on Lake Union) to add recreational moorage to a nonwater-dependent office complex. Of the 12 multi-use sites, 8 involved restaurants and 8 (some were the same) were on Lake Union.

Interested citizens are encouraged to review the complete Shoreline Permit Analysis report for more detailed information.

VI. SUBMERGED TO DRY LAND RATIO AND SITE SIZES

The ratio between submerged and dry lands can have a significant influence on the usability of waterfront lots for different maritime businesses. Some industries such as container shipping firms need large areas of dry

land for storage of material received or waiting to be shipped but only enough submerged lands to moor one or two vessels. Other industries such as marinas need large areas of submerged lands for boat moorage but very little dry land (for parking), while still others such as shipyards need large amounts of both dry and submerged lands.

Table 5 illustrates the city-wide average sizes of dry and submerged land according to the 1982 inventory's water-dependency categories. The reader will notice that more than two-thirds of the "average" water-dependent industrial or commercial site is dry land, whereas only about one-third of a typical recreational water-dependent site is dry land.

Although the average site size varies in different areas of the city, these ratios remain surprisingly consistent.

(In interpreting Table 5, it may be helpful to know that there are 43,560 square feet in one acre.)

TABLE 5
City-Wide Dry and Submerged Average Site Size,
By WD Category (Size in Sq. Ft.)

Category	Dry Size	Submerged	Total	Dry as % Total
WD-IC	463,442	220,836	684,278	68%
WD-REC	72,972	153,797	236,574	31
WD-BOTH	172,356	144,155	316,511	54
WR	307,061	116,418	423,447	73
FLHM	5,409	16,512	21,922	25
MRN-REL	13,254	27,371	40,625	33
MULTI-INC-WD	142,074	85,765	227,840	62
NOT WD-WR	109,792	32,041	141,834	77
VACANT	84,333	52,506	136,839	62

VII. UPLAND LOTS

Upland lots are lots within the shoreline district (within 200 feet of the shoreline) but separated from the water by a railroad track, a street, or other government-owned right-of-way preventing access to the water.

Because upland lots lack access to the water, they cannot be used for water-dependent uses. In some cases, they can be used for non-water-dependent accessory uses to a water-dependent use, such as storage, parking, office, or other service uses. They can also be used for marine-related uses such as manufacturing or retailing of marine supplies. Throughout the inventory area there were 24 marine-related upland lots identified; 7 were in the Shilshole area, 1 in the Central Waterfront, 11 in the Ship Canal, and 5 in Lake Union.

The number and extent of upland lots in an area depends on platting and on street and railroad right-of-way placement. Where streets generally run perpendicular to the shoreline or are more than 200 feet back from the water, there are no upland lots to consider in shoreline planning. Where streets generally run parallel and close to the shoreline, a large part of the 200-foot shoreline district may be composed of upland lots.

Table 6 illustrates the location of upland lots in the seven study areas:

TABLE 6
Number of Upland Lots by Area

Area	Upland Lots	Waterfront Lots
Shilshole	18	38
Elliott Bay	23	14
Central Waterfront	29	16
Duwamish	44	103
Ship Canal	61	53
Lake Union	123	101
Portage Bay	12	50

The Duwamish area, where East and West Marginal Way are platted at a considerable distance from the shore, has the lowest percentage of upland lots. Areas such as Lake Union and the Ship Canal along the Fremont Cut where streets run close to the shoreline have relatively high proportions of upland lots.

In general, upland lots tend to be smaller than waterfront lots so that the land area of upland lots in comparison to waterfront lots is much less than Table 6 might indicate.

VIII. ADJACENT LANDS

The State Shoreline Management Act of 1971 requires local jurisdictions to review regulations relating to lands adjacent to the Shoreline District so as to achieve consistency between regulations (RCW 90.58.340). In its paper "Adjacent Land Guidance" the State Department of Ecology states that "Logical boundaries for planning purposes are ... natural features such as

the tops of bluffs, vegetation limits associated with shore processes, or manmade features such as railroads and highways."

Adjacent lands are reviewed in the pages which follow as part of the separate area discussions.

IX. ISSUES

In addition to the issues identified for each of Seattle's shoreline areas, there are a number of issues affecting Seattle's shorelines as a whole. A comprehensive analysis of the issues and possible solutions will be presented at a later date with the Implementation Guidelines. The following list of questions is presented now as a summary of the issues:

A. State vs. Regional vs. Local Planning

- What are the benefits or disadvantages to Seattle of planning from a state-wide and regional perspective as required by the State Shoreline Management Act?
- Can we adequately determine what the state-wide and regional needs of navigation and commerce are?
- What is Seattle's share of those needs?

B. Competition Between Uses

- Should the marketplace be the sole control of the outcome of competition between water-dependent and nonwater-dependent uses or should some system of prohibiting nonwater-dependent uses from some or all of Seattle's non-residential shorelines be developed?
- Should all water-dependent uses, whether recreational or industrial be given equal preference on all of our shorelines?

C. Environmental Protection vs. Water-Dependency vs. Public Access

- How can Seattle best meet all three goals of the Shoreline Management Act on its shorelines? Are there areas of the Shorelines that are particularly suited to meet one of these three goals but not the others? How should this be determined?

D. Economics

- What is the economic impact or benefit to property owners from limiting the permitted uses on waterfront lots to water-dependent uses?
- What is the economic impact or benefit to Seattle's economy as a whole from limiting the permitted uses on waterfront lots to water-dependent uses?

- What mix of uses should be permitted on waterfront lots to ensure economic and efficient use of waterfront land by water-dependent businesses? Should only water-dependent uses be permitted or are there certain complementary nonwater-dependent uses that should also be permitted?

- Is the necessary mixture of water-dependent and nonwater-dependent uses different for industrial and recreational uses?

- Is there a "critical mass" of maritime businesses needed to maintain a healthy marine economy and to prevent flight of marine businesses to other cities? How can that critical mass be determined?

E. Incompatible Uses

- What uses are incompatible with water-dependent industry? With water-dependent recreation? How should incompatible uses be controlled?

F. Port of Seattle

- How can the Port and the City better work together to plan for our industrial shorelines?

G. Public Access

- How much public access is needed?

- Is quantity or quality of public access more important?

- Should developers be able to choose between providing for public access on their own property or contributing towards public access on public property?

H. Water and Sediment Quality

- Are the current regulations in the SSMP adequate to deal with the growing concerns about toxic chemicals in water and sediments?

I. Regulations in the Shoreline District

1. The overlay zone and dual regulations

   - How can conflicts between shorelines and underlying zoning be minimized?

   - Which regulations (use, bulk, parking, design, signs, etc.) should be in shorelines and which in the underlying zoning?

2. Shoreline Environments vs. Zones

   - Should each shoreline environment correspond directly to a single zone or should each environment overlap several zones?
   - Are there areas of the city that are incorrectly zoned from a shoreline prospective?
   - Should the shoreline amendment package to be presented to the City Council include changes in the underlying zoning as well as shorelines?

3. Bulk Regulations

   - Are there particular bulk regulations which tend to discourage water-dependent uses? If so, should they be changed in areas where water-dependent uses predominate?
   - Should there be different bulk regulations for water-dependent and nonwater-dependent uses?
   - Are there areas of the shoreline where views are so critical that they should be protected even at the expense of water-dependent uses?
   - How should the choice between water-dependency and views be made?

4. Upland and Waterfront Lots

   - What role do upland lots play in the maritime economy?
   - How should regulations for upland lots differ from regulations for waterfront lots?

5. Submerged Lands

   - Is zoning needed at all on submerged lands or is the SSMP sufficient?

CHAPTER 3: SHILSHOLE AREA

I. INTRODUCTION

A. The Area

The Shilshole Area as discussed in this report includes the north shore of the tidal portion of Salmon Bay west of the locks, and the Puget Sound Shoreline north to Golden Gardens Park, including the Port of Seattle's Shilshole Bay Marina. Figure 3-1 illustrates the boundaries of the Shilshole Area, which was assigned geocode 25 in the inventory.

Two major events have changed the area from its natural state: the construction of the locks in 1917, and the construction of the marina breakwater in 1963. The locks changed the drainage pattern of the Lake Washington basin; Salmon Bay which once received drainage only from Lake Union now also receives drainage from the Cedar River and Lake Washington. The locks have also brought significant vessel traffic to the area by opening up Lake Union and Lake Washington to saltwater traffic. The marina breakwater changed open beach into protected moorage.

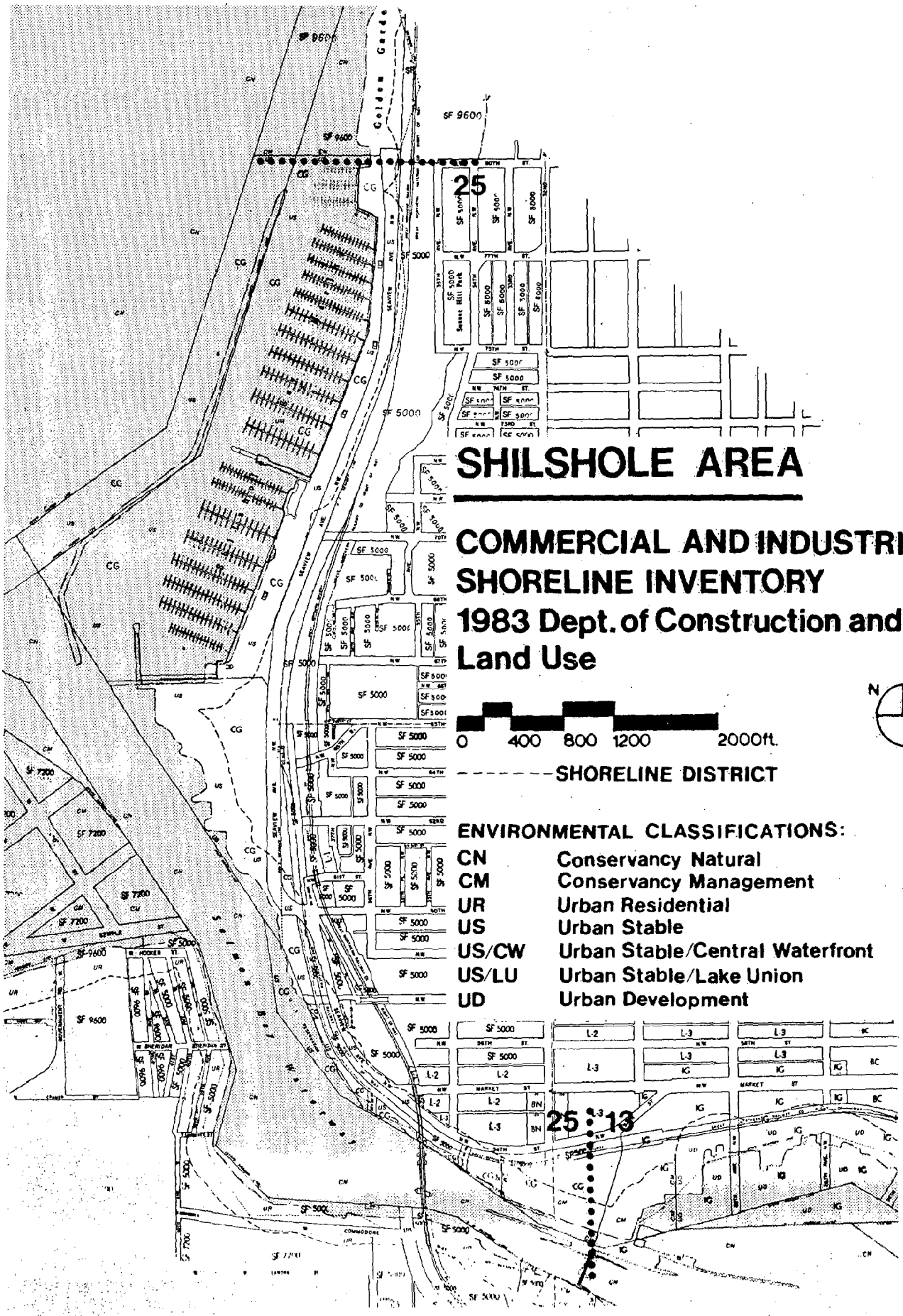
The predominant activity for the Shilshole area is recreational boating. The Shilshole Bay Marina is the largest marina in Seattle and is a focus for sailboat racing. Also, Shilshole and Salmon bays are a major migratory route for salmonid fishes enroute to Lake Washington and, therefore, are favorite fishing spots for sports fishermen.

The Shilshole area is also a major navigation route for commercial vessels going to and from the Ship Canal, Lake Union, and Lake Washington. Pier A of the Shilshole Marina is used for transient moorage of commercial vessels, particularly fishboats, and commercial fishbuyers sometimes anchor in the bight inside the breakwater. Two mooring buoys maintained by the Corps of Engineers provide temporary barge moorage.

B. Planning Efforts

The Shilshole Area was originally designated a Manufacturing District in the 1923 zoning ordinance. However, since 1947 it has been a mixture of manufacturing, commercial and residential. The Shilshole Marina site has changed from Manufacturing to Residential then back to commercial.

This area is included in the Neighborhood and Commercial Area Policies currently being reviewed by the City Council. The draft of the policies shows an area from the Locks to 34th Avenue NW as Neighborhood Commercial 3 (NC3), an area from 34th Avenue NW to Shilshole Marina as Commercial 1 (C1) and the Shilshole Marina site as Commercial 2 (C2). All areas would have a 40-foot height limit.



SHILSHOLE AREA

COMMERCIAL AND INDUSTRIAL SHORELINE INVENTORY 1983 Dept. of Construction and Land Use

N

0 400 800 1200 2000ft.

------SHORELINE DISTRICT

ENVIRONMENTAL CLASSIFICATIONS:

CN	Conservancy Natural
CM	Conservancy Management
UR	Urban Residential
US	Urban Stable
US/CW	Urban Stable/Central Waterfront
US/LU	Urban Stable/Lake Union
UD	Urban Development

The NC3 zone is for areas providing a wide range of commercial goods and services for a City-wide clientele. The C1 zone is for areas with a predominant pattern of sales and services. The Commercial 2 zone would be for areas with predominantly non-retail functions--light manufacturing, warehousing, storage, and wholesaling.

II. PHYSICAL CHARACTERISTICS

The Shilshole Area is all tidal with a mean tide of 8 feet and range of 11.7 feet.

The Shilshole Area can be divided into four subareas, each with their distinctive characteristics:

A. Salmon Bay. This is a well-protected area between Puget Sound and the Locks. It receives freshwater discharge from the locks and therefore can be expected to have reduced salinities. Except for the properties immediately adjacent to the locks, the area retains its natural sloping intertidal beaches with residential bulkheads constructed close to the high tide mark. The distance from the navigational channel to the high tide mark varies from near zero at the locks to 150 yards. Development along this stretch includes single family and multi-family residences (some over water), a bait store, and a small commercial moorage.

B. Salmon Bay to Shilshole Marina. This area is more open to Puget Sound but is still protected from the worst weather by West Point to the south. It is characterized by waterfront lots of as much as 200 feet distance from street to shore and by shallow, intertidal areas offshore. Development includes two overwater restaurants at the south end where little dry land exists, one restaurant on land, two condominium developments, and a number of marine related stores and businesses.

C. The Shilshole Bay Marina. The marina has been dredged, the shoreline bulkheaded, and a riprap breakwater constructed offshore to provide wave protection. The marina is the dominant land use in the area. Operated by the Port of Seattle, the marina provides wet and dry moorage for approximately 1,550 boats, launching ramps for small boats, a haulout and boat repair yard. An administration building for the marina includes the marina office, sailing clubs, retail shops, and rstaurants. A public boat launching ramp operated by the Seattle Parks Department is immediately north of the marina.

D. Golden Gardens Park. The Park provides a nearly natural beach open to Puget Sound.

III. REGULATIONS IN THE SHORELINE DISTRICT

A. The Seattle Shoreline Master Program

Those portions of Puget Sound lying seaward from the line of extreme low tide, are "shorelines of state-wide significance," as designated by the Shoreline Management Act of 1971 (RCW 90.58). These shorelines are major resources from which all the people in the state derive benefit. Due to this designation, local master programs must give preference to uses which favor public and long-range goals. The order of preference for uses, as established by the Act (WAC 173.16.040(s)) are those uses which:

1. Recognize and protect state-wide interest over local interest.
2. Preserve the natural character of the shoreline.
3. Result in long-term over short-term benefit.
4. Protect the resources and ecology of shorelines.
5. Increase public access to pubicly owned areas of the shorelines.
6. Increase the recreational opportunities for the public on the shorelines.

The shoreline designation for the entire Shilshole Area is Urban Stable (US). The purpose of the US environment (24.60.345 SMC) is "to provide areas for controlled development and redevelopment, encouraging a variety and mixture of compatible uses while also maintaining the existing character, scale and intensity of uses.

The US environment permits housing, offices, retail shops, restaurants, open and covered wet moorage, marine construction and repair, marine service stations, yacht clubs, seaplane facilities, cargo handling and water-dependent manufacturing, log storage, sand, gravel and concrete mix plants (as a special use), and fraternal clubs. Hotels, principal use parking, nonwater-dependent warehousing and nonwater-dependent manufacturing are prohibited.

Bulk regulations in the shoreline district in the Shilshole Area require a view corridor of 35% on waterfront lots, and permit lot coverage of 35% and height of 35 feet on both waterfront and upland lots. The fine-tuning admendments awaiting adoption by the State Department of Ecology permit 100% lot coverage and principal use parking and nonwater-dependent manufacturing on some upland lots.

B. Zoning

The underlying zoning in the Shilshole Area is exclusively General Commercial (CG) on waterfront lots and a mixture of CG, Single Family 5000 and Lowrise Residential 2 and 3 on upland lots.

Between the locks and NW 65th St. the zone boundary between waterfront CG and upland SF 5000 is not Seaview Ave. but a branch of the Burlington Northern right-of-way which is on the waterfront side of Seaview south of NW 60th St. and on the landward side north of NW

60th St. Because of this railroad right-of-way, some of the waterfront lots do not have legal street access and the commercial uses are not permitted to lease adjacent railroad land for required accessory parking. The LUTP has proposed to change this zoning configuration as part of the new neighborhood commercial area code.

C. Interaction of Shorelines and Zoning

The Urban Stable shoreline environment is compatible with the CG Zoning; most of the uses permitted by one are also permitted by the other. The CG zone provides some protection against incompatible uses by requiring housing to be a conditional use.

D. Pierhead Lines, Harbor Lines, Federal Channel Lines, Waterway Lines

A state harbor area, defined as the area between inner and outer harbor lines, lies offshore of the Shilshole Marina and Golden Gardens Park. According to Article XV of the State Constitution, harbor areas must be reserved forever for conveniences of navigation and commerce such as wharves and landings. Because of its location seaward of the marina and park, use of the harbor area for its intended purpose is doubtful. In fact, the "conveniences of navigation," the marina, fuel facility, and launching ramp are all located shoreward of the inner harbor area.

A state waterway, the Salmon Bay Waterway, leads from the outer harbor line near the entrance of Salmon Bay through the Bay and into the locks and Ship Canal. The U.S. Army Corps of Engineers also maintains a federal navigation channel in this area whose boundaries are generally waterward of the state waterway line.

IV. ADJACENT LANDS

The adjacent lands to the Shilshole Area include the Sunset Hill residential neighborhood and greenbelt in the northern part and small Neighborhood Business and Multi-Family residential areas near the locks.

V. SUBMERGED TO DRY LAND RATIOS

The Shilshole area has a total of 1,292,150 sq ft of dry land and 4,024,966 sq ft of submerged land on its waterfront lot. The percent of total waterfront land which is dry is thus only 24.3 percent. This low percentage is typical of areas devoted primarily to water-dependent recreational uses throughout the City.

VI. UPLAND LOTS

The number and area of upland sites in the Shilshole area is determined by the distance between the high tide line and Seaview Ave. NW which varies

from zero near 60th NW to over 200 feet near the locks and Shilshole Marina. Upland and waterfront sites are distributed as follows:

Number of upland sites	18
Area of upland sites	165,995 sq. ft.
Number of waterfront sites	38
Area of waterfront sites	5,317,116 sq. ft.

VII. TRAFFIC

Average daily traffic totals for the area are shown in Figure __. The Port of Seattle reported in the Draft EIS for Expansion of Moorage at Shilshole Bay Marina that the majority of traffic on Seaview Avenue is marina traffic.

VIII. PUBLIC ACCESS

The Shilshole Area provides a number of opportunities for the public to see and enjoy the water. At the north end is the Golden Gardens Park with both a natural beach and a public boat launching ramp. There is a separate fishing pier just north of the marina and public fishing is also permitted from pier A at the south end of the marina. The public may also walk along the sidewalk on the seawall of the marina and view the boats from park benches placed along the walk.

Regulated public access has also been required in conjunction with shoreline permits for Stuart's Restaurant, the condominium immediately north of it, the Elk's Club, and one condominium building on Salmon Bay.

IX. RESULTS OF THE SHORELINE INVENTORY

Tables 1 and 3 show the water-dependent classifications of waterfront lots in the Shilshole Area. There are no sites in water-dependent industrial-commercial use. Two sites, comprising 48% of the lineal frontage of waterfront, are classified as water-dependent recreational. Forty-three percent of the water frontage is either nonwater-dependent, nonwater-related, or vacant.

The use classifications (Table 2) also show the area to be marine recreation and residentially oriented, with residential uses being the most common use on waterfront (25) and upland (7) lots. The area has five lots with restaurants and 8 lots with marine-related retail. Although only two sites were classified as marinas, one (Shilshole) is the dominant use in the area.

TABLE 1
Water-Dependency by Lineal Feet
(# of sites) in the Shilshole Area

Water Dependency Category	Water Frontage (Feet)	# of Sites	Percentage of Frontage	Percentage of Sites
WD-IC	0	(0)		(0)
WD-REC	4070	(2)	48.0%	(5.3%)
WR	0	(0)	0	(0)
FLHM	0	(0)	0	(0)
WD-BOTH	0	(0)	0	(0)
MRN-REL	140	(2)	1.6%	(5.2%)
MULTI-INC-WD	300	(1)	3.5%	(2.6%)
NOT WD-WR	3666	(30)	43.2%	(78.9%)
VACANT	310	(3)	3.6%	(7.9%)
TOTALS	8486	(38)	100%	(100%)

TABLE 2
Primary Uses and Secondary in the Shilshole Area

	Primary Uses		Secondary Uses	
Use	Waterfront Lots	Upland Lots	W.F. Lots	Upland Lots
No Secondary Use			32	15
Residential	25	7	2	
Marine Manufacturing		1	1	
Transportation & Utilities	3	2	2	
Retail Trade - Non-marine	1			
Marine Retail Trade	2	4	1	1
Restaurants	4		1	
Non-marine Services			1	
Governmental Services			1	
Marine Services		1	1	
Cultural & Entertainment Uses	1			
Marinas	2			
Commercial Moorage			1	
Open Storage	1			
Vacant/Underused Areas	2	2	—	—
Total Number of Sites	41	17	43	16

TABLE 3
Square Footage of Waterfront Sites by Water-Dependency

Water-Dependency	# of Sites	Dry Land	Submerged Land	Total
WD-REC	2	620,300	3,785,966	4,406,266
MULTI-INC-WD	1	36,300	6,000	42,300
MRN-REL	2	8,300	6,900	15,200
NOT WD-WR	30	620,900	205,920	826,820
No Use or St End	3	6,350	20,180	26,530
TOTALS	38	1,292,150	4,024,966	5,317,116

X. ISSUES

A. Match Between Shorelines and Zoning

The existing Urban Stable Shoreline designation appears appropriate for the Shilshole Area. The shoreline inventory showed a mixture of residential and commercial uses but no industrial uses. There were no nonconforming uses identified in the survey and the permitted uses in the US environment match those of the existing CG zoning quite closely. The change to the new Neighborhood Commercial Area Code is not expected to alter the match between zoning and shorelines.

B. Housing as a Conditional Use

When the new Neighborhood Commercial Area Code is adopted, housing will cease to require a Council Conditional Use but will still require a shoreline conditional use in this area. The conditional use is considered desirable because although there are already a number of residences in the Shilshole area and although there are fewer incompatibilities between marinas and housing than between shipyards and housing, conflicts can still occur. Marina activities normally include maintenance by boatowners which require the running of power tools which generate noise and dust. When the marina includes a boat haulout facility, the conflicts are more pronounced. The Seaview Boatyard at the south end of Shilshole has had to restrict its hours of operation because of complaints from residents of the neighboring condominiums. A proposal to build several condominium towers at the Shilshole Marina parking lot generated strong opposition from both residents of Sunset Hill and marina tenants. The residents were concerned with view blockage while marina tenants were concerned about possible parking shortages and possible restrictions on in-marina maintenance activities on their boats.

C. Constraints on Water-Dependent Development

The Shilshole Area has not been developed for industrial water-dependent uses, and its potential for such use is limited. Industrial uses would not be compatible with the large number of

residential uses in the area nor with the restaurants. Support services are not available on adjacent lands. The shallow water and intertidal areas would require extensive dredging and bulkheading to accommodate industrial uses. Moreover, further development of water-dependent uses in Salmon Bay itself is limited because of the narrow area between the shore and the channel and the desirability of maintaining shallow water habitat in the salmonid migration route. Some potential for additional shallow draft recreational moorage does exist between Salmon Bay and the Shilshole Marina. The present location of the state waterway line, shoreward of the federal channel line, acts as a legal restraint to use of this area. The State Department of Natural Resources is considering moving the waterway line seaward as part of comprehensive action on waterway line issues throughout the Ship Canal System.

D. Commercial vs. Recreational Moorage

The issue of maintenance and need for expansion of transient commercial vessel moorage surfaced in 1981 when the Port of Seattle proposed expanding recreational craft moorage at the Shilshole Marina. The maximum expansion alternative described in the EIS would have eliminated transient commercial vessel moorage on Pier A and was consequently opposed by commercial fishermen. The present Shoreline Program gives little guidance for choosing between recreational and commercial moorage.

CHAPTER 4: ELLIOTT BAY

I. INTRODUCTION

A. Area

The approximately five miles of shoreline surrounding Elliott Bay include several distinct and diverse areas. To accurately reflect the diverse development of the shoreline, Elliott Bay has been divided into five areas. Two of these areas, Central Waterfront (Bay Street to South Washington Street, geocodes 3 and 4), and Harbor Island and Waterways (South Massachusetts Street to Southwest Bronson Way, geocodes 6, 7, 8, 9 and 11), are reviewed in other background reports. The other three areas, the Smith Cove area (34th Avenue W. to Bay Street), South-Central Waterfront (South Washington Street to South Massachusetts Street) and Harbor Avenue (Southwest Bronson Way to Southwest Atlantic Street) are reviewed in this report. The map following page 4-1 helps to illustrate these area boundaries: the Smith Cove Area includes geocodes 1 and 2; the South Central Waterfront is geocode 5; and the Harbor Avenue area is assigned geocode 12.

B. Physical Characteristics

Elliott Bay provides Seattle with a natural harbor area. As part of Puget Sound, it is salt water and subject to tidal action. The Bay is quite deep, dropping to 80 to 100 feet close to shore. However, the water depth immediately adjacent to the piers is usually only 20 feet to 40 feet deep.

Most of the land adjacent to the shore is relatively flat. This is due to fill activity over the last century that moved the shoreline toward the west, and to the regrading of Denny Hill. Despite these changes, the original bluff is still apparent in places. Part of the north Elliott Bay area, Smith Cove, is wedged at the foot of Queen Anne and Magnolia Hills. These hills rise 150 feet above the shore. The area along Southwest Elliott Bay has experienced minimal fill activity, and the bluff, 100-150 feet above, remains intact.

Access to each of these three study areas is from a major arterial with few intersecting streets. The Smith Cove area is only accessible from the north and south, with very limited private access from streets in between. However, much of this area's southern waterfront is devoted to two waterfront parks, so pedestrian access is abundant. The South-Central Waterfront uses Alaskan Way South as the major vehicular access route. Due to the railroad tracks, access from intersecting streets is primarily limited to Royal Brougham Way. Harbor Avenue SW provides the major vehicular access to the Harbor Avenue area. Intersecting streets are limited by the steep bluff.

The Smith Cove Area and the South Central Waterfront Area both have excellent rail access. The Harbor Avenue area does not have rail access since the railroad right-of-way stops at Southwest Bronson Way, the eastern boundary of this area.

C. Adjacent Lands

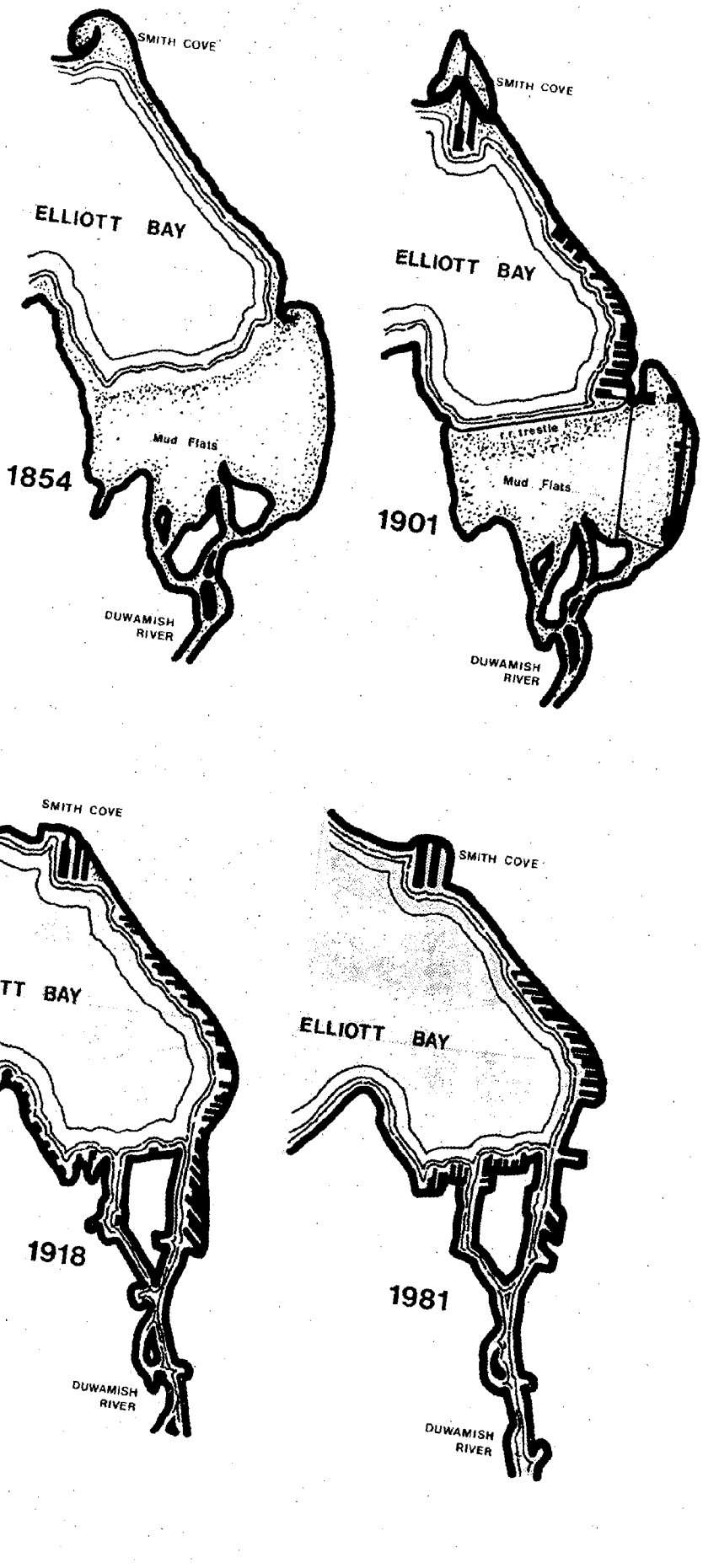
Smith Cove Area. The natural boundary for lands adjacent to this area is the bluff rising steeply to the east of the area and Magnolia and Queen Anne Hills on the north. Residential uses predominate on these hills. The land between the bluff and the Shoreline District is primarily occupied by manufacturing uses with some retail and restaurant uses scattered throughout and some housing occupying land in the southern section. Elliott Avenue provides the major vehicular access for the area and, as such, forms the spine of development. Direct access to the waterfront from this area is severely restricted due to active railroad right-of-way and few streets.

South Central Waterfront. There is no apparent physical boundary to the lands adjacent to this area. For clarity, First Avenue South will be used as the eastern boundary of adjacent lands. The north section is adjacent to Pioneer Square, an historic district with a mix of retail, office and restaurant uses. The Pioneer Square area has a high pedestrian orientation, but this does not spill into the waterfront area due to poor pedestrian access. The south section abutts the Kingdome and numerous railroad tracks. Much of the land is occupied by manufacturing uses, warehousing, and the railroad right-of-ways. The only arterial access from this area to the shoreline district is Royal Brougham Way although there are other local streets.

Harbor Avenue. The bluff adjacent to the shoreline district is the natural boundary for an adjacent lands review. This land is environmentally sensitive and designated as a greenbelt area. The primarily residential uses at the top of the bluff enjoy views across Elliott Bay to downtown, but the access to the waterfront area is limited due to the steep bluff.

II. HISTORY OF ELLIOTT BAY

Elliott Bay is a physical resource that played a central role in Seattle's evolution from a wilderness to a major metropolitan center. The waterfront has been the host for industry, trade and recreation throughout its history and continues that role today. However, as needs and technology change, the specific uses on the waterfront have altered. In fact, the shoreline itself has been reshaped several times to adapt to these changes. The maps following this page reflect the changes in Elliott Bay from 1854 to 1981. Only the Harbor Avenue shoreline has remained primarily unchanged.


SMITH COVE
ELLIOTT BAY
Mud Flats
1854
DUWAMISH RIVER
SMITH COVE
ELLIOTT BAY
r.r. trestle
Mud Flats
1901
DUWAMISH RIVER
SMITH COVE
ELLIOTT BAY
1918
DUWAMISH RIVER
SMITH COVE
ELLIOTT BAY
1981
DUWAMISH RIVER

The first landfill, named "The Sawdust," was started prior to 1875 by Henry Yesler (Seattle's Waterfront, by Marc Hershman) who dumped waste from his mills at the foot of his wharf. More fill was provided by early trade ships which dumped rock ballast at the end of the piers to make room for their cargoes of lumber and coal. Further definition of the shoreline came with the railroad trestles. While they were originally built over the water, they soon defined the seaward boundaries of the land. Further reshaping began in 1895 when the tide flats of lower Elliott Bay were dredged and filled so that by 1905 the East and West Waterways were complete. In 1911, the railroad trestles along the Central Waterfront started to be replaced with concrete seawalls. By 1936 the seawall was complete from South Washington Street to Pike Street.

More recent changes occured with the construction of Interstate 5, which provided the land fill for Myrtle Edwards and Elliott Bay Parks. The Port of Seattle created Terminals 37 and 46 by filling the areas between Piers 37, 38, 39, 42 and 43. Recently, the Port of Seattle prepared a Final Environmental Impact Statement on proposals for filling the area between Piers 90 and 91.

III. CURRENT LAND USE REGULATIONS

A. The Shoreline Program

All of Elliott Bay lying seaward from the line of extreme low tide is a "shoreline of state-wide significance," as designated by the Shoreline Management Act of 1971 (RCW 90.58). These shorelines are major resources from which all the people in the state derive benefit. Due to this designation, local master programs must give preference to uses which favor public and long-range goals. The order of preference for uses, as established by the Act (WAC 173.16.040(s)) are those uses which:

1. Recognize and protect state-wide interest over local interest.
2. Preserve the natural character of the shoreline.
3. Result in long-term over short-term benefit.
4. Protect the resources and ecology of shorelines.
5. Increase public access to publicly owned areas of the shorelines.
6. Increase the recreational opportunities for the public on the shorelines.

The three study areas of Elliott Bay include three shoreline environments: Conservancy Management, Urban Stable and Urban Development. Table 1 shows the distribution of these environments by water frontage.

TABLE 1
Waterfrontage by Shoreline Environment by Area
Excluding Street Ends

	Smith Cove Area		South-Central		Harbor Avenue	
	# of Sites	Frontage	# of Sites	Frontage	# of Sites	Frontage
Conservancy Management	4	7540	0	0	4	2590
Urban Development	3	4550	4	5062	0	0

Conservancy Management (CM), which limits activity to those uses that can be carried out with minimal adverse impacts on the environment, accounts for most of the waterfrontage. Urban Stable (US) is located upland of the CM environments and, therefore, has no waterfrontage in these study areas. The Urban Development (UD) environment, allowing industrial and commercial uses, accounts for the rest of the shoreline in the areas.

In addition to listing permitted uses, the SSMP includes development standards which regulate height, lot coverage and view corridors.

B. The Zoning Code

Since Seattle adopted its first zoning code in 1923, most of these three study areas have been zoned for manufacturing uses. However, over the years some changes were made. With adoption of the 1957 zoning code, the Interbay section of the Smith Cove area was zoned General Industrial (IG). The Harbor Avenue area was changed from manufacturing to commercial in two steps. In 1947, the upland lots were changed, and in 1963 the waterfront lots were changed. These changes result in the current zoning pattern. The distribution of water frontage within these zones is outlined in Table 2.

TABLE 2
Waterfrontage by Underlying Zoning by Area
Excluding Street Ends

	Smith Cove Area		South-Central		Harbor Avenue	
	# of Sites	Frontage	# of Sites	Frontage	# of Sites	Frontage
Commercial	1	560	0	0	12	2090
Manufacturing	3	6980	4	5062	0	0
Industrial	3	4500	0	0	0	0

C. Harbor Lines

All the areas of Elliott Bay are affected by State Harbor Lines. Harbor Areas are determined by the State Harbor Lines Commission with the establishment of Inner and Outer Harbor Lines. The area that falls between the inner and outer harbor lines is the State Harbor Area and "shall be forever reserved for landings, wharves, streets and other conveniences of navigation and commerce" (RCW 79.01.44), also State Constitution Article XV. Therefore, this area may be leased but not sold. The area beyond the outer harbor line may not be leased or sold.

The harbor areas are regulated by the State Department of Natural Resources (DNR). Under current DNR leasing regulations, water-dependent uses are allowed leases of up to 30 years. Non-water-dependent uses are permitted only with shorter leases.

In the Smith Cove area, the inner harbor line loosely corresponds to the shoreline along the park section. Pier 86, the grain terminal, is the only extension into the harbor area in the park section. Further north, in the Interbay section, parts of both Pier 90 and Pier 91 extend into the Harbor Area.

In the South-Central area, the outer harbor line was moved in the 1970's. Since then, much of the area between the harbor lines has been filled, creating Terminals 37 and 46.

In the Harbor Avenue area, the inner harbor line again corresponds, roughly, to the shoreline. The outer harbor line parallels the inner line approximately 575 feet away.

IV. CURRENT LAND USE

A. Uses of Sites

Elliott Bay is composed of areas with distinct uses. The types of uses also differ with their location on the shoreline, that is, waterfront lots or upland lots. Table 3 shows the distribution of predominant uses by waterfront lots and upland lots for each area. In general, industrial and recreational uses comprise most of the Smith Cove area. Industrial uses comprise all the South-Central Waterfront, and recreational uses comprise most of the Harbor Avenue area.

TABLE 3
Predominant Uses by Waterfront and Upland Lots

	Smith Cove Area	
	Waterfront Sites	Upland Sites
General Manufacturing	0	3
Container Terminals	1	0
Wholesale Trade	1	2
General Leased Office Space	0	1
Non Marine Services	1	0
Cultural/Entertainment Uses	4	0
Vacant or Underused Areas	3	0
	10	6

	South Central Waterfront	
	Waterfront Sites	No. Upland Sites
Marine Transportations	1	
Container Terminals	2	
Governmental Services (Coast Guard)	1	
	4	

	Harbor Avenue Area	
	Waterfront Sites	Upland Sites
Residential		8
Retail Trade - Non-Marine		2
Marine Retail Trade		1
Restaurants	1	3
Cultural/Entertainment Uses	2	
Marina	1	
Vacant/Underused Areas	1	3
Street Ends or Waterway	2	
	7	17

TABLE 4
Secondary Uses by Waterfront and Upland Lots

	Waterfront Sites	Upland Sites
Smith Cove Area		
Residential	0	1
St. End or Waterways	2	0
General Manufacturing	0	1
General Office	0	1
Non-marine services	2	4
Cultural Uses	2	0
Fishing Activities	1	1
Vacant	1	0
South Central Uses		
Marine Craft Transportation	2	No Upland Sites
Street End	1	
Non-marine Services	3	
Cultural Uses	1	
Commercial Moorage	1	
Vacant	1	
Harbor Avenue		
Street End or Waterway	1	0
Retail Trade - Non-marine	0	1
Marine Trade	1	0
Vacant or Underused	5	0

This information was gathered by the Department of Construction and Land Use during a 1982 inventory of non-residential shoreline areas. As part of this inventory, sites within the shoreline were classified into one of nine categories on the basis of the degree of water-dependency exhibited by the predominant use of each site. Results for the Elliott Bay study areas are presented in Table 5.

TABLE 5
Sites And Water-Frontage by Water-Dependent Use Category --
Elliott Bay by Area

	No. of Sites	Water Frontage (Ft.)	% of Water Frontage
		Smith Cove Area	
WD-IC	1	1600	13.2%
WD-REC	2	2650	21.9%
WD-BOTH	1	3500	29 %
NOT WD-WR	1	0	0
No Use or Street End	3	4340	35.9%
TOTALS	6	9650	100%
		South Central Waterfront Area	
WD-IC	4	5062	98.1%
No Use or Street End	1	100	1.9
TOTALS	5	5162	100.0%
		Harbor Avenue Area	
WD-IC		390	15.1%
WD-BOTH	1	1400	54.1%
NOT WD-WR	15	500	19.3%
No Use or Street End	3	300	11.6%
TOTALS	24	2590	100.1%

These tables start to give a clear picture of current uses along Elliott Bay. The Water-Dependent Industrial-Commercial Uses are concentrated in the Smith Cove area and the South-Central Waterfront. The Water-Dependent Recreational Uses are concentrated along Harbor Avenue with Don Armeni Park and in the Smith Cove area with Elliott Bay and Myrtle Edwards Parks.

There are no sites in these areas that are classified as Water-Related (WR) or Multiple Use including a secondary use that is water-dependent (MULTI-INC-WD). Only one site was Marine-Related (MRN-REL). The Non-Water Dependent or Water-Related (NOT WD-WR) uses are found primarily on upland lots.

B. Size of Sites

Another way to examine the use of the shoreline district is the size of the sites and the relationship of dry land to submerged land. Table 6 shows the total square footage of waterfront sites by water-dependency category.

TABLE 6
Square Footage of Waterfront Sites by Water-Dependency

Water-Dependency	# of Sites	Dry Land	Submerged Land	Total
WD-IC	5	8,614,669	5,070,986	13,685,655
WD-REC	3	287,900	1,079,700	1,367,600
WD-BOTH	2	2,177,670	1,420,445	3,598,115
NOT WD-WR	2	674,200	285,000	959,200
No Use or Street End	4	142,700	1,835,283	1,977,983
TOTALS	16	11,897,139	9,691,414	21,588,553

Table 7 shows the average total size of sites, dry land, submerged land and percentage of dry land of total site for each area.

TABLE 7
Average Size of Sites for Waterfront Sites
Excluding Street Ends

	Avg. Total Size	Avg. Dry Size	Avg. Submerged Size	Avg. Percentage Dry of Total
Smith Cove Area	2,209,601	1,287,645*	1,780,386	59.7%
South-Central Area	1,421,013	983,642	437,371	69.2%
Harbor Ave. Area	368,750	59,175	309,575	16.1%

When this type of information is correlated with the degree of water dependency, a pattern in the relationship starts to emerge. Table 8 shows the relationship of dry and submerged land with water-dependency.

*Does not include two sites west of Piers 90-91 that have only submerged land.

TABLE 8
Average Size of Waterfront Site (Dry, Submerged and Dry Percentage of Total by Water-Dependency (Excluding Street Ends)

	Dry	Submerged	Dry as Percentage of Total
Smith Cove Area:			
WD-IC	4,680,100	3,321,500	58.5%
WD-REC	136,450	419,850	24.5%
WD-BOTH	2,027,470	734,645	73.0%
NOT WD-WR	607,700	0	100.0%
No Use or Street End	137,700	0	100.0%
Vacant Water Area	0	1,490,783	0 %
South Central Waterfront:			
WD-IC	983,642	437,372	69.2%
Harbor Avenue Area:			
WD-REC	15,000	240,000	5.9%
WD-BOTH	150,200	685,800	18.0%
NOT WD-WR	66,500	285,000	18.9%
No Use or Street End	5,000	27,500	15.4%

From this information it appears that the water-dependent, industrial/commercial uses require a fairly large amount of dry land. By comparison, the water-dependent, recreational uses require very little dry land, primarily using the submerged land area of the site.

V. ISSUES

The future development of Elliott Bay's shoreline areas is interrelated. Development in one area may affect development in other shoreline areas and the adjacent communities. Future development is feasible in any number of forms so this discussion is limited to those proposals that have surfaced at this time.

Smith Cove Area - The future of Terminal 91, one of the Port of Seattle's largest and least intensively used facilities, is the major issue in this area. Originally, the Port intended to develop the area with a container terminal. Now that plan has been somewhat altered so that an Environmental Impact Statement has been being prepared on five alternative plans, with no expressed preferred plan. These plans range from NO FILL of the area between the piers, to FULL FILL between the piers. There has also been discussion about the possibility of the Navy buying back the piers for a carrier force to be stationed in Puget Sound. Impacts of the

various alternatives vary but all include increased truck and rail traffic, noise, and light and glare. Any of the FILL alternatives would involve the loss of both shallow water and deepwater marine habitats.

The Corp of Engineers recently issued a Final EIS for the Widening and Deepending of the Duwamish Waterways. The preferred alternative for that project would use the submerged land between Piers 90 and 91 as a disposal area for dredge spoils which do not meet the EPA open water disposal criteria. The widening and deepening project would thus serve as a convenient source of fill material for T-91 and the T-91 site would serve as a convenient and necessary disposal site for the widening and deepening. The use of T-91 as a disposal site for contaminated dredge spoils raises environmental concerns about leaching of contaminants from the containment areas into Elliott Bay and spillage during transport.

On June 14, 1983 the Port of Seattle Commissioners voted to proceed with the FULL FILL project. The first 400 feet of the waterway would be filled first and the rest later. Under this plan the new terminal would handle a wide range of general cargo, including cars, apples and lumber. The Port has no plans to convert the Terminal to container use but has not ruled out the possibility of changing its mind.

Construction of both the temporary short fill and eventual full fill will require shoreline substantial development permits from DCLU. However, the dredging of the Duwamish by the Corps would not require a shoreline permit.

The form of development at Terminal 91 will have impacts on other shorelines of the city as well as the neighboring residential communities and the Elliott Bay environment. Property owners along the Duwamish River have expressed concern that the Port of Seattle will further develop that area with container terminals. However, the Industrial Areas Background Report (Office of Policy Planning; Volume 1, 1980, p. 32) states that "If Terminal 91 were developed for container shipments, the Port asserts no further container facilities would be required in the Duwamish, and future capacity could be accommodated without a new terminal on the waterway." Conversely, development of T-91 for other than container shipments would increase demand for container facilities in the Duwamish. The loss of transient moorages for tugs and other vessels at Terminal-91 because of the fill may increase demand for transient moorage on the Central Waterfront whose older piers built close together and in various states of rehabilitation and dilapidation may not be able to accommodate the demand.

A more recent development proposal for the tide flats west of Smith Cove also promises to generate some controversy. A developer proposes a rubble mound breakwater offshore to accommodate 1400 new recreational moorage slips. The proposal would require dredging of 150,000 cubic yards and a fill of 400,000 cubic yards to provide vehicle access, parking and marina buildings. In addition to concerns about damage to the natural environment, the proposal has generated concerns among Magnolia residents about traffic through their neighborhood.

South-Central Waterfront - Most of this area is developed with container terminals, a well-established use which relates well to adjacent uses of manufacturing and warehousing. A potential issue is the future development of Pier 48. Currently occupied by the Alaska Marine Highway system and a public viewing area, some argue that it relates more to the Central Waterfront uses to the north than to the container facilities south of it. A change in the shoreline environment from UD to the Central Waterfront environment may be required to continue this relationship. Connected to this issue is whether the current level of containerization is adequate for future needs.

Harbor Avenue - Much of the Harbor Avenue area is vacant or underdeveloped. Development of any kind would have impacts on the community, primarily increased traffic; however, development of any major proportions has not occurred.

The major proposed development is Seacrest Marina. Envisioned as a public-private development of a 700-slip marina with associated shoreside uses, it has been under consideration for years. If constructed it might spur other development in the area. This is supported by the Harbor Ave. Study (Department of Community Development, 1983, p.39) which states "Very little or no retail/office space currently exists along the corridor. While the area would not normally attract major new development, plans to upgrade the Seacrest Marina may change this situation."

The CM environment and the CG zoning encourage this type of development in the area. The Harbor Avenue area could accommodate and benefit from development. It could provide space for uses needed on a city-wide basis, thereby freeing other areas for more intensive industrial development.

CHAPTER 5: CENTRAL WATERFRONT

I. INTRODUCTION

A. Area

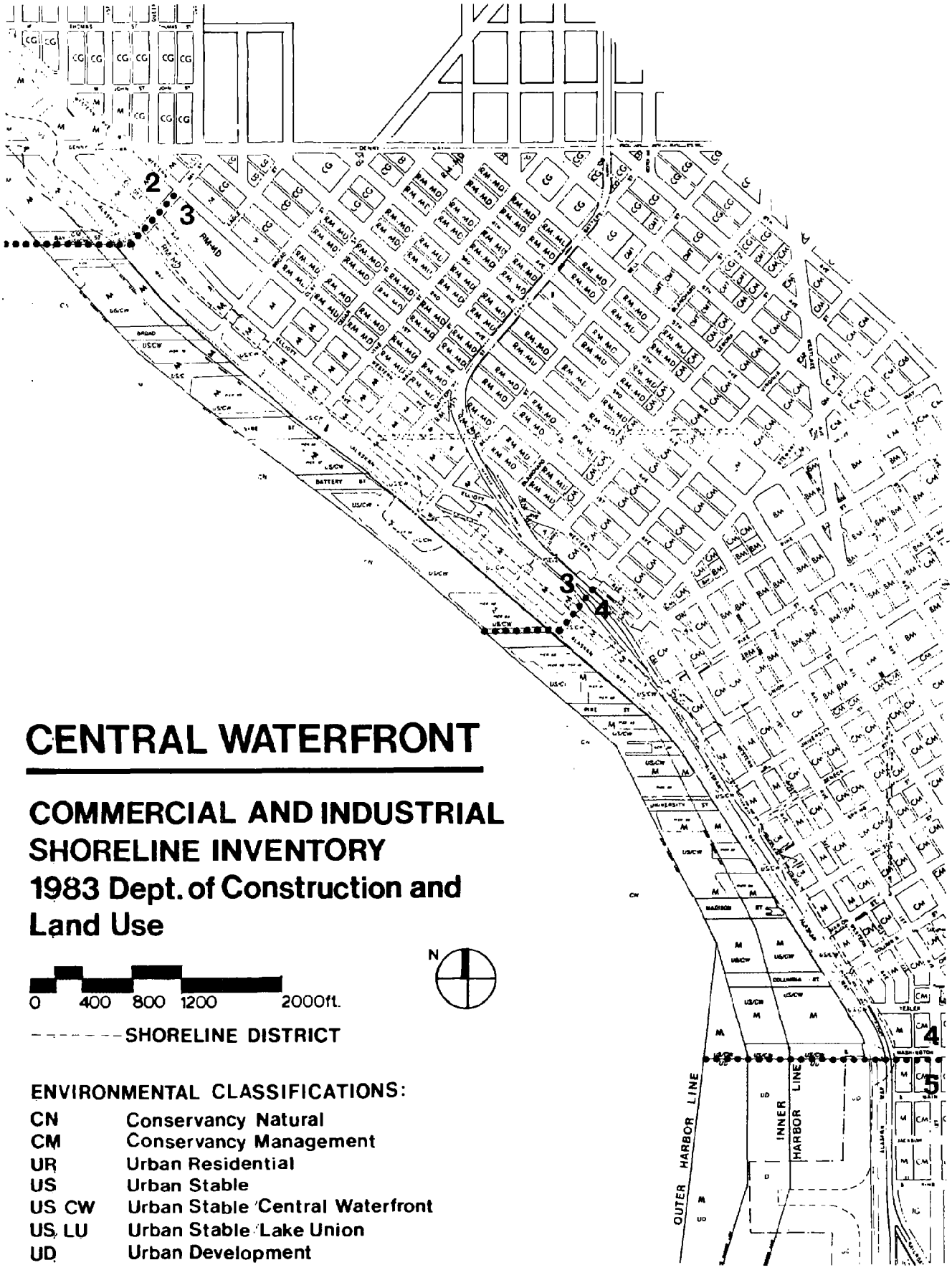
The Central Waterfront stretches for a mile and a half along that portion of Elliott Bay that borders downtown Seattle. The Shoreline District includes the submerged and dry land from the outer harbor line on the west, to a line 200 feet inland from the ordinary high tide line. The Shoreline District includes land east of Alaskan Way and, therefore, includes upland lots. However, most people view the Central Waterfront as the area west of Alaskan Way, the piers and piersheds. It is here that the activity that shapes the waterfront takes place. This study encompasses the Shoreline District from S. Washington Street (north of Pier 48) to Bay Street (north of Pier 71). The boundaries of the Central Waterfront are illustrated on Figure 5-1; the area was assigned geocodes 3 and 4 in the inventory.

B. History

The Central Waterfront has been a focal point of activity throughout Seattle's history. Seattle's first industry, Yesler's sawmill, was dependent on the water for its operation, and it was around this sawmill that Seattle became an expanding port. This role as the hub of port activities has changed as technology altered the needs and requirements of Port activities. In fact, the shoreline itself has been reshaped several times to adapt to these changing needs.

The original shoreline followed Post Street and First Avenue from South Washington Street to University Street. From that point northward, it followed Western Avenue. As early as 1875, Henry Yesler was dumping waste from his mills at the foot of his wharf. More fill was provided by early trade ships who dumped their rock ballast at the end of the piers to make room for their cargoes of lumber and coal. The shoreline was further defined by the railroad trestles. Originally built over the water, they soon defined the seaward boundaries of the land as fill was dumped behind them. From 1911 to 1916 and again in 1934 to 1936, the railroad trestles were replaced with concrete seawalls. Through these various methods, the original shoreline was moved seaward to its current location.

The identification of the piers has also changed over the years. Originally, the piers reflected the names of their builder or the company using the pier. In 1901, the piers were numbered north of Yesler Way and alphabetized south of Yesler Way. Duplication of numbers became a problem, though, so in 1944, the United States government renumbered the piers to eliminate any confusion. (Seattle Waterfront, Marc Hershman, 1981, p. 11.) That system, beginning with Pier 1 in West Seattle, and leaving gaps for open water areas, is still in effect today.



CENTRAL WATERFRONT

COMMERCIAL AND INDUSTRIAL SHORELINE INVENTORY 1983 Dept. of Construction and Land Use

N

0 400 800 1200 2000ft.

SHORELINE DISTRICT

ENVIRONMENTAL CLASSIFICATIONS:

CN	Conservancy Natural
CM	Conservancy Management
UR	Urban Residential
US	Urban Stable
US CW	Urban Stable Central Waterfront
US LU	Urban Stable Lake Union
UD	Urban Development

C. Physical Characteristics

The Central Waterfront, as part of Elliott Bay, is salt water with direct access to Puget Sound. The area is subject to tidal action, with the mean differences between high and low tides being 7.6 feet. The water is deep, dropping from 30 to 40 feet close to shore to 100 feet slightly beyond the outer harbor line. The waterfront is very open with very little wave protection.

The topography of the land adjacent to the shoreline varies. To the north of the waterfront is a bluff, rising over 150 feet above the water level and then dropping off sharply one block east of the waterfront. The rest of the area is overlooked by a steadly rising slope extending to Downtown Seattle. At the foot of the bluff and slope is man-made fill which covers the original tide lands and is held in place by the seawall along Alaskan Way. This area is relatively flat.

The major vehicular access along the Central Waterfront is Alaskan Way. Four lanes wide, it runs essentially parallel to the shoreline for the entire length of the waterfront. Alaskan Way is intersected by perpendicular streets approaching the waterfront in three different grid patterns. Some of the streets are connecting streets to downtown, others end at the bluff.

In addition, the Alaskan Way Viaduct, an above grade arterial, parallels the shoreline south of Blanchard Street. This arterial has no exits southbound, one exit northbound at Seneca Street, one entrance southbound at Blanchard Street, and one entrance northbound at Bell Street.

The railroads have been a major transportation asset on the Central Waterfront since the early days when Alaskan Way was known as Railroad Avenue. Two parallel tracks (three in places) run along the east side of the Alaskan Way roadway. The western of the two tracks is used by the Waterfront Trolley which opened in 1982 and operates from Main Street to Broad Street. The eastern tracks are used by the Burlington Northern Railroad which also uses an underground tunnel which runs underneath the city and emerges between Stewart and Virginia Streets on the Central Waterfront. Spur lines run from the tracks to the piers but at present do not provide rail access to the piers because the spurs leave from the western track, which is used exclusively by the trolley. Spur lines to the sites east of Alaskan Way are still operable.

D. Condition of Existing Structures

Development along the Central Waterfront is supported by man-made structures. The land itself is held in place by the Alaskan Way Seawall and the buildings sit on piers over the water. Therefore, the condition of these structures is important to the future of the waterfront.

The Alaska Way Seawall was studied in 1982. The summary of the results of that survey (Condition Survey and Evaluation Report, Seattle Engineering Department, October 1982) concludes that:

> The section of Alaskan Way Seawall studied is 48 years old and its condition is progressively deteriorating. Corrosion of the Seawall's steel sheet piling has resulted in holes that allow loss of backfill under the roadway. These holes also allow marine worms to attack timber members that support Alaskan Way. Failure of these timber supports has resulted in numerous isolated street voids and collapses over the past 30 years. Timber sample removed from behind the Seawall during the condition survey indicate active marine worm activity. The condition of the Seawall does not indicate danger of immediate collapse. But its deteriorating state does require repair to avoid failure in the next five to ten years.

The results of this study are leading the Seattle Engineering Department to pursue options for repairing 1400 feet of the 6000-foot seawall.

The piers vary in condition, although all require continuous maintenance. Outlined below is the condition of each pier based on inspections made by the Department of Construction and Land Use in January, 1983.

Piers 50 and most of 51 - Removed to provide space for Washington State Ferry Terminal expansion.
Pier 51 - Remainder left since it was stable.
Piers 52 and 53 - Good condition.
Pier 54 - Currently being renovated.
Piers 55 and 56 - In need of some major repair and rehabilitation; work is starting in the near future.
Piers 57 and 59 - In need of rehabilitation.
Piers 62 and 63 - Condemned due to lack of structural integrity - vacant. (Pilings may be in better shape than sheds.)
Piers 64 and 65 - Condemned due to lack of structural integrity - vacant.
Pier 66 - Currently undergoing major rehabilitation on the south side. The north side was rehabilitated with a grant from the Economic Development Agency.
Piers 67 and 68 - Needs rehabilitation.
Pier 69 - Currently undergoing major rehabilitation.
Pier 70 - Needs rehabilitation.
Pier 71 - Vacant and needs major work. It is part of major redevelopment proposal.

E. Adjacent Lands

For the Central Waterfront, the logical adjacent lands boundary is the bluff. This land between the water and the bluff is the area

created by fill. Most of the area is zoned Manufacturing (M). However, two blocks are currently zoned Metropolitan Commercial (CM), and there are proposals for two more blocks to be rezoned to CM.

Warehousing, including cold storage facilities, and parking are the major uses in the area. There are also a number of office scattered throughout the area. The cold storage facilities are used by fish processing companies on the piers and by Pike Place Market entrepreneurs. Parking facilities are used by downtown businesses and the uses on the piers.

In addition to the existing uses, there are a number of developments that are under construction or proposed (Cornerstone Developments and Harbor Steps) that will alter the use of this area. These developments propose a mix of residential, retail, office and parking uses. These uses will create more of a pedestrian atmosphere which may increase the relationship of the adjacent lands to the waterfront.

III. CURRENT LAND USE REGULATIONS

A. The Shoreline Program

The portion of the Central Waterfront lying seaward of the line of extreme low tide (i.e., the seawall), is a shoreline of state-wide significance, as designated by the Shoreline Management Act of 1971 (RCW 90.58). These shorelines are major resources from which all the people in the state derive benefit. Due to this designation, local master programs must give preference to uses which favor public and long-range goals. The order of preference for uses, as established by the Act (WAC 173.16.040(s)), are those uses which:

1. Recognize and protect state-wide interest over local interest.
2. Preserve the natural character of the shoreline.
3. Result in long-term over short-term benefit.
4. Protect the resources and ecology of shorelines.
5. Increase public access to publicly owned areas of the shorelines.
6. Increase the recreational opportunities for the public on the shorelines.

Given the designation as a shoreline of statewide significance and the unique characteristics of the Central Waterfront, the Seattle Shoreline Master Program designates the entire Central Waterfront as Urban-Stable/Central Waterfront. The purpose of US/CW (24.60.355 SMC) is similar to the purpose of the Urban Stable (US) environment, but also incorporates additional goals based on the particular characteristics of the Central Waterfront. In the US/CW environment, new development over water and the recycling and refurbishing of existing piers will be permitted which will:

1. Reinforce the historic marine orientation of Seattle as a major downtown theme;

2. Strengthen water-oriented recreation tourist activity, related retail business, and public areas open to the water;

3. Maintain a full complement of water-dependent uses; and

4. Preserve and enhance views of Elliott Bay and the Olympic Mountains from upland CBD development, street corridor vistas and the street level; provided, no additional coverage of the water by fixed structures shall be permitted.

In general, the US/CW environment permits retail shops, restaurants, open wet moorage, marine sales and service, public marinas, accessory parking, ferry terminals, cargo terminals, log storage and rafting, commercial and public recreational piers, aquaculture structures, public parks, research and educational uses, clubs and community facilities. Offices are allowed on the second floor of a building. Housing is not permitted in the US/CW environment.

The bulk requirements for development on the Central Waterfront limit height to 50 feet both on land and over water. Lot coverage is limited to 50% of the area with no new overwater structures permitted. View corridors of 30% are required in US/CW. These bulk requirements are written primarily for the piers, ignoring the lots across Alaskan Way. However, under the current SSMP, the upland lots have the same bulk requirements for development.

"Fine-Tuning" amendments to the SSMP, prepared by the Department of Construction and Land Use, have recently been adopted by the City Council and are now being reviewed by the State Department of Ecology. These amendments would permit 100% lot coverage and a wider range of uses on the upland lots. The warehousing, cold storage, and manufacturing uses made nonconforming in 1977 by adoption of the SSMP would become conforming again, and blocks zoned for residential uses would be permitted full use of the entire property, including portions within the Shoreline District.

B. The Zoning Code

The Central Waterfront has been zoned Manufacturing (M) since Seattle's first zoning code in 1923. Currently, most of the area is still M, the exception being three blocks: Seneca Street to Madison Street, from Alaskan Way to Elliott Avenue, which were contractually rezoned to Metropolitan-Commercial (CM) in 1974; and Broad Street to Bay Street, granted a contract rezone to RM-MD in 1980. All of the waterfrontage in the Central Waterfront is zoned Manufacturing.

The Manufacturing zone allows light manufacturing uses under specific conditions which are intended to minimize conflicts with nearby residential uses. The CM zone permits a wide variety of non-retail,

commercial and business uses functionally related to and near the retail core of the business district. RM-MD permits a mixture of residential, retail and office uses.

C. Other Legal Constraints - Harbor Lines

All the areas of Elliott Bay are affected by State Harbor Lines. Harbor Areas are determined by the State Harbor Lines Commission with the establishment of Inner and Outer Harbor Lines. The area that falls between the inner and outer harbor lines is the State Harbor Area and "shall be forever reserved for landings, wharves, streets and other conveniences of navigation and commerce." (RCW 79.01.44, and State Constitution, Article XV). Therefore, this area may be leased but not sold. The area beyond the outer harbor line may not be leased or sold.

The harbor areas are regulated by the State Department of Natural Resources (DNR). Under current DNR leasing regulations, water-dependent uses are allowed leases of up to 30 years. Nonwater-dependent uses are permitted only with shorter leases.

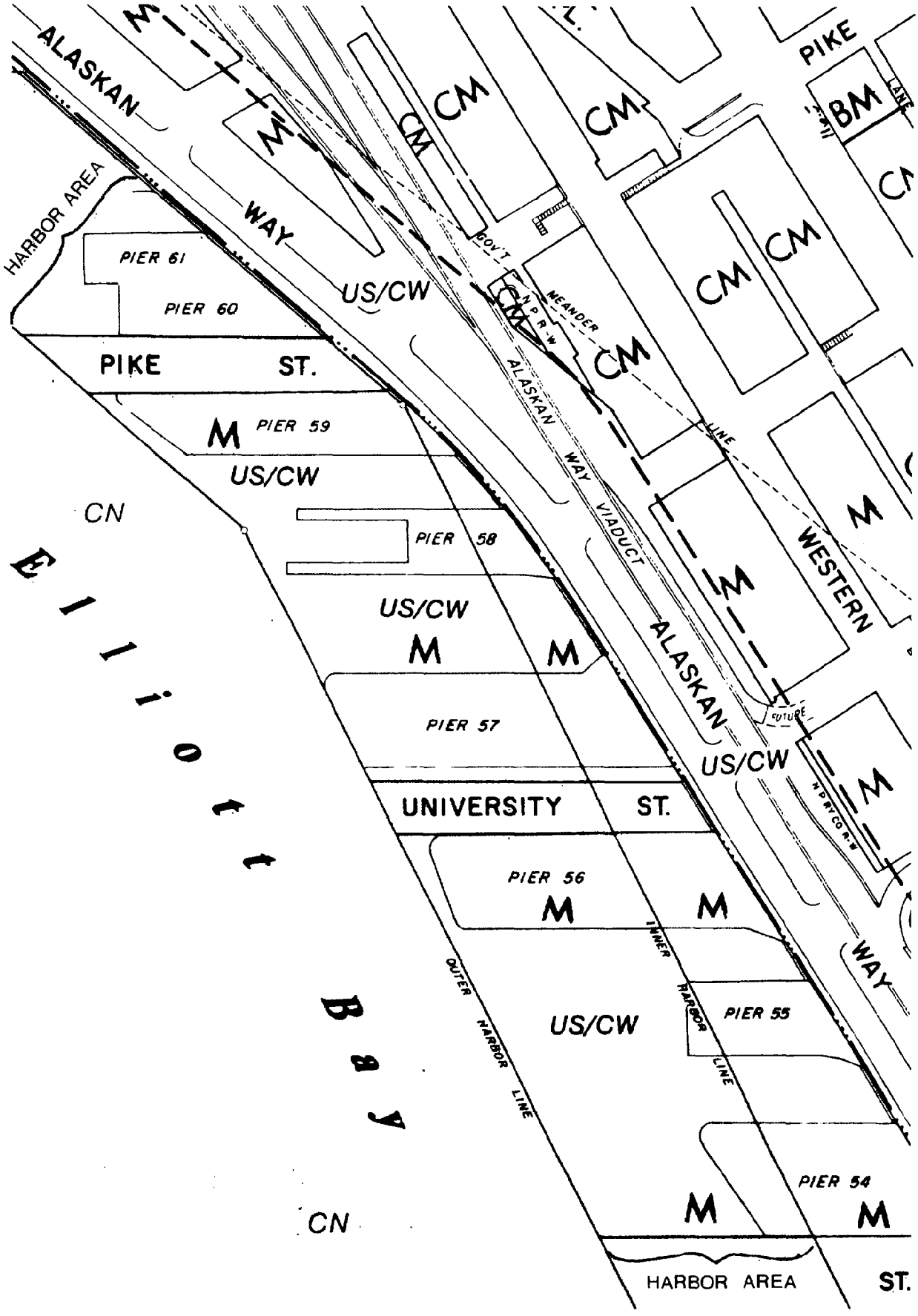
The State DNR recently proposed changes to lease regulations for Harbor Areas. These regulations now include an interim use category which includes all uses other than housing, water-dependent and water-oriented commerce and public access facilities. The proposed regulations would treat interim uses more flexibly, allowing the lease term to be based on an analysis of the space needs of water-dependent commerce rather than being limited to 10 years. New water-oriented commercial uses would be treated like interim uses. Public access facilities would be eligible for 30-year leases rather than the 20 they may now have.

The location of the inner harbor line on the pier affects the development of the pier because of DNR leasing policies, which are based on implementing Article XV of the Washington Constitution. The major portions of Piers 51, 52-53, 54 and 55 are over First Class Tidelands; that is, between the point of ordinary high tide and the inner harbor line. Most of Piers 56 and 57 are in the Harbor Area, between the inner and outer harbor lines. From Pier 59 to Pier 69, all of the pier structures are within the Harbor Area since the inner harbor line corresponds with the Alaskan Way Seawall. Piers 70 and 71 have very minor portions of the pier structure over tidelands. These relationships are shown on the map following this page.

IV. CURRENT LAND USE

A. Uses of Sites

The Central Waterfront is composed of many differing uses. The types also differ with their location on the shoreline, that is, waterfront lots or upland lots. Table 1 shows the distribution of predominant uses by waterfront sites and upland sites.


ALASKAN
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PIER 57
UNIVERSITY ST.
PIER 56
M M
OUTER HARBOR LINE
US/CW
INNER HARBOR LINE
PIER 55
PIER 54
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HARBOR AREA ST.
Elliott Bay
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ALASKAN WAY VIADUCT
LINE
WESTERN
FUTURE
US/CW
N P RY CO R/W
WAY

TABLE 1
Predominant Uses - Central Waterfront

Uses	Waterfront Sites	Upland Sites
Residential (Hotel)	1	0
General Manufacturing	0	2
Transportation & Utilities	0	8
Marine Transportation	4	0
Wholesale Trade	0	1
Retail Trade - Nonmarine	3	2
Restaurants	1	2
General leased office space	0	5
Non-marine services	0	8
Governmental services	2	0
Cultural and entertainment services	1	0
Marinas (Washington St. Boat Landing)	1	0
Vacant/Underused	3	2
Total Sites	13	30

In addition to these uses, half of the sites (26) had at least one secondary use. Table 2 shows the secondary uses found on the Central Waterfront for both waterfront sites and upland sites.

TABLE 2
Secondary Uses - Central Waterfront

Uses	Waterfront Sites	Upland Sites
Residential	0	2
Seafood products	1	0
General Manufacturing	0	1
Transportation and Utilities	3	1
Wholesale trade	0	3
Retail trade - non-marine	2	6
Retail trade - marine	1	0
Restaurants	6	3
General leased office space	1	3
Non-marine services	1	0
Governmental services	1	0
Cultural and entertainment uses	2	0
Fishing Activities	1	0
Commercial Moorage	1	0
Vacant/underused areas	6	0

Restaurants are the most popular secondary use over water and non-marine retail trade uses are the most common on upland sites.

B. Upland Sites

The Shoreline District's 200' jurisdiction falls east of Alaskan Way; therefore all of the sites across Alaskan Way are upland sites. Tables 1 and 2 indicate that the uses on these sites differ dramatically from the uses on the waterfront sites. These sites face different development constraints and have different development potential.

Currently, some of the upland sites act as backup space for water-dependent uses over the piers. Examples include the parking facility underconstruction across from Pier 66, the Olympic Cold Storage Plant and the Aquarium's storage area. Other upland sites, however, have very little, if any, relationship to the activity on the piers, (for example, Skyway Luggage, the mixed use office/retail/residential developments, or Shakey's Pizza Parlor). Recently constructed and proposed upland site development are all mixes of residential, retail and office uses. This trend will most likely continue, and as the number of residences increases the overall mix of uses may also change.

C. Water Dependency

As part of an inventory in 1982, all sites within the shoreline district were classified into one of nine categories on the basis of the degree of water-dependency exhibited by the predominant use of each site. Upland sites are excluded from the following analysis since they have no water frontage. The results for the water front sites on the Central Waterfront are presented in Table 3.

TABLE 3
Sites And Water-Frontage by Water-Dependent Use Category

	Central Waterfront Area		
	No. of Sites	Water Frontage (Ft.)	% of Water Frontage
WD-IC	2	620	8.5%
WD-REC	3	1,335	18.4
MULTI-INC-WD	2	2,140	29.5
MRN-REL	1	400	5.5
NOT WD-WR	4	1,050	14.5
Vacant	4	1,715	23.6%
TOTALS	16	7,260	100.0%

These tables begin to give a clear picture of the uses on the Central Waterfront. Table 3 shows that 39% of the waterfrontage is occupied by multiple uses with some water-dependency. Only 8.5% of the water frontage is Water-Dependent Industrial-Commercial and 18.4% Water-Dependent Recreational; these figures contrast with City-wide averages, which indicate that 42% of non-residential shorelines are WDIC, and 14% are WDREC. The Central Waterfront also has the greatest percent of vacant land (open water and vacant piersheds) of all the areas of the City.

D. Street Ends

The Central Waterfront includes seven street ends, accounting for 1,250 feet of water frontage. Although the inventory shows five street ends as vacant, these are often used for moorage, both transient and semipermanent. In addition, the Washington Street Boat Landing provides public moorage for transient pleasure craft, and the Seattle Fire Department maintains a station on the Madison Street end.

E. Size of Sites

Another way to examine the use of the shoreline district is the size of the sites, particularly the size of dry land and submerged land by water-dependent category.

TABLE 4
Square Footage of Waterfront Sites by Water-Dependency

Water-Dependency		Dry Land	Submerged Land	Total
WD-IC	2	0	357,600	357,600
WD-REC	3	0	534,850	534,850
MULTI-INC-WD	2	86,018	422,422	508,440
MRN-REL	1	0	175,100	175,100
NOT WD-WR	5	0	474,150	474,150
No Use or Street End	3	0	782,550	782,550
TOTALS	16	86,018	2,746,672	2,832,690

TABLE 5
Average Size of Site (Dry and Submerged
by Water-Dependency - Excluding Street Ends)

Water-Dependency	Dry Land	Submerged Land
WD-IC	0	357,600
WD-REC	0	534,850
MULTI-INC-WD	86,018	422,422
MRN-REL	0	175,100
Not WD-WR	0	474,150
No Use	0	782,550

Due to the location of Alaskan Way, Pier 66 is the only waterfront site which contains any dry land; this land is the result of past fill.

IV. ISSUES

The future of Seattle's Central Waterfront is the subject of much discussion and debate. Due to its proximity to downtown and to its location on tidal waters of Elliott Bay, the potential for development is strong. The waterfront has always been a conglomoration of uses and it seems that this will continue in the future. The composition of this mix, however, is the crux of an issue discussion.

One point of view is that the piers and piersheds should be reserved for water-dependent or water-related uses with the upland lots developed to support the uses over the piers. An example might be fish processing plants on the piers with cold storage facilities on upland lots. The opposite point of view is that no restrictions should exist on uses over the piers or on the upland lots. Between these points of view is the position that a mix of water-dependent and non-water-dependent uses on the piers is both economically feasible and desirable. An analysis of the development constraints and potential is necessary to understand the choices for the future of the Central Waterfront.

A number of factors contribute to the feasibility of future uses on the waterfront, including physical constraints and development plans and proposals. an analysis of these factors is necessary to understand the choices for the future of the Central Waterfront. The most critical elements are outlined below.

A. Current Uses

Currently, the piers are occupied by retail shops, a hotel, the state ferry terminal, restaurants, the City Aquarium, Port of Seattle offices, fish processors, the waterfront park and some vacant piers. In addition, the street right of ways between the piers are often used as moorage for tour boats, pleasure boats, a salvage ship, fishing

boats and the Princess Marguerite. The upland lots further increase the variety of uses in the district by accommodating parking lots, restaurants, cold storage facilities, warehouses, wholesale and retail trade, and offices. These uses are only slightly different from those existing prior to the adoption of the Seattle Shoreline Master Program (SSMP) in 1977. Since that time, moorage for tourist boats, office space accessory to existing uses and a fishing charter service have been added. However, during the same time period, two fish processing plants and the fishing charter left the Central Waterfront.

The existing US/CW shoreline environment allows most of these uses, but treats all permitted uses the same, regardless of water-dependency status. This has resulted in an increase in the tourist-oriented retail uses, one of the goals of the US/CW environment. However, another goal of the US/CW environment is not being met, that of maintaining a full complement of water-dependent uses.

B. Constraints on Development

There are both physical and economic constraints to development of water-dependent uses on the Central Waterfront.

Physical - The waterfront lots have no dry land (except Pier 66 which was filled) so all development is located on piers which extend into very deep salt water. This poses a number of problems for water-dependent uses, limiting the types of uses that find the waterfront a feasible site. Developing over the piers is both more costly and more constricting than building on land and, therefore, is unsuitable for large cargo facilities or any use that requires a large amount of space. In addition, the piers and transit sheds were designed for an outdated mode of cargo transfer and may not be readily convertible to other water-dependent uses from their present configuration.

Parking may be provided over the piers for water-dependent uses but again, this is expensive and must fit into constricted space. Parking can be provided on the upland sites but that means crossing four lanes of traffic and finding available sites, so uses which demand a large amount of parking are limited.

Most of the piers provide some moorage but the deep tidal water, with little wave protection, limits the types of boats and ships that can be served. In general, the waterfront does not provide adequate space for smaller boats, due to the waves, or for permanent moorage, since most boat owners prefer fresh water for long-term moorage. However, larger boats and transient moorage can be adequately served on the Central Waterfront. Currently, there is demand for this as each pier provides some moorage. This demand may increase with the redevelopment of Piers 90-91 by the Port of Seattle, where some large vessel moorage will be removed.

Economic - The economic return of most water-dependent businesses is less, per square foot, than retail or office uses. This makes it difficult for water-dependent uses to compete with the over uses and to provide the maintainence that is required to support the pier structures. (Most of the piers need major rehabilitation and all of them require constant, costly maintenance.)

A study of marine use on the Central Waterfront which was done by the University of Washington, found that "In no case does the marine use support the entire parcel...." (Marine Use of Seattle's Central Waterfront, Bevington, 1983 p. 42) The study further states, "... marine uses require total or partial subsidy or must be accompanied by other non-marine use to get anything approximating full use of a parcel. (The situation is somewhat different with non-marine use, where nine piers have a use that occupies the majority of the space.)" (Ibid, p. 42) On the other hand, the study does acknowledge that "For the most part ... pier owners wait for proposals from marine uses. Some may have their antennae up higher than others .... Owners are rather selective, not scouring for marine uses, but following up on leads if they hear of uses that they believe have benefit to them." (Ibid, pp. 37-38)

This seems to indicate that either a mix of water-dependent uses and nonwater-dependent uses is required on each pier or a subsidy of water-dependent uses is required if the piers are to be maintained and the waterfront developed with water dependent uses.

C. Development Proposals

Current development proposals propose mixed marine and non-marine development. These proposals include: at Pier 62-63, a marina with residential/commercial uses on the upland lot; at Pier 66, a retail/commercial development with tour boats; at Pier 69, a mix of retail/office development is being added to the existing Princess Marguerite tour boat and a jetfoil is proposed; and at Pier 71, a marina with residential, retail and office on the upland lots.

The Alaskan Way Waterfront Park Committee has a comprehensive proposal for all of the Central Waterfront, from Pier 48 to Pier 70. This proposal identifies four general areas with different activities in each. From Pier 51 to Pier 57 would be intense commercial/retail uses with a one-lane southbound roadway and angle parking on the existing Alaskan Way right of way. The next area is a public recreational area using Waterfront Park and the Aquarium as the focal point. The proposal calls for the area between Stewart Street and Lenora Street to be developed as a floral garden, with no vehicular access. The floral garden would be developed, in part, through a subsidy from residential development proposed for the upland lots in this area. Piers 62-65 are located over the water in this area and the proposal calls for these vacant piers to be demolished. The fourth area would be an office/commercial area from Pier 66 to Pier 70 that would be served by a three lane roadway, two-way traffic with

a left turn lane, along the existing Alaskan Way. In addition the plan calls for rerouting rail traffic to the underground tunnel and removing the railroad tracks.

In addition to these proposals, the Alaskan Way Seawall must undergo major repairs within the next five to ten years, which could impact uses over the water. One option, the "High Buttress" calls for a riprap bulkhead to be located waterward of the existing seawall, extending into the water for approximately 70 feet. This would affect the amount of moorage available and the size of ships able to be accommodated. The "Low Buttress" alternative would not affect moorage capacity as much, but would disrupt activity along Alaskan Way during construction since the timbers under Alaskan Way would need to be repaired.

The Mayor's Land Use and Transportation Project (LUTP) is in the process of developing a downtown plan which includes the area of the Central Waterfront. The LUTP plan is developed around a number of Land Use Districts. Land Use District #12 - Harborfront, includes all of the shoreline environment west of Alaskan Way. East of Alaskan Way, the Shoreline District would serve as an overlay of five land use districts but includes a major portion of the fifth, Land Use District #7 - Mixed Use - Waterfront.

In LUD # 12 - Harborfront, LUTP has endorsed the concept of a waterfront promenade but not any specific park proposal. The LUTP plan currently maintains vehicular traffic on Alaskan Way but narrows the roadway to three lanes. This would allow a pedestrian promenade to be developed on the right of way all along the waterfront. The central design of the promenade could have far reaching effects on the public use of the Central Waterfront for water-dependent uses, with some designs more amenable to maritime uses than others. Critical to the maritime use of the waterfront is the provision of truck access to the piers.

LUTP's proposal for LUD #7 - Mixed Use Waterfront encourages residential development on the upland lots across from Pier 62-65. This same upland area is the only potential area for development of uses that support water-dependent uses over the piers. Therefore, the compatibility of residential uses with support type uses needs to be further reviewed but at this time they do not appear to be incompatible.

D. Development Options - Pier 62-65 and Adjacent Upland

Future development of the waterfront between Piers 62-65 and the adjacent upland area is a critical issue in the Central Waterfront, primarily due to conflicting views of its development potential. The uses over the piers influence upland development and conversely upland developments influence the use of the piers. The Waterfront Park Committee proposes to develop Alaskan Way as a floral garden, develop the upland area as residential and to demolish the piers,

precluding their use for water-dependent uses. The LUTP proposal encourages residential uses on the upland area and maintains vehicular access to the piers along Alaskan Way but does not discuss development on Piers 62-65. The staff of DNR would like to see an evaluation of the need for water-dependent commerce, and the need for the adjacent area to be developed as accessory uses to support water-dependent uses over water.

Therefore, development over the piers could take a number of forms, with various impacts on water-dependent uses, including: total demolition, demolition of pier sheds but preservation of the decking for use as access to moorage, demolition of the piers with redevelopment as transient moorage or rehabilitation of the piers for moorage and of the piersheds for a nonwater-dependent, probably retail use.

E. Development of Policies and Regulations

The effort to develop new policies and regulations for the Central Waterfront is being undertaken by both the Land Use and Transportation Project (LUTP) as part of the Downtown Planning process, and by the Department of Construction and Land Use (DCLU) as part of the Shoreline Revision process. These two efforts are being closely coordinated with the intention of making the land use and shoreline regulations as nearly identical as possible.

LUTP's proposal includes a number of "land use districts." West of Alaskan Way, the Shoreline District encompasses only one of these, i.e., the Harborfront. East of Alaskan Way, the Shoreline District, which extends landward 200 feet from the water, would serve as an overlay to five different proposed downtown land use districts.

The inventory data illustrate the differences between waterfront and upland sites on the Central Waterfront. Waterfront sites in this area are unusual in having virtually no dry land (Table 4), and current uses are quite different from uses on the upland side of Alaskan Way (Tables 1 and 2). A separate shoreline environment for upland sites might be one way to address the different needs and constraints of the two types of sites.

The Central Waterfront clearly has enormous development potential. A critical issue will be to identify the amount and type of water-dependent uses physically and economically suited to the Central Waterfront. The challenge is to develop local policies and regulations which satisfy the State's constitutional, statutory, and administrative requirements while, at the same time, encouraging an economically viable waterfront serving the needs of Seattle residents, maritime businesses, and tourists.

CHAPTER 6: DUWAMISH AREA

I. INTRODUCTION

A. Area Boundaries

This background report focuses on the shorelines of the Duwamish Estuary starting from the City of Seattle's southern corporate limit, and continuing north to include Harbor Island and the East and West Waterways. The 4½ mile study area contains 147 sites, excluding street ends, 100 of which abut water, and about 15½ miles of actual water frontage. Due to quite distinct land use patterns and locational characteristics, three subareas are delineated. South Reach includes all sites south of the First Avenue South Bridge (geocode 10); Middle Reach lies between that bridge and South Spokane Street (geocodes 8 and 9), excluding the southern tip of Harbor Island; and North Reach includes all of Harbor Island and sites north of South Spokane Street (geocodes 6, 7 and 11). Please see the map on the following page showing geographic segments ("geocodes") as used in the 1982 Commercial and Industrial Shoreline Inventory.

B. Physical Characteristics

The Duwamish, East and West Waterways are estuarine environments subject to tidal fluctuation and salt water intrusion. These effects are most pronounced at the confluence of the East and West Waterways, and Elliott Bay, and lessen as one goes further upstream. Tidal variations range from 11.3 feet near Harbor Island to 11.1 feet at Eighth Avenue South. Salinity likewise slightly decreases with distance from the Waterways' mouths but also varies according to seasonal stream flow.

Wave action due to weather disturbances significantly affects only Elliott Bay facing portions of the North Reach and, to a lesser extent, the West and East Waterways. Wave action caused by the passage of large vessels within the Duwamish Waterway also occurs but is of minor impact.

A commercial navigation channel with congressionally authorized depths and widths runs the entire length of the study area (see Table 1), and is maintained by the U.S. Army Corps of Engineers and Port of Seattle. Channel depth is generally kept at a minimum of 20 feet south of the First Avenue South Bridge, 30 feet north of it in the Duwamish, with 34 feet the minimum in the East and West Waterways. Outside the authorized channel, dredging is done by the abutting land owners, so depths are irregular, ranging from 50 feet in parts of the West Waterway to 1 or 2 feet in the last remaining tide flat in the lower Duwamish, near Kellogg Island.

TABLE 1

Reach	Length (Miles)	Width (Feet)	Depth (Feet Below MLLW) [1]
East Waterway	1.1	750	34
West Waterway	1.0	750	34
Duwamish Waterway:			
West Waterway to First Avenue South	2.5	200 [2]	30
First Avenue South to Eighth Avenue South	1.2	150	20
Eighth Avenue South to Head of Navigation	1.4	150	15

Source: U.S. Army Corps of Engineers, 1982.

Topography is virtually flat throughout the Duwamish area as befits its original status as a tideland and floodplain. The steep bluffs of West Seattle's greenbelt approach no closer than one-quarter mile from the Duwamish Waterway to the west and Beacon Hill parallels over a mile to the east.

Street patterns in Middle Reach and the eastern banks of South and North Reach are dominated by wide arterials (East and West Marginal Way South) approximately 1,200 feet from the shoreline, railroad tracks on the inside of the arterials, and narrow, widely spaced feeder streets angling towards the water. Harbor Island has a circumferential arterial slightly closer to the shoreline with even fewer public feeder streets perpendicular to the water. The west bank of South Reach (South Park neighborhood) is characterized by tightly packed, irregularly angled narrow streets with many right-of-ways ending on the Waterway's bank. Traffic congestion is most pronounced on the First Avenue South and West Seattle Freeway Bridges, both of which handle close to 65,000 vehicles per day (Seattle Engineering Department, 1981), and Harbor Island arterials during commute hours. East and West Marginal Way South and the 16th Avenue South Bridge carry lesser loads.

The entire Duwamish area except for the former residential areas of South Park has excellent rail access. Railroad rights-of-way run the full length of East Marginal Way and as far south on West Marginal Way as the Port's Terminal 115. Rail rights-of-way also run down both 11th Avenue SW and 16th Avenue SW on Harbor Island.

Variable street patterns reflect in an assemblage of variably sized lots. Table 2 presents the average size of waterfront sites in the three Duwamish Reaches with a comparison to the City as a whole.

TABLE 2
Average Dry, Submerged and Total Size Sites, Number of Sites, and Dry to Sumerged Ratios for Three Duwamish Reaches and Entire Shoreline, Waterfront Sites Only, Excluding Street Ends

	South Reach	Middle Reach	North Reach	City Total
Number of sites	45	28	30	375
Dry land	145,345	614,571	613,265	182,781
Submerged land	21,007	135,072	219,499	104,126
Total Land:	166,352	749,643	832,764	286,907
Ratio Dry to Submerged:	6.9 to 1	4.5 to 1	2.8 to 1	1.8 to 1

While the average sized waterfront site in South Reach is little more than half that of the City's average commercial and industrial shoreline site, Middle and North Reaches average more than 2½ times that of the entire shoreline. All Duwamish Reaches exhibit a high dry to submerged land ratio in comparison to the City's. This is partially due to increased need for backup space in the heavily industrialized Duwamish but also due to the physical and legal constraints of using much of the waterway.

The Duwamish Estuary exhibits some of the most severe water quality problems in the City of Seattle. As a result of combined sewage overflows, urban runoff, industrial discharges and dumping, and in many cases undocumented sources, the levels of coliforms, toxicants and dissolved oxygen frequently violate Washington State Water Quality Standards. The problems of weed and algae growth, litter and debris, high water temperatures and pH levels occur periodically, especially during the summer months.

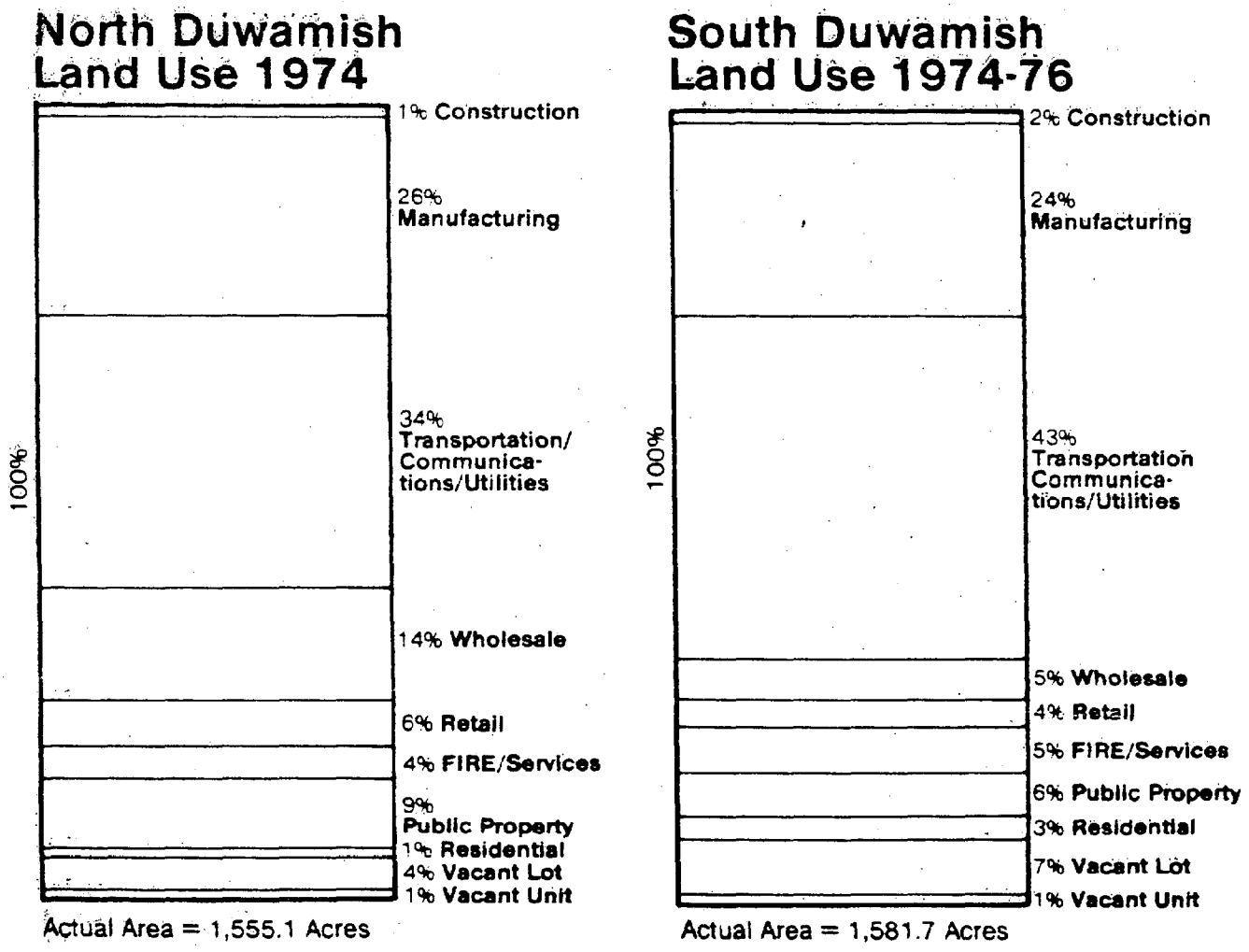
The portion of the Duwamish Estuary that runs through Seattle has been designated as a Class B waterway. Class B waters must meet or exceed the water quality requirements for uses that include recreation and aesthetic enjoyment, fishery and wildlife habitat, industrial and argricultural water supply, commerce and navigation and shellfish reproduction and rearing.

C. Adjacent Lands

The floodplain and tideflats of the old Duwamish River are now host to the largest industrial, transportation, manufacturing and warehousing concentration in the Pacific Northwest. Representing nearly 60% of all industrially zoned land within Seattle's City limits, approximately 3,140 acres, the Duwamish Industrial Area is bounded by Interstate 5 on the east, the Central Business District and Elliott Bay to the north, and the West Seattle-Burien bluff on the west, with the Waterways acting as a north-south transportation spine.

The 1979 Industrial Area Background Report, Seattle Office of Policy Planning, presented the Duwamish Industrial Area as predominantly a transportation and distribution center. Nearly 40% of all land was used for such purposes. Manufacturing was the second most extensive use with 25%, and wholesale trade accounted for roughly 10% of the land. Figure A, which is taken from the 1979 report, presents the land use breakdown by 1 digit SIC codes for the North and South Duwamish industrial areas. North and South Duwamish are divided at South Alaska Street.

FIGURE A



Dominant industries include aerospace, shipbuilding, food processing, primary metals, machinery, and fabricated metals. While the Duwamish Industrial Area includes some of the largest firms in Seattle (Boeing Aerospace, Inc., Todd Shipyards, and Lockheed Shipyards), by far the largest, most dominant actor is the Port of Seattle. The Port owns 32,538 lineal feet of water frontage and 23,214,017 square feet of land within the Duwamish shoreline area alone. Thirty-eight percent of the shoreline and 43% of the land in the study area belongs to the Port.

Residential uses continue to exist in the Georgetown and South Park neighborhoods. Several rezones over the past 30 years have lead to a constantly dwindling housing supply in Georgetown. But South Park seems relatively stable, and the community has indicated a strong desire to retain its residential character.

II. LAND USE AND PLANNING HISTORY

Since the early years of its founding, Seattle had always looked with desire upon the Duwamish Tideflats as a center for industrial and commercial activity. In its natural state, the tideflats presented a broad, flat marshland environment reaching up as far north as today's Central Business District, west across to the West Seattle Bluff and south to a flowing, winding Duwamish River. For hundreds, perhaps thousands of years, this area was home to the Duwamish Indian Tribe whose fish-based culture was ideally suited to the environment. Duwamish, which means "many colors," got its name from the rivers which originally drained into it upstream: the Green, White and Black Rivers.

From roughly 1895 to 1921, a series of remarkable engineering efforts transformed the mudflats and winding stream into the waterways and industrial area we view today. In 1895, the Seattle and Lake Washington Waterway Company proposed straightening and dredging of the Duwamish River and filling the tideflats in connection with a Lake Washington Canal cut through Beacon Hill. After two years, the firm failed, but much tideflat was filled in the process. Railroads placed trestles through the flats, and gradually the areas landward were filled.

In 1909, the State Legislature created Commercial Waterway District #1 to "maintain and police the Duwamish River." Along with the Port of Seattle, created in 1911, and the City of Seattle, the District shortened the river from 13½ to 4½ miles within the City, constructed the largest artificial island in the world (at the time), and dredged a navigation channel upstream to 9th Avenue South; all before 1921. In 1919, the U.S. Government took over responsibility for waterway maintenance. In 1962, the Waterway District dissolved itself and the Port of Seattle acquired all its rights and responsibilities.

Flooding, a frequent occurrence in the river's natural state, was eased somewhat by the diversion of Lake Washington's outflow through the

northern ship canal in 1916. But flooding remained a problem until 1962 and the construction of the Howard Hanson Dam in the upper Green River.

Zoning for the Duwamish Shoreline area has remained virtually unchanged since adoption of Seattle's first zoning ordinance in 1923. Initially, all of Geocodes 6, 7, 10, and 11 were zoned Manufacturing as well as large portions of Geocodes 8 and 9. All but certain noxious processes were allowed in this zone and lot coverage was unrestricted. Idaho Street South to Alaskan Street South, Kellogg Island, Slip 1 to Turning Basin #1, and the site of the present Lone Star Cement Company just south of Spokane Street were zoned Industrial. Industrial Districts allowed all but residential uses and contained no lot coverage limitations. The 1947 and 1957 Zoning Ordinances resulted in no real change in allowed uses. Industrial zones (IG and IH) took precedence over manufacturing zones, and residential uses were prohibited throughout the shoreline area. Currently, a zoning revision of the City's industrial-commercial properties is underway and is scheduled to be completed over the next few years.

III. CURRENT LAND USE REGULATIONS

A. The Shoreline Program

Washington State adopted the Shoreline Management Act (RCW 90.58) in 1971. Of particular interest to this report is the act's designation of certain shorelines as "shorelines of state-wide significance" due to their size or value to the public. The Duwamish Waterway is so designated and State guidelines stipulate that local master programs "must give preference to uses which favor public and long-range goals" (WAC173-16-040(5)). The shoreline act outlines six principles that local governments must follow when planning for "shorelines of state-wide significance":

1. Recognize and protect the state-wide interest over local interest.
2. Preserve the natural character of the shoreline.
3. Result in long-term over short-term benefit.
4. Protect the resources and ecology of shorelines.
5. Increase public access to publicly owned areas of the shoreline.
6. Increase recreational opportunities for the public on the shorelines.

The entire Duwamish study area is designated Urban Development. Containing 81,940 feet of water frontage, this represents 73% of the UD shoreline in the City. The intent of the Urban Development environment is to provide areas that are appropriate for commercial and industrial uses. It prohibits housing, principal use parking, and nonwater-dependent warehousing, but allows for almost all industrial and commercial uses with special encouragement given to water-dependent commerce and industry. One hundred percent lot coverage is permitted throughout the entire Duwamish area. Heights

are limited by a Floor Area Ratio of 2.5. Within the UD environment, view corridors are not required for water-dependent uses.

B. Zoning Code

There are three industrial land use zones within the Duwamish areas: Industrial-Heavy (IH), Industrial-General (IG), and Manufacturing (M). All allow for a broad array of commercial and industrial uses and prohibit residential development. IH permits outright more noxious processes such as foundaries, petroleum refining, and chorine manufacture, with M the most restrictive. All zones allow 100% lot coverage.

Table 3 presents zoning designation by site and water frontage for the three Duwamish Reaches, excluding street ends. M is solely in the west portion of North Reach, and IG is predominantly in the South Reach. There are 25 street ends in the Duwamish with 3030 of water frontage.

TABLE 3
Water Frontage by Land Use Zone, Excluding Street Ends

Land Use Zone	South Reach # of Sites	South Reach Frontage (feet)	Middle Reach # of Sites	Middle Reach Frontage (feet)	North Reach # of Sites	North Reach Frontage (feet)
Manufact.(M)	0	0	0	0	1	1,200
(IG)	45	14,550	5	15,200	0	0
(IH)	0	0	23	17,315	29	33,681
Totals	45	14,550	28	32,515	30	34,881

C. Legal Responsibilities

Though the Port of Seattle acquired all rights and responsibilities to the beds and shores of the Duwamish River within the jurisdiction of the old Commerical Waterway District #1, legal conflicts have arisen as to just what that ownership entails. Courts have ruled that the Port cannot extract rent from abutting shoreline property owners, even when they are using either the submerged or dry portions of the Waterway. Apparently the Port has the ability to remove property improvements such as piers or dolphins only when the structures impede navigation or enter the Congressionally authorized navigation channel. In addition to the rights obtained from the old Commercial Waterway District #1, the Port has acquired substantial rights to much of the Duwamish areas as an outright property owner. Throughout the Duwamish the Port has acquired 533 acres through purchase and condemnation.

Responsibility for maintaining and improving the navigation channel belongs to the U.S. Army Corps of Engineers. The Corps pays two-thirds of the approximately $500,000 annual cost of dredging the channel with the Port picking up the remainder.

State Harbor Areas exist in the Elliott Bay facing portions of North Reach. They are regulated by the Department of Natural Resources (DNR) and designated by the State Constitution to "be forever reserved for landings, wharves, streets, and other conveniences of navigation and commerce (RCW 79.01.44). These Harbor Areas may be leased but not sold. DNR leasing provisions allow water-dependent uses up to 30-year leases while limiting nonwater-dependent uses to much shorter time periods.

IV. LAND USE CHARACTERISTICS (RESULTS OF DCLU'S SHORELINE INVENTORY)

A. Waterfront Abutting, Waterfront Not Abutting, and Upland Lots

Upland lots are a relatively insignificant portion of the total land within the Duwamish shoreline district, accounting for 30 of the sites but less than 3% of the area. Table 4 presents a distribution of sizes and numbers by Duwamish's Three Reaches and the City as a whole.

TABLE 4
Waterfront Abutting, Waterfront Not Abutting, and Upland Sites by Total Sizes for Three Duwamish Reaches and Entire Shoreline, Excluding Street Ends

	South Reach	Middle Reach	North Reach	City Total
Upland:				
# of Sites	39	4	1	310
Size (acres)	18	13	3	152
Size (% of City Total)	11.8	8.6	2.0	100.0
Waterfront - Abutting:				
# of Sites	42	28	30	365
Size (acres)	141	482	589	2,442
Size (% of City Total)	5.8	19.7	24.0	100.0
Waterfront - Not Abutting:				
# of Sites	3	0	0	10
Size (acres)	31	0	0	50
Size (% of City Total)	62.0	0	0	100.0
Totals:				
# of Sites	84	32	31	685
Size (acres)	190	495	592	2,639
Size (% of City Total)	7.2	18.8	22.4	100.0

Upland sites are most prevalent in the South Reach primarily because of the small lot size and large number of singe-family residences in the South Park Neighborhood. The Middle and North Reaches have almost no upland lots with the huge size of their waterfront abutting sites usually protruding far beyond the 200-foot limit of the shoreline district. The South Reach also contains the only waterfront not-abutting sites in the Duwamish area.

Due to the scarcity of upland and waterfront not-abutting sites, much of the analysis here is done exclusively with waterfront abutting sites.

B. Types of Uses

The study area is a highly complex commercial and industrial corridor. Table 5 reveals that complexity by presenting predominant uses for waterfront and upland sites taken from the Department of Construction and Land Use's 1982 Commercial Industrial Shoreline Inventory.

TABLE 5
Predominant Uses by Waterfront and Upland Lots
for Three Duwamish Reaches

Uses	North Reach		Middle Reach		South Reach	
	Upld	Wtrfrt	Upld	Wtrfrt	Upld	Wtrfrt
Seafood Products		1				
General Manufacturing		8		12	6	6
Ship Building		3		1		1
Transportation & Utilities		6			3	6
Marine Transportation		1		1		2
Container Terminals		3		4		
Non-Marine Services		3	2	4	9	5
Government Services		1	1	1		
Retail Trade (Non-Marine)	1	1				
Marinas		2				
Open Storage		2		1	2	1
Vacant/Underused Areas		1			3	4
Street Ends/Right-of Ways		8		5		11
Commercial Boat Building				1		
Leased Office Space - Gen.				1		
Marine Services				1		
Residential					13	12
Marine Manufacturing						5
Cultural & Entertainment						3
Wholesale Trade					2	
Restaurant					1	
Total	1	39	3	35	39	56

Major uses include general manufacturing, nonmarine services, transportation and utilities, and container terminals. South Reach has additional concentrations of residences and marine manufacturing, while North Reach is home to two large shipbuilding firms. Table 6 presents a more generic way of analyzing land use by describing the use functions that a site may contain. Almost 70% of the waterfront sites had some portion of the lot over land used for storage. Transporting material, manufacuturing or processing, office space, and residences are also prevalent uses over land. Moorage and transportation are the two common uses over water. Almost two-thirds of the water frontage in the Duwamish, West, and East Waterways is taken up by sites that have boat moorage.

Moorage is further broken down in Table 7 to reveal that almost one-third of the waterfront sites have barge space, 10% have room for tugs, and 8% can moor container ships, and another 8% can moor pleasure craft. Fishing moorage, however, is not significant on the Duwamish.

TABLE 6
Duwamish, West, and East Waterways -
Waterfront Sites Excluding Street Ends

How Sites Are Used in Order of Frequency	# of Sites	% of Sites
Over Land:		
Stores Material	72	69.9
Transports Material	48	46.6
Manufactures or Processes	40	38.8
Office	26	25.2
Residential	16	15.5
Services Ships or Boats	9	8.7
Sells Non-Marine Goods	4	3.9
Dry Moorage	3	2.9
Sells Marine Goods	1	1.0
Restaurant	1	1.0
Misc. Uses Incl. Parks	19	18.4
Over Water:		
Moorage	53	51.5
Transports Material	35	34.0
Stores Material	10	9.7
Services Ships or Boats	9	8.7
Manufactures or Processes	7	6.8
Sells Marine Goods	2	1.9
Residential	1	1.0
Sells Non-Marine Goods	0	0.0
Office	0	0.0
Restaurant	0	0.0
Misc. Other Incl. Parks	4	3.9
Total Uses	103	100.0

TABLE 7
Moorage on the Duwamish, West and East Waterways -
By Numbers of Sites and Maximum Boat Usage

Types of Moorage	# of Sites	% of Sites	# of Vessels
Barge	31	30.7	64
Tug	10	9.9	32
Container	8	7.9	25
Pleasure	8	7.9	163
Fishing	3	3.0	11
Freighter	3	3.0	6
Floating Homes	0	0.0	0

C. Water Dependency

Retaining and encouraging water-dependent uses on the shoreline represents a principal policy objective of both the Seattle Shoreline Master Program and the State Shoreline Management Act. In the Department of Construction and Land Use's Commercial Shoreline Inventory, sites were classifieds into one of nine categories, on the basis of the degree of water dependency exhibited by the principal use of each site. Breakdowns for the Duwamish Reaches are shown in Tables 8 through 10.

TABLE 8
Sites and Water Frontage by Water-Dependent Use Categories
for Duwamish Subarea,
Excluding Street Ends Waterfront Abutting Sites Only

Types of Uses	# of Sites	Frontage (feet)	Frontage % of Total
WD-IC	26	43,591	53
WD-REC	6	1,285	2
WR	16	12,150	15
MULTI-INC-WD	7	8,550	10
MRN-REL	2	500	1
NOT WD-WR	37	14,355	18
No Use or Street End	6	1,515	2
TOTALS	100	81,946	101

TABLE 9
Size of Site (Dry, Submerged, and Dry Percentage of Total)
by Water-Dependency, Excluding Street Ends for Three Duwamish Reaches,
Waterfront Sites Only

North Reach	Dry	Submerged	Dry as % of Total
WD-IC	14,411,519	5,236,005	73
WD-REC	37,900	4,000	91
WR	2,369,000	640,400	79
MULTI-INC-WD	1,000,000	671,000	60
NOT WD-WR	433,750	940,900	32
No Use	143,173	38,183	78
TOTAL	18,397,942	7,530,488	71

Middle Reach	Dry	Submerged	Dry as % of Total
WD-IC	7,530,044	1,655,000	82
WD-REC	288,000	133,500	68
WR	3,449,050	1,399,650	71
MULTI-INC-WD	1,704,000	155,500	92
NOT WD-WR	3,295,300	418,350	89
No Use	933,500	20,000	98
TOTAL	17,207,974	3,782,000	82

	Dry	Submerged	Dry as % of Total
WD-IC	1,169,600	468,000	71
WD-REC	53,000	35,450	60
WR	32,700	18,000	64
MULTI-INC-WD	986,000	185,000	84
MRN-REL	53,080	0	100
Not WD-WR	4,231,050	222,900	95
No Use	15,100	16,000	49
TOTAL	6,540,530	945,350	87

TABLE 10
Average Site Size by Water Dependency for Three Duwamish Reaches, Excluding Street Ends

North Reach	# of Sites	Average Total Site Size (sq. ft.)
WD-IC	14	1,403,394
WD-REC	1	43,900
WR	7	430,000
MULTI-INC-WD	2	835,500
NOT WD-WR	5	274,930
No Use	1	181,356
TOTAL	30	749,641
Middle Reach		
WD-IC	7	1,313,292
WD-REC	1	421,500
WR	8	606,087
MULTI-INC-WD	2	929,750
NOT WD-WR	8	464,216
No Use	2	274,641
TOTAL	28	864,281
South Reach		
WD-IC	5	327,520
WD-REC	4	22,112
WR	1	50,700
MULTI-INC-WD	3	390,333
MRN-REL	2	26,540
Not WD-WR	27	164,961
No Use	3	10,366
TOTAL	45	166,353

Water-dependent Industrial/Commercial (WD-IC) is the dominant category in the study area, with 53% of all water frontage and 55% of all acreage. This dominance increases as one travels downstream. WDIC represents 30% of South Reach's water frontage, 42% of Middle Reach's, and over 70% of North Reach's. The same pattern holds for site size as well. As seen in Table 10, the average size of WD-IC sites is larger than any other category except for Multiple Use Including Water-Dependent (MU) in South Reach.

D. Public Access

The Industrial Duwamish provides relatively little opportunity for public access and enjoyment of the shoreline. Duwamish Waterway Park is the only City-maintained park in the study area. A boat ramp exists on the east bank under the First Avenue South Bridge and a recreation area is planned for the Spokane Street Right-of-Way upon completion of the West Seattle Freeway. The only major regulated public access area is the Kellogg Island Bird Sanctuary, but access is difficult and no significant improvements have been made to make the site more inviting. In fact, a long-term trend of street right-of-way vacations and approved street use permit actually results in diminishing public access in the Duwamish area.

V. ISSUES

Desirability of continuted industrial and commercial land use dominance in the Duwamish appears to be a public consensus at this time. Within that umbrella, however, many land use and related issues have surfaced affecting the future of the area. Some significant ones are outlined here.

A. Structural Changes Affecting Waterways

Two major physical improvements may affect the Duwamish waterway system's capacity and utilization. First, construction of a new high-level West Seattle Bridge will allow easier access to upstream properties and spur more intense development of the shoreline for transship- ment over water. The 6-lane, 5,700 feet long, 155 feet high span is scheduled to be completed by the end of 1984. The second major physical improvement involves a potentially major dredging operation by the U.S. Army Corps of Engineers. The authorized channels of the East and West Waterways would be narrowed from 750 feet to 500 feet to allow more berthing room along the sides and the channel depths would be deepened from 34 feet to 39 feet. The authorized channel of the lower Duwamish waterway downstream of the First Avenue South Bridge would be widened from 200 feet to 250 feet and deepened from 30 feet to 39 feet. Mitigation of the loss of shallow water habitat would be part of the project. The benefits of the project would include improved safety and a reduction in tranpsortation costs for waterway users. These changes would allow larger container ships and freighters to enter the waterways, raising land use questions about the desirability of extensive containerization of the Duwamish Waterway, efficient use of the shoreline, and public use of publicly improved navigation channels.

B. Water Quality

As a "shoreline of state-wide significance," the Duwamish Estuary is designated by the Washington State Shoreline Management Act for special protection of "the natural character" and "ecology" of its

shorelines. Yet it currently has the most contaminated water and least natural shoreline of any body of water in Seattle. The distance between public goals and current conditions is made all the more significant when economic, as well as environmental, costs of contamination are understood. As a recent Metro water quality study of the Duwamish summarized:

> The estuary now functions both as the receiving water for major pollutant sources and as habitat for a diverse aquatic community, including economically significant salmonid populations.

Major sources of water quality degradation include outflow from the Renton Sewage Treatment Plant, combined sewer overflows, and "non-point source" metal and organic toxicants.

C. Dredge Spoils Disposal

One consequence of long-term water quality degradation has been contamination of the waterway system's riverbed. This has lead to severe environmental and economic problems in the location of suitable sites for dredge spoil deposition. State and federal authorities do not allow the disposal of contaminated spoils in open water and appropriate sites on land are scarce and economically prohibitive to reach by truck. One method of disposing of spoils is to use it as fill on ones own property. However, only the Port of Seattle has sufficient property holdings to use that procedure, and even the Port is experiencing political constraints as it tries to accomplish this on a major scale. (Pier 90-91 Fill Proposal)

Inability to resolve this problem could result in severe constraints on the use of the Duwamish. Private water-dependent firms might be especially hard hit.

A Contaminated Dredge Spoils Task Force has recently been formed, made up of representatives of various federal, state, and local government agencies and departments that have responsibilities in this area. This forum, or some other, needs to come up with both short- and long-term solutions to the problem of contaminated dredge spoils disposal to ensure industrial health of the Duwamish waterway system.

D. Relationship Between Industry and Non-Industry

Given industrial dominance of the Duwamish Subarea, are any non-industrial uses appropriate? The South Park neighborhood maintains the only significant number of residences within the subarea's shoreline district. Some are under industrial zoning and the Urban Development shoreline environment and are thus non-conforming. There is currently only one developed public park, and one natural area - a major undeveloped bird sanctuary at Kellogg Island - on the Duwamish. Are these uses compatible with the surrounding heavy industry? The

future of Kellogg Island in particular has become a significant land use issue. State, regional, and local resource agencies see it as a major environmental asset. In the past, the Port of Seattle has expressed desire to develop this site for industrial use but has no immediate plans.

The issue focuses on how "clean" heavy industry can or should be. Perhaps localized pollution is politically acceptable if enough jobs are provided. If Duwamish water and air quality does improve, demand for increased public access will follow. But can industry ever be clean enough to exist side by side with residential and recreational uses?

E. Relationship Between Waterways and Major Industrial Area

The Duwamish East and West Waterways act as a transportation spine for the entire Duwamish industry area. Though many firms make no direct use of the waterways, they often buy or sell to firms that do. The economic health of the water-dependent firms along the shoreline and those in the greater industrial area are thus linked. Further investigation of this linkage could be useful in helping facilitate both economic development and water-dependent use along the shoreline.

F. Air Pollution

The Duwamish Industrial Area has the worst air quality in the City of Seattle, with the South Park neighborhood particularly effected. Can land use and emmission controls ameliorate this problem, and if so, what might be the economic impacts of such efforts?

G. Street Ends as Public Access

Street end rights-of-way have traditionally provided small, usually undeveloped yet plentiful public access to the shoreline. These sites can often be used to launch small boats, to fish, or just to approach the water's edge. Within the Duwamish area, there have been 19 street ends vacated. Another 10 are proposed for vacation or are known to be possible vacations. Along with existing street use permits and other factors such as width and terrain, only two suitable public access street end sites exist on the East Bank of the Duwamish north of the First Avenue South Bridge, and only one exists on the West Bank. A task force made up of various City departments, Metro and the Port of Seattle has been formed to study the impacts of continued approval of street vacation permits on public access in the Duwamish and to recommend appropriate policies for future decision-making in this area.

H. Coordinated Development

With massive public investments being constructed (West Seattle Bridge) and planned (Corps of Engineers dredging project), there is a

need for a coordinated private-public development plan for the waterway system. The City, the Port of Seattle, maritime businesses on the Duwamish and elsewhere, and Seattle's citizens would all benefit from the predictability such a coordinated, comprehensive planning effort, in which the Port would take an active role, could achieve.

CHAPTER 7: Lake Washington Ship Canal

I. INTRODUCTION

A. The Area

This 2-1/3 mile long, narrow body of water is the home of the Ballard fishing fleet and one of Seattle's major industrial areas. The canal connects Puget Sound on the west with Lake Union and Lake Washington to the east. The area described here stretches from the Hiram M. Chittendem Locks east southeast to the Fremont Bridge. It includes the freshwater portion of the Salmon Bay Waterway and the Fremont Cut. On its north side are Ballard and Fremont; on its south side are the hills of Magnolia and Queen Anne separated by the Interbay Industrial Area.

B. History of the Water Body

Both the Salmon Bay Waterway and the Fremont Cut represent radical alterations of the natural environment. Salmon Bay was once a shallow, saltwater bay which received the drainage of Lake Union across land that was later excavated for the Fremont Cut. At that time there was no connection between Lake Washington and Lake Union which was fed by springs. Lake Washington joined with the Cedar River at the south end and flowed into the Duwamish. Construction of the Locks and the Lake Washington Ship Canal system lowered Lake Washington about eight feet to the level of Lake Union, and raised Salmon Bay to the same level. The Cedar River then reversed its direction to flow into Lake Washington. Lake Washington now drains through Lake Union to the Locks and spillways. The Lake Washington Ship Canal including the cuts and the locks was completed and dedicated in 1917.

The Salmon Bay Waterway and Fremont Cut Area has been a manufacturing and industrial area since Seattle's early days. Even before the Locks were constructed, saw mills lined the waterway. The 1923 Zoning Code shows most of the area along the Waterway as a Manufacturing District with Industrial Districts immediately inland. The 1947 Zoning Code again showed much of the waterfront as Manufacturing but most of the areas which had been designated industrial in the 1923 Ordinance became commercial in the 1947 Ordinance. When the 1957 Zoning Ordinance was adopted the present pattern of mostly industrial with some manufacturing areas was in place. The 1965 Comprehensive Plan also showed the entire area along both sides of the Canal as Industrial.

With some exceptions, the industrial-manufacturing nature of the Ship Canal area was recognized during adoption of the Seattle Shoreline Master Program. The majority of the Canal properties were designated Urban Development.

New Neighborhood Commercial zoning has been proposed by LUTP for the south side of the Fremont Cut. That land now zoned IG would become Commercial 1 (C1) and that portion zoned M would become Commercial 2 (C2). The C1 designation requires a retail/service function for manufacturing uses over 25,000 sq ft while the C2 designation does not.

II. REGULATIONS IN THE SHORELINE DISTRICT

A. The Seattle Shoreline Master Program

Four different shoreline environments are found in the Canal area: Urban Development (UD), Urban Stable (US), Conservancy Management (CM) and Conservancy Natural (CN).

Urban Development is the environment with the largest land area, encompassing all of the north side of the canal and the central portion of the south side. Urban Stable land is found on the south side between the locks and the Ballard Bridge and between 3rd Avenue West and the Fremont Bridge. In general, the urban environments extend to the harbor line or its equivalent with Conservancy Management or Conservancy Natural in open water. The Ballard Locks are designated Conservancy Management.

The purpose of the US environment (24.60.345 SMC) is "to provide areas for controlled development and redevelopment, encouraging a variety and mixture of compatible uses while also maintaining the existing character, scale and intensity of use."

The purpose of the UD environment (24.60.360 SMC) is as follows: "The areas included in the UD environment are primarily those which are appropriate for commercial and industrial uses. The intent of the designation is to provide for efficient utilization of such areas for water-dependent commerce and industry consistent with the Shoreline Management Act of 1971, as amended, and with other applicable regulations."

The intent of the two conservancy designations, Conservancy Management (CM) and Conservancy Natural (CN) is to preserve areas in near natural state. Of the two, Conservancy Natural, has more emphasis on preserving fragile ecological systems while Conservancy Management is generally for public lands such as parks and public marinas. A CM designation for the locks is consistent with that intent. The use of the two Conservancy designations in the submerged lands of the Canal area is to preserve open water for navigation. No construction is permitted in the Conservancy Natural environment.

The major differences in uses between the US and UD environments are that the US environment permits housing while the UD environment prohibits it and the UD environment permits industrial uses such as refineries and mills which the US environment prohibits. The UD

environment also permits outdoor advertising signs which are prohibited in all other environments. Both environments permit offices, retail shops, restaurants, open and covered wet moorage, marine construction and repair, marine service stations, yacht clubs, seaplane facilities, cargo handling and water-dependent manufacturing, log storage, sand, gravel and concrete mix plant (a special use in the US environment), dredging and filling (for water dependent uses), and fraternal clubs. Both environments prohibit hotels, principal use parking, land based aircraft facilities, nonwater-dependent warehousing, and sanitary landfills. From the above it can be seen that the principal difference between the portions of the Canal designated US and the portions designated UD is that the US properties would not be able to develop with mills and refineries or to put up outdoor advertising signs. Since, except for two L-3 zoned lots next to the Locks the US properties are zoned IG which prohibits housing, the combination of zoning and shorelines would result in housing being prohibited in most of the US shoreline as well as the UD.

In addition to the use differences described above, the SSMP has different view corridor regulations for US and UD properties. View corridors are required for all development on US-designated properties whether water-dependent or not. In contrast, view corridors on UD-designated land are only required for non-water-dependent uses. Where required in either US or UD environments, view corridors of 35 percent must be provided. Buildings or large equipment are not permitted in view corridors, and under the present SSMP parking in view corridors is only permitted if it is depressed 4 feet below street level. To date, this restriction has not affected water-dependent industries between the Locks and the Canal because they were already developed (without view corridors) at the time of the adoption of the SSMP. However, should these industries choose to redevelop and demolish existing buildings they would have to provide view corridors.

In the Ship Canal those areas designated US correspond to the geographic areas in the SSMP with height limits of 35 feet and lot coverage of 50 percent. The UD areas correspond to the geographic areas with lot coverage of 100 percent, a Floor Area Ratio of 2.5 and no height limit.

B. Zoning

The zoning on both sides of the Canal in the Shorelines district is almost exclusively General Industrial (IG). The exceptions are:

L-3 (Lowrise 3 Residential) - short stretch of 350 feet immediately east of the Locks on the south side at the foot of the Magnolia Hill.

M - two locations: on land between the Ballard Bridge and Jesse Avenue and from midway between 6th Avenue W. and 3rd Avenue W. to Queen Anne Avenue N. (Seattle Pacific University site) on the south side.

IH - two locations: on the south side, mostly on water between the Ballard Bridge and Jesse Avenue W. (waterward of the M zone) and on the north side between 17th Avenue W. and 8th Avenue N.W.

The three Manufacturing zones on the Canal (M, IG, and H) all have the purpose "to provide protection for all kinds of industry under conditions that minimize conflicts of land use within and between zones. Mutual protection is provided by prohibiting new residential development in manufacturing and industrial zones.

1. The M zone provides for light manufacturing uses under specific conditions intended to minimize conflicts with nearby residential uses.

2. The IG zone provides for a greater range of general industrial activities with provision for protecting adjacent residential zones.

3. The IH zone provides for and protects the heaviest industrial activities prohibiting residential uses and in locations to achieve maximum isolation."

The Manufacturing zone does permit housing on waterfront lots, but only as a Council conditional use. Of the M zoned lots on the Canal, only one would qualify as a waterfront lot where housing could be developed and that is the site of the Ewing Place mini-park and a transmission tower. Therefore, the only place along the Canal where housing could be built under the existing zoning and shoreline regulations are the L-3 zoned lots which are already developed with apartments.

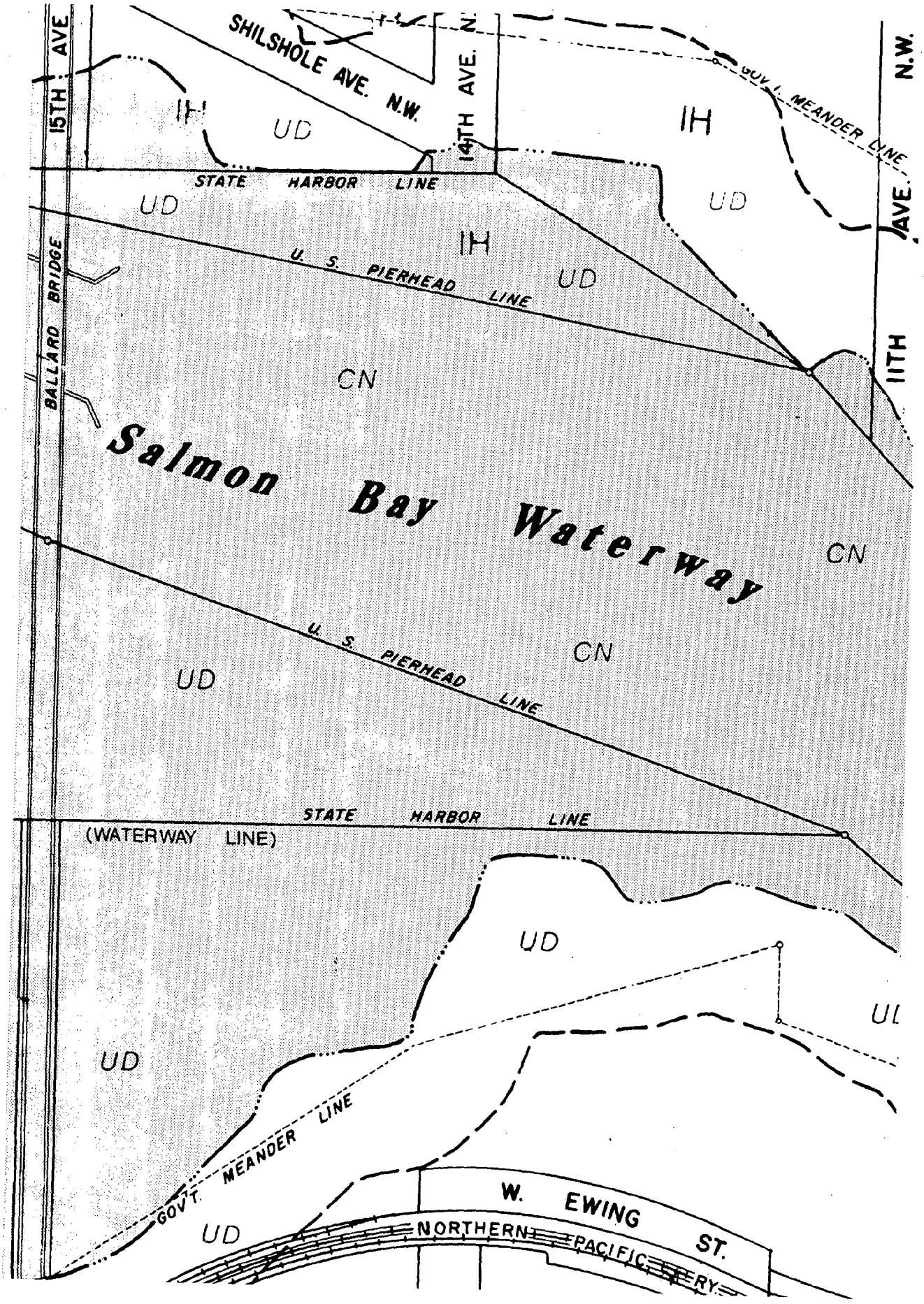
C. Other Legal Constraints - Pierhead and Harbor Lines

Seattle Kroll Maps show a single state harbor line, federal pierhead and bulkhead lines, and federal channel lines in the Ship Canal. The State Department of Natural Resources reports (Steve Tilley, personal communication) that the Ship Canal is a State Waterway and that the single harbor line is really a waterway line. In many areas, this waterway line coincides with the federal pierhead and bulkhead lines. However, in a number of places the waterway line is inshore of the pierhead line. State law authorizes the Port of Seattle to issue leases and collect rents in these areas, but in the absence of interest by the Port, the DNR has stepped in to administer leases.

III. PHYSICAL CHARACTERISTICS

A. The Water

The Lake Washington Ship Canal is a freshwater system with no tidal action. Although some saltwater intrudes at depth from the Locks,


15TH AVE
SHILSHOLE AVE. N.W.
14TH AVE. N.W.
GOVT. MEANDER LINE
IH
UD
STATE HARBOR LINE
BALLARD BRIDGE
U. S. PIERHEAD LINE
CN
Salmon Bay Waterway
11TH AVE. N.W.
(WATERWAY LINE)
GOVT. MEANDER LINE
W. EWING ST.
NORTHERN PACIFIC RY.

the Corps of Engineers has imposed a special condition whereby salinity shall not exceed one part per thousand (1%) at any point or depth along a line that transects the Ship Canal at the University Bridge in Lake Union. The Cedar River is the major mechanism for control of water quality in the Canal. The Ship Canal elevation and outflows are regulated by the Hiram M. Chittendem Locks and adjoining spillways. The level is normally regulated between elevations 20 and 21.85 feet (Corps of Engineer data). The lower elevation is maintained during the winter to permit work on shore facilities.

B. Water Depth and Channel Dimensions

The federal navigation channel maintained by the Corps of Engineers is 100 feet wide and 30 feet deep. Except for minor shoals in the vicinity of Fremont Bridges dredged in 1959, this portion has not required maintenance dredging (U.S. Corps of Engineers, Lake Washington Ship Canal Master Plan, 1976). NOAA chart 18447 shows water depths from 20-30 feet adjacent to the channel and from 10-20 feet on privately owned submerged lands. Various property owners have also applied for and received shoreline substantial development permits for dredging of berthing areas.

Three drawbridges with the potential for restricting ship traffic span the canal. All have a horizontal clearance of 150 feet. Vessels entering the locks from Puget Sound must first pass under the Burlington Northern Railroad bridge with a vertical clearance of 43 feet above Mean Low Water. The Ballard Bridge at 15th Avenue West has a vertical clearance of 29 feet (46 feet at the center). The Fremont Bridge on the east end of the Fremont Cut has a vertical clearance of 17 feet (31 feet for the central 30 feet). Ballard and Fremont drawbridges do not open for smaller vessels, whether commercial or pleasure, during morning and evening rush hours. Bridge opening restrictions may cause sheduling difficulties for commercial vessels and increase the disrability of sailboat moorages located west of the bridges.

C. Wave Protection

Because this part of the Lake Washington Ship Canal is narrow and fully enclosed, it enjoys exceptional protection from wind generated waves. Speed through the Canal is limited to 7 knots to reduce wave damage from passing boats.

D. Topography

Shoreline dry land on the Canal is generally flat with few topographical constraints for development.

E. Submerged to Dry Land Ratios

Table 1 gives submerged to dry land ratios for waterfront lots in the various areas of the Ship Canal. Except for those areas along the

Fremont Cut which have little or no submerged land (Geocodes 14, 15, and 18) ratios are in the 40-60 percent range showing a usable balance between submerged and dry lands.

TABLE 1
Total Dry and Submerged Land by Geocode in the Ship Canal, Waterfront Sites Only

Geocode	# Lots	Water Frontage (Ft.)	Dry Land ($Ft.^2$)	Submerged Land ($Ft.^2$)	Total Land ($Ft.^2$)	Dry Percent of TOTAL
13	17	7062	2,294,580	1,201,627	3,496,207	65.6%
14	15	4370	1,728,735	245,730	1,973,665	87.6%
15	1	1900	58,500	- 0 -	58,500	100%
16	8	6990	2,251,157	2,698,325	4,949,482	45.5%
17	11	5383	1,086,200	1,415,350	2,501,550	43.4%
18	1	340	12,600	- 0 -	12,600	100%

F. Upland Lots

The longest stretches of upland lots in the Ship Canal area occur along both sides of the Fremont Cut, east of 3rd Avenue West and Northwest, where a combination of railroad tracks and Corps of Engineers-owned property separates privately owned land from the water. The narrowness of the cut and the necessity of maintaining an unobstructed navigation channel through the cut limits moorage and, therefore, precludes water-dependent uses on these lots. Other upland lots occur sporadically along the canal. Table 2 summarizes the number of waterfront and upland sites. Although the number of upland lots is similar to the number of waterfront lots, the upland lots tend to be smaller so that the area of land devoted to upland lots is substantially less than the area devoted to waterfront lots.

TABLE 2
Number and Area of Waterfront and Upland Sites by Geocode, the Ship Canal

Geocode	Number of Upland Lots	Area of Upland Lots	Number of Waterfront Lots	Area of Waterfront Lots
13	2	9,500	17	3,496,207
14	2	34,315	15	1,973,665
15	28	563,450	1	58,500
16	4	191,200	8	4,949,482
17	10	402,350	11	2,501,550
18	15	519,040	2	12,600

G. The Locks

The Hiram M. Chittendem Locks provide a navigation passage between Puget Sound and the freshwater Salmon Bay at a mean elevation of 21 feet above sea level. There are two locks. The large lock is 825 feet long and 80 feet wide. It will accommodate vessels up to 760 feet long with a maximum draft of 32.5 feet.

The small lock has a chamber 150 feet long by 30 feet wide. It will accommodate vessels up to 123 feet long with a maximum draft of 16 feet.

Pleasure boat traffic has been steadily increasing since 1961 but no special trend is evident for commercial craft. There is also considerable seasonal traffic variation with pleasure boat traffic peaking in the summer while fishboat and light commercial traffic peak in the fall.

Rafted logs, sand, gravel, crushed rock, and distillate fuel oil comprise the major portion of commerce shipped through the Canal (85 percent or more of the 1.7 million short tons annual average for 1975-1978). Commodities are shipped and received mostly to or from ports within the Puget Sound area and Alaska. The greatest portion of commercial shipping consists of tugboats and barges. cargo vessels. The largest barges transiting the locks are for Alaska bound commodities. These barges are up to 76 ft. wide, 280 ft. long and about 13 ft. in draft.

(The above information on the Locks was taken from U.S. Army Corps of Engineers, Lake Washington Ship Canal Master Plan, 1976, and Lake Washington Ship Canal Emergency Closure System - Major Rehabilitation Program, 1981.)

H. Traffic

The Seattle Engineering Department's 1981 Traffic Flow Map shows that the greatest volume of traffic in the Ship Canal area is over the Ballard Bridge with 46,500 vehicles per day. Fifteenth Avenue West and Northwest has been designated a congested corridor by Metro. Leary Way N.W. and West Nickerson Street are also heavily travelled with 16,100 and 15,500 vehicles per day but are not designated as congested corridors. These are all arterials, mostly outside the shoreline district. Traffic on access streets is considerably less.

I. Rail Access

Railroad tracks run parallel to the shoreline along both sides of the Canal. With the exception of Commodore Way Area between the Ballard Bridge and the Locks on the south side where the tracks run one to two blocks inland, these tracks provide direct rail access to shoreline lots. On the east end of the Canal on both sides of the Canal the tracks actually impede water-dependent development because of their closeness to the water's edge.

J. Public Access to the Shorelines

The public has access to the shoreline along the ship canal at a number of places on both sides. On the west end, the grounds of the Hiram M. Chittenden Locks include gardens, viewing areas of the locks themselves, and a fish ladder. The fish ladder connects with the Seattle Parks Department's Commodore Park on the south side. The Corps of Engineers reported 430,900 visitors to the locks in 1975.

Other public points of public access on the north side of the canal include a partially reconstructed pier in the 24th Avenue N.W. streetend, a boat ramp in the 14th Avenue N.W. street end and a viewing platform on the Fremont Cut.

On the south side of the canal, public access is provided at Fishermen's Terminal, at the 6th Avenue West streetend and at the Ewing Place Park adjacent to the 3rd Avenue West street end.

It is possible to walk or jog along the canal next to the railroad tracks from 3rd Avenue West to the Fremont Bridge on the south side and for a lesser distance on the north in Canal Park.

IV. ADJACENT LANDS

The logical boundaries of adjacent lands to the ship canal are the boundaries of the Ballard industrial area which includes both sides of the Ship Canal from the locks on the west to approximately Greenwood Avenue on the east. The Ballard industrial area includes 368 acres of industrially zoned land, 8 percent of all industrial land in the City. The majority is zoned IG, with an additional 15 percent zoned M and 22 percent zoned IH.

This area has a number of marine-related uses and other industrial uses which serve as necessary support services for the water-dependent uses along the Canal.

On the north side of the canal, the industrial area is surrounded by a substantial residential neighborhood and business community, in addition to recreational facilities and tourist attractions. The Ballard business district has recently undergone revitalization efforts.

On the south side of the canal, activity is predominantly marine-related. Transportation routes are oriented toward Fisherman's Terminal. Beyond Fisherman's Terminal and related marine activites, the industrial area continues into Interbay. Multi-family zones and small areas of business and commercial activity separate the industrial area below from the residential communities of Magnolia and Queen Anne on the hills above.

The "Industrial Area Background Report" prepared by the Seattle Office of Policy Planning in 1979 identified the following factors about the Ballard Industrial Area:

- The data collected do not indicate significant changes in the character of the Ballard industrial area over the past 10-15 years. In fact, the findings provide a general impression of a healthy and active industrial area, as evidenced by land use data, numerous property sales, increase in land value, and building investment and activity.

- A study of land use since 1967 indicates that manufacturing uses have not been forced out of retail and other non-industrial uses as some had feared.

- For the entire Ballard study area, manufacturing acreage has declined slightly from 34.7 percent of the industrial land to 32.7 percent in 1978.

- Although manufacturing uses may appear to make up a relatively small portion of industrially zoned land, of all the industrial areas studied, Ballard has the highest percentage devoted to such use.

- Since the amount of vacant land has remained quite stable over the years, it can be assumed that new development or expansion of existing businesses has taken place at the expense of residential uses in industrial zones which have declined in acreage. Much of the residential use in the midst of the industrial area is owned by neighboring industry and is being "held" for future expansion.

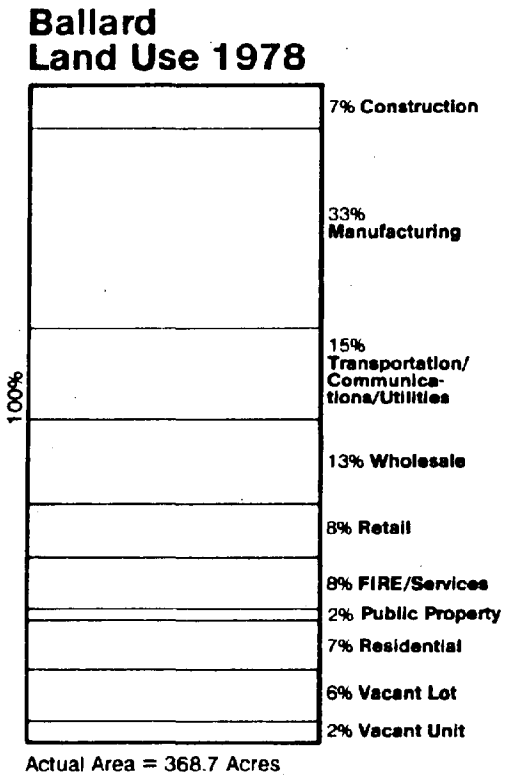
- Property sales activity is another indication of degree of vitality of an area. Sales of unimproved properties(which include residential uses in nonresidential zones) were brisk in Ballard.

- The area's vitality is also evidenced in new construction and expansion activites, particularly since 1975.

- The fisheries industry appears to offer growth potential in Ballard.

- Other characteristics of Ballard's industrial area may be "problems" or "potentials," depending on one's viewpoint. These include: 1) the increasing demand from retail, office and perhaps residential sectors for additional development in this area; 2) the availability of land for future development of expansion--whether vacant, under-utilized, currently in residential use although zoned industrial, or currently in use but with the potential for more intensive development; and 3) the congested condition of parking, access, and circulation in Ballard's industrial zones.

The study found land use in the Ballard Industrial Area to be distributed as follows:



The Industrial Area Background Study also identified the following issues for the Ballard Industrial Area:

- High traffic levels, both marine and vehicular, are overloading Ballard's industrial area transportation system. How can this condition be mitigated?

- How shall the local industries cope with potential encroachment from non-industrial uses, especially along the waterfront?

V. LAND USE

The shoreline inventory conducted by DCLU in 1982 gives information about the uses and activities on both waterfront and upland lots in the ship canal. For purposes of the inventory, the Ship Canal was divided into six geographical segments (#13-18) shown on Figure 1. The segmentation allows us to analyze land use from the perspective of the canal as a whole as well as to focus on specific areas with unique conditions.

Each shoreline site was placed into one of nine water-dependent categories according to the amount and type of water-dependent activities of the primary use on the site. For the Ship Canal, the major category (Table 3) was water-dependent industrial-commercial (WD-IC) with 57.8 percent of the water frontage so classified. Water-dependent recreational (WD-REC) was

the second most common category with 18% of the sites in that category followed by water-related (WR) with 12% of the frontage. Only 0.1% of the Canal was in a use designated as not water-dependent or water-related, and one site, or 1% of the Canal frontage was vacant.

TABLE 3
Water Frontage and Number of Sites in Different Water-Dependent Categories in the Ship Canal

Water-Dependency Category	Water Frontage	% of Total	# of Sites	% of Total
WD-IC	15,055	57.8%	29	54.7
WD-REC	4,680	18.0%	7	13.2
WD-BOTH	805	3.1%	3	5.7
WR	3,125	12.0%	8	15.1
MULTI-INC-WD	1,960	7.5%	3	5.7
MRN-REL	130	0.5%	1	1.9
FLHM	0		0	0
NOT WD-WR	40	0.1%	1	1.9
VACANT	250	1.0%	1	1.9
TOTAL	26,045	100%	53	100%

In addition to looking at water-dependency, the inventory classified the primary and secondary uses on waterfront and upland lots according to a land use code. According to that classification, the most common primary uses on waterfront lots are general manufacturing, marine services, marine transportation, ship and boat building, and marinas (Table 4).

Secondary uses (i.e., uses which are not the predominant uses on a site) fill out the picture of what is happening on a waterfront site (Table 5). In many cases, the secondary use may be the most visible use, for example, when a seafood processor moors large numbers of fishing vessels. Some sites had as many as three secondary uses as well as a primary use. Twenty-two sites provide some sort of marine services as secondary uses, and 12 sites provide commercial moorage. Ten sites are involved with either seafood products or fishing activities. Eleven sites are involved with marine retail trade. An additional three sites are involved with boat or ship building. Restaurants are secondary uses on three waterfront sites.

TABLE 4
Primary Uses on Waterfront Lots in the Ship Canal

Use	Number of Sites by Use in Each Geocode							
	Geocode						Total for Area	Total for City
	13	14	15	16	17	18		
Residential					1		1	
Floating Homes								
Seafood Products and Fishing Activities	1			1	1		3	
General Manufacturing	2	4			1		7	
Boat Building	1				1		2	
Ship Building	2	1		1			4	
Transportation and Utilities	1		1			1	3	
Marine Transportation	2	3			2		7	
Wholesale Trade		1		1			2	
Marine Retail Trade		1		1			2	
Non-marine Services	1	1		1			3	
Governmental Services	1			1			2	
Educational Services		1					1	
Marine Services	2	4			1		7	
Cultural and Entertainment Uses			1			1	2	
Marinas	1			1	4		6	
Commercial Moorage				1			1	
Open Storage	1						1	
Technical Instruments	1						1	
Vacant/Underused Areas	1						1	
Street End With No Use	3	5	1	1			10	
Total Number of Sites:	20	21	3	9	11	2	66	

TABLE 5
Secondary Uses on Waterfront Lots in the Ship Canal

Use	Number of Sites by Use in Each Geocode						Total for Area	Total for City
	Geocode							
	13	14	15	16	17	18		
Residential					1		1	
Floating Homes					2		2	
Seafood Products and Fishing Activities	3	4		2	1		10	
General Manufacturing	2	1		2			5	
Boat Building		1					1	
Ship Building	1	1					2	
Transportation and Utilities	3					1	4	
Marine Transportation	1	1			1		3	
Retail Trade - Non-marine	1				1		2	
Marine Retail Trade	3	2		3	3		11	
Restaurants	1			1			2	
Leased Office Space - General				1			1	
Non-marina Services		2			5		7	
Educational Services	1						1	
Marine Services	9	6		4	3		22	
Cultural and Entertainment Uses	1						1	
Marinas	2	3		1			6	
Commercial Moorage	6	4		1	1		12	
Open Storage	1	2	1				4	
Technical Instruments		1					1	
Vacant/Underused Areas	1	2				1	4	
Street Ends With No Use		1					1	
Total Number of Sites	36	31	1	14	18	2	103	

Primary and secondary uses were also determined for upland sites (Table 6). The most numerous primary use is residential on 19 sites, 17 of which are in geocode 15. General manufacturing was found as a primary use on 10 lots and a secondary use on 5 lots. Non-marine services occurred on 11 lots as a primary use and 7 as a secondary use. Marine retail trade (14 primary, 2 secondary) and marine services (3 primary, 2 secondary) were also found, showing the support role that upland lots can give to waterfront lots.

TABLE 6
Primary (and Secondary) Uses on Upland Lots in the Ship Canal

	Number of Sites by Use in Each Geocode							
	Geocode						Total for Area	Total for City
Use	13	14	15	16	17	18		
Residential			17	1		1	19	
Seafood Products and Fishing Activities				(1)			(1)	
General Manufacturing	1	(1)	4(3)	(1)	3	2	10(5)	
Transportation and Utilities	(1)		1		2(1)		3(2)	
Wholesale Trade			(1)	(2)	1	(1)	1(4)	
Retail Trade - Non-Marine					(1)		(1)	
Marine Retail Trade		1		2	(2)	1	4(2)	
Restaurants						1	1	
Leased Office Space - General			(1)		(1)	5	5(2)	
Non-Marine Services			4(6)		3	4(1)	11(7)	
Educational Services						1		
Marine Services	1	1(1)	(1)		1		3(2)	
Cultural and Entertainment Uses						(1)	(1)	
Vacant/Underused Areas			2		(1)	(1)	2(2)	
Total Number of Sites:	2(1)	2(2)	28(12)	3(4)	10(6)	15(4)	59(29)	

The inventory also provided information on the characteristics of sites occupied by uses in different water-dependent categories (Tables 7 and 8).

The water-dependent recreation sites had the lowest percent of dry land (43.4%) and the sites which were both water-dependent industrial-commercial and water-dependent recreational had the highest percent (81.9%). Sites classified as industrial-commercial, recreational, and multi-use had similar average water frontage (535, 669, and 653 feet).

TABLE 7
Average Site characteristics of Water-Dependent Categories on Waterfront Lots in the Ship Canal

Water Dependency Category	Water Frontage (ft)	Dry Land (Sq Ft)	Submerged Land (Sq Ft)	Dry as percent of Total	# of Sites
WD-IC	535	143,334	139,037	50.8%	29
WD-REC	669	40,686	52,957	43.4%	7
WD-BOTH	268	242,233	53,633	81.9%	3
WR	391	198,148	87,800	69.3%	8
MU-INC-WD	653	209,717	94,650	68.9%	3
MRN-REL	130	17,000	9,600	63.9%	1
MULTI-INC-WD	0	0	0	-	0
NOT WD-WR	40	7,200	800	90.%	1
VACANT	250	25,050	600	97.7%	1
					53

TABLE 8
Square Footage of Waterfront Sites by Water-Dependency

Water-Dependency Category	# of Sites	Dry Land (Sq Ft)	Submerged Land (Sq Ft)	Total
WD-IC	29	4,156,692	4,032,080	8,188,772
WD-REC	7	284,800	370,700	655,500
WD-BOTH	3	726,700	160,900	887,600
WR	8	1,585,180	702,402	2,286,782
MU-INC-WD	3	629,150	283,950	913,100
MRN-REL	1	17,000	9,600	26,600
NOT WD-WR	1	7,200	800	8,000
No Use or Street End	2	229,750	600	230,350
Total	54	7,636,472	5,561,032	13,196,704

The inventory also looked at land use from the perspective of the activities carried out over land and over water. These data are shown in Table 9 and show that the most common activity in the Ship Canal is the moorage of ships and boats which takes place on 45 of the 53 waterfront lots. The

next most common activity on waterfront lots is the servicing and repair of ships and boats on both land and water, followed by the storage of materials on land and the manufacture of products on land.

Of the 45 sites providing moorage, the number and types of ships/boats is as follows:

Type	Number
Pleasure craft	1,181
Fishing boats	900
Tugs	26
Barges	38
Freighters	5

TABLE 9
Most Common Activities on Waterfront Lots in the Ship Canal

Activity	On Land/Water	# of Sites
Moors boats or ships	Water	45
Services boats/ships	Land	21
Repairs boats/ships	Land	22
Services boats/ships	Water	19
Repairs boat/ships	Water	17
Stores material	Land	32
Manufactures prod ucts	Land	22
Office space	Land	15
Transports material	Land	14
Sells marine supplies	Land	12
Transports material	Water	11
Stores material	Water	8
Stores boats	Land	7

V. ISSUES

Although the inventory showed the Canal to be an active maritime waterfront, several issues related to the continuation of the area as an efficient industrial water-dependent center were identified during the study.

A. The Displacement of Industrial Uses With Commercial Uses

The permit analysis identified two permits which represent a shift in land use. One was the Canal Restaurant in Ballard next to 24th Avenue NW. This development, permitted in 1976, replaced a nonwater-dependent warehouse and, although not a shift in water-dependency, represents a movement away from industrial-manufacturing uses. No other similar changes in Ballard have occurred, but the potential is there. A second permit application was for a 6-story office building

on the south side of the Ship Canal near the Fremont Cut, which would have replaced a boat repair company and nonwater-dependent storage. There was some doubt on the part of DCLU as to whether the proposed development met the regulations of the SSMP, no decision was issued and the application was withdrawn when the property was purchased by METRO for a water quality laboratory. The water quality laboratory itself has generated some controversy with opponents questioning its need for a waterfront location.

Both the UD environment and the US environment permit offices, restaurants, and retail stores. In addition, the UD environment also permits nonwater-dependent manufacturing and the US environment permits housing. Although the UD environment may give the Director of DCLU more authority to deny or condition a permit for a nonwater-dependent use in the UD environment than in the US or US/LU environments, the potential for displacement of water-dependent uses by nonwater-dependent or mixed use developments still exists in both the US and UD environments in the Ship Canal.

B. The Urban Stable Shoreline Environment Designation

Maritime businesses located in the US environment on the south side of the Canal between the Ballard Bridge and the Locks have expressed an interest in changing the shoreline environment to UD. The US environment which permits housing and requires view corridors for water-dependent and nonwater-dependent uses is seen as inappropriate for an area zoned industrial and developed with water-dependent industries. The area was designated US because residents of the nearby Magnolia and Lawtonwood communities perceived the area as less heavily industrialized than other segments of the Canal and wished to keep it that way. Presumably, a proposal to change the area to UD would generate opposition from community residents.

C. Recreational Versus Industrial Moorage

The conversion of industrial uses to recreational uses is also a possibility in the Ship Canal. The area is desirable for recreational moorage because it is close to the Locks. For sailboats, the Canal has the advantage of being west of the Fremont Bridge, the lowest drawbridge in the system, and for powerboats it has the advantage of permitting covered moorage which is prohibited in Lake Union. Although marinas and industrial uses exist side by side in a number of locations throughout the Canal, there are indications of incompatibility. A marina located next to a shipyard may result in damage to pleasure craft when paint or sand blast material drifts on to them and to liabilities and expense for the industrial uses. Marinas can also tie-up the land and water for future industrial uses. Marinas generally need much more submerged land than dry land, and when they locate in areas with high percentages of dry land, the dry land is no longer usable for water-dependent

industry, a situation which leads to development of nonwater-dependent uses on the drylands. Perhaps controls should be placed on marina development in the Canal.

D. Fishermen's Terminal and Moorage for Larger Vessels

Since the original construction of Fishermen's Terminal, the size of new fishing vessels has increased with crab vessels now measuring as much as 160 feet. The nature of moorage needs has also changed. The larger vessels fish in Alaskan waters, land their catch there, and return to Seattle for repairs and outfitting. Thus the moorage demand for the larger vessels is seasonal and of short duration and likely to generate more traffic and service requirements than do the smaller vessels which moor year round.

To accommodate the larger vessels, the Port of Seattle has constructed a new T-shaped pier on the west side of the terminal and replaced an old timber pier on the east side with a modern concrete pier. However, fishermen claim there is still insufficient moorage space for the larger crab and trawl vessels. Owners of these vessels complain that the large center portion of the terminal is occupied by smaller, older vessels that are obsolete and used infrequently. The redevelopment of this area for larger vessels would alleviate the moorage shortage for those larger vessels but create a problem of what to do with the smaller vessels. The decision to redevelop the terminal is up to the Port of Seattle but will have repercussions on the demand for fishboat moorage throughout the Canal and Lake Union.

E. New Uses for the Honeywell Site

A problem which the City will soon confront is what uses to permit in the large office-manufacturing complex to be vacated by Honeywell when it moves to Edmonds. This large marine-related business now contributes to the marine orientation of the Ballard area, but the potential for occupancy of another large marine-related business may be small. Redevelopment of the site for water-dependent or water-related industry is unlikely because of the existing buildings on the land and the existing marina in the water.

CHAPTER 8: LAKE UNION

I. INTRODUCTION

A. Lake Union: Boundaries

This report discusses the shorelines of Lake Union, including its northeastern extension, Portage Bay. Lake Union is located directly north of Downtown Seattle, and now connects the waters of Lake Washington with the Salmon Bay Waterway, the Hiram M. Chittenden Locks, and Puget Sound. For the purposes of this report, the Fremont Bridge is considered to be Lake Union's western boundary. The lake is about 1½ miles long from north to south, and roughly half a mile wide; total shoreline frontage is about 5½ miles. When the shores of Portage Bay are included, total frontage approaches 9 miles. (See map following page 8-1.)

B. Physical Characteristics

Lake Union is a fresh water lake with a fairly consistent depth of 35 to 45 feet throughout. The water level varies very little over the course of a year, and the lake is not subject to tides. Its relatively small size and location in the midst of Seattle's hills protect its shores from severe storm and wave damage, in marked contrast to the Central Waterfront on Elliot Bay.

The topography is steepest along the lake's western shore, where a bluff rises to the top of Queen Anne hill. To the east, the land slopes less steeply to the north part of Capitol Hill. From Gasworks Park on the north shore, the land rises gradually through the Wallingford neighborhood, while to the south and southwest the former Denny Hill is no longer a hill at all.

The street pattern near Lake Union is characterized by principal arterials and highways which run generally parallel to the shorelines and function as major transportation corridors, and by smaller streets which provide local access and are often platted perpendicular to the lakeshore. Development is constrained by street patterns in particular along the western shore, where the Westlake Avenue right-of-way is very close to the water; in some cases, lots are actually developed which have no dry land.

Traffic congestion is particularly severe at the south end of the lake; the Environmental Impact Statement for the Multi-Family Land Use Policies identified the area from I-5 to Aurora along Mercer and Valley Streets as the only "critical" congestion problem along Lake Union (Multi-Family Final EIS, 1980, pages 140-141).

C. Adjacent Lands

The lands adjacent to Lake Union are, of course, highly urbanized, and encompass several neighborhoods. To the north, the Wallingford

community is located on the slope above the Gasworks Park and its surrounding industrial and maritime activities. Wallingford is composed primarily of single-family structures north to 45th Street, a characteristic reaffirmed in the recent city-wide rezoning of Seattle's residential areas. Its relationship with the lake is a visual one, with many sites enjoying spectacular views of the downtown skyline over Gasworks Park and the lake. Low heights appropriate to single family neighborhoods are controlled by the Land Use Code. Industrial uses along the north shore provide visual interest, and current heights on these waterfront sites do not create view blockage problems.

On the east of Lake Union, the logical boundary of adjacent lands is the Interstate 5 freeway. Between the lake and the freeway, Eastlake Avenue provides commercial and retail services, and functions as a major transportation route to downtown and the Seattle Center. West of Eastlake Avenue, a residential community of mixed single-family and lowrise apartments is located between commercial and light industrial uses to the north and south.

Several street-end parks in this area encourage direct contact with the lakeshore.

Extending southwards from the south shore of Lake Union, the small residential Cascade community is located amidst scattered commercial and industrial activity. The area is close to downtown and at this time is effectively "fenced" from the lake by the traffic along Valley and Mercer.

The steep east slope of Queen Anne abuts Lake Union on the west. Although some of this bluff still functions as greenbelt, other recent developments include apartments and condominiums on the west side of Westlake Avenue. Westlake itself is heavily travelled, and direct access to the lake from the west is limited by this arterial and by the steepness of the hillside.

II. HISTORY OF THE LAKE

The Vashon glaciation, which covered the present Seattle area with up to 3,000 feet of ice as recently as 13,000 years ago, was responsible for carving the Lake Union basin. The ice retreated about 12,000 years ago, after which the surrounding hills were gradually reclaimed by a dense forest typical of the Puget Lowlands. The surface of Lake Washington was about eight feet higher than Lake Union at that time, and drained south into the Cedar and Duwamish rivers. Lake Union was fed by springs and the runoff from surrounding hills, and its outlet was a narrow, steep creek flowing west into Salmon Bay.

Several villages were settled along the lake's shore by tribes associated with the Nisqually nation in the centuries before white settlement of Puget Sound. Later, during the 1850's, Thomas Mercer and David Denny

staked claims on Lake Union. Mercer named the lake in anticipation of the day when it would connect Lake Washington with Puget Sound.

Seattle grew slowly during the 1850's and 1860's; its population reached 1,000 only after 1870. Scattered settlements were established on Lake Union and Portage Bay during these years, and the first industrial use of the lake, coal transportation from east of Lake Washington, began. During the 1880's several sawmills were constructed, and in the mid 1880's the canals linking Lake Washington, Lake Union and Salmon Bay were opened. The Industrial Area Background Report notes that:

> By the turn of the century, the sawmills which dominated the lake shore were doing a booming business, and Lake Union became one of Seattle's prime commercial and industrial areas. However, several mills closed or relocated in the early years of the century due to decreased demand. Many of the support industries which had located at the south end of the lake were among the first to relocate to the Duwamish valley. (Office of Policy and Evaluation, Volume 2 [1980] p.29).

In more recent years, Lake Union has evolved from a "working lake" to one where marine-oriented commercial and industrial uses are mixed with marinas, houseboats, offices, restaurants, and residential structures along the shore. A more complete summary of current land uses is provided in Part IV of this report.

III. CURRENT LAND USE REGULATIONS

A. The Shoreline Program

Table 1 presents information on water frontage in each shoreline designation for Lake Union and Portage Bay. Most of the Lake Union shoreline is designated "Urban Stable/Lake Union," or US/LU. As a general rule, the Urban Stable designations prohibit some of the heavier industrial uses permitted in Urban Development (UD). In Lake Union, for example, such uses as housing, restaurants, retail, and boat construction and repair are now permitted by the US/LU designation, while hotels and refineries are prohibited. Covered moorage, principal use parking, and offices are also prohibited in US/LU.

Other designations of the SSMP which occur in Lake Union and Portage Bay are US, UR (Urban Residential), and CM (Conservancy Management). One additional site, on the north shore between the Aurora and Fremont Bridges, is UD. In addition, most of the lake area between the pierhead line and the construction limit line is designated CM. This is a more restrictive designation than US/LU; existing houseboats and open wet moorage are the only two uses permitted outright in this CM environment. (There are further restrictions on use of the area between the pierhead and construction limit lines, as will be described below.) This

current division of submerged land on a site into two different shoreline designations actually favors water-dependent recreational use or mixed use of a site over water-dependent industrial use; there may be reason to change current designations if the restrictions are not accompanied by a public benefit.

TABLE 1
Frontage by Shoreline Environment, Excluding Street Ends

Environment	Lake Union # Sites	Lake Union Frontage (Ft.)	Portage Bay # Sites	Portage Bay Frontage (Ft.)
UD	1	650	0	0
US	0	0	12	2,346
US/LU	98	23,210	1	300
UR	0	0	35	3,470
CM	2	1,970	2	2,700

In addition to a listing of permitted uses, the SSMP also includes development standards independent of use, which regulate height, lot coverage, and view corridors. Requirements on Lake Union include provision of a view corridor and a lot coverage limit of 50%, regardless of use on the site.

B. Zoning Code

Table 2 contains information on water frontage in Lake Union and Portage Bay of underlying land use zone. Most of Lake Union's frontage is zoned for Manufacturing (M); other zones which occur are CG (Commercial-General), and IG (Industrial-General). In addition, Portage Bay has frontage zoned SF (Single Family), L-3 (Lowrise 3), and proposed MI (Major Institutions).

The most significant impact of the underlying zoning on lakeshore land use is that housing is more restricted in M and CG zones than it is in US/LU. Although the shoreline designation US/LU permits residential uses, housing on the waterfront in the M zone requires City Council approval, as does housing in all CG zones.

TABLE 2
Frontage by Land Use Zone, Excluding Street Ends

Land Use Zone	Lake Union No. Sites	Lake Union Frontage (Feet)	Portage Bay No. Sites	Portage Bay Frontage (Feet)
IG (Industrial - General)	1	650	0	0
M (Manufacturing)	77	21,495	6	1,066
CG (Commercial - General)	23	3,685	1	300
MI (Major Institution)	0	0	6	1,280
L-3 (Lowrise 3)	0	0	1	100
SF (Single Family)	0	0	36	6,070
Totals	101	25,830	50	8,816

C. Pierhead, Harbor, and Construction Limit Lines

A confusing set of lines which appears on various maps of Lake Union deserves some explanation at this time. The closest line to shore, the Harbor Line, marks the limit of private ownership. Along most of Lake Union, the Harbor Line coincides with the Pierhead Line. Overwater construction out to the combined Pierhead/Harbor line is allowed, subject to the use, bulk, and lot coverage requirements of the SSMP and Land Use Code.

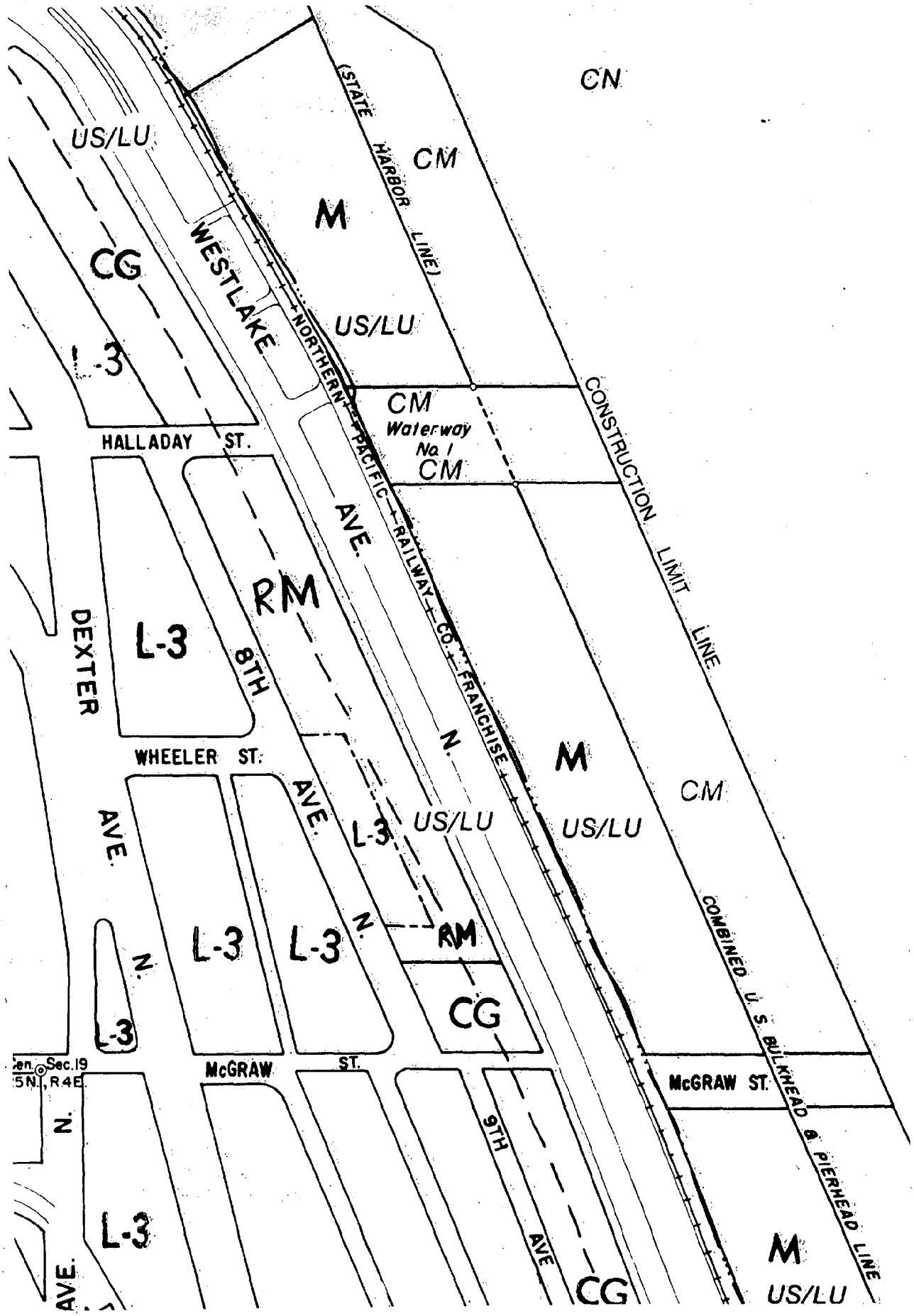
The Construction Limit Line is 100 to 150 feet further from shore than the Pierhead/ Harbor Line, and is important in two respects. First, it marks the outer limit to which piers may be constructed. In addition, the area between the Pierhead and Construction Limit Lines is considered to be state submerged land, and any use of this area is subject to the review and lease requirements of the Department of Natural Resources (DNR). In general, the DNR lease policies favor water-dependent uses over non-water-dependent development.

Finally, there is one area of the lake on the east shore, from Waterway 7 north to the NOAA site, in which both an Outer Harbor Line and Inner Harbor Line are established. The state constitution refers to such "harbor areas," and specifically provides that they should be reserved for "navigation and commerce." DNR lease policies establish strict requirements for water-dependency in such areas.

IV. CURRENT LAND USE

A. Waterfront Lots

Ever since Seattle first adopted a Zoning Ordinance in 1923, most of the shoreline surrounding Lake Union has been designated a Manufacturing Zone. Although developed acreage devoted to manufacturing uses continued to increase until about 1950, as a percentage


CN
US/LU
CM
M
CG
L-3
RM
WESTLAKE
STATE HARBOR LINE
NORTHERN PACIFIC RAILWAY CO. FRANCHISE
CONSTRUCTION LIMIT LINE
COMBINED U.S. BULKHEAD & PIERHEAD LINE
Waterway No. 1
HALLADAY ST.
WHEELER ST.
McGRAW ST.
DEXTER
8TH
9TH
AVE.
N.
Sec. 19
T. 25 N., R. 4 E.

of all lakeside uses manufacturing has been steadily declining for at least 60 years. This trend has been documented both in the 1963 Lake Union Study and the 1980 Industrial Area Background Report. By 1973, for example, only 14% of total acreage in the M zone was in manufacturing use.

Although manufacturing uses no longer predominate, much of the shoreline continues to be occupied by business uses dependent on the water for one reason for another. The DCLU shoreline inventory conducted in 1982 related current land uses more directly to state and local shoreline regulations Results for the 101 sites on Lake Union which abut water are presented in Table 3. Table 4 shows the same information from Portage Bay.

TABLE 3
Sites and Water Frontage by Water-Dependent Use Category - Lake Union

Category	No. of Sites	Water Frontage (Ft.)	% of Frontage
1. WD-IC	15	7,150	27.7%
2. WD-REC	21	6,255	24.2
3. WD-BOTH	13	3,365	13.0
4. WR	1	400	1.5
5. FLHM	23	2,860	11.1
6. MRN-REL	1	120	0.5
7. MULTI-INC-WD	17	3,867	15.0
8. NOT WD-WR	8	1,320	5.1
9. VACANT	2	493	1.9
TOTALS	101	25,830	100.0%

TABLE 4
Sites and Water Frontage by Water-Dependent Use Category - Portage Bay

Category	No. of Sites	Water Frontage (Ft.)	% of Frontage
1. WD-IC	4	858	9.7%
2. WD-REC	9	4,133	46.9
3. WR	--	--	--
4. FLHM	28	2,195	24.9
5. WD-BOTH	--	--	--
6. MRN-REL	--	--	--
7. MULTI-INC-WD	4	1,180	13.4
8. NOT WD-WR	5	450	5.1
9. VACANT	--	--	--
TOTALS	50	8,816	99.9%

The lake was divided into seven "geocodes," or subareas, in order to determine how land use differed by area. Table 4A presents information on water frontage and number of sites for each water-dependency category, by geocode. The geocodes are further identified on the map following page 8-1 of this report.

The tables provide a useful starting point for discussion of current land uses along the shores of Lake Union.

The use with the greatest amount of frontage on Lake Union is water-dependent industrial or commercial, yet a total of only 15 sites fall into this category (Table 3). The areas with the greatest concentration of this use type are south Lake Union (geocode 20) and north Lake Union (geocodes 23 and 24).

The second largest use category in terms of lake frontage is water-dependent recreation; if Portage Bay frontage is included, the recreation frontage is actually the largest (Table 5). When the category "water-dependent, both industrial/commercial and recreation" is added to the first two categories, the two types of water-dependent uses (commercial and recreation) account for 16,770 feet of frontage, or 64.9% of all frontage on Lake Union.

The category "multi-use, with water-dependent as a secondary use," represents another 15% of Lake Union's frontage. Uses included in this group are, for example, office buildings with accessory marinas. Nearly three-fourths of this category's frontage is found in geocode 19, the west shore of Lake Union.

Houseboat frontage, as one might expect from a drive around the lake, is concentrated along the south shore of Portage Bay (geocode 26) and the east shore of Lake Union (geocode 21).

Categories with a small number of sites included "water-related" (1 site); "marine-related" (1 site); and "vacant" (2 sites).

Tables 5 and 6 illustrate the specific uses found on upland and waterfront lots in Lake Union and Portage Bay. When grouped into water dependent categories, these counts of uses formed the basis of the earlier tables indicating frontage by water-dependency. These use tables indicate the degree to which recreational uses (marinas and marine retail) have expanded on Lake Union, in terms of number of sites if not frontage.

TABLE 4A

LINEAL FRONTAGE (NO. OF SITES) BY GEOCODE:
LAKE UNION AND PORTAGE BAY

Geocodes:	LAKE UNION					PORTAGE BAY		TOTAL
	19	20	21	23	24	22	26	
Category:								
WD IC	160 (1)	4020 (7)	750 (1)	1200 (3)	1020 (3)	508 (3)	350 (1)	8,008 (19)
WD REC	1365 (7)	300 (1)	1200 (5)	725 (4)	2665 (4)	608 (4)	3525 (5)	10,388 (30)
WD BOTH	1695 (6)	1150 (2)	330 (3)	-0-	190 (2)	-0-	-0-	3,365 (13)
WR	-0-	400 (1)	-0-	-0-	-0-	-0-	-0-	400 (1)
HSBT	560 (5)	-0-	2200 (17)	-0-	100 (1)	50	2145 (27)	5,055 (51)
MRN REL	-0-	-0-	-0-	120 (1)	-0-	-0-	-0-	120 (1)
MULTI INC WD	2697 (9)	460 (2)	420 (4)	180 (1)	110 (1)	1180 (4)	-0-	5,047 (21)
NOT WD/UR	-0-	130 (2)	250 (3)	290 (2)	650 (1)	-0-	450 (5)	1,770 (13)
VACANT	-0-	303 (1)	-0-	190 (1)	-0-	-0-	-0-	493 (2)
TOTALS	6477 (28)	6763 (16)	5150 (33)	2705 (12)	4735 (12)	2346 (12)	6470 (38)	34,646 (151)

GEOCODES:

19. West Lake Union, Highland to Fremont Bridge
20. SE and So. Lake Union, Newton to Highland
21. East Lake Union, University Bridge to Newton
23. North Lake Union, from east edge of Gasworks Park to University Bridge
24. North Lake Union, from Fremont Bridge to (and including) Gasworks
22. Portage Bay, north shore
26. Portage Bay, south shore

TABLE 5
Lake Union Waterfront Sites:
Number of Sites by Use

Use	Predominant Use	Secondary Use
Residential	3	6
Floating Homes	23	7
Seafood Products	1	6
General Manufacturin	2	0
Marine Manufacturing	0	0
Boat Building	5	2
Ship Building	1	1
Transportation & Utilities	3	2
Marine Transportatio	0	0
Container Terminals	0	0
Wholesale Trade	0	1
Non-marine retail	1	4
Marine retail	13	13
Restaurants	6	4
General Office Space	6	5
Non-marine Services	1	7
Government Services	5	0
Educational Services	0	2
Marine Services	13	24
Cultural/Entertainme	8	2
Marinas	15	34
Commercial Moorage	0	8
Open Storage	1	0
Technical Instrument	0	0
Vacant/Underused	4	34
Street Ends	36	11

TABLE 6
Portage Bay Waterfront Sites:
Number of Sites by Use

Use	Predominant Use	Secondary Use
Residential	6	20
Floating Homes	28	3
Seafood Products	0	1
General Manufacturing	0	1
Marine Manufacturing	0	0
Boat Building	1	0
Ship Building	0	0
Transportation & Utilities	0	3
Marine Transportation	1	0
Container Terminals	0	0
Wholesale Trade	0	0
Non-marine retail	0	0
Marine retail	3	1
Restaurants	0	1
Generl Office Space	0	2
Non-marine Services	0	4
Government Services	3	0
Educational Services	0	3
Marine Services	2	3
Cultural/Entertainment	4	3
Marinas	4	8
Commercial Moorage	2	1
Open Storage	0	0
Technical Instruments	0	1
Vacant/Underused	0	9
Street Ends	7	4

B. Upland Lots

Table 7 summarizes inventory information on upland versus waterfront lots. Lots were classified as "upland" during the inventory if they were within 200 feet of the shoreline, but separated from the water by a street or railroad right-of-way.

TABLE 7
Waterfront and Upland Sites by Geocode -
Lake Union and Portage Bay
(Street Ends Excluded)

Geocode	Waterfront Sites	Upland	Total
19	28	30	58
20	16	16	32
21	33	70	103
23	12	3	15
24	12	4	16
22	12	7	19
26	38	5	43
Totals	151	135	286

These results compare with city-wide totals of 375 waterfront sites and 310 upland sites. Although the count of upland sites for Lake Union is high, the area affected is quite small. Upland sites account for only 17% of the area within the Shoreline District in Lake Union.

The Eastlake (geocode 21) and Westlake (geocode 19) sections contain 100 of the 135 upland sites around Lake Union. Of the 70 upland sites in geocode 21, 48 are residential, 7 are vacant, and the remaining 16 are in assorted commercial, office, and service uses. Only two of the upland sites in the Eastlake area are marine-related. The large number of upland sites results from a combination of a street right-of-way near the shoreline and small platted upland lots.

The Westlake area has 30 upland sites; 9 of these are vacant, 6 are in manufacturing use, and another 4 are residential. None of the upland sites in this area are marine-related. These 30 sites are located on the west side of Westlake Avenue. Development is constrained to an extent by the steepness of the land to the west, and direct access to the waterfront is limited by traffic on Westlake.

C. Sizes Sizes

Table 8 presents information on average site size for Lake Union and Portage Bay, by geocode. Size of dry and submerged land area is often an important concern for a business in deciding where to locate; certain uses need a minimum amount of land area, or of water area, in order to operate at all.

The table illustrates that the two areas with the greatest number of upland lots (Westlake and Eastlake, geocodes 19 and 21) also have the smallest average dry land area for waterfront lots. Significant dry

land area can be noted in geocodes 20 (South Lake Union), 23 (North Lake Union), and 24 (also North Lake Union).

TABLE 8
Average Dry Land Area and
Average Submerged Land by Geocode
(Waterfront Sites Only; Area By Square Feet)

Geocode	Average Dry Land	Average Submerged Land	Dry as Percentage of Total
19	5,905	55,250	9.7%
20	80,976	79,853	50.3
21	8,236	23,650	25.8
23	60,933	40,158	60.2
24	101,841	39,364	72.1
22	14,347	37,226	27.8
26	42,285	32,898	47.9

Tables 9 and 10 presents the total size of waterfront sites by water-dependency for Lake Union and Portage Bay, respectively.

TABLE 9
Square Footage of Waterfront Sites by Water-Dependency -
Lake Union

Water-Dependency Category	# of Sites	Dry Land	Submerged Land	Total
WD-IC	15	1,408,350	954,300	2,362,650
WD-REC	21	988,550	879,335	1,867,885
WD-BOTH	13	198,050	1,013,450	1,211,500
FLHM	23	94,150	499,650	593,800
WR	1	240,000	150,000	390,000
MULTI-INC-WD	17	306,500	1,001,070	1,307,570
MRN-REL	1	14,400	0	14,400
NOT WD-WR	8	388,650	36,400	425,050
Vacant or Street End	2	47,425	25,200	72,625
Totals	101	3,686,075	4,559,405	8,245,480

TABLE 10
Square Footage of Waterfront Sites by Water-Dependency - Portage Bay

Water-Dependency Category	# of Sites	Dry Land	Submerged Land	Total
WD-IC	4	239,950	113,800	353,750
WD-REC	9	1,159,170	1,020,168	2,679,338
FLHM	28	181,750	342,500	524,250
MULTI-INC-WD	4	82,550	191,100	273,650
NOT WD-WR	5	115,600	29,300	144,900
TOTALS	50	1,779,020	1,696,868	3,975,888

D. Street Ends and Waterways

There are 39 street ends and waterways along Lake Union, and another 11 in Portage Bay. Of these 50 sites, 36 were listed in the inventory as having no use. Of the 14 street ends having some use, 9 are classified as "water-dependent, recreational," 3 are water-dependent industrial/commercial, one is used for floating home moorage, and another is marine-related. The water-dependent recreational category includes seven parks, one site used by a rowing club, and one site used partially for pleasure craft moorage. A more complete discussion of Lake Union's waterways is included as an addendum to this chapter.

E. Rail Access

A large portion, but not all, of Lake Union's Waterfront lots have rail access. On the Westlake Ave. N. side of the lake, tracks run south from the Ship Canal, around the south end of the lake, then north on the east side to just beyond Yale Ave. N. North of Yale Ave. N. there is no rail access. On the Northlake side of the lake there is rail access west of Gasworks Park but east and north of the Park the railroad tracks were removed for a bicycle path.

V. ISSUES

A. Types of Uses

Both the state's Shoreline Management Act and the city's Shoreline Master Program establish a preference for water-dependent uses on the shoreline. Have the shoreline regulations been effective in implementing this preference? If not, are changes warranted, or do water-dependent uses have sufficient access to shoreline locations without additional protection in the Land Use Code? If changes are warranted, what shape should they take?

One recent application, for the H. C. Henry Pier project at 809 Fairview Place North, on south Lake Union between Waterways 4 and 5, was granted a permit with conditions by DCLU in October, 1982. Although this project would displace several water-dependent businesses (commercial vessel repair, refitting, service, and moorage), the proposed uses are all permited in the US/LU environment, so long as public access to the waterfront is provided. Proposed uses include restaurant, retail shops, offices, a marina, and parking. The decision has been appealed to the state's Shorelines Hearing Board, and a final decision should be issued by the end of this summer.

An Environmental Impact Statement has been issued (February, 1983) for another project on south Lake Union, the proposd Rusty Pelican Restaurant at 1111 Fairview Avenue North. This proposal would replace a commercial marine repair shop and moorage of two large Liberty-class (former Navy vessels) ships with a restaurant and pleasure craft marina. Again, these proposed uses are permitted in the US/LU environment.

These projects introduce a new element to Lake Union land use: the displacement of water-dependent industries. They also continue a trend towards increasing recreation oriented development in Lake Union. Since the City started issuing Shoreline Permits a total of 6 new recreational developments have applied for permits in Lake Union compared to only one totally new industrial-commercial development. In addition, many of the marine-related developments in Lake Union are recreational rather than industrial including sail makers and yachting chandleries. The present purpose of the US/LU environment does not give any preference to industrial vs. recreational or vice versa.

Two criticisms that have been levied against both the H.C. Henry Project and the Rusty Pelican Project are that they are using a minimal water-dependent element (i.e. a small marina) and the provision of public access to make otherwise unacceptable nonwater-dependent uses legitimate. Neither project proposed using available state-owned aquatic lands for full marina development and both projects claimed that public access was a major public benefit of their developments.

The Industrial Area Background Report (Volume 1, pp. 18 - 19) acknowledged that non-industrial uses like offices and restaurants are typically able to outbid industrial uses for land, "especially in areas with views or waterfront locations."

The Report points out that permitting such "high bidders" in industrial areas has both advantages and disadvantages. It allows flexibility, and a range of intensity of use within an industrial zone. At the same time, there is a risk that "the established network of industrial support services weakens as firms move to other

flexibility, and a range of intensity of use within an industrial zone. At the same time, there is a risk that "the established network of industrial support services weakens as firms move to other areas." This risk may be particularly great on Lake Union, since, although water-dependent industrial frontage is large, the actual number of water-dependent sites is quite limited.

The SSMP as currently written expresses a preference for water-dependent uses, but also permits such "high bidder" uses as restaurants in the US/LU environment. The intent was to permit the mix of activities that Seattle residents have come to associate with Lake Union. If that mix is desirable, and if it is threatened, the Land Use Code and Shoreline Master Program might be amended to provide greater protection for certain uses.

B. Floating Homes

The floating home community on Lake Union and Portage Bay is one of the largest in the country. It adds color and diversity to Seattle's housing opportunities, and provides a link with Seattle's past as a growing waterfront city.

The recent decision of the Washington State Supreme Court which declared a portion of Seattle's "houseboat equity ordinance" (SMC Chapter 7.20) unconstitutional has resulted in confusion and uncertainty about the future of floating homes on Lake Union and Portage Bay. At this time several efforts are being made to amend the floating home ordinance and/or the Shoreline Master Program, in order to satisfy the court's legal requirements and property owner concerns while avoiding mass evictions at leased moorages.

In the longer term, several concerns must be addressed. Floating homes have consistently been recognized as a unique and valuable feature of Seattle's shorelines which should be maintained. This recognition can be found in the Lake Union Preliminary Comprehensive Plan and Action Program (Joyce, Copeland, Vaughn; 1971), in Resolution 25173 adopting goals and policies for the Seattle Shoreline Master Program (March 1976), and in the SSMP itself which classified floating homes as water-dependent uses.

However, the Resolution was careful to stress that support for floating homes was intended to maintain the existing community and not to endorse or encourage the increased use of shoreline or water area for houseboat moorages. Care must be taken that other equally important water-dependent uses are not displaced by floating homes, either by new homes at new moorages or by existing floating homes which might be evicted.

C. The Conservancy Management Environment and the Construction Limit Line

Throughout Lake Union the submerged lands between the Pierhead line and the Construction Limit Line are designated Conservancy Management

(CM). The only uses permitted there are open wet moorage and existing floating homes. This split designation tends to favor recreational uses over industrial uses by allowing marinas to make full use of the submerged lands for moorage but restricting industrial uses to land behind the pierhead line. Recently, Marine Power and Equipment requested a redesignation of the CM area waterward of their property. DCLU and the City Hearing Examiner both recommended granting the request based on the large size of modern ships and the need for large industrial sites to accommodate them. Additional redesignations in other areas of the Lake may be appropriate also, or the dual-environment concept could be eliminated and replaced by bulk regulations restricting structures but not uses.

The construction limit line was intended to be the outer limit of piers and other structures leaving the remainder of the Lake as open water for navigation. Two businesses, Marine Power and Ivar's Salmon House have placed structures beyond the construction limit line and have been cited for violations. Both have expressed an interest in requesting movement of the line rather than compliance with the existing line. These applications will raise the issue of the public's right of navigation versus the needs of businesses including water-dependent uses.

D. Waterways

Lake Union's waterways are inviting parcels of public lands, mostly undeveloped. Their use has been a subject of much controversy in recent years because of private development proposals. This issue is explored at length in the following addedum.

LAKE UNION ADDENDUM: WATERWAYS IN LAKE UNION

I. WATERWAYS AS A UNIQUE PUBLIC RESOURCE

Waterways are platted public ways for watercraft. They were established by the State Harbor Line Commission in 1907 in conjunction with the establishment of Harbor Lines. Their purpose is to facilitate marine commerce and navigation. In Lake Union the waterways provide access to land for the loading and unloading of watercraft. RCW 79.93.010 mandates the Department of Natural Resources to establish public waterways "located at such ... places as in the judgement of the Department ... may be necessary for the present and future convenience of commerce. All waterways shall be reserved from sale or lease and remain as public highways for watercraft until vacated ...."

The State of Washington owns the waterways. In Seattle, the City enacted SMC 16.60 for the purpose of regulating the use of waterways in Lake Union and Lake Washington. In 1970, the Lake Union Association, Inc. and others challenged the City's legal authority to regulate certain waterway uses in Lake Union. On January 18, 1971, the King County Superior Court affirmed that the use of waterways are subject to the City's control as established by the State Constitution and Statutes.

Presently, there are 20 waterways in Lake Union, occupying 3,375 lineal feet of shoreline (see Exhibits 1 and 2). About 21% of the waterway areas are dry land as a result of past fills (221,875 sq. ft.), but the majority (79%) is submerged land (1,067,575 sq. ft.). Waterways normally run parallel to shore; in Lake Union, however, waterways are unusual in that they are platted perpendicular to the shoreline, much like streetends.

II. WATERWAY PERMIT PROCESS

The City's regulations on waterways are contained in the Harbor Code (Chapter 16 of the Municipal Code). Boats may be moored or anchored in the waterway without a permit for no more than 21 consecutive days. If a boat is moored in the waterway for more than 7 consecutive days, no other boat may be moored in the waterway for 60 days without a permit. Moorage for longer periods must be authorized by the Board of Public Works. The enforcement of waterway uses is carried out by the Harbor Patrol (Port Warden) of the Seattle Police Department which has its headquarters near Waterway 20 west of the Gas Works Park on N. Northlake Way. In addition to the enforcement authority of the Port Warden, the board of Public Works is authorized to revoke a permit.

Section 16.60.030.A of the Harbor Code provides that the Board of Public Works is the final City decision-maker on waterway use proposals. The Board has delegated its review function for minor projects to the Engineering Department. However, the Board maintains its role as the final decisionmaker when a party seeks an appeal of the Engineering Department decision. The Engineering Department reviews the applications to ensure compliance with the Harbor Code, and issues decisions on most

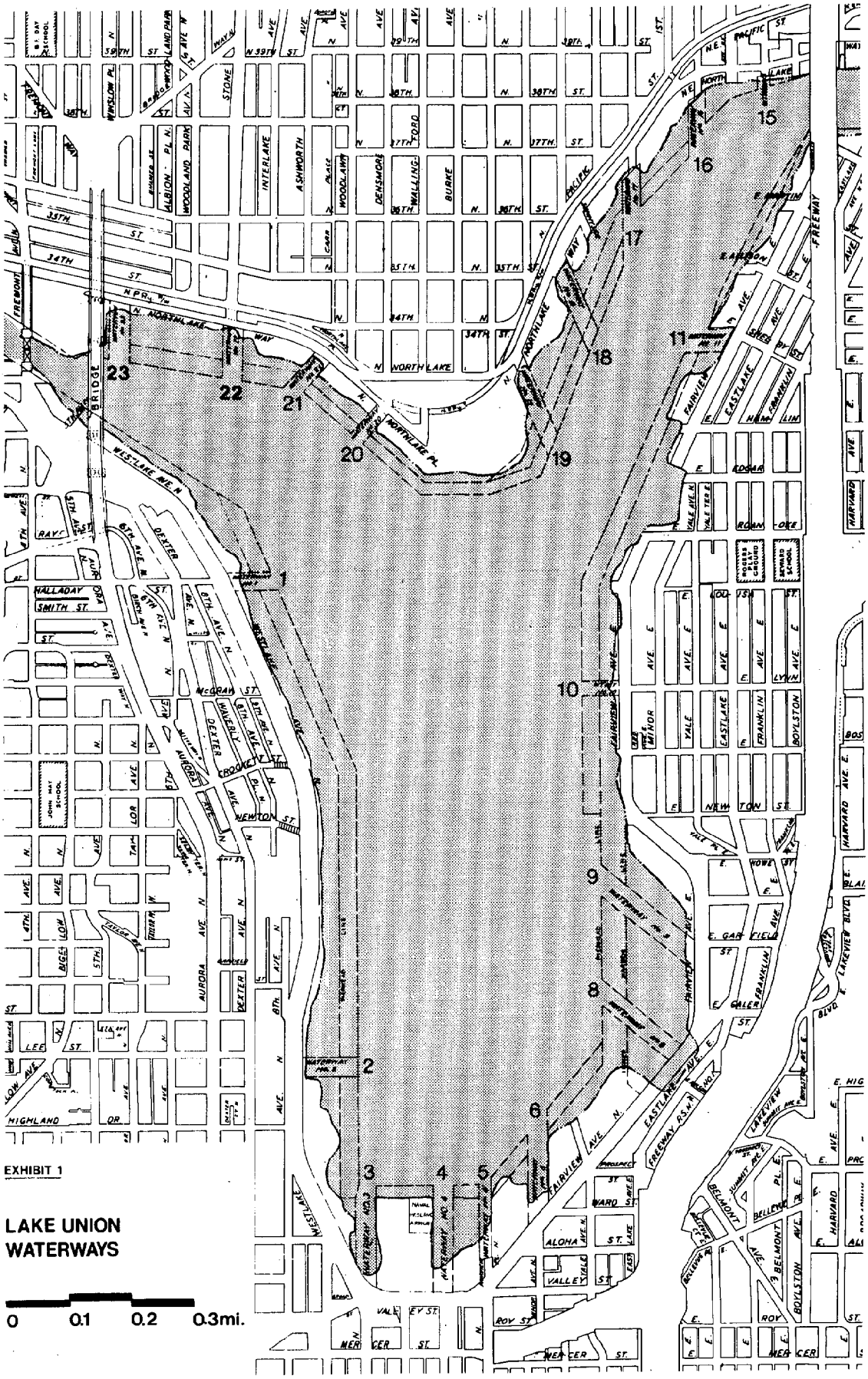


EXHIBIT 1

LAKE UNION WATERWAYS

0 0.1 0.2 0.3mi.

Exhibit 2

Waterway Number	Shoreline Lineal ft.	Area (sq. ft.) Dry Land	Area (sq. ft.) Submerged Land	Zoning Underlying	Zoning Overlay
1	160	0	30,400	M	CM
2	140	2,800	42,000	M	CM
3	240	4,800	80,750	M	CM
4	165	26,400	90,750	M	CM
5	180	37,200	35,000	M	CM
6	170	11,900	79,900	M	CM
8	165	0	87,450	M	CM
9	115	2,500	148,000	M	CM
10	120	4,800	18,000	CG	CM
11	220	0	47,250	M	CM
14	100	1,000	22,500	M	CM
15	100	4,000	6,000	M	CM
16	190	24,700	25,200	M	CM
17	300	30,000	31,800	M	CM
18	210	12,600	102,900	M	CM
19	200	31,500	84,000	M	CM
20	120	14,400	14,400	M	CM
21	150	7,500	24,750	M	CM
22	165	1,650	45,375	M	CM
23	165	4,125	51,150	M	CM
Total 20 Waterways	3,375	221,875 (about 21%)	1,067,575 (about 79%)		

waterway permits. The Department also gives notice to property owners and lessees who may have access affected by the proposed use. For long-term uses (i.e., when an applicant seeks a use in excess of one year), the Department further notifies the State Commissioner of Lands and the Port of Seattle regarding public hearing schedules, which are published in the Daily Journal of Commerce. Notices are also posted in the immediate vicinity of the subject waterway. The Engineering Department reviews these long-term applications and makes recommendations to the Board.

In most long-term cases and when a Seattle Shoreline Substantial Development permit is required for the proposed improvement, the Department of Construction and Land Use is involved to ensure compliance with the Shoreline Master Program and zoning regulations. Except for minor improvements exempt under SEPA, a threshold determination and environmental impact analysis is required for every proposal. For any construction in the water, hydraulics approval from the State Department of Fisheries and Game and authorization from the U.S. Army Corps of Engineers are required. The Department of Construction and Land Use is responsible for coordination with these permitting agencies through the shoreline permit process.

As part of the City's overall effort to consolidate and improve all land use permit processes, the waterway permit procedure was reviewed by the Land Use Administrative Task Force on Phase II Procedural Reforms project. The Task Force recommended a simplified procedure for making decisions on waterway use applications. This recommendation is now being reviewed by City departments which have an interest in waterways, and a new waterway permit procedure may be recommended to the City Council for adoption this summer. The new procedure may require subsequent amendment of the Harbor Code.

III. NATURE AND TYPE OF WATERWAY PERMIT

Section 16.60.050.A of the Harbor Code states that all waterway permits "shall be wholly of a temporary nature, shall vest no permanent right, and may be revoked ...." Further, the Waterway Resolution of the Board of Public Works adopted on June 17, 1981, specifies the following (item 12):

> Permits granted by the Board shall lapse and shall require reapplication at least each year. Renewal shall require a Board hearing, with a review and opportunity for comment by City Departments and interested parties, including members of the public ....

Therefore, any use or structure authorized by a waterway permit does not acquire any permanent right. Additionally, the temporary right conferred does not obviate the permittee's responsibility to satisfy the City's land use requirements.

There are two types of waterway permits. Their summary descriptions and permit fee schedule are listed below (Resolution 26822). These fees, intended to cover costs of administration, inspection and policing and commensurate with fees established for street uses of similar character, go into a Waterway Fee Fund.

WW100.	For structures such as piers, loading platforms, bridges, scales, overhead hoists, beams and cranes, buildings and building overhangs, (cornices excepted) or similar installations.	1.8 cents per sq. ft. per month for first 1,000 sq. ft., 1 cent per sq. ft. per month for additional. $50.00/year minimum.
WW200.	For material storage (moorage) or any other use not covered in schedule.	10 cents per sq. ft. per month for first 1,000 sq. ft., 5 cents per sq. ft. thereafter. $25.00/month minimum.

To protect the public interests, the permittee is also required to provide a public liability insurance sufficient to cover potential claims against the City, to post a bond or cash deposit sufficient for the removal of water-crafts or other obstructions in the waterway, and to submit an indemnity agreement to hold the City harmless from any and all claims as a result of using the waterway.

IV. DISTINGUISHED FUNCTIONS OF WATERWAY PERMITS AND SHORELINE SUBSTANTIAL DEVELOPMENT PERMITS

In early 1980, some citizen groups petitioned to the Planning Commission to remove the waterway permit regulations from the Harbor Code to the Shoreline Master Program. It was argued that all of Seattle's shoreline policies should be included in the Shoreline Master Program for consistent definitions and permit issuance. A special task force was formed to explore this concept, involving the Department of Community Development, Department of Construction and Land Use, and Department of Engineering. After considerable research, it was determined inappropriate to combine the regulations because of the distinct functions of the two permit processes. The waterway permit allows the temporary use of navigable water for purposes of navigation and commerce. Fees are required for the costs of administration, inspection, and policing of waterways. The shoreline permit authorizes construction, substantial development, and use of shorelines. Operation of boats, ships, and other vessels used as such is not subject to the Seattle Shorelines Regulations. The Shoreline Management Act does not have authority over navigational uses. Therefore, the regulatory functions of the two permit systems are clearly different. However, any substantial construction in a waterway is also governed by the shoreline permit requirements, so that construction in a waterway must conform to both the Harbor Code and the Shoreline Master Program.

V. WATERWAY PERMIT POLICIES AND RESOLUTION GUIDELINES

The overriding policy of both State and City authorities over waterways is to preserve the waterways for use as public highways, and to insure that waterways are used for water-dependent navigation and/or commerce purposes.

The Seattle Harbor Code Section 16.60.030.E provides the general policy criteria for the issuance of waterway permits. Basically, the Board of Public Works may issue a waterway permit with "appropriate terms and conditions" upon finding that the proposed use is "compatible with use of the waterway as public ways for watercraft and the convenience of commerce, is consistent with the City's land use planning in the immediate vicinity, and does not deprive adjacent properties of reasonable water access." This general policy appears to apply well to the traditional uses of waterways for temporary moorage, loading and unloading of water craft, and access to adjoining properties. However, the interpretation of the Harbor Code becomes increasingly problematic in recent years when less traditional uses were proposed for the waterways. The Center for Wooden Boats, for example, proposed to construct a floating dock system, a boat-building shop and a museum in Waterway 4 as part of their marine historic and educational center in south Lake Union (MUP 82-0089 at 1010 Valley Street). When this project was first proposed in 1982, disputes arose on its seeming conflict with the waterway policies because it appeared to be a permanent use, and it might block navigation access to the shore. (A waterway permit and Master Use Permit for a "temporary" use has been issued.)

Another example is Marine Power and Equipment Company at Waterway 21. The City has historically allowed the use of Waterway 21 for commercial boat moorage and repair, but has been repeatedly confronted with permit renewal issues. Again, disputes were focused on Marine Power's preference for a longer term for the Board's permit. The use is not only inconsistent with the Shoreline Master Program, but also with permit conditions and Harbor Code requirements.

A third example is at Waterway 23, where a 100-slip pleasure craft marina was proposed by the Fremont Dock Company in 1979. It was questionable whether such commercial moorage would indeed benefit the public, and whether adequate open water would be left for public navigation and access.

In all of these and other proposed non-traditional uses of the waterways, the State Department of Natural Resources had taken a relatively more restrictive interpretation of the allowable uses. The City, on the other hand, tended to accept uses beyond the traditional temporary moorage and access, as long as such uses were water-dependent and would benefit the general public rather than a few individuals. Several citizen groups were also apprehensive about the possibility of losing the waterways to exclusive, private uses instead of preserving them for public access and view corridor.

In recognition of these conflicts, the Board of Public Works suspended action on a number of permit proposals in mid-1980 and requested an inter-departmental task force to develop permit issuance guidelines consistent with all pertinent State and City codes and ordinances. After much discussion and consultation with several City departments, the State Department of Natural Resources and the City's Attorney's Office, and after several public hearings, the Board of Public Works finally adopted a Waterway Resolution on June 17, 1981. The Resolution provides the current guidelines and criteria for waterway permit issuance and for implementing the Harbor Code.

The Resolution clearly gives precedence to the traditional uses for waterways over the non-traditional uses. It mandates that if a waterway is required to be left open for the traditional uses, other permits shall not be granted. The traditional uses are defined as temporary anchorages, loading and unloading of watercraft, and access to adjoining lands, including temporary moorage of vessels by adjoining property owners who have piers abutting the waterways.

The Resolution also states: "Waterways are dedicated to the use of the Public and shall be in the public interest. Uses other than the traditional uses shall be temporary uses benefiting the general public rather than a few individuals or a private profit organization." Therefore, the Resolution allows non-traditional uses as secondary uses only if the waterways are determined not necessary for access purposes, and only if such uses qualify as a temporary use benefiting the general public. The requirement for public benefit must apply to the entire waterway proposal; tradeoffs shall not be allowed. For example, provision of a transient moorage or other public amenities will not give a private use a public character. The Resolution specifies that to qualify as a public use, a waterway use must be non-profit as designated by the U.S. Internal Revenue Service, must provide a public service, and must be opened to the general public without discriminatory membership requirements.

To ensure the long-term availability of the waterways as open, public passages for watercraft, the Resolution states that new stuctures in waterways shall be on floats rather than fixed structures so as to be readily removable; and that anchors shall be preferred over pilings. The Board of Public Works may also require that a minimum 50 feet be left open for navigation, although the Harbor Code allows less than 50 feet. Further, the Resolution reinforces the temporary nature of waterway permits, requiring yearly reapplications and approval by the Board. The Resolution also mandates that all uses in the waterways must be directly related to navigation and/or commerce, and must meet the definition of a water-dependent use. (See detailed discussions on the defined uses of the Shoreline Master Program in an earlier section of this report.)

The Resolution provides some opportunities for citizen participation. The Board may request comments of other public agencies as well as citizens, but is not obligated to do so. Compared to notification and comment opportunities embodied in Seattle's Master Use Permit legislation, citizen participation is not as extensive.

Another requirement of the Resolution is that all waterway uses must meet the regulations of the Shoreline Master Program, the Seattle Zoning Ordinance, and must conform to the City's applicable Plans and Policies.

VI. ZONING AND SHORELINE MASTER PROGRAM REQUIREMENTS OF WATERWAYS

At present, all waterways and their abutting properties on Lake Union are zoned for Manufacturing (M) uses, except for Waterway 10 which is zoned for General Commercial (CG) uses, and property west of Waterway 23 which is zoned for General Industrial (IG) uses. This zoning pattern reflects the general historic land use developments of the Lake Union shorelines around a marine-oriented working lake. Their intensity of development, however, has also been governed by the shoreline overlay zones (or shoreline environment designations) and bulk regulations since the enactment of the Shoreline Master Program in 1977. In most instances, the properties abutting the waterways are under the Urban Stable/Lake Union designation, except for the following:

Properties abutting Waterway 14 - Urban Stable
Property abutting west of Waterway 23 - Urban Development
Property abutting east of Waterway 20 (Harbor Patrol) - Conservancy Management
Properties abutting Waterway 19 (Gas Works Park) - Conservancy Management

All waterways on Lake Union are designated under the Conservancy Management (CM) environment. In addition, the submerged areas beyond the waterways between the Pierhead Line and Construction Limit Line are also designated CM. The purpose of the CM environment is to protect areas for "environmentally related, usually public, purposes, such as public and private parks and marinas. . . . While the natural environment is not maintained in a pure state, the activities to be carried on provide minimal adverse impact." (Section 24.60.335 of the Seattle Municipal Code.) With this general intent, the CM environment is a relatively restrictive zone, permitting only limited types of development. The typical allowable uses in the CM environment are (refer to Table 2A of the Seattle Shoreline Master Program Amendment):

Open wet moorage - principal use and accessory use
Existing yacht club
Marina
Marine sales
Passenger and auto ferry terminal
Bicycle and pedestrian ways
Streets, scenic roads and auto-oriented viewpoints
Recreational piers
Floats
Bulkhead and shoreline protective structures
Public parks
Research and educational uses
Community facilities

Open dry-boat moorage (as a shoreline special use)
Stacked moorage (as a shoreline special use)
Launching ramp (as a shoreline special use)
Haul-out facilities (as a shoreline special use)
New yacht, boat and beach clubs (as a shoreline special use)
Accessory parking (as a shoreline special use)
Groins (as a shoreline special use)
Breakwaters (as a shoreline special use)
Aqua-culture structures (as a shoreline special use)
Landfill (as a shoreline special use)
Floating dolphins (as a shoreline special use)

Although the above uses are permitted in the CM environment, they may not necessarily be permitted in the waterways (CM zoned) because they are also required to meet the conditions of the Harbor Code and the Resolution Guidelines of the Board of Public Works. Also, certain intensive uses such as marine repair and dismantling is not permitted in the waterways (CM zoned), although they are permitted in the abutting US/LU properties. Therefore, the waterways abutting such industries, as in the case of Waterway 21, could only serve as accessory moorages for vessels awaiting for the repair work. Marine Power and Equipment Company is currently pursuing an environmental redesignation of Waterway 21 from CM to US/LU to permit marine construction and repair work in the waterway (CC 82-0018).

The bulk regulations for development in the waterways are the same as those in most parts of Lake Union, and are specified in Sections 24.60.385, 390 and 395, and Table 1 of the Shoreline Program Amendment. View Corridor requirement is 35% and maximum height is usually 35 feet.

Section 24.60.405 also requires that public access shall be provided by all nonwater-dependent or nonwater-related uses on waterfront lots in the US/LU environment, except when such properties abut a street end or waterway which provides public access, and which have a front lot line less than 100 feet in length. There are currently only five public accesses in or abutting the Lake Union waterways (further details in next section).

VII. CURRENT WATERWAY PERMITS AND DEVELOPMENT

The Department conducted a field survey on all the waterways and their abutting properties in Lake Union in March and April of 1983. Of the total 20 waterways, 15 are partially occupied by authorized uses. The five "vacant" waterways are: Waterway 2 (next to Latitude 47 Restaurant), Waterway 10 (next to Lynn Street mini-park), Waterway 14 (next to the University of Washington YMCA), Waterway 16 (next to Sealand Assoc.), and Waterway 19 (next to Gas Works Park). These 5 waterways remain open entirely for public use, while the other 15 waterways are used for private uses.

With a total of 19 permits issued for 15 waterways, several waterways have more than one permit related to them, namely: Waterways 1, 3, 15, 17, and 23. Over half of all the authorized permits (10) are WW200, which are for moorage purposes only, without any structure. The remaining nine permits are WW100 and are granted primarily for piers and floats except for a few long-established structures, such as the access driveway of Lone Star Industries at Waterway 5. In terms of degree of water dependency, all waterway permits are for water-dependent uses, except for Waterways 5 and 6 which are occupied by a water-related use (the Lone Star Cement Manufacturing Plant). Of all the water-dependent uses, ten are for industrial and/or commercial purposes (e.g., moorage for commercial vessels), and eight are for recreational uses (e.g., pleasure craft moorage).

The following discussion highlights the special characteristics and current issues of each waterway:

- Waterway 1: Waterway permits were granted to moor a commercial boat, "K.J.", and pleasure crafts. The main pier of NC Marine (repair and services) abutting north was built right on the property line. The waterway is used for temporary anchorage and access to the abutting properties on both sides. The waterway shoreline has a high bank, with the Burlington Northern railroad tracks close to the waterfront.

- Waterway 2: The existing properties abutting Waterway 2 are the Marine Mart covered moorage and the Latitude 47 Restaurant and open moorage. Again, the waterway has a steep bank with very little upland at this site. The existing moorages on both sides of the waterway use the waterway for access. There is no permit issued for the use of the waterway at present.

- Waterway 3: The properties now abutting Waterway 3 are the vacant Kurtzer Flying Service and the U.S. Naval Reserve Center. Permits were granted to moor the historic Seaport San Mateo and Wawona in the waterway. Some old dolphins were installed for anchorage on the west side of the waterway. The Department is reviewing a proposed mixed retail/ condominium/boat moorage use abutting west of Waterway 3 (MUP 81222-0255; CC 81-010).

- Waterway 4: The Center for Wooden Boats was recently approved for a waterway permit and is in the process of preparing a bond to cover the potential cost of removing the structures in the waterway, if necessary. The existing waterway permit N-4466 for the storage and rehabilitation of the vessel Circe on land would then be terminated. The proposed floating boatbuilding shop and museum are keyed to historical restoration and education in traditional boat building and sailing skills and are, therefore, considered as a water-dependent marine research and education use (see MUP 82-0089 issued 12-8-82). The proposal also met the Waterway Resolution requirement for "public use," and the proposed structures over water are on floats instead of being fixed. The MUP was issued to remain valid only as long as a valid waterway permit is in effect. Further, the MUP clearly states that only a "temporary use" is authorized.

- Waterways 5 and 6: The Lone Star Cement Manufacturing plant has historically used these waterways for barge loading and unloading, and for other access purposes. In October 1982, the Department approved MUP 81170-0133 for the redevelopment of the H.C. Henry Pier abutting Waterway 5 into a multi-use retail/commercial building with a pleasure craft marina. This proposal does not include the waterway area. However, the SMA permit was appealed by Lone Star, Shoreline Coalition, Seattle Marine Business Coalition and League of Women Voters. The major issues are: opposition to proposed uses, displacement of water-related and water-dependent uses, amount of accessory office space and parking provisions, and adequacy of the Environmental Impact Statement. Lone Star has subsequently withdrawn as appellant.

- Waterway 8: The Lake Union Drydock Co. currently has a permit to use Waterway 8 for commercial moorage. Properties abutting both sides of the waterway are boat sales/moorage facilities, using the waterway for access and temporary moorage. A shoreline permit to relocate the Polynesian Restaurant at the property south of Waterway 8 was recently denied (MUP 82-0070).

- Waterway 9: The Lake Washington Rowing Club has a pier and boathouse in Waterway 9. The abutting properties, Lake Union Drydock Co. on the south and the NOAA marine research facilities on the north, use the waterway for access and moorage.

- Waterway 10: The waterway and street end areas have been developed into an attractive mini-park (Lynn Street Park). A waterway permit was requested by the Union Harbor Condominium abutting north in 1982 for pleasure craft moorage in the waterway. The request was denied primarily because it did not qualify as a public use to benefit the general public. The condominium later was granted a MUP to construct a moorage float on private property abutting the waterway.

- Waterway 11: A waterway permit has been granted to the Lake Union Terminals at Waterway 11 for fishing boat moorage. However, a fixed walkway has also been built across almost the entire width of the waterway. The commercial moorage abutting both sides of the waterway uses the waterway for access and moorage purposes.

- Waterway 14: There is no current permit for Waterway 14 use. The property abutting east is developed with a covered pleasure craft moorage. The property abutting west is a cold storage company with commercial moorage. The waterway is used by both neighbors for access and moorage.

- Waterway 15: Waterway permits have been granted to Ward's Cove Packing Company for commercial vessels moorage in the waterway. The Engineering Department has raised the question of possible building and dock encroachment by the permittee, but the disputes have not been resolved. A public access is provided by the Ivar's Restaurant abutting west of Waterway 15. The public access consists of a viewing and informal outdoor eating area.

- Waterway 16: No permit is authorized for Waterway 16. However, the waterway appears to be occupied by broken concrete and a deteriorating float and shed.

- Waterway 17: The Seattle Marina, Inc., has been granted waterway permits for pleasure craft moorage and pier structures. An attractive mini-park has also been developed abutting east of Waterway 17. The Board's approval for the last permit extention in October 1978 required the permittee to submit plans to phase out the moorage use in the waterway. However, the permittee has not yet totally vacated the waterway.

- Waterway 18: The Boy Scouts of America developed a float and moorage and provides a public access at Waterway 18 (SMA 232). The abutting food processing company and commercial moorage currently use the waterway for access and temporary moorage.

- Waterway 19: The upland property abutting the waterway is vacant. There was a proposal to develop a restaurant with public access, but that project has never materialized. The waterway abuts the Gas Works Park to its west and a private marina to its east.

- Waterway 20: The Seattle Harbor Patrol's headquarters are located east of Waterway 20. The waterway is used for temporary moorage of impounded boats and other lost items. Further, the easterly ten feet of the waterway has been dedicated and fenced off for public access purposes. However, this easement area is now overgrown with natural shrubbery due to lack of use. There appears little need for reopening this easement because of proximity to the Gas Works Park. However, development of a public transient moorage fot access to the Park may be desirable.

- Waterway 21: Marine Power Equipment Company has had a waterway permit to moor vessels in Waterway 21 for many years. It has also used the waterway for years for marine repair and dismantling activities. Since marine repair and dismantling is prohibited in the CM environment, the company has requested an environmental redesignation to US/LU designation. As a condition of reviewing a waterway permit in 1971, the Board required Marine Power to provide a viewing platform at Waterway 21 (SMA 296). However, the permittee still has not met this condition.

- Waterway 22: A waterway permit was granted to J. Z. Collins Co., a marine electronics company abutting east of Waterway 22, for moorage. Recently, in processing MUP 82-0588 (conditionally granted in March 1982), the Department required the owner abutting west of the waterway to apply for a waterway permit because the existing moorage of the marine sales business appears to have encroached on Waterway 22. The owner has not responded to this requirement.

- Waterway 23: This waterway provides the dividing line for the UD environment to the west and US/LU environment to the east. Within

the waterway there is an authorized log breakwater and float for the pleasure craft moorage abutting east (Waterway Permits M-593 and M-5575). The Burke Industrial Center abuts the west side of the waterway. The proposal of Fremont Dock Co. for a "public marina" in the waterway was denied by the Board of Public Works in 1980 because it constitutes a private project with permanent, fixed structures prohibited in the waterway.

VIII. OTHER ISSUES

1. Waterway Vacations

The State Department of Natural Resources has suggested that in cases where waterways are desired for permanent and/or non-public uses not meeting the RCW requirements, the City consider requesting the State to vacate the waterways in question. A number of such uses have been proposed for the south Lake Union waterways in recent years.

RCW 79.93.060 authorizes the City to select a 150-foot width of a vacated waterway for street purposes. The remaining portion vests in the port district. The waterway can only be sold to the City and/or the port district (RCW 79.94.150). It may or may not be in the City's best interests to request waterway vacations from the State. If not, what are the City's options regarding waterway ownership/ management, that will protect the public interests as well as allow flexibility for the desirable non-traditional uses in the waterways?

2. Proposed Five-Year Permit Terms

In mid-1982, the Marine Power and Equipment Company proposed to amend the Board of Public Works Waterway Permits Resolution to extend Waterway Permits from a one-year term to a five-year term. In response to this request and in considering the permit renewal of Marine Power, the Board met on October 15, 1982, to discuss concerns of City departments, the State Department of Natural Resources, and citizen groups. The Board decided to retain the one-year permit term for the present, and to consider such term amendment after DCLU's study on Seattle's shorelines is completed.

The State Department of Natural Resources expressed opposition to granting five-year permits because such a provision would be contrary to the statutes establishing waterways for public, temporary use. The City departments also recommended against the proposal because long-term usage implies a permanent condition which should not be assumed by the permittee. The current one-year permit term is important to allow the City to review and update the on-going authorized uses in the waterways.

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