

WARRENTON COMPREHENSIVE PLAN

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ARTICLE 1 INTRODUCTION

The intent of this Comprehensive Plan is to act as a guide for the future community development of the City. It provides a basis for public and private actions in the community by establishing sound goals, policies and plan strategies. The Plan functions as a legal framework that City officials will use to make decisions. It is a statement of how the City Commission and Planning Commission, through the zoning ordinances, subdivision regulations, public facility policies and other means, will direct and control growth and change for the benefit of the people of this community.

This Plan is designed to comply with Oregon's Statewide Planning Goals. The Plan was developed after careful review of these Goals, collecting and analyzing a substantial amount of background data and providing opportunities for individuals, private organizations and public agencies to express their opinions. Periodically, as those goals and opinions change and new information is obtained, the Plan should be updated. Background data is included in the *Warrenton Comprehensive Plan Background Report*, which is adopted as a part of this Plan.

The major elements of this Plan are Community Development, Land and Water Use, Natural Features, Columbia River Estuary Waters and Shorelands, Beach and Dune Shorelands, Community Facilities and Services, Transportation, Economy, and Procedures. Each Element consists of one or more Findings, Goals, and Policies sections.

Words and phrases used in this Plan have the meaning given in the Definitions section of the City's Development Code.

ARTICLE 2 COMMUNITY DEVELOPMENT

SECTION 2.100 FINDINGS

Warrenton differs from many communities in that the City includes an extensive amount of undeveloped land and water area. These undeveloped areas, together with the City's location, the availability of public facilities and services, and the population and economic gains experienced during the late 1980s, are indicative of potential for a considerable amount of development. For example, there is the possibility that one or more large-scale industrial facilities or a variety of tourist-oriented commercial establishments may locate in the City.

Because of this potential, the City needs to have a substantial amount of land available to accommodate growth. However, to make all of the existing undeveloped land available at one time for intensive use would not encourage efficient land use patterns. In 1991 the cities of Hammond and Warrenton merged, and in 2008 the City of Warrenton annexed the last piece of its properties in the urban growth boundary. The current (August, 2009) acreage within Warrenton city limits is 10,620 acres, or approximately 16.6 square miles. Future development in this area will require the City and the property owner / developer to expand, improve and / or replace public facilities and services for this area. Any transportation needs, and obstacles and opportunities presented by the area's natural features and configurations will be satisfied by various community objectives.

SECTION 2.200 GOAL

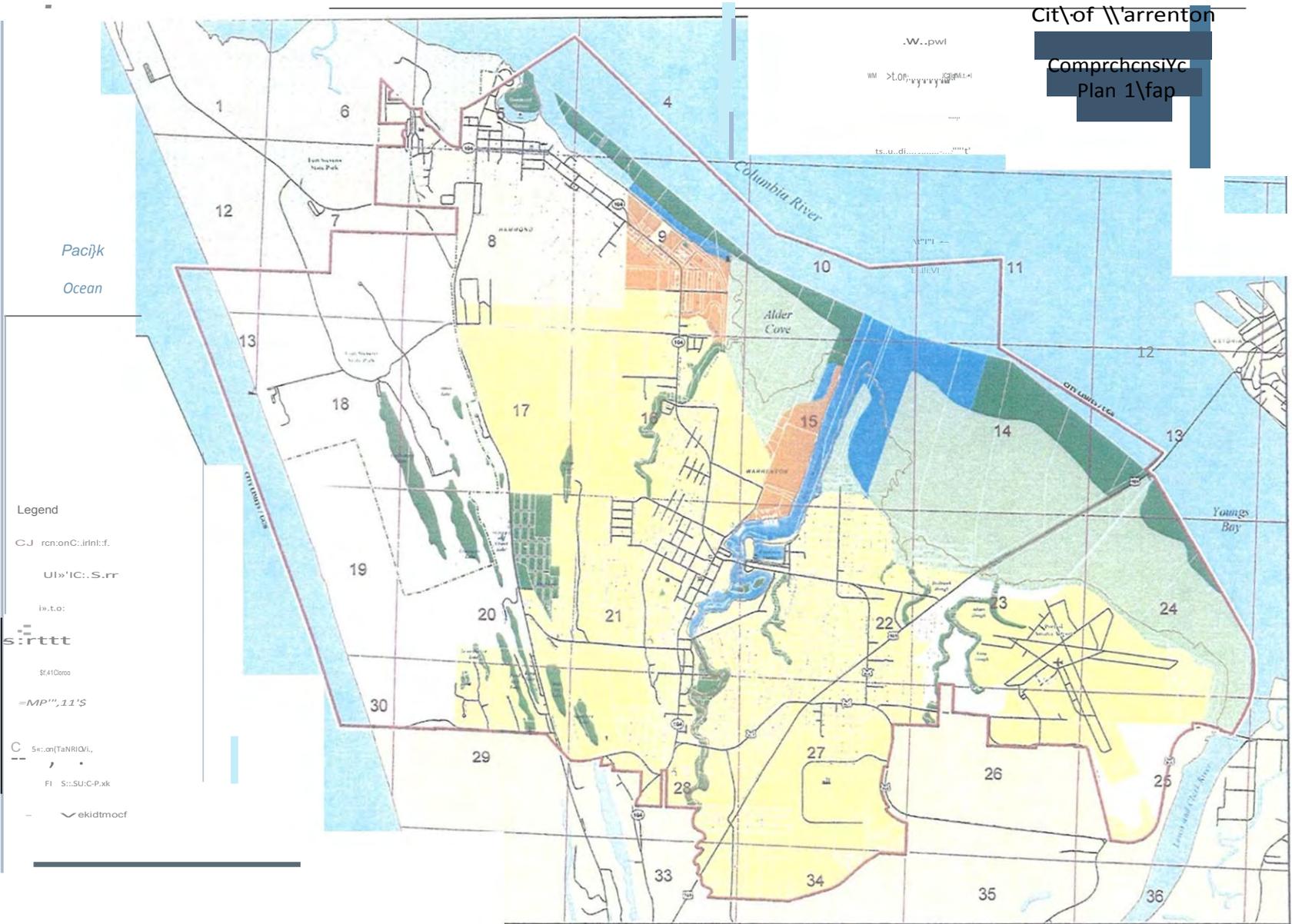
Establish sound basic concepts for community development which will encourage appropriate and balanced urban growth .

SECTION 2.300 POLICIES

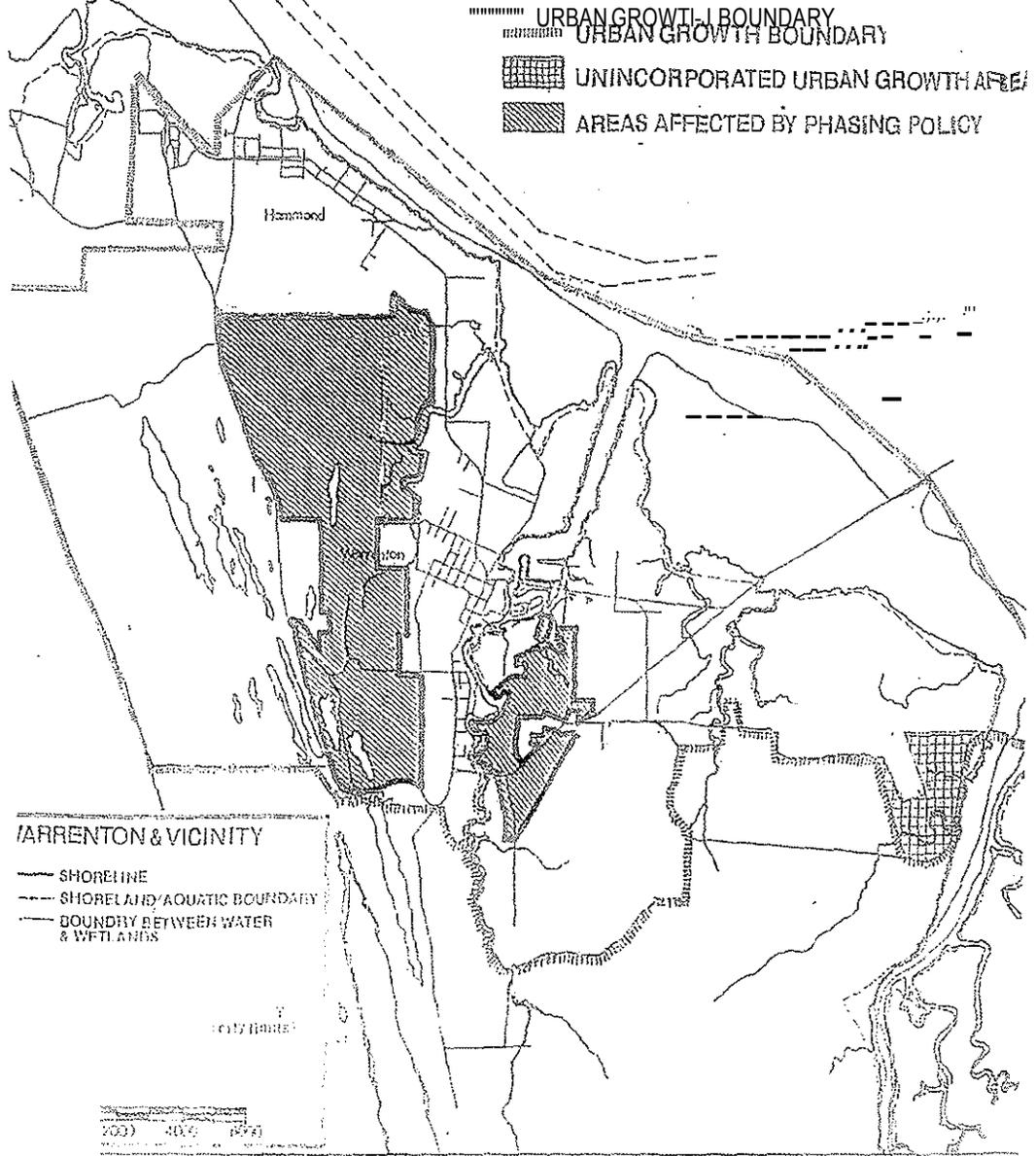
Section 2.310 Land and Water Use Classification

- (1) All land and water areas will be classified as appropriate for urban development, rural uses, recreation, aquatic development, conservation or preservation. These classifications are described in policies 2 through 5, below.

- (2) Urban Development Areas: Areas with a combination of physical, biological and social/ economic characteristics which make them necessary and suited for residential, commercial, industrial, public or semi-public uses are appropriately classified for urban development. Such areas are either adequately served by public facilities and services for urban development or have the potential for being adequately served during the next twenty years. There are two types of urban development areas, as follows:



Urban Growth Boundary & Areas Affected by Phasing Policy



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(a) ESWD Shorelands are managed for water-dependent industrial, commercial and recreational uses. ESWD Shorelands include areas with special suitability for water-dependent development, including access to well scoured deepwater and maintained navigation channels, presence of land transportation and public facilities, existing developed land uses, potential for aquaculture, feasibility for marina development and potential for recreational utilization. Water-dependent use receives highest priority, followed by water-related uses. Uses which are not water-dependent or water-related which do not foreclose options for future higher priority uses and which do not limit the potential for more intensive uses of the area are provided for. The ESWD plan designation is implemented through the Marine Commercial Zone and the Water-dependent Industrial Shorelands Zone.

(b) Other Urban Shorelands: Other urban shorelands are more desirable for other uses or are suitable for a wider range of uses. They are located in one of the following zoning districts: High Density Residential, Medium Density Residential, Intermediate Density Residential, General Commercial, Recreation Commercial, Urban Recreation / Resort, or General Industrial.

(3) Rural Development Areas: Lands which, due to their development limitations or other characteristics, are best suited for rural uses such as very low density residential uses, recreation, extraction of subsurface materials, agriculture, timber harvesting and aquaculture, are in the Rural Development plan designation. This is implemented through the City's Rural Development Zone.

(4) Aquatic Development Areas: Aquatic development areas include areas suitable for deep-draft or shallow-draft navigation, including shipping, channels, access channels and turning basins; dredged material disposal sites and mining/ mineral extraction areas; and areas adjacent to developed or developable shorelines which may need to be altered to provide navigational access or to create new land areas for water-dependent uses. These areas are managed for navigation and other water-dependent uses in a manner consistent with the need to minimize damage to the estuarine ecosystem. Some water-related and non-water-related uses may be permitted. All aquatic development areas are in an Aquatic Development zoning district.

(5) Conservation Areas: Land and water areas providing resource or ecosystem support functions, or with value for low intensity recreation or sustained yield resources (such as agriculture), or poorly-suited for development, should be designated for non-consumptive uses. Non-consumptive uses are those which can utilize resources on a sustained-yield basis, while minimally reducing opportunities for other uses of the area's resources. These areas are in the City's Aquatic Conservation Zone.

and in the Open Space, Parks & Institutional Zone.

(6) Natural Areas: Those areas which have not been significantly altered by people and which, in their natural state, perform resource support functions vital to estuarine or riparian ecosystems, are in a Natural Area plan designation. Such places can be significant for the study or appreciation of natural, historical, scientific or archeological features. Water areas in the Aquatic Natural Zone and Coastal Lakes & Freshwater Wetlands Zone are included.

Section 2.320 Urban Development

(1) Growth Management. Due to the large amount of urbanizable residential land within the City limits, the City will adopt a growth management strategy to insure the orderly conversion of land to urban uses. The City will apply growth management standards to outlying areas of the City which are largely vacant and currently have few public facilities in order to:

- (a) Make urbanizable land available for conversion to urban uses in stages as public facilities adequate to serve urban development become available.
- (b) Insure the orderly and economic provision of services.
- (c) Discourage undeveloped areas from prematurely developing at non-urban densities.
- (d) Maintain undeveloped areas at parcel sizes which can eventually be converted to urban uses.
- (e) Encourage the development within urban areas before the conversion of urbanizable areas.

(2) Urban Growth Boundary: Unincorporated areas adjoining the City limits which are needed to accommodate urban development shall be included in the Urban Growth Boundary, along with property presently in Warrenton, and will be appropriately managed. Findings for the placement of the Urban Growth Boundary are included in the Background Report. The City and Clatsop County shall establish an Urban Growth Boundary management agreement with Warrenton having the primary authority for making land use decisions within the Urban Growth Boundary.

(3) No area will be added to the Urban Growth Boundary unless the following factors are considered:

- (a) Demonstrated need to accommodate long-range urban population growth requirements consistent with Statewide Planning Goals.
- (b) Need for housing, employment opportunities and livability.
- (c) Orderly and economic provision for public facilities and services.
- (d) Maximum efficiency of land uses within and on the fringe of the existing urban area.
- (e) Environmental, energy, economic and social consequences.
- (f) Retention of agricultural land as defined, with Class I being the highest priority and Class VI the lowest priority.
- (g) Compatibility of the proposed urban uses with nearby agricultural or forestry activities.
- (h) Changes to the urban growth boundary shall also conform to the procedures and requirements of Statewide Planning Goal 2, Part II, Exceptions.

(4) The City may adjust the Urban Growth Boundary to make minor additions or subtractions of lands from the Urban Growth Boundary consistent with OAR 660-024-0070. Such adjustment may include an exchange of lands inside the Urban Growth Boundary for lands outside the Urban Growth Boundary pursuant to a voluntary Transfer of Development Rights agreement.

Section 2.330 Annexation

- (1) Annexation will be based, in part, on consideration of:
 - (a) Orderly and economic provision of public facilities and services.
 - (b) Availability of sufficient land for various uses to insure choices in the real estate market.
 - (c) Encouragement of new urban uses within the City limits before conversion of unincorporated land.

(2) City water service will be extended to unincorporated areas only if adequate system capacity for the extension exists. Property owners affected may be required to pay for the total cost of the extension. Once annexation occurs, water policies for locations inside the City will apply. All other City public facilities and services not already provided to the area will become available after annexation takes place.

(3) Annexation of a particular area in the Urban Growth Boundary will be considered only after the costs of providing city public facilities and services to the area have been studied and estimated. Before annexation occurs, the method or methods of allocating the cost of new or expanded public facilities and services needed in the five years following annexation shall be determined, and any agreements between the City and a non-city governmental funding source will be made. Use of assessment districts shall be seriously considered as a technique for paying any costs necessary for providing City sewer service to an area.

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ARTICLE 3 LAND AND WATER USE

SECTION 3.100 FINDINGS

Characteristics of Warrenton's existing development include: a concentration of housing near the center of town; collections of residential and commercial buildings close to a few major roads; large public use areas scattered in the City; a tendency for industrial facilities to be on the waterfront, near the airport, or in the vicinity of U. S. Highway 101; and an extensive amount of undeveloped land between some of the built-up areas. Among the factors contributing to these local development patterns have been: overall growth levels, natural features (such as wetlands), street policies, and the accessibility of public facilities and services.

These same factors will have an impact on future development. Anticipated growth levels are expected to require the conversion of large amounts of undeveloped land to residential, commercial and industrial uses. Natural features will lead to the selection of some sites for development, avoidance of others, and limited use of many. Street policies will help determine the location of high intensity uses and the character of new neighborhoods. The availability of certain public facilities and services will affect the directions in which growth can occur. Some of the other factors which will have a bearing on future development will be: existing land and water use patterns, the large number of homes built before 1950, rising housing costs, the manner in which many undeveloped areas were subdivided years ago, the attractiveness of some waterfront sites for industrial or commercial activities, and the potential for commercial growth. This section provides a policy basis for much of the City's Planning and Zoning, and helps meet the requirements of Statewide Planning Goal 2. There are no rural farm or forest lands protected by Statewide Planning Goals 3 or 4 within the UGB. Parts of this Section, together with parts of the *Warrenton Comprehensive Plan Background Report*, address Statewide Planning Goals 10 and 14.

Section 3.110 Inventory

A preliminary assessment of buildable land within the City's UGB includes land that has been identified as completely vacant, as well as land that is partially vacant and theoretically has the potential for additional development based on parcel size, zoning, the location of existing development and environmental constraints. The buildable land inventory was created using assessor's data, aerial photographs and making site visits to confirm buildable status. Redevelopable land was determined by identifying developed employment parcels for which assessed land value is greater than the assessed improvement value.

SECTION 3.200 Buildable Lands (Zoning and wetland maps apply to ability to development)

There are approximately 949 acres of buildable land on 856 lots within Warrenton's UGB. More than 467 acres of this land is zoned for employment uses, the majority of which is industrial (288 acres). Approximately 481 acres are designated for various intensities of residential use. The housing analysis includes additional calculations to determine a more exact accounting of buildable acreage. In addition, 1.45 acres is zoned for mixed uses.

Table 1. Gross Buildable Land by Zoning Type

	Zone	Acres	Lots
Employment	A1	19.66	3
	CI	123.62	238
	C2	2.87	9
	RC	32.45	36
	I1	226.38	64
	I2	61.69	62
	<i>Total</i>	<i>466.67</i>	<i>412</i>
Mixed	CMU	1.45	6
Residential	R10	185.58	233
	R40	71.41	51
	RH	126.19	68
	RM	30.38	53
	RGM	67.12	33
		<i>Total</i>	<i>480.68</i>
<i>Total</i>		<i>948.80</i>	<i>856</i>

Source: Cogan Owens Cogan

Buildable lands are divided into three classes: vacant, partially vacant and re-developable. The results of the inventory include approximately 504 acres of vacant land on 627 lots, 389 acres of partially vacant land on 138 lots, and 56 acres of re-developable land on 91 lots within Warrenton's UGB. Table 2 shows the acreage and number of lots by zoning type.

Table 2. Gross Land by Zoning Type and Land Status

Zone		Partially Vacant	Re-developable	Vacant
A1	Acres		0.23	19.43
	Lots		1	2
C1	Acres	24.84	17.39	81.39
	Lots	26	53	159
C2	Acres	1.55	0.5	0.82
	Lots	3	2	4
RC	Acres	8.1	2.19	22.16
	Lots	3	5	28
I1	Acres	160.52	10.84	55.02
	Lots	7	9	48
I2	Acres	11.5	22.91	27.28
	Lots	8	16	38
CMU	Acres		1.08	0.37
	Lots		4	2
R10	Acres	51.85		133.73
	Lots	38		195
R40	Acres	47.29		24.12
	Lots	14		37
RH	Acres	35.52		90.67
	Lots	14		54
RM	Acres	9.79	0.45	20.14
	Lots	14	1	38
RGM	Acres	38.16		28.96
	Lots	11		22
Total	Acres	389.12	55.59	504.09
	Lots	138	91	627

Source: Cogan Owens Cogan

Source: Cogan Owens Cogan

Section 3.210 Land Supply

Buildable land within the City's UGB includes land that is completely vacant, as well as land that is partially vacant and theoretically has the potential for additional development based on parcel size, zoning, the location of existing development and environmental constraints. The buildable land supply was evaluated by reviewing the following information:

- Tax assessor data
- GIS data
- Aerial photographs
- Site visits to identify potential constraints to development or redevelopment
- Consultation with City staff and members of the Warrenton Project Advisory Committee

There are approximately 608 acres of buildable land on 699 lots within Warrenton's UGB zoned to allow for residential use. This includes commercially zoned land where housing is an allowed use. Land considered potentially unbuildable due to environmental constraints was removed from the inventory summarized in Table 1. Environmental constraints include riparian areas, significant wetlands and slopes of greater than 25%. Land with non-significant wetlands was included in the area but reduced by a factor of 25% to account for the fact that such land may be more difficult to develop. The city allows development on such land but requires that land with certain soil types which tend to correspond to wetland areas be subject to a geotechnical survey prior to development approval. Lots that are too narrow or small to meet minimum lot size requirements are also considered unbuildable, as have portions of existing subdivisions which are dedicated to open space in perpetuity.

Table 1 Gross Buildable Land by Zoning Designation that Allow for Residential Use

<u>Zone</u>	<u>Acres</u>	<u>Lots</u>
CI	123.6	238
C2	2.87	9
CMU	1.4	6
RIO	185.6	233
R40	71.1	50
RH	126.2	68
RM	30.4	62
RGM	67.1	33
<i>Total</i>	<i>608.3</i>	<i>699</i>

To more realistically assess the potential for future housing units, additional land was deducted from lots larger than one acre in size to account for land needed for roads and other public facilities. In addition, the acreage for each parcel was converted to the capacity for new buildable lots, assuming the average lot size/ densities shown in Table 11 and rounding the acreage down to the nearest whole lot.

Subtracting the areas described above and converting land to buildable lot or housing unit capacity leaves Warrenton with the equivalent of approximately 465 acres of land within the UGB zoned for residential use. This includes some parcels zoned for commercial use, in which residential uses also are allowed.

Table 2. Net Buildable Land by Zoning Designation

Zone	Acres	Parcels
R-40	61.5	44
R-10	167.2	233
R-M	21.7	53
R-H	83.3	68
RGM	58.1	33
C-1	73.3	158
C-MU	0.2	2
<i>Total</i>	<i>465.3</i>	<i>591</i>

Source: Cogan Owens Cogan

Section 3.220 Population Projections

Local governments are required by the Oregon Department of Land Conservation and Development (DLCD) administrative rules to use coordinated county and city population projections for the purposes of estimating housing and employment needs. If other projections are used, the jurisdiction must prepare and present enough data to justify the use of the alternative projections. Use of alternative projections ultimately requires the city and county to revise the coordinated county and city projections. Such a process typically requires a significant level of resources and takes several months. Clatsop County worked with cities within the county to prepare a set of coordinated population projections in 2005.

The 2006 population of Warrenton was estimated to be 4,505 based on coordinated county/ city population projections and adjusted slightly to account for a very small number of housing units and people between the city limits and urban growth boundary. This compares to a population of 3,292 in 1990. Warrenton's population is expected to increase by approximately 1.8% per year over the next 20 years, generally consistent with growth rates during the last 15 years.

Table 3 summarizes historical and projected future population, assuming an updated current (2006 population estimate) and the future growth rate assumed in the coordinated county city forecasts. It also accounts for population within the entire UGB as described above.

Table 3. Historical and Future Population Data and Forecasts

	1990	2000*	2006	2017	2027
Population	3,292	4,096	4,503	5,449	6,481

* Includes only estimated population within the city limits. Estimates for years include population estimated within the entire UGB.

Section 3.230 Housing Occupancy and Structure Type

In 2006, there were an estimated 1,859 households in Warrenton, compared to 1,281 in 1990. There were an estimated 2,049 housing units in Warrenton in 2006, indicating a vacancy rate of approximately 10.2%, compared to a vacancy rate of 9.6% and 7.3% in 2000 and 1990, respectively. Homes classified as vacant fall into two general categories - those that are vacant because they are in the process of being sold or rented and are temporarily unoccupied for relatively short periods of time; and those that are occupied only seasonally (second homes or vacation homes) and considered to be vacant during a majority of the year. Year 2000 Census data indicates that about 3.2% of all housing units were used for seasonal occupancy (i.e., second / vacation homes).

Most homes in Warrenton are classified as single-family detached dwellings (over 65% in 2000), with manufactured homes (in parks) accounting for almost half of the remainder (14.3%) according to the 2000 Census.

Table 4. Housing Units by Structure & Occupancy, 2000

Unit Type	Total	Occupied
1 Unit Detached	62.2%	62.1%
1 Unit Attached*	3.6%	3.2%
2 Units	1.5%	1.3%
3 or 4 Units	4.3%	4.2%
5-9 Units	4.6%	4.2%
10-19 Units	3.4%	3.5%
20-49 Units	3.6%	4.0%
50+ Units	3.1%	3.2%
Manufactured Homes	13.8%	14.3%
Other	0.0%	0.0%

Source: US Census

* This is the Census term for single-family attached housing (e.g., townhouses or rowhouses)

In the City of Warrenton, 65% of year-round residents own their homes, while 35% are renters.

Section 3.240 Housing Costs, Household Incomes and Housing Affordability

Based on data from ESRI BIS, average and median home values in 2006 were approximately \$208,000 and \$192,000 respectively; with 43% of homes in the \$100,000 - \$200,000 price range and 34% in the \$200,000 - \$300,000 (see Table 5).

Table 5. Home Value of Specified Owner Units, 2006

Home Value	Number of Homes	% of Total
Less than \$50,000	108	9%
\$50,000-\$99,999	50	4%
\$100,000-\$149,999	209	17%
\$150,000-\$199,999	321	26%
\$200,000-\$299,999	424	34%
\$300,000-\$399,999	46	4%
\$400,000-\$499,999	41	3%
\$500,000-\$749,999	46	4%
\$750,000-\$999,999	4	<.4%
\$1,000,000 and Above	0	0%
Total Units	1,254	100%
Average Home Value: \$207,530		
Median Home Value: \$191,919		

Source: US Census, ESRI BIS, Marketek

Housing costs in Warrenton are relatively comparable to those for the state as a whole. At the same time, incomes tend to be below state averages. Table 6 summarizes data related to household income for Warrenton residents in comparison to the state as a whole. It indicates a median household income of under \$42,000 in Warrenton, about \$8,000 less than for the state as a whole. It also shows a higher percentage of residents in the two lowest income categories (below \$25,000) in Warrenton compared to the state, relatively similar percentages with middle incomes, and a lower percentage with upper incomes.

Table 6. Household Income, Warrenton, 2006

Income	Warrenton	State of Oregon
Less than \$15,000	16.1%	11.9%
\$15,000 to \$24,999	14.1%	10.4%
\$25,000 to \$34,999	10.2%	11.1%
\$35,000 to \$49,999	17.8%	16.6%
\$50,000 to \$74,999	20.9%	20.8%
\$75,000 to \$99,999	11.4%	12.5%
\$100,000 to \$149,999	6.2%	10.8%
\$150,000 to \$199,999	1.6%	3.0%
\$200,000 and more	1.7%	2.9%
Median Household Income	\$41,791	\$50,000 ^a

Source: ESRJ BIS, Marketek

Housing affordability is typically assessed in one of two ways - either by estimating the percentage of households which spend more than 30% of their monthly income on housing (the standard measure of affordability) or by comparing incomes to the supply of housing at prices that people in those income levels could afford. The most recently available data related to the first measure comes from the 2000 US Census. That data indicated that just over 26% of all homeowner households spent more than 30% of their incomes on housing, while about 39% of renter households did the same. These percentages likely have climbed since the year 2000, given increases in housing costs, particularly for owner-occupied housing during this period.

Table 7 compares household incomes to the supply of homes available at prices that those households could afford if they spent approximately 30% of their monthly income on housing costs. The table indicates that there is a significant gap between the residents' incomes and housing that is affordable to them for the very lowest income range (below \$15,000) and a more moderate gap for people earning between \$35,000 and \$50,000. Households in some of the upper income ranges also have a shortage of (higher priced) housing available to them, meaning that they are likely buying or renting housing in lower price ranges which may result in gaps for people in lower income ranges.

Table 7. Comparison of Housing Incomes and Costs, Warrenton, 2006

<i>Income</i>	<i>Households</i>	<i>Affordable Monthly Housing Costs</i>	<i>Supply</i>			<i>Surplus/-Gap</i>
			<i>Owner housing</i>	<i>Rental housing</i>	<i>Total</i>	
Less than \$15,000	299	Less than \$325	94	55	149	-150
\$15,000 to \$24,999	262	\$325-\$624	47	252	299	37
\$25,000 to \$34,999	190	\$625-\$874	114	155	269	79
\$35,000 to \$49,999	331	\$875-\$1249	211	63	274	-57
\$50,000 to \$74,999	389	\$1250-\$1874	378	19	397	8
\$75,000 to \$99,999	212	\$1875-\$2499	233	0	233	21
\$100,000 to \$149,999	115	\$2500-\$3749	77	0	77	-38
\$150,000 to \$199,999	30	\$3750-\$4999	38	0	38	8
\$200,000 and more	32	\$5000 or more	11	0	11	-21

This analysis indicates a need for more units in the very lowest price ranges as well as more units affordable to households with moderate incomes (just above and below Warrenton's median household income).

Section 3.250 Projection of Future Households and Housing Units

As noted previously, the number of future housing units needed and built in Warrenton will be affected not only by the projected increase in population but also by the future vacancy and seasonal home occupancy rates.

At less than 5%, Warrenton has a very low seasonal occupancy rate in comparison to other coastal communities. There have been no future projections of changes in seasonal occupancy rates for Warrenton or the North Coast area published by public agencies or private firms. Some information is available about national trends for the second home market, including the following observations and predictions:

- Approximately one in six owners of second homes have purchased their second homes for retirement.

- The typical current second home owner is in his or her early 60s, with an annual household income of \$76,000.
- The baby-boomer population, many of whom are nearing retirement age, own a large share of existing second homes. On average, future second-home buyers are expected to be younger.
- While many second home owners move into these homes full-time after retirement, a large percentage of coastal second-home owners eventually return to larger urban areas where they are closer to health and other support services.
- The second home market has expanded significantly in the Astoria area in the last several years.
- Most project advisory committee members predict that the seasonal occupancy rate in continue to increase over the next 20 years.

Taking the above factors into account, for the purposes of this analysis, the seasonal occupancy is projected to decrease slightly over the next 20 years from 3.5% to 7%. Average household sizes are expected to decrease slightly from 2.45 to 2.35 persons per household.

Warrenton's population is expected to increase by approximately 1.8% per year over the next 20 years, generally consistent with growth rates during the last 15 years. Table 7 summarizes historical and projected future population, assuming an updated current (2006 population estimate) and the future growth rate assumed in the coordinated county city forecasts. It also accounts for population within the entire UGB as described above. The number of housing units is projected to grow by a slightly higher rate, similar to trends experienced during the last several years in Warrenton and other coastal communities. This is projected to result in an increase of 1,147 housing units between 2006 and 2027.

Table 8. Historical and Projected Future Population, Households and Housing Units, 1990 - 2027

	1990	2000	2006	2017	2027
Population	3,292	4,096	4,503	5,449	6,481
Households	1,281	1,621	1,838	2,270	2,758
Housing Units	1,189	1,799	2,025	2,561	3,172
Vacancy Rate	7.2%	9.9%	10.2%	12.8%	15%

Section 3.260 Future Needed Housing Types

The following trends are expected to affect the need for different types of housing:

- Increasing cost of land and housing in coastal and other communities throughout Oregon.
- Relatively modest increases in wages, consistent with trends during the last ten years.
- Continued need for relatively low cost housing for households and families with lower incomes, including workers in the retail / tourism sector.
- Continued expansion of the second home market in coastal communities such as Warrenton but with a lower seasonal occupancy rate than other coastal communities.
- Continued need for some manufactured housing as a potential supply of low-cost, workforce housing, although with a decreasing supply of this type of housing consistent with recent trends and a concurrent increase in the share of other relatively affordable housing types (see below).
- Potential increase in need and market for multi-family and single-family attached housing as a potential supply of low and moderate cost housing.

These factors and conditions are expected to have the following impacts on the need for different types of housing in Warrenton:

- Continued need for some manufactured housing as a potential supply of low-cost, workforce housing.
- Increased need for multi-family and single-family attached housing as a potential supply of low and moderate cost housing.
- Decreasing size of lots in comparison to recent trends as land and housing prices rise.
- The following table identifies current and projected percentages and numbers of homes by housing type in Warrenton.

**Table 9 Existing and Projected Future
Housing Units by Type, 2006 - 2027**

Unit Type	Housing Units			
	2006		2027	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
1 Unit Detached	1,260	62.2%	1,729	54.5%
1 Unit Attached*	73	3.6%	190	6.0%
Duplexes	30	1.5%	111	3.5%
Triplexes, four-plexes	87	4.3%	159	5.0%
5 or more units	298	14.7%	539	17.0%
Manufactured Home	279	13.8%	444	14.0%
Total Units	2,025		3,172	

Source: US Census and Cogan Owens Cogan

* This is the Census term for single-family attached housing (e.g., townhouses or rowhouses)

Section 3.270 Future Land Needs

The amount of land needed for future housing depends on the number of housing units expected and the average density (or lot size) at which they are developed. State regulations require that the City estimate the amount of land needed in each zoning designation where housing is allowed. In Warrenton, housing can be constructed in several residential (R-1) and commercial (C-1) zones. Currently, housing is generally distributed among these zones as follows:

- Most existing housing is located in the R-10 and R-M zones.
- The next largest share of housing is located in the RGM and R-40 zones; a modest amount is located in the C-1, C-MU and A-1 zones.

Similar trends are expected in the future. The following distribution among zones is expected:

- A modest amount of new single-family detached housing is expected to be located in the R-40 and R-H, with larger amounts in the R-1- and R-M zones.
- Single-family attached housing will be located R-M, R-H C-1 and C-MU zones. This may include some mixed (residential / commercial) use development in the C-M U zone.

- Duplexes will be located primarily in the R-M and R-H zones, with small percentages in the two commercial zones.
- Multi-family housing will be located primarily in the R-H zone, with smaller amounts in the C-1 and C-M U zones.
- Manufactured homes in parks will continue to be located in the R-M zone. Manufactured homes on individual lots will be located in a variety of residential zones.
- The RGM zone provides a supply of longer-term future land, which will be developed primarily for single-family detached housing, duplexes and possibly some single-family attached housing. Ultimately it is expected to be zoned as R-10 but some may be needed as R-M land.
- Over the long term, R-40 land is expected to be served by public facilities and developable at densities allowed for such areas (R-10 equivalent density).

The following two tables summarize the projected distribution and average density of future development by housing type and city zoning designation based on the assumptions above. As noted above, it reflects the assumptions above and should be considered a projection. It does not require a certain distribution among different zones or preclude a different percentage or number of housing units be built in any given zone or area, assuming there is adequate land to accommodate them.

Table 10. Projected Distribution of Future Housing Units by Housing Type and Zoning Designation, 2027

Housing Type	R-40	R-10	R-M	R-H	C-1	C-MU
1 Unit Detached	5%	44%	44%	5%	2%	0%
1 Unit Attached*	0%	0%	20%	50%	20%	10%
Du plexes	0%	0%	40%	50%	5%	5%
Triplexes, four-plexes	0%	0%	0%	90%	5%	5%
5 or more units	0%	0%	0%	90%	5%	5%
Manufactured Home	10%	45%	45%	0%	0%	0%

Source: US Census and Cogan Owens Cogan

* This is the Census term for single-family attached housing (e.g., townhouses or rowhouses)

Table 11. Projected Average Lot Size for Development by Zoning Designation and Housing Type, 2027

Housing Type	R-40	R-10	R-M	R-H	C-1	C-MU
1 Unit Detached	40,000	10,000	8,000	5,000	5,000	5,000
1 Unit Attached-k			2,500	2,500	2,500	2,500
Duplexes			2,500	3,500	3,500	3,500
Triplexes, four-plexes				3,300	3,300	3,300
5 or more units				2,400	2,400	2,400
Manufactured Home	40,000	10,000	7,000	5,000	5,000	5,000

Source: US Census and Cogan Owens Cogan

* This is the Census term for single-family attached housing (e.g., townhouses or rowhouses)

Tables 12 and 13 indicate the number of new housing units and amount of land needed for each type of housing in each zoning designation. Average densities in housing units per acre are shown as "net densities," i.e., not including land needed for roads and other public services because such areas already have been subtracted from the supply of buildable land.

Table 12. Projected Total Future Housing Units and Acres of Land Needed by Housing Type and Zoning Designation, R-40, R-10 and R-M zones, 2027

Housing Type	R-40		R-10		R-M	
	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Acres</i>
1 Unit Detached	23	21.6	206	48.4	206	38.7
1 Unit Attached*	0		0		23	1.4
Duplexes	0		0		32	
Triplexes, four-plexes	0		0		0	
5 or more units	0		0		0	
Manufactured Home	17	16.0	74	17.4	74	12.2
<i>Total</i>	<i>40</i>	<i>37.6</i>	<i>280</i>	<i>65.8</i>	<i>335</i>	<i>52.3</i>

Source: US Census and Cogan Owens Cogan

* This is the Census term for single-family attached housing (e.g., townhouses or rowhouses)

Table 13. Projected Total Future Housing Units and Acres of Land Needed Designation, R-H, C-1 and C-MU zones, 2027

Housing Type	R-H		C-1		C-MU	
	Percent	Acres	Number	Acres	Percent	Acres
1 Unit Detached	23	2.7	9	1.1	0	0.0
1 Unit Attached*	59	3.5	23	1.4	12	0.7
Duplexes	41	3.4	4	0.3	4	0.3
Triplexes, four-plexes	65	5.0	4	0.3	4	0.3
5 or more units	217	12.2	12	0.7	12	0.7
Manufactured Home	0	0.0	0	0.0	0	0.0
Total	405	26.8	52	3.7	32	2.0

Source: US Census and Cogan Owens Cogan

* This is the Census term for single-family attached housing (e.g., townhouses or rowhouses)

The following table summarizes the difference between the supply of buildable land and the amount of land needed in each zone to meet these future land needs. There appears to be an overall surplus of residential land of over 277 acres. A portion of this land will be used for commercial purposes. However, even after taking most of the commercially zoned land out of the inventory, there still would be an overall surplus of land available for residential development.

Table 14. Comparison Between Land Supply and Need by Zoning Designation, 2027

	Supply	Need	Gap
R-40	61.5	37.6	23.9
R-10	167.2	65.8	101.4
R-M	21.7	52.3	-30.6
R-H	83.3	26.8	56.5
RGM	58.1		58.1
C-1	73.3	3.7	69.5
C-MU	0.3	2.0	-1.8
Total	465.3	188.3	277.0

Source: Cogan Owens Cogan

Project advisory committee members noted that some areas currently designated as wetlands would not necessarily meet the definition of wetlands if an official wetland delineation of those properties were undertaken. Approximately 1,130 acres of land designated for residential use in the city are covered by significant wetlands. If there were fewer areas with wetlands in Warrenton the surplus of buildable lands would be

even larger. For example, if 20% of the lands currently designated as wetlands were in fact considered buildable, approximately 225 additional acres of land would be available for residential development. After deducting for land needed for roads and other public facilities, this would result in about 180 net acres of land, or almost double the surplus currently calculated.

Section 3.280 Conclusions

Following is a brief summary of conclusions.

- The analysis indicates a significant surplus of land overall within Warrenton's UGB and the ability to accommodate growth during a 20-year period within expanding the city's UGB or relying on land within adjacent cities urban areas to accommodate needs projected in Warrenton.
- The analysis shows a surplus in most individual plan designations, with the exception of RM and C-MU zones. This could be remedied by rezoning some C-1 land to C-MU and by zoning land in any of a number of residential zones (e.g., R-10, RGM or R-40) to RM. Or more land in one of these other zones could be assumed to be developed for single family detached housing (and less land in the RM zone).
- The needs analysis generally identifies a significant gap between incomes and housing prices with a shortage of housing for households with very low incomes (under \$15,000) and a moderate gap for those in the \$35,000 to \$50,000 household income range. There also is a smaller gap in some of the upper income categories, while there is a surplus of housing affordable to households in other income ranges.
- There is a need for additional multi-family units and some other types of units that are potentially more affordable to those with lower or moderate incomes, including duplexes, tri-plexes and single family detached homes (i.e., townhouses). The land needs analysis incorporates this finding.
- The housing market cannot be expected to meet the projected housing needs of Warrenton residents alone, particularly for people with very low incomes. A variety of strategies can be implemented by the City in partnership with non-profit and for-profit developers and others to encourage the development of housing in price ranges and types that would be affordable to a wider range of residents. Many of those strategies are identified in the following *Proposed Housing Policies* section.

Section 3.290 Goals

Achieve efficient and well-integrated development patterns that meet the needs of residents and property owners with a variety of incomes and housing needs, are compatible with natural features, and are consistent with the City's ability to provide adequate services.

SECTION 3.300 POLICIES

Section 3.310 Residential Lands

(1) It is the City's policy to encourage the development of housing needed to accommodate desired growth, and to provide every Warrenton household with the opportunity to obtain a decent home in a suitable neighborhood. Residential construction shall occur primarily in the following four types of areas:

(a) The High Density Residential zone is intended to encourage the development of duplexes and other multi-family dwellings. It provides for high density uses in locations close to the downtown area or other locations which have suitable streets, utilities and other characteristics. Certain non-residential uses are allowed if they will not detract from the character of this district. Land in the Hammond area that was in the Town's R-H zone has been placed in this zone.

(b) The Medium Density Residential Zone is intended to accommodate a variety of housing types including single-family dwellings, duplexes and, where appropriate, manufactured dwelling subdivisions and manufactured dwelling parks. This intensity of residential use is envisioned for locations in the City where community services and adequate access are available. Residential densities permitted are somewhat greater than those permitted in an R-10 zone. Certain public facilities and other non-residential uses are also permitted when desirable conditions and safeguards are satisfied. Those lands in the Hammond area that were in the Hammond R-6 zone have been placed in this zone.

(c) The purpose of the Intermediate Density Residential Zone is to provide areas within the City which have the capacity to accommodate single-family dwellings in conventional subdivisions or planned unit developments. These areas are intended for service by municipal utilities and urban type street systems, and, consequently, the residents must be willing to support the costs associated with this density of development. Certain public facilities and other non-residential uses are permitted when desirable conditions and safeguards are satisfied. This zone includes those areas in Hammond that were in Hammond's Low Density Residential Zone (R-10).

(d) The Low Density Residential Zone is intended for areas which are physically isolated from the developed portions of the City, and for which extension of sewer and water services would be prohibitively expensive. Lands in this zone must be able to support development with on-site sewage disposal

systems, and comply with all local, state and federal requirements. Agriculture, open space and residential uses will be permitted in this zone subject to wetlands, weak foundation soils, and active dune constraints.

(2) Residential densities in each zone will vary with the type of development and the characteristics of the site and surrounding area.

(3) New housing developments with four or more dwelling units which carry out particular functions considered beneficial to the community may be allowed to have higher residential densities than permitted for otherwise comparable developments. Functions which qualify include those which the City believes will cluster development in a sound manner or promote energy conservation.

(4) Planned unit developments will be permitted in a special overlay zoning district intended to provide for developments incorporating a single type or variety of housing types and related uses which are planned and evolve as a unit. The purpose of this district is to provide a more desirable environment through application of flexible and diversified land development standards in an overall site development plan approved by the City. Commonly-owned land and facilities may be allowed. Planned unit developments will be encouraged on tracts large enough to accommodate ten or more dwellings.

(5) New multifamily residential dwellings may be allowed in a planned unit development if otherwise allowed in the base zone.

(6) New single family attached, multifamily, and mixed use housing may be allowed in some of the City's commercial zones. Residential densities in these commercial zones may not exceed those in a High-Density Residential district.

(7) Manufactured dwellings used for residential purposes will be permitted in manufactured dwelling parks or special subdivisions that meet appropriate standards, such as screening and street access requirements. Manufactured dwellings shall also be allowed on individual lots in some of the City's residential zone as permitted uses, subject to standards.

(8) Residential developers will generally be responsible for providing streets, utilities, storm drainage facilities and other improvements necessary for the development of a housing site. Some of these responsibilities are discussed further in the Public Facilities and Services, Transportation and Natural Features sections of this Plan.

(9) The City supports the efforts of the Northwest Oregon Housing Association, U.S. Department of Agriculture and other organizations to make funds available for rehabilitation or winterization of local housing. Consideration will be given to adopting a housing code to help insure that this and other housing is kept up to minimum standards.

(10) The City shall encourage establishment of a system which would make it possible for every jurisdiction in the County to get its fair share of subsidized housing. In connection with this activity, the City shall support efforts of developers, non-profit groups, public agencies and others to evaluate the desirability of public lands in the County for subsidized housing and, when feasible, to make use of sites appropriate for this purpose.

(11) The City will zone adequate land to meet identified future housing needs for a broad range of housing types, including single-family attached and detached homes, manufactured homes, duplexes and multi-family dwellings.

(12) The City will encourage the use of sustainable development and building materials including use of energy efficient materials and design principles.

(13) The City will ensure compliance with federal and state fair housing laws, which affirm access to housing opportunities for all people in Warrenton.

Section 3.310.1 Strategies

(1) Help identify opportunities for builders and developers to consolidate buildable land to promote more efficient development.

(2) Regularly update the City's inventory of buildable land (at least every five years) and use it to both identify housing development opportunities and assess the ability to meet future housing needs. If growth is occurring at a faster rate than previously predicted, work with the County to update the county's coordinated population forecast and the City's housing needs analysis.

(3) Discourage development within the R-40 zone until services have been provided in those areas and land has been rezoned to urban densities (e.g., R-10 or RM).

(4) Provide water and sewer services to land designated as R-40 to allow for urban level development.

- (5) Rezone R-10 land as needed in the future to meet the need for multi-family housing types and/or single-family residential housing on smaller lots as needed based on housing market conditions and updated housing needs analyses.
- (6) Work with the development community to ensure creation of new housing that meets identified future needs.
- (7) Monitor public facility capacity to ensure that proposed new residential developments can be adequately served by water, sewer, transportation, drainage and other public facilities.
- (8) Consider passing an ordinance requiring replacement of affordable housing in conjunction with closure of manufactured home parks.
- (9) Support statewide efforts to allow for inclusionary housing and affordable housing funding mechanisms currently prohibited or not allowed by state law, such as real estate transfer taxes or "flipping fees."
- (10) Consider waiving or deferring city fees such as development fees or system development charges for affordable housing projects that meet defined criteria and result in permanently affordable housing.
- (11) Support mechanisms and organizations that help reduce the cost of or leverage other monies to develop affordable housing such as community land trust, housing trust funds or similar entities.
- (12) Consider the use of density bonuses or other incentives to encourage the development of affordable housing.
- (13) Work with other public agencies and/or other organizations to provide or assist in paying for technical assistance for housing projects targeted to households with low or moderate incomes developed by nonprofit organizations.
- (14) Work with state and federal agencies, and other organizations to acquire and bank vacant or underutilized properties, including urban reserve lands, for the future development of housing affordable to households with low and very low incomes.
- (15) Negotiate agreements to develop housing affordable to residents with low or moderate incomes on lands to be annexed.
- (16) Advocate for national and state funding from the National Housing Trust Fund, Oregon Housing Trust Fund, and Lenders Tax Credit.

(17) Encourage and facilitate Transfer of Development Rights (TDR) transactions to preserve agricultural, natural resource and open space lands and promote efficient development.

Section 3.320 Commercial Lands

(1) It is the City's policy to promote convenient and attractive commercial areas that, along with other commercial facilities in the County, provide an adequate level of trade and services for local citizens, other County residents and tourists. Commercial enterprises may be permitted in these three kinds of areas.

(a) The Marine Commercial Shorelands Zone is reserved for water-dependent developments and associated uses on shorelands adjoining certain portions of the Skipanon waterway. A mixture of water-dependent uses are allowed, including commercial service and storage, and recreation-oriented uses. Marine Commercial Shoreland areas have unique characteristics that make them especially suited for water-dependent development. Characteristics that contribute to suitability for water-dependent development include:

(i) Deep water close to shore with supporting land transportation facilities suitable for ship and barge facilities;

(ii) Potential for aquaculture;

(iii) Protected areas subject to scour which would require little dredging for use as marinas;

(iv) Potential for recreational utilization of coastal waters or riparian resources.

(b) The purpose of the Recreational - Commercial zone is to provide for water-dependent and water-related development along certain shorelands in Warrenton near the Hammond Marina and the Skipanon River marinas. Water-dependent recreational and tourist-related commercial development have the highest priority in the Recreational-Commercial zone. Other uses may be allowed so long as they do not pre-empt water-dependent uses. Lands in the Town of Hammond's C-2 zone are in this zone.

(c) The purpose of the General Commercial Zone is to allow a broad range of commercial uses providing products and services in the downtown area, the Hammond business district, and along the highway 101 corridor.

(d) The purpose of the Mixed Use Commercial Zone is to strengthen certain established residential areas having frontage on state highways as transition areas between commercial centers and outlying residential areas. The District is intended to support this goal through elements of design and appropriate mixed-use development. Mixed-use development features design standards that allow residential and commercial uses to occur simultaneously on the same lot.

(e) The purpose of the Urban Recreation / Resort Zone is to control development on certain shoreland areas designated Other Urban Shorelands in the Comprehensive Plan. This zone is appropriate for large tracts of land suitable for development of golf courses and other uses listed in the zone.

(2) Precautions will be taken to minimize traffic congestion associated with nearby commercial uses, particularly on U.S. Highway 101, Main Avenue, East Harbor Drive, Neptune Drive and Marlin Avenue. Groupings of businesses, common access points and other appropriate techniques will be encouraged. Sufficient parking on either jointly-used lots or individual business sites will be required for new commercial developments.

(3) A new regional shopping center or large regional stores are a permitted use in the General Commercial district near U.S. Highway 101 or East Harbor Drive, if the development will enhance market choices available to consumers and improve the local economy through retail diversity and attraction of new businesses. Adequate attention must also be given to the size, shape and location of the site; the organization of the shopping center facilities; access points, on-site traffic circulation; parking and loading space; and landscaping and sign installation.

(4) If the City determines that more land is needed in the General Commercial district, consideration will be given to including an area west of S.E. Marlin Avenue, north of U.S. Highway 101, east of the right-of-way for S.E. King Avenue and South of the right-of-way for S.E. Seventh Street.

(5) The City supports the efforts to develop a regional shopping district adjacent to U.S. Highway 101. The City finds that such a development would strengthen the local economy, attract new businesses to Warrenton and increase the diversity of retail commercial uses available to Clatsop County residents.

Section 3.330 Industrial Lands

(1) It is the City's policy to support the establishment of a variety of well- designed industrial facilities in appropriate locations in order to expand employment opportunities, make use of land best suited for industry, increase the local tax base and insure a stable economy. Industrial development shall take place in the following areas:

(a) The purpose of the General Industrial Zone is to provide sites for light, heavy, and airport-related industrial activities in the City of Warrenton. These areas are suitable for uses involving manufacturing, fabrication, processing, trans-shipment and bulk storage. General Industrial areas are near or adjacent to arterial transportation corridors.

(b) Water-Dependent Industrial Shoreland areas have unique characteristics that make them especially suited for water-dependent development. Characteristics that contribute to suitability for water- dependent development include:

(i) deep water close to shore with supporting land transportation facilities suitable for ship and barge facilities;

(ii) potential for aquaculture;

(iii) protected areas subject to scour which would require little dredging for use as marinas;

(iv) potential for recreational utilization of coastal waters or riparian resources.

Uses of Water-Dependent Industrial Shorelands areas shall maintain the integrity of the estuary and coastal waters. Water-dependent uses receive highest priority, followed by water-related uses. Uses which are not water-dependent or water-related are provided for, but only when they do not foreclose options for future higher priority uses and do not limit the potential for more intensive uses of the area.

(2) Appropriate industrial, commercial and other uses are allowed to occur in the Aquatic Development Zone (A-1). Waters in these locations may be used more intensively than those in a Conservation or Natural zone. Marinas, port facilities, aquaculture and other water-dependent development facilities are the primary uses which are permitted with standards or allowed as a conditional use. Piers, secured floats, dredging and filling are acceptable when adequately justified.

(3) Some industrial uses may also be allowed in other types of zones, primarily commercial districts. For example, boat building and seafood processing are permitted with suitable conditions in a Marine Commercial Zone. Printing firms may locate in General Commercial areas.

(4) Any industrial development exempt from taxation under ORS 307.120, Chapter 705, Oregon Laws 1979, or similar statutes as now or may hereinafter be enacted shall not be allowed unless specifically authorized. Any applicant must prove that no need for additional public services will directly or indirectly result from the industrial development which will cause a burden on or tax shift to other local taxpayers. Payments or other considerations to affected local public agencies may be made by applicant or others in lieu of taxes to offset any revenue deficit.

Section 3.340 Agriculture, Forestry, Wetlands and Open Space

(1) Open Space: It is the City's policy to encourage efficient urban development, protect environmentally sensitive areas, and otherwise benefit the public by setting aside appropriate locations for open space, agriculture and forestry. Rural development and conservation areas or zones, described elsewhere in this plan, include important open-space tracts, such as portions of Fort Stevens State Park. Cluster development, appropriate landscaping and other efforts to preserve open space are encouraged in urban development areas. The extensive estuarine areas within the City limits and UGB are a significant open space resource.

(2) Agriculture: Agricultural operations are permitted in Rural Development and Conservation areas. Large tracts of land in Urban Development areas also may be used for these purposes. A major concern is avoiding nuisances to nearby property used for urban purposes.

(3) Forestry: Forestry operations are permitted in Rural Development and Conservation areas. Large tracts of land in Urban Development areas also may be used for these purposes. A major concern is avoiding nuisances to nearby property used for urban purposes.

(4) Wetlands: The City is preparing a Wetland Conservation Plan to guide management of the extensive areas of non-tidal wetlands in the City and UGB area. Tidal wetlands are addressed in Article 5 of this Plan.

(5) The purpose of the Open Space & Institutional zone is to provide for development, use and management of parks, school grounds, golf courses, cemeteries and other relatively large tracts of publicly-used land.

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ARTICLE 4 NATURAL FEATURES

SECTION 4.100 FINDINGS

Concern for natural features is important for the future of Warrenton. The purpose of this part of the Comprehensive Plan is to indicate what actions should be taken to reflect this concern. The *Major Natural Features Areas* map shows the location of the City's estuary waters and wetlands, estuary shorelands, and beach and dune shorelands.

Natural features in Warrenton and nearby areas provide the City with a variety of opportunities for development. Opportunities for port and industrial growth are created by the availability of large amounts of relatively flat land and accessibility to deep water portions of the Columbia River Estuary, productive fish habitat and valuable timber resources.

Because of its close proximity to the Columbia River bar and the fact that deep draft vessels can arrive within the City limits on one tide after crossing the bar, water-dependent development sites within the City are uniquely situated to provide facilities for the handling of bulk commodities for the entire Columbia River basin and the western United States. The potential for commercial, recreational and residential expansion exists due to the City's industrial growth prospects and to the scenic and recreational attractions in the area, such as the Columbia River waterfront, the Pacific Ocean and adjoining dune areas, and the Skipanon River marina facilities. These factors, plus other geographical advantages and the availability of public facilities and services, make Warrenton a prime area for development within the region.

There are a number of obstacles which could endanger people and their property and could diminish the broad range of natural resources that benefit the City. Potential hazards to people and property in the area can result from occasional flooding, compressible soils, a high water table, wind and water erosion, steep slopes and other local features. Damage to or destruction of important natural resources can occur because of various actions including discharging large amounts of wastes in surface and subsurface waters, unnecessary or improper dredging and filling, inadequate grading and drainage techniques, removal of needed vegetation, construction in valuable fish and wildlife habitats, and air pollution.

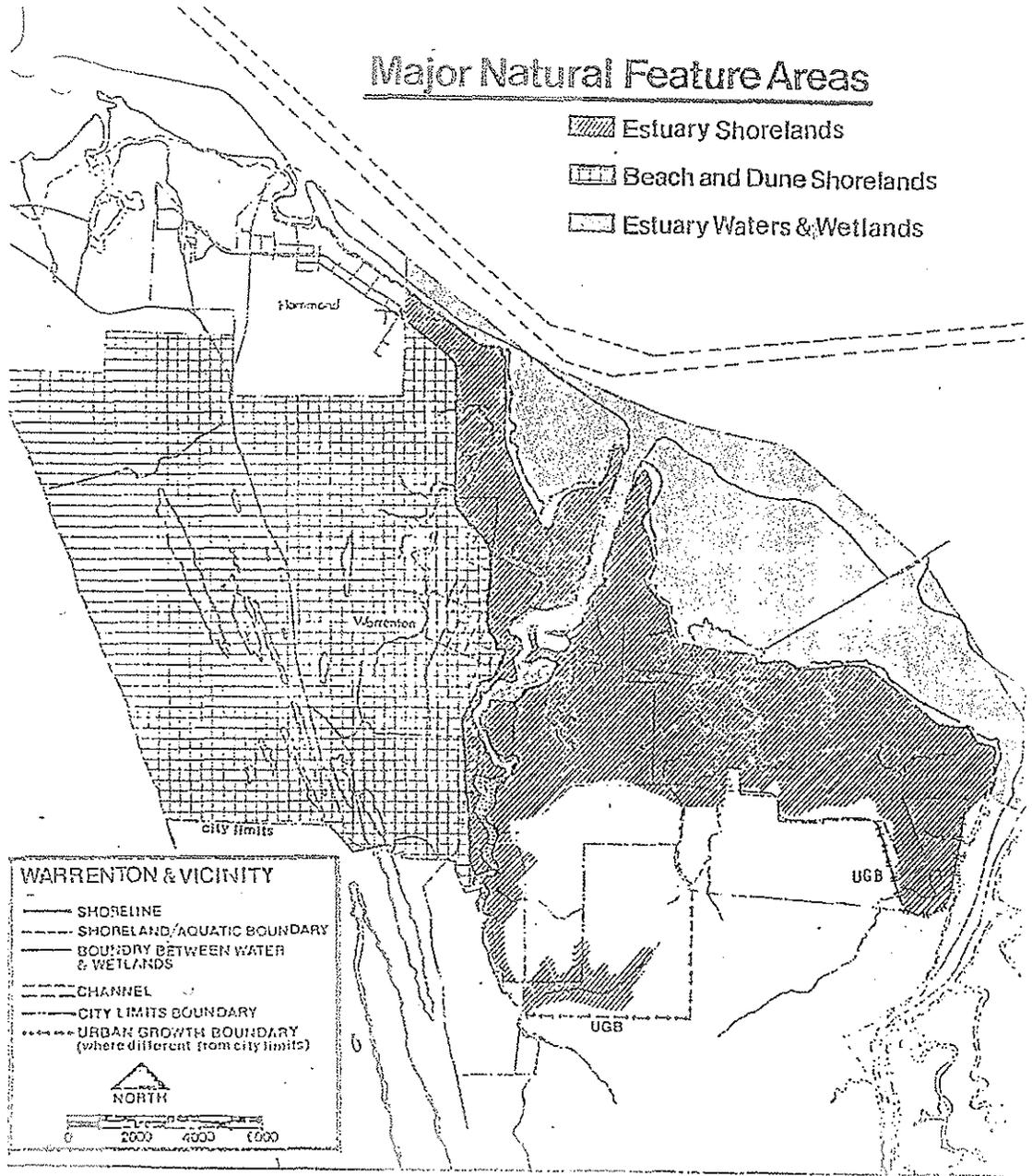
This section establishes goals and policies protecting many of the City's natural features, including those protected by Statewide Planning Goal 5: open spaces, scenic and historic areas, and natural resources. Additional background information on Warrenton's Goal 5 resources is in the Goal 5 section of the *Warrenton Comprehensive Plan Background Report*. This section addresses some natural hazards in Warrenton, such as flood hazards and compressible soils, covered by Statewide Planning Goal 7. Goal 6 resources (air, water and land resources) are also addressed.

OAR 660-023-0024 (2) establishes that the requirements of Statewide Planning Goal 16 and 17 supersede the requirements of Statewide Planning Goal 5 for natural resources also subject to and regulated by those goals. As a result, whether and under what circumstances development may impact wetlands and riparian corridors in estuarine and coastal shoreland areas is governed by the policies implementing Goals 16 and 17 rather than the City's adopted Goal 5 implementation program.

Wetlands and riparian corridors are important to the citizens of Warrenton as natural resources. To ensure that this goal is attainable, wetland and riparian corridor mitigation, restoration creation and enhancement shall be allowed in all zoning district where practicable.

Major Natural Feature Areas

-  Estuary Shorelands
-  Beach and Dune Shorelands
-  Estuary Waters & Wetlands



SECTION 4.200 GOALS

- (1) Protect, conserve, develop where suitable and appropriate, and restore Warrenton's land, water, and air resources.
- (2) Recognize the value of these resources for specific types of urban uses and activities, the economy, fish and wildlife habitat, recreation and aesthetics.
- (3) Reduce the hazard to human life and property and the adverse affects on natural resources resulting from the use of land, water and air in the Warrenton area.

SECTION 4.300 POLICIES

Section 4.310 Soils

(1) Hazards resulting from poor soils shall be minimized by using sound soils data and engineering principles to determine public and private development techniques and by requiring those developing property, when appropriate, to assume responsibility for certain hazard-related costs.

(2) Prior to approval of a subdivision or issuance of a building permit, the City may require an on-site soil survey when it is believed construction on the site may be hazardous to facilities on the parcel or to nearby property due to the load-bearing capacity of the soil, the potential for wind or water erosion, or the wetness or slope characteristics of the soil. In locations shown to have soils which tend to cause problems for development, the City may require the following from the developer before approving a development: (a) a report prepared by an expert showing how difficulties will be minimized, (b) a performance bond assuring that any adverse effects which do occur will be corrected, and (c) reasonable fees for review costs.

(3) On-site soil surveys will be required before approving new structures proposed for areas which have Brailier or Bergsvik soils (these are highly- compressible soils), according to the *Soil Survey of Clatsop County* prepared by the Soil Conservation Service, February 1988. If an on-site soil survey indicates that significant amounts of these soils are in locations which are desired for development, a report indicating techniques to be used to minimize problems will be mandatory. A similar approach may be used by the City Engineer before issuing permits for construction of large scale commercial, industrial, governmental or multifamily residential developments on areas of Coquille variant silt loam and Coquille-Clatsop complex soils.

(4) Soils information indicates that certain types of soil within the City of Warrenton may cause corrosive action to foundations and pipes. The *Soil Survey of Clatsop County* or an adequate on-site soil survey will be needed to determine where such soils exist. Corrosion-resistant materials may be required for foundations or underground pipes in large-scale developments in these areas.

Section 4.320 Flood Hazards

(1) Public and private losses due to flood conditions shall be reduced by requiring buildings in flood hazard areas to be properly elevated or flood-proofed and by undertaking other measures necessary to avoid hazardous situations.

(2) A flood hazard permit will be required for all types of development, including dredging and filling, in areas of special flood hazards identified by Federal Emergency Management Agency's (FEMA) Federal Insurance Rate Maps (FIRM). The FIRM maps were originally dated May 15, 1978 (as amended) and have been updated in March 2010 by FEMA.

(3) Standards will be used in special flood hazard areas, which assure that:

(a) all building construction is elevated or floodproofed to the base flood level;

(b) all new construction and substantial improvements shall be anchored;

(c) all new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage;

(d) new or replacement of utility systems are designed to preclude flood loss; and

(e) other measures necessary to avoid flood hazards are undertaken.

(4) The City will work to maintain and improve the system of dikes, which help prevent flooding in Warrenton, including possible construction of new pump stations and more efficient tidegates.

Section 4.330 Drainage and Erosion

(1) Runoff and water erosion shall be controlled by requiring sound management practices in proposed subdivisions and large-scale commercial developments and by preparing and implementing a comprehensive stormwater drainage study.

(2) The City will continue to improve its storm drainage system.

(3) All proposed subdivisions and large-scale commercial developments must submit an engineered stormwater plan with construction plans. The plan shall meet the stormwater requirements in Chapter 3.6 of the City's Development Code.

(4) Drainage plans shall include provisions needed to control water erosion associated with construction. Control with vegetation, particularly with plants already on the site, should be stressed. Grade stabilization structures, debris basins, energy dissipators or other facilities may also be required.

Section 4.340 Topography

(1) The City supports use of development techniques which maintain the natural topography, appropriately control grading and excavation, and reduce slope-related problems.

(2) Engineering practices which limit changes in the natural topography to the least amount necessary to build the desired development and achieve various objectives of this part of the Comprehensive Plan are encouraged.

(3) A site study, showing how drainage, erosion and other potential slope-related problems will be minimized, may be required by the City for construction requiring a building permit which is proposed for slopes of 10% or more. This study must be prepared by a qualified individual, approved by the City and used in the development of the site.

(4) The City will require sites used for the commercial excavation of sand and other resources to use methods which protect nearby property and residents, including limiting slopes to less than 65% on the sides of excavation pits. These sites shall eventually be restored by grading, vegetation and other means so that the parcel will be usable for other purposes.

(5) The City will consider adopting Chapter 70 of the Uniform Building Code to control grading and excavation.

Section 4.350 Water Quality

(1) The City supports protection of water quality by responsibly managing and constructing various public facilities, adequately controlling private development practices and taking other actions to avoid water pollution.

(2) All buildings needing sanitary sewer service will be required to hook up to City sewer lines when they are on a parcel abutting a public right-of-way and are within 300 feet of an existing sewer line. Before a building permit is issued for new buildings which need sewer service, suitable evidence will be submitted showing they will be hooked up to a City sewer line or that a sewage disposal system meeting state and federal regulations will be used.

(3) Proposed subdivisions without adequate access to City sewer lines will be required to have lots with:

(a) building site soils suitable for the type of sewage disposal system which will be used, and

(b) enough land to meet state and federal standards for the system.

(4) The City will use environmentally sound techniques in the construction and operation of public water and sewer systems. Activities shall be coordinated with state and federal regulatory agencies. The City will work with these agencies, the County, Weyerhaeuser Industries and others to protect the quality of Warrenton's watershed .

(5) Warrenton will work with the County and other local governments to maintain the quality of groundwater resources. Activities will include efforts to monitor groundwater pollution and improve local, state and federal controls. Actions shall also be taken to avoid any detrimental draw-down of the groundwater supply.

(6) Efforts will be made to work with other governmental bodies to find a satisfactory long term solution to Clatsop County's solid waste disposal problem. The City will support efforts to increase opportunities for recycling.

(7) Local development and nuisance regulations shall be used to help control non-point sources of water pollution. For example, new developments with large paved areas for vehicular use may be required to eliminate excessive amounts of oil, gas or other chemicals from run-off waters. The City will also work with other governments to reduce non-point sources of pollution.

(8) The City will insure that the actions it takes are consistent with applicable state and federal water quality regulations.

(9) The City recognizes that Warrenton lies in a critical groundwater area and shall refuse to permit uses which the Department of Environmental Quality (DEQ) determines could pollute or adversely affect the aquifer. The City shall rely on the DEQ and / or other qualified experts to determine the impacts of proposed uses and to develop a program to protect the aquifer from damage.

Section 4.360 Air Quality and Noise

(1) It is the City's policy to preserve air quality and minimize noise through compliance with applicable state and federal regulations, use of additional local requirements and other means.

(2) Before building permits will be issued for large-scale, non-residential developments, suitable information shall be submitted which shows that the development will not violate state or federal air quality and noise regulations. When appropriate, such evidence may also be required before issuing building permits for uses which generate high levels of noise or substantial amounts of air pollution.

(3) Prior to approving new subdivisions or issuing a permit for construction of noise-sensitive non-residential buildings, the City may require use of buffers, noise barriers such as berms, walls or other methods to prevent or reduce noise problems. These methods shall be considered when a noise-generating use is located near a major road or a residential, conservation, scenic or outdoor recreation area. Other regulations, including provisions governing nuisances, shall also be used to help eliminate excessive noise and, to some extent, minimize air pollution.

(4) Persons proposing major development within the Port of Astoria Airport's 55 Ldn noise boundary will be notified of their location within an airport noise impact area.

(5) The City will work to develop a hazard overlay zone based on the Port of Astoria Airport noise contour projections. Efforts will be taken to control the future location of noise-sensitive uses within these areas where higher- than-normal noise levels can be expected.

Section 4.370 Fish and Wildlife

(1) The City supports maintenance of important fish and wildlife habitat by protecting vegetation along many water bodies, classifying suitable land and water locations as conservation areas and otherwise encouraging protection of valuable fish and wildlife habitat.

(2) Identified riparian vegetation along rivers, sloughs, coastal lakes and significant wetlands shall be maintained except where direct water access is required for water-dependent or water-related uses. Temporary removal of riparian vegetation due to construction practices or landscaping may be permitted subject to a revegetation plan approved by the City which specifies:

(a) temporary stabilization measures, and

(b) methods and timing for restoration of riparian vegetation.

(3) Fish and wildlife resources will be protected in part by including an extensive amount of local water area, including Alder Cove and Youngs Bay in "conservation aquatic" or "natural aquatic" zones. In addition, identified significant shoreland and wetland habitats will be included in a conservation category to protect these areas from uses inconsistent with the preservation of natural values.

(4) Owners of private property on which valuable habitat is located will be assisted in taking advantage of reduced property taxes for protecting such areas.

(5) Fishing and hunting will be allowed in accordance with state laws. The discharge of firearms for hunting shall only be permitted in appropriate undeveloped areas.

Section 4.380 Scenic and Historic Resources

{1) It is the City's policy to enhance the scenic quality of the area by requiring that adequate visual buffers, suitable landscape plans and other techniques be used in appropriate new developments; and to work with individuals to identify and protect important historical and archaeological sites.

(2) To maintain the scenic quality of the area, adequate visual buffers will be required for:

(a) new non-residential developments which are close to property zoned residential, conservation or natural,

(b) new industrial developments near commercially zoned land , and

(c) any new development abutting Ridge Road.

(3) Excessive sign sizes and numbers of signs shall be discouraged by Development Code regulations. Particular attention shall be given to achieving appropriate sign installation along water bodies, near major roads and in large-scale developments. Except for desirable publicly-owned signs, no new off-premise posting shall be allowed.

(4) In new subdivisions and large-scale developments, utility lines, including electricity, communications, street lighting and cable television, shall be required to be placed underground unless soils, topography or other conditions make underground installation unreasonable or impractical. Appurtenances and associated equipment such as surface-mounted transformers, pedestal-mounted terminal boxes and meter cabinets may be placed above ground.

(5) The City will review land use activities that may affect known archaeological sites. If it is determined that a land-use activity may affect the integrity of an archaeological site, the City shall consult with the State Historic Preservation Office on appropriate measures to preserve or protect the site and its contents. Indian cairns, graves and other significant archaeological resources uncovered during construction or excavation shall be preserved intact until a plan for their excavation or re-internment has been developed by the State Historic Preservation Office. Upon discovery of new archaeological sites, the City will address the requirements of Statewide Planning Goal 5 through a Comprehensive Plan amendment.

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Section 4.390 Energy Conservation

(1) It is the City's policy to guide land development, land management, community facility improvements and transportation systems in a manner that maximizes the conservation of energy, based on sound economic principles.

(2) The City will provide sufficient buildable land for multi-family dwellings and, when appropriate, will provide residential density bonuses for actions which cluster development in a sound manner or otherwise promote energy conservation.

(3) Consideration will be given to the long-term energy costs of community facility improvements. Whenever possible the City shall use methods which minimize use of energy, such as aerobic sewage treatment lagoons and gravity sewer lines. Transportation systems shall also be designed to reduce unnecessary energy use.

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ARTICLE 5 COLUMBIA RIVER ESTUARY AND ESTUARY SHORELANDS

SECTION 5.100 FINDINGS

A major portion of Warrenton consists of tidally influenced waters and wetlands, and adjacent shorelands. A brief overview of the Columbia River Estuary in Warrenton is provided here, along with a description of the regulatory environment influencing estuary development, and the City's approach toward managing uses and activities in and around the estuary.

Warrenton had about eleven miles of shoreline on the Columbia River Estuary prior to the merger in December 1991 with Hammond. The merger brings total Warrenton shoreline to about 13 miles. Estuary aquatic areas within Warrenton include development areas of regional economic significance, scenic areas, and natural areas. Much of Warrenton was once part of a large forested tidal swamp. It is now protected by flood control dikes. Most of the former forested swamp is now developed for commercial, residential and industrial uses.

The City regulates development in the estuary through the City Comprehensive Plan and Zoning Ordinance. Oregon establishes minimum standards for these local regulations through Statewide Planning Goal 16. Similarly, Statewide Planning Goal 17 sets minimum standards for local regulations on estuary shorelands. In the Columbia River Estuary, these two statewide planning goals are implemented through the *Columbia River Estuary Regional Management Plan*, prepared by CREST. Key elements of this Plan are adopted into Warrenton's Comprehensive Plan and Zoning Ordinance.

The City of Warrenton treats significant wetlands and riparian corridors that are located in the City's Goal 17 Shoreland zone as Goal 5 resources.

The management system for Columbia River Estuary aquatic areas and shorelands in Warrenton consists of land and water designations, policies, and implementing measures in the City's Zoning Ordinance. The land and water designations that follow are applied to Columbia River Estuary aquatic and shoreland areas as described in subarea descriptions (summarized below from the *Columbia River Estuary Regional Management Plan*), and as shown on the City's zoning map.

Natural Aquatic areas are designated to assure the protection of significant fish and wildlife habitats; of continued biological productivity within the estuary; and of scientific, research, and educational needs. These areas are managed to preserve natural resources in recognition of dynamic, natural, geological, and evolutionary processes. Natural Aquatic areas include all major tidal marshes, tide flats, and seagrass and algae beds. The designation is intended to preserve those aquatic natural resource systems existing relatively free of human influence. These areas are in the City's Natural Aquatic Zone (A-3).

Conservation Aquatic areas are designated for long-term uses of renewable resources that do not require major alterations of the estuary, except for the purpose of restoration. They are managed for the protection and conservation of the resources found in these areas. The Conservation Aquatic designation includes areas needed for the maintenance and

enhancement of biological productivity, recreational resources, aesthetic features and aquaculture. The Conservation Aquatic designation includes areas that are smaller or of less biological importance than Natural Aquatic areas. Areas that are partially altered and adjacent to existing moderate intensity development which do not possess the resource characteristics of other aquatic areas are also included in this designation. These areas are in the City's Conservation Aquatic Zone (A-2).

Development Aquatic areas are designated to provide for navigation and other identified needs for public, commercial, and industrial water-dependent uses. The objective of the Development Aquatic designation is to ensure optimum utilization of appropriate aquatic areas by providing for intensive development. Such areas include deep-water adjacent to or near the shoreline, navigation channels, subtidal areas for in-water disposal of dredged material, areas of minimal biological significance needed for uses requiring alteration of the estuary, and areas that are not in Conservation or Natural designations. These areas are in the City's Development Aquatic Zone (A-1).

Rural Shoreland areas are designated to protect agricultural land from urban expansion; to restrict development along undeveloped shorelines; to function as a buffer between urban areas; and to maintain open spaces and opportunities for recreational uses. Shorelands in the Rural Shoreland designation include agricultural and recreational areas, low density residential areas and areas where public facilities are generally not fully available.

Development Shoreland areas are designated to provide for water-related and water-dependent development along the estuary's shoreline. Development Shoreland areas include urban or developed shorelands with little or no natural resource value, and shorelands with existing water-dependent or water-related uses. These areas are in the City's Recreational-Commercial Zone (R-C).

Water-Dependent Development Shoreland areas have unique characteristics that make them especially suited for water-dependent development. Characteristics that contribute to suitability for water-dependent development include:

- (1) Deep water close to shore with supporting land transportation facilities suitable for ship and barge facilities;

- (2) Potential for aquaculture;

- (3) Protected areas subject to scour which would require little dredging for use as marinas;

- (4) Potential for recreational utilization of coastal waters or riparian resources.

These areas are managed for water-dependent recreational, commercial and industrial uses. These areas are in the City's Marine Commercial Zone (C-2), and Water-Dependent Industrial Zone (I-2). An inventory of these sites is included in Section 5.301 (Table 1 and Table 2).

Section 5.110 Estuary Channels Subarea Findings

- (1) General Description - This subarea includes the deep water portions of the estuary from Jetty A (RM 3) to the upper end of Rice Island (RM 22.5). The subarea contains the authorized navigation channel. The subarea boundary generally follows the 20-foot bathymetric contour; however, it varies from this contour in the vicinity of cities and other subareas containing deep channels. There are no intertidal wetland or shoreland areas. Portions of Clatsop, Pacific and Wahkiakum Counties, and Astoria and Warrenton are within this subarea. The Warrenton portion comprises only a small portion of this 16,500 acre subarea.

- (2) Aquatic Designations - All aquatic areas in the Estuary Channels Subarea in Warrenton are designated Conservation except:

- (a) The main navigational channel and a flowline disposal area on each side of the channel (either 600 feet wide or extending to the 20 foot bathymetric contour, whichever is narrower) is designated Aquatic Development.

- (b) Dredged material disposal sites CC-E-8.5 and CC-E-21.0, listed in the *Columbia River Estuary Dredged Material Management Plan*, are designated Aquatic Development.

Section 5.120 Tansy Point/ Alder Cove Subarea Findings

- (1) General Description - This subarea includes aquatic areas in Alder Cove and the Columbia River out to the pierhead line, and shorelands between the waterward extension of Railroad Drive (the old Warrenton/Hammond boundary) and the mouth of Alder Creek. This subarea contains about 600 acres of both shorelands and aquatic areas within the City of Warrenton.

- (2) Aquatic and Shoreland Designations

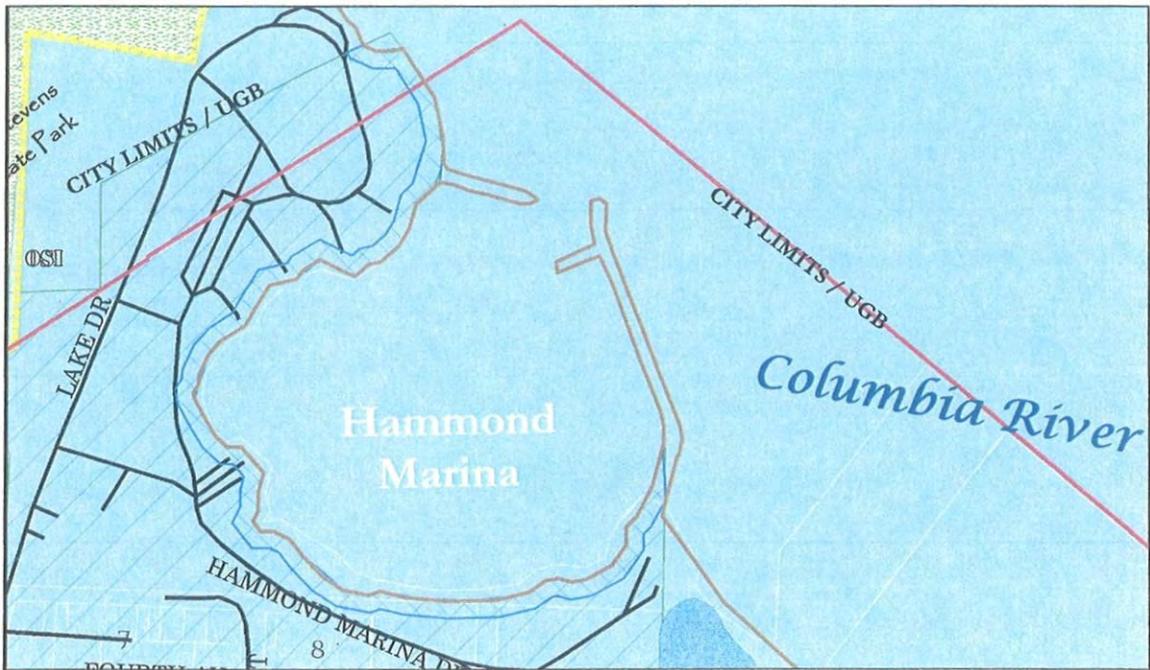
- (a) Development Aquatic:

- The aquatic area bounded by the shoreline on the South, the pier-head line to the North, the waterward extension of Railroad Drive on the West and Tansy Point on the East.

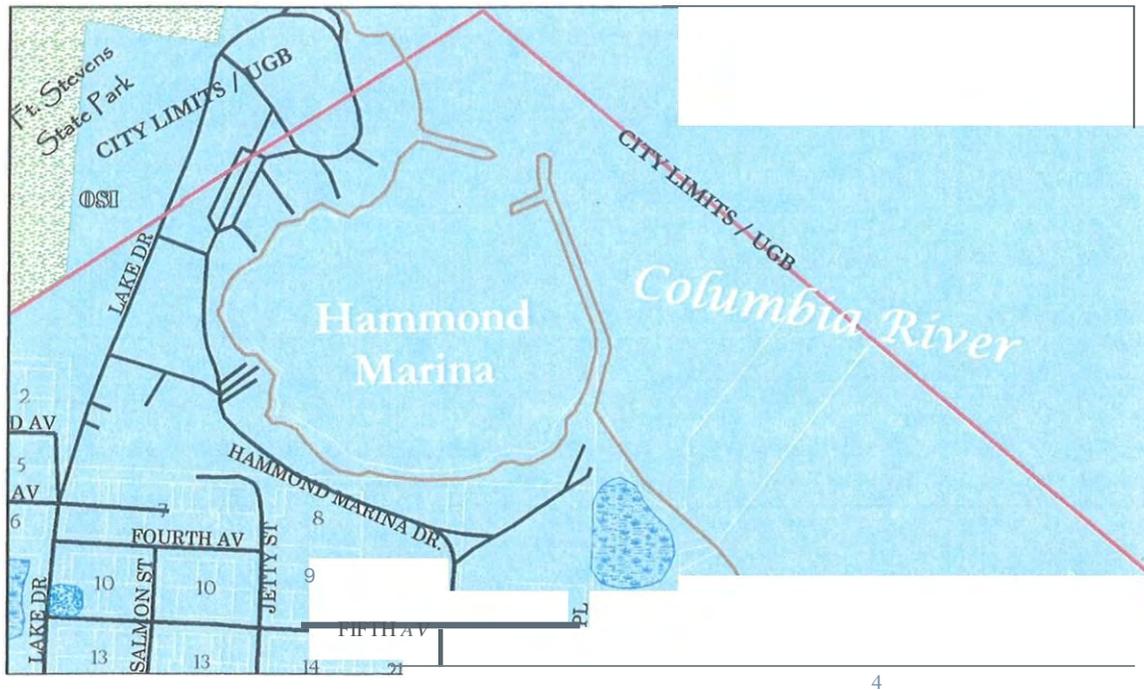
Riparian Corridor Unit No. 1

COLUMBIA RIVER - HAMMOND MARINA

0 foot Riparian Corridor



Riparian Corridor Unit #1a
Columbia River- Hammond Marina

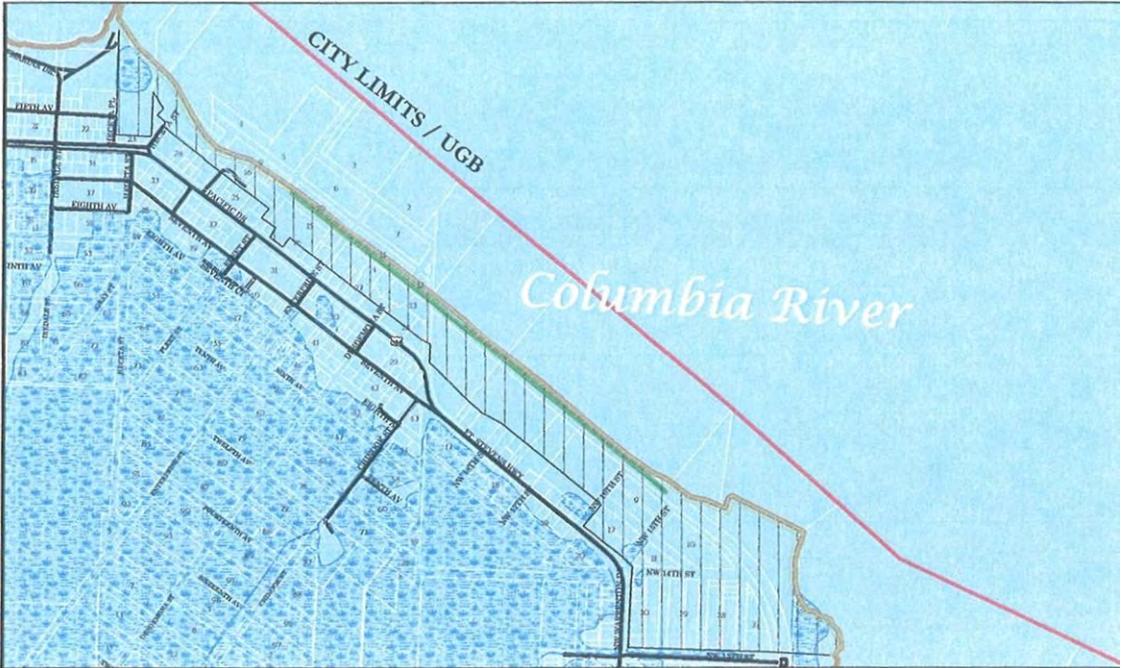


This area of shoreline consists of approximately 500 linear feet on the Columbia River, adjacent to the Hammond Marina. This area (see attached photo) is undeveloped and undisturbed by man. There is evidence of natural erosion to the sandy beach caused by waves from the Columbia River and tidal influence of the Pacific Ocean. Inland, abutting the sandy beach area is overgrown vegetation consisting of brush and trees. This area shall be protected with a 75 foot riparian corridor setback to protect the natural vegetation in this location. The 75' setback shall be measured: starting at the point where the sandy beach recedes into brush, and going inland.

Riparian Corridor Unit No. 2

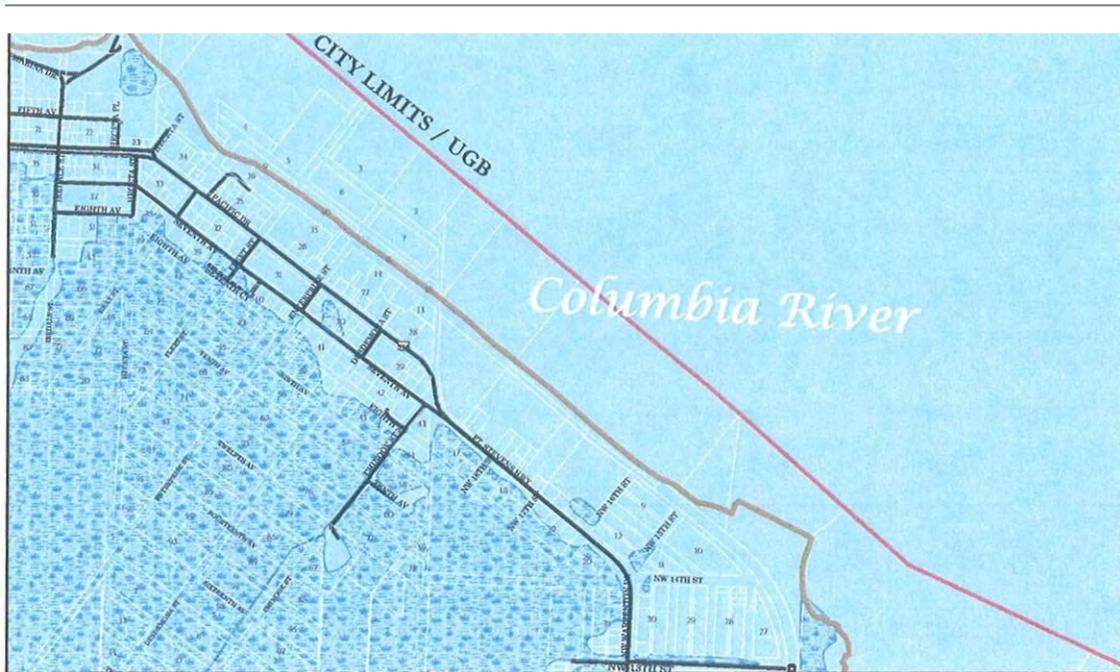
COLUMBIA RIVER: HAMMOND MARINA TO NW 13th Street

0 foot riparian corridor



Riparian Corridor Unit #2a

Columbia River - Carruthers Park



This area is associated with Carruthers Park and consists of approximately 400 linear feet of shoreline on the Columbia River. The shoreline area has existing riprap (see attached photos) placed on slope of the bank; plus an observation deck (see attached photos), which extends slightly over the bank but not into the waters of the Columbia River. The observation deck footings (see attached photo) are on land, slightly back from the bank of the river. There is also a foot trail (see attached photos) on the rise of the land, just back from the "bank" of the river going both east and west. The location of the observation deck bisects the foot trail. A 75 foot riparian setback is imposed to protect the remaining natural riparian vegetation. Repairs to the riprap and the observation deck shall be in compliance with the city's development code.

RIPARIAN CORRIDOR UNIT 3
Columbia River: NW 13th Street to mouth of Skipanon

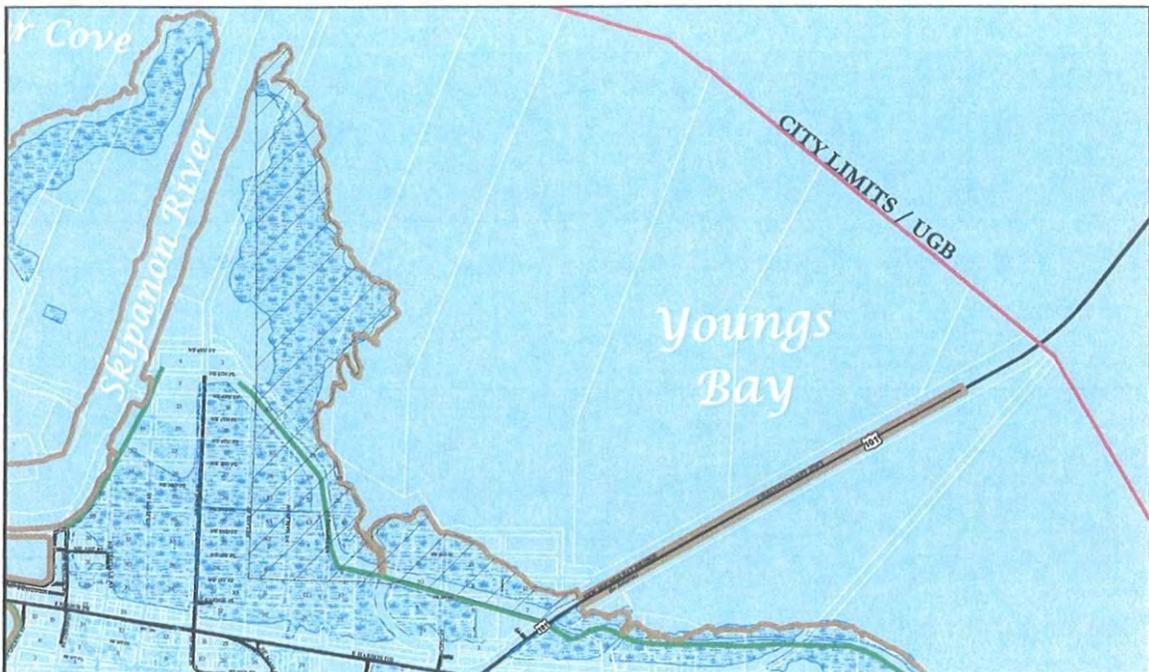
75 foot Riparian Corridor



Riparian Corridor Unit 4

Columbia River: Mouth of Skipanon River to Youngs Bay Bridge

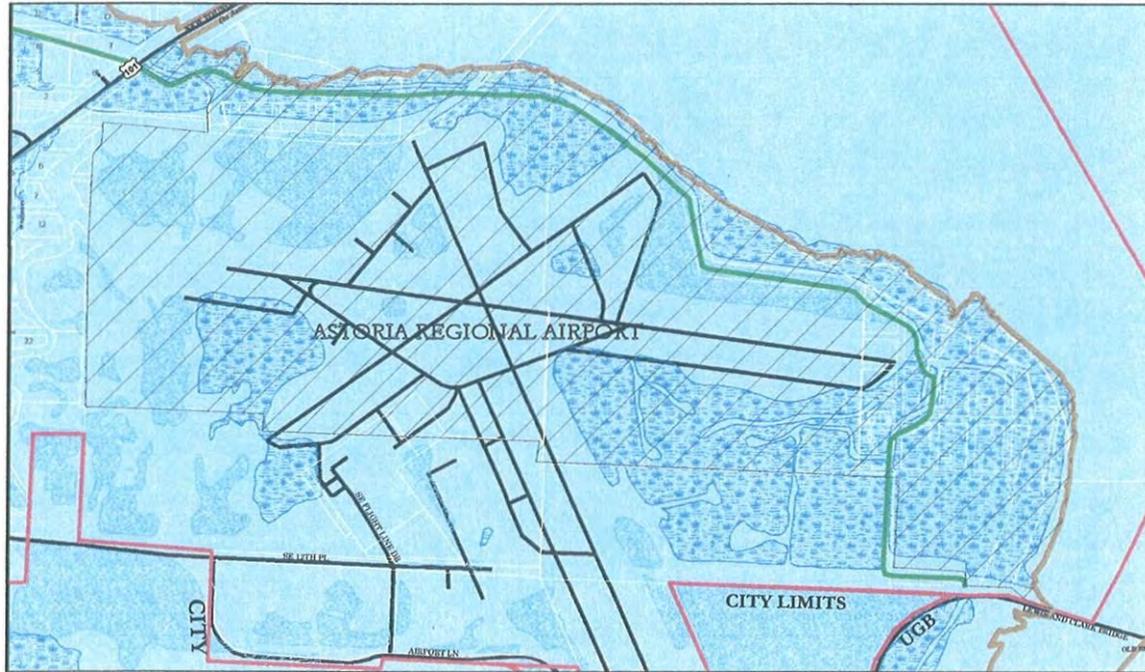
75 foot Riparian Corridor



RIPARIAN CORRIDOR UNIT 5

Columbia River: Youngs Bay Bridge to Lewis and Clark River Bridge

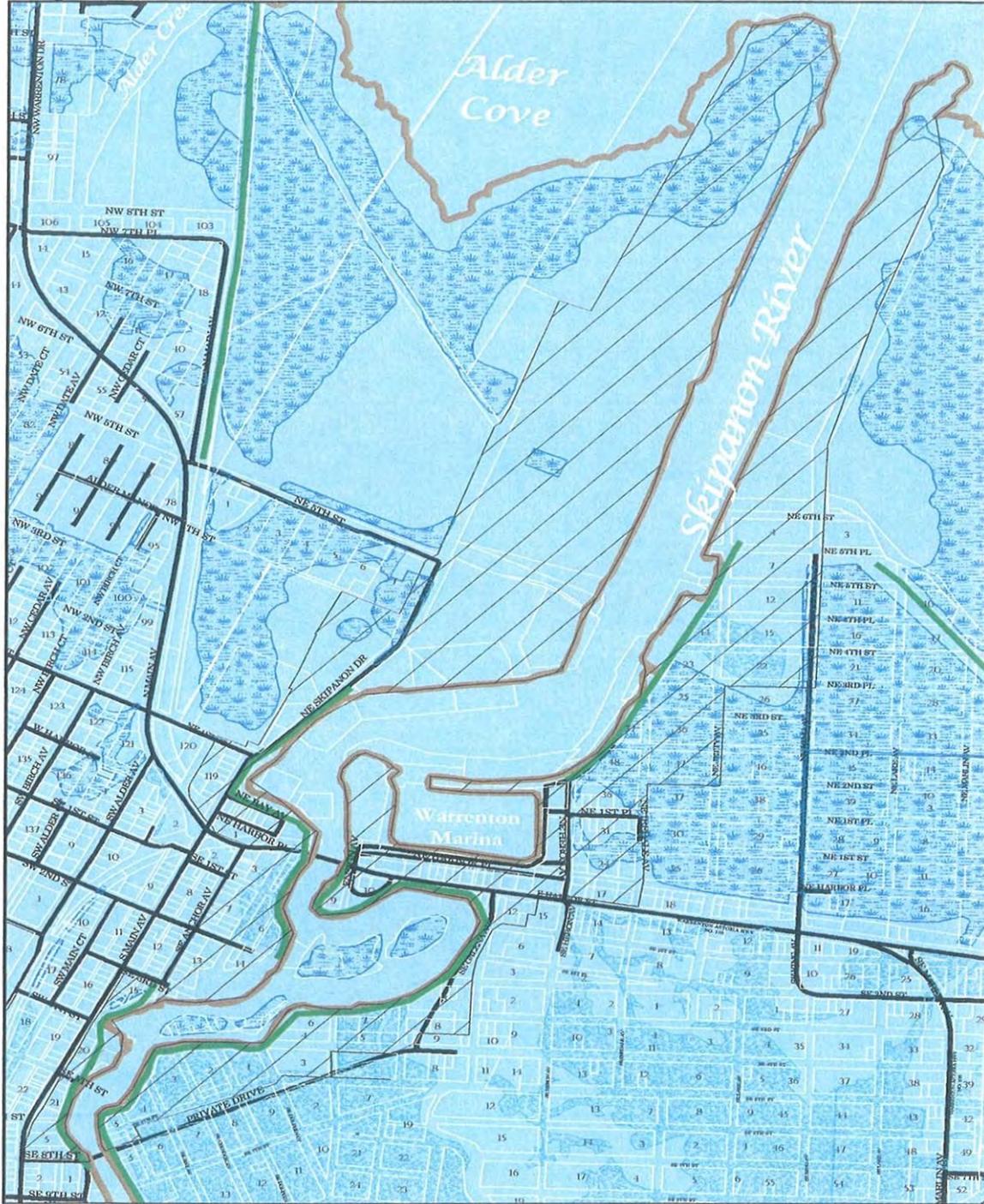
75 foot riparian corridor



RIPARIAN CORRIDOR UNIT 6

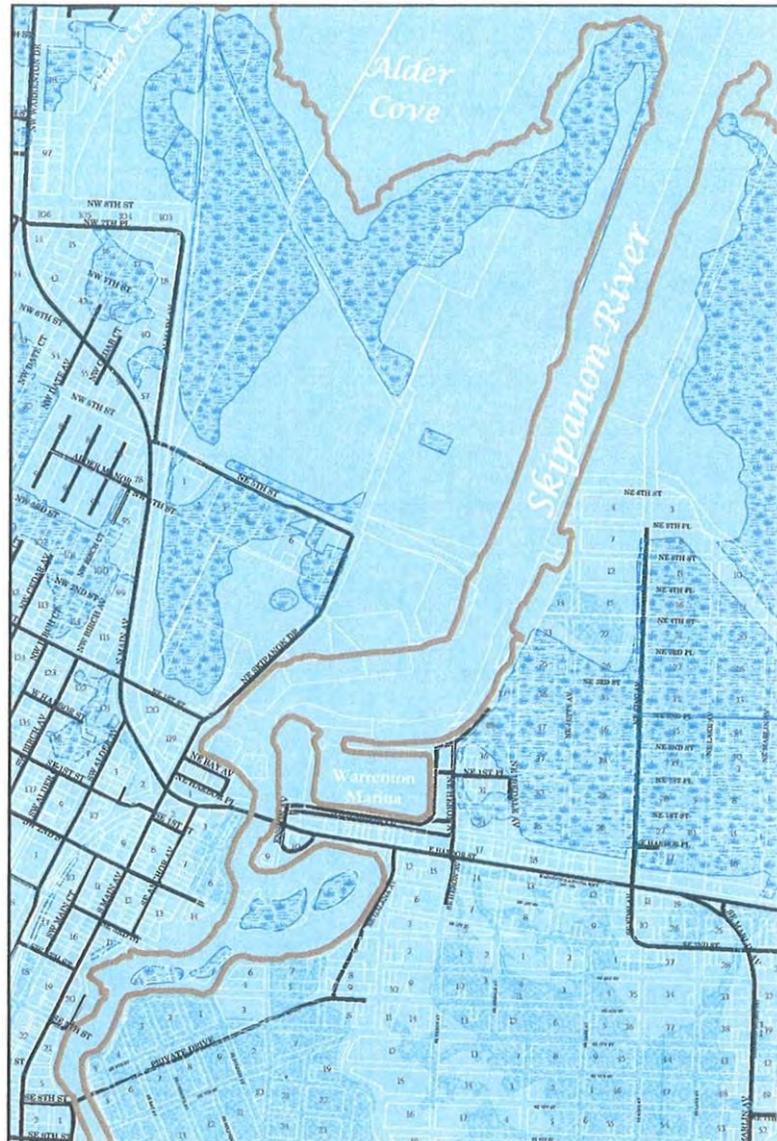
Lower Skipanon River

0 foot riparian corridor



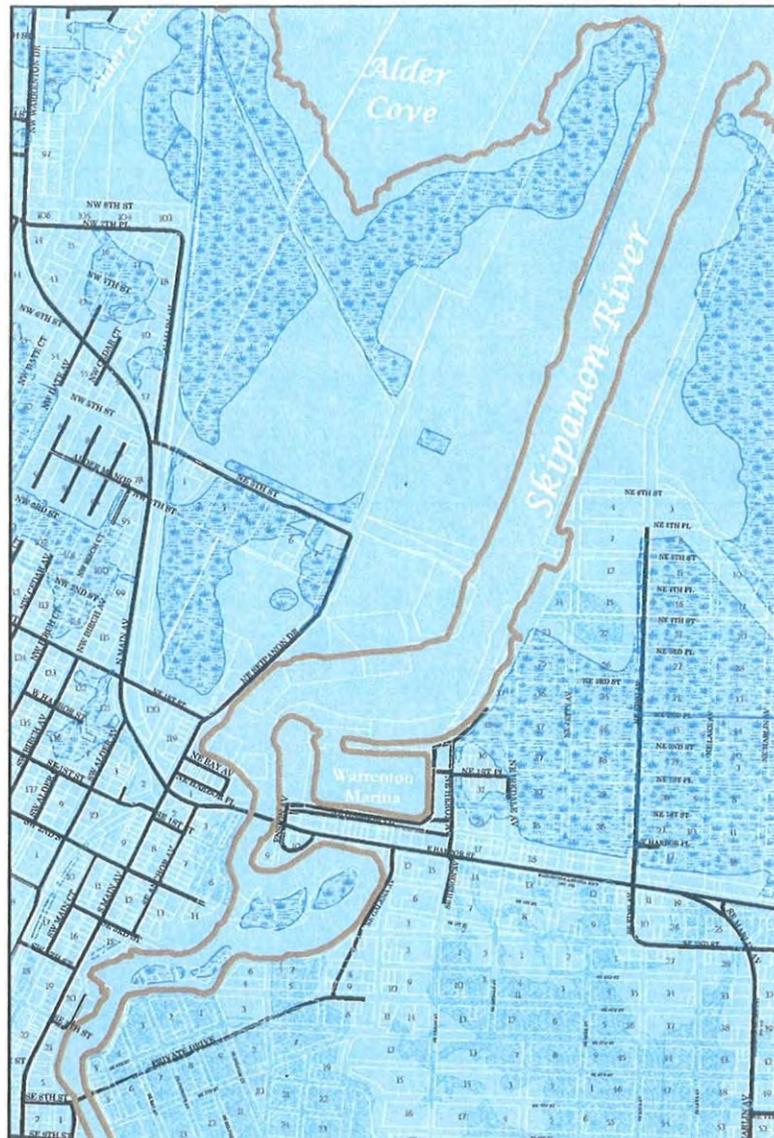
Riparian Corridor Unit #6(a-1)

Skipanon River Channel East Bank



Riparian Corridor Unit #6(a2)

Skipanon River Channel West Bank

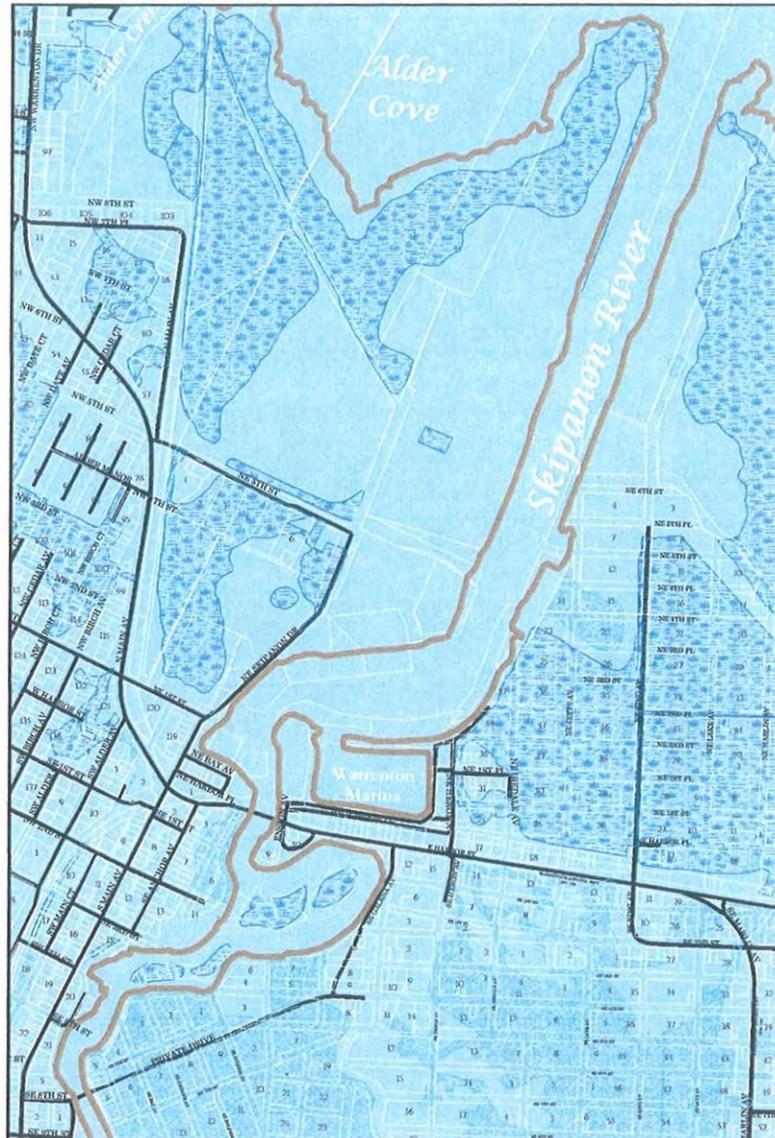


West Bank Skipanon River -- This area is located on the west bank of the Skipanon River channel before the bend of the river and the Warrenton Marina. Oregon Administrative Rules 660-023(5) & (8)(c) allows no riparian setbacks to be imposed where water-dependent/ water-related uses and activities are adjacent to the shoreland vegetation. There is an existing water-dependent business on the west side of the river, which is in the city's water-dependent /water-related zone (I-2). No riparian setback is required for this area.

Amended by Ordinance 1101-A, November 16, 2006

Riparian Corridor Unit #6(b)

Skipanon City Park and Trail

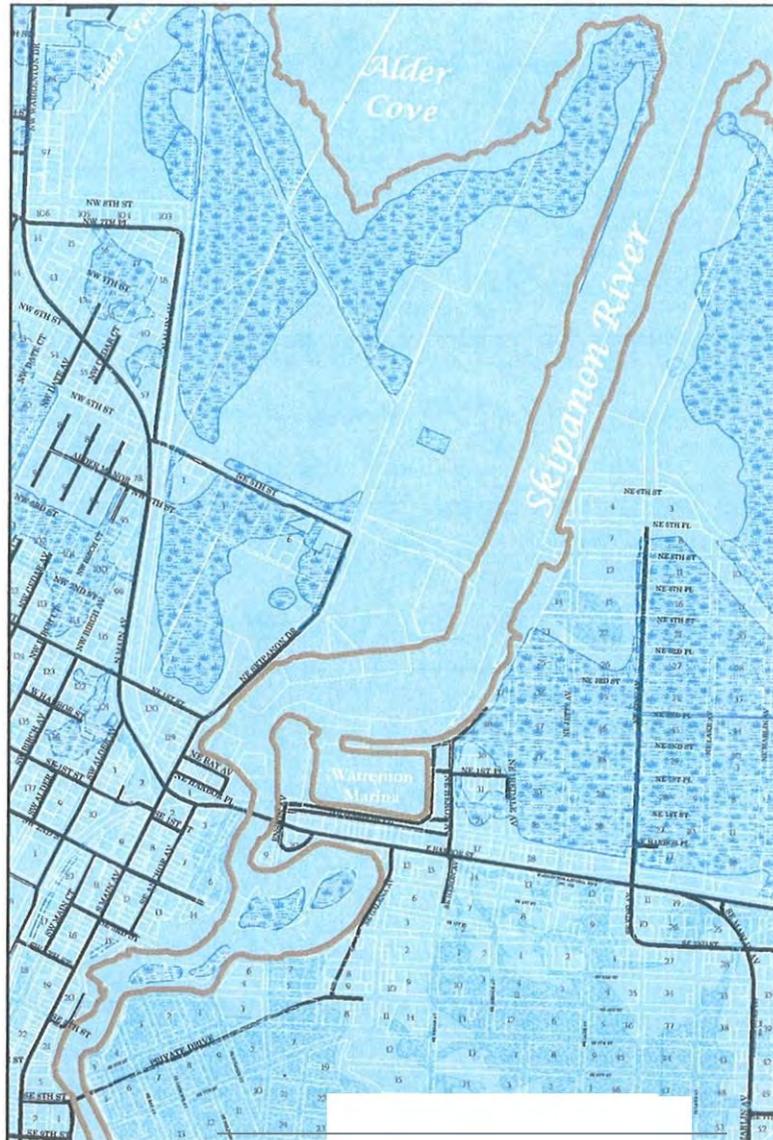


This area is adjacent to the Skipanon City Park and trail (see photos). Riparian vegetation exists in this area at varying widths with a trail constructed of asphalt, (approximately 2 feet wide). This trail is bordered on both sides with natural vegetation. The trail starts at the city park and heads north to the Skipanon River Bridge. There is an aged, existing dock with a portable boat ramp (see photo) located approximately halfway between the city park and the bridge. The location of the dock and ramp rests on the riparian vegetation between the trail and the river. The riparian vegetation between the trail and the river shall have a 50' riparian setback to protect the natural vegetation.

Amended by Ordinance 1101-A, November 16, 2006

Riparian Corridor Unit #6(c)

Skipanon River Islands



These five (5) small islands (see photo) are zoned aquatic conservation (A-2), and are undeveloped. They are located in the Skipanon River, south of the Skipanon Bridge. The Skipanon River is affected by the tidal influence of the Pacific Ocean, which causes several of these islands to be under water during high tide. These five (5) islands shall have a 50' riparian setback to protect the natural riparian vegetation.

Amended by Ordinance 1101-A, November 16, 2006

RIPRIAN CORRIDOR UNIT 8A & 8B
Unnamed Tributary to the Upper Skipanon

0 foot riparian corridor

50 foot rip



sy Creek

RIPARIAN CORRIDOR UNIT 10 Tansy Creek

50 foot riparian creek

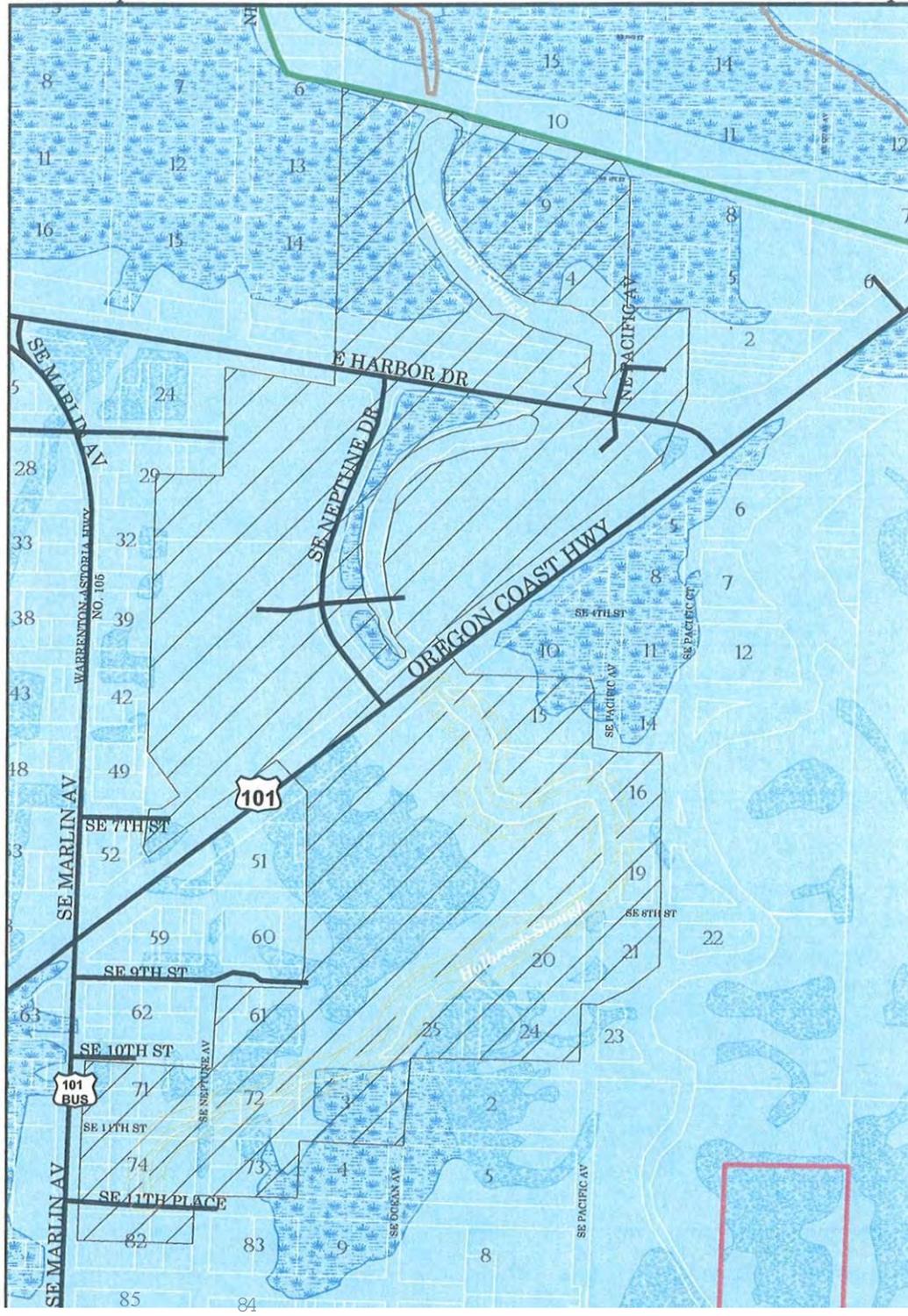


RIPARIAN CORRIDOR UNIT 12

Hollbrook Slough

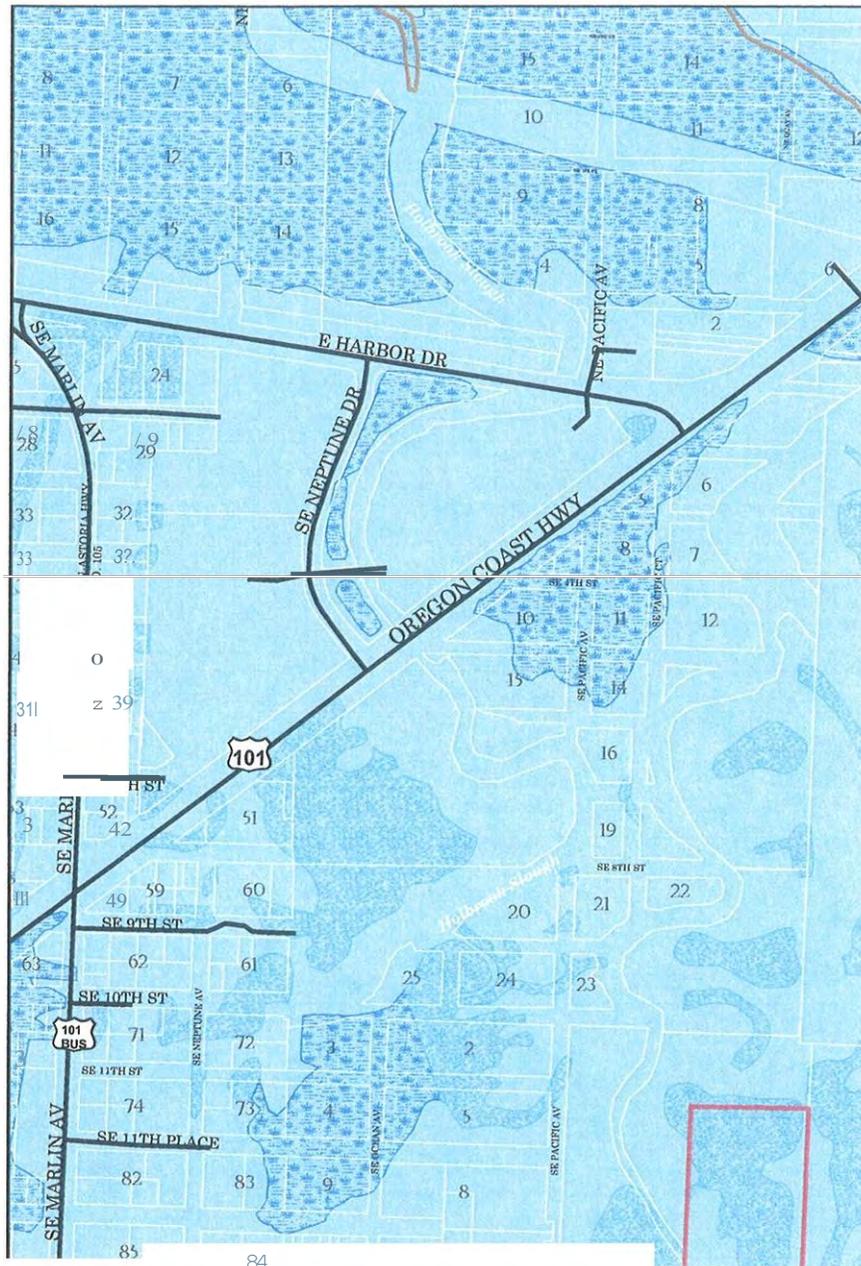
0 foot riparian corridor

50 foot riparian corridor



Riparian Corridor Unit #12(a)

Shilo Inn and Mulan Restaurant Holbrook Slough - East and West



This area of Holbrook Slough (see photos) is directly behind Shilo Inn and Mulan Restaurant. There is undeveloped land on the west side of the slough, which contains natural vegetation, as well as having a dike and tidegate immediately north of the access roadway behind the Mulan Restaurant. Riparian vegetation on both sides of the slough is dominated by invasive and non-invasive vegetation. In addition, a roadway (see photos) lies directly behind the Mulan Restaurant providing ingress and egress to the commercial activities and

uses immediately adjacent to the slough.

A 50-foot riparian setback is imposed on the west side of the slough; however, maintenance and repair of a compensatory wetland mitigation area is allowed. Maintenance and repair of the existing dike and tidegate within the riparian area is allowed.

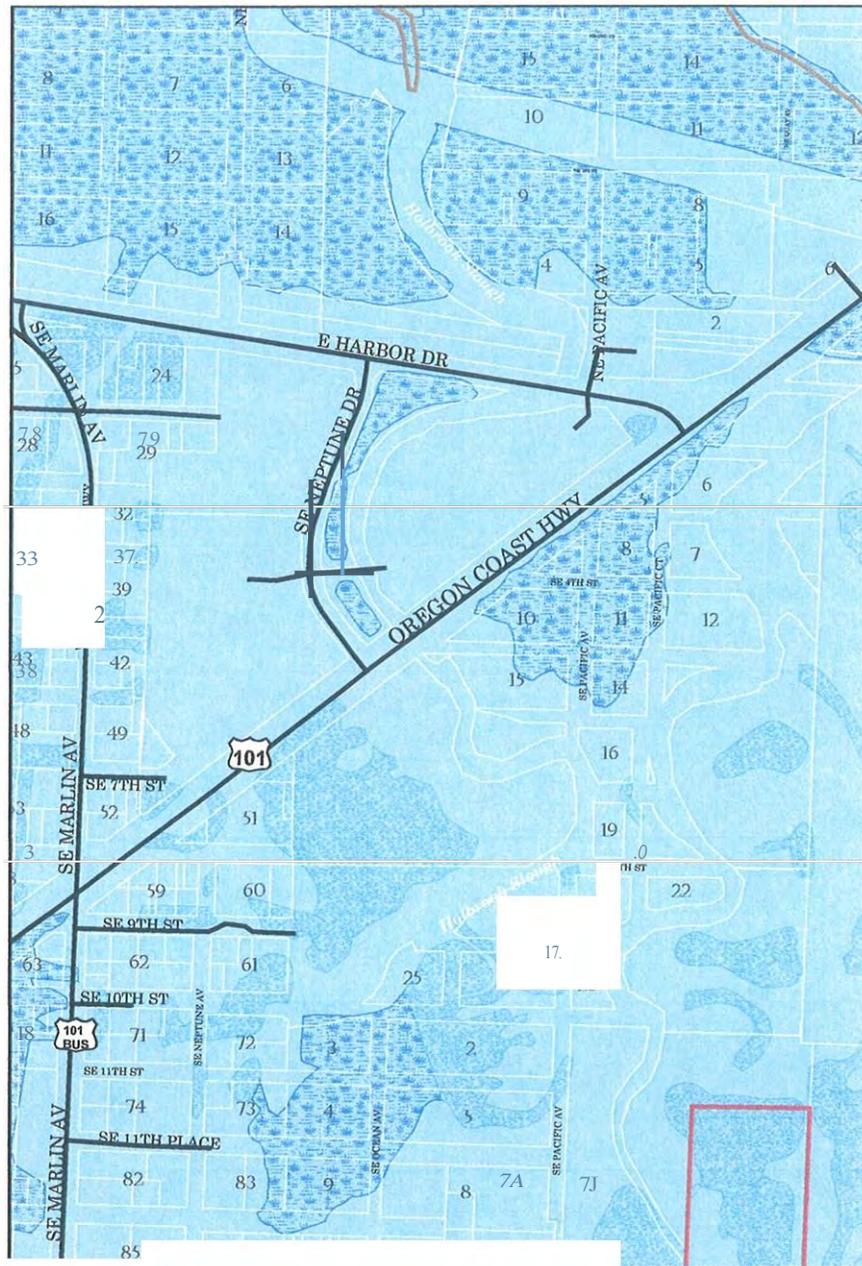
On the east side of the lower section of Holbrook Slough, riparian vegetation within the 50' buffer shall be protected with the following exceptions:

- * Maintenance and repair of existing buildings (Shilo Inn and Mulan Restaurant) is not restricted;
- * Maintenance and repair of an existing road is not restricted; and
- * Expansion and extension of an existing road is not restricted.

Amended by Ordinance 1101-A, November 16, 2006

Riparian Corridor Unit # 12(b)

Holbrook Slough - Youngs Bay Plaza



84

This portion (see photo) of Holbrook Slough is located behind the Youngs Bay Plaza shopping center and by compensatory wetland mitigation sites. Riparian vegetation on the Youngs Bay Plaza (east side of the slough) side of the slough is in poor condition: dominated by invasive plants, subject to regular mowing, and adjoins a busy commercial area. The east side of the slough has existing riparian vegetation in a strip of varying width between the pavement and the high-water line of Holbrook Slough. On this side of the slough, riparian vegetation should be protected only between the edge of the existing pavement, as

it currently exists (2006), and the slough shoreline for a 50 foot riparian setback to protect the remaining natural vegetation within this corridor.

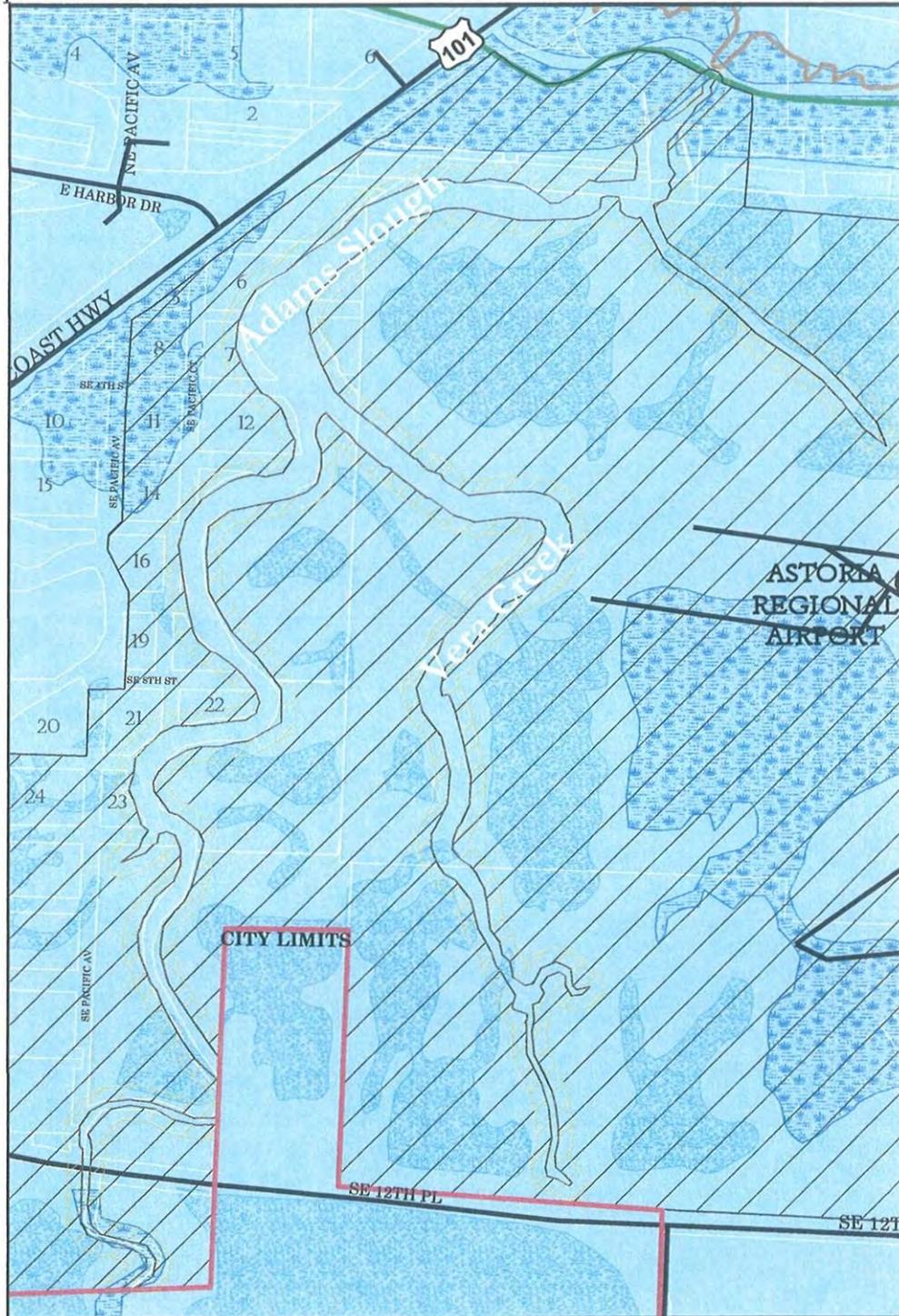
Riparian vegetation on the west side of the slough exists in various compensatory wetland mitigation sites, stormwater detention ponds, and other undeveloped areas. Riparian vegetation in this section of Holbrook Slough will be protected with a 50 foot riparian corridor setback. Maintenance and repair is allowed for the compensatory wetland mitigation sites and stormwater detention or settling features, which exist within this riparian corridor.

Amended by Ordinance 1101-A, November 16, 2006

RIPARIAN CORRIDOR UNITS 13 & 14

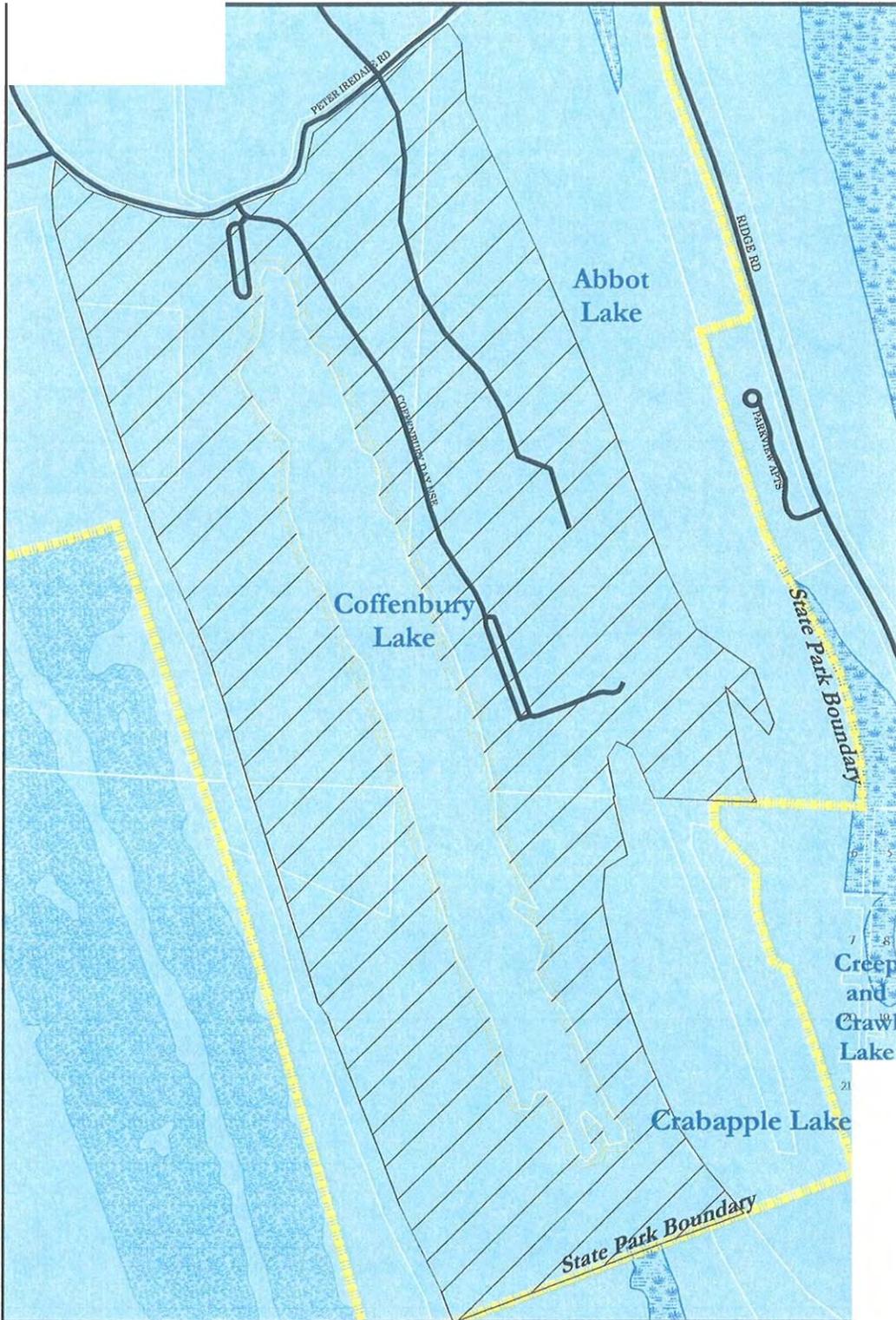
Adams Slough & Vera Creek

50 foot riparian corridor



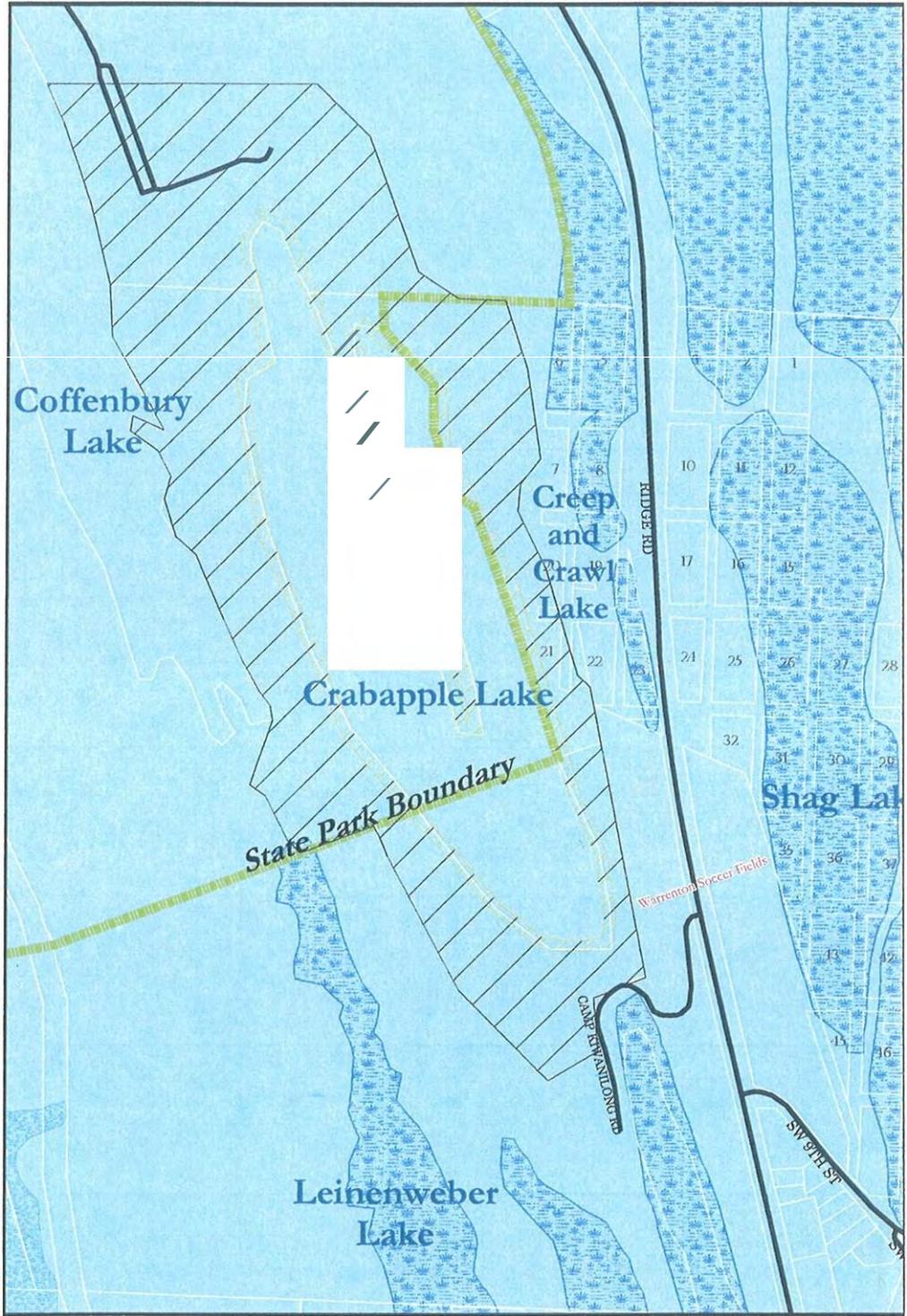
RIPARIAN CORRIDOR UNIT 15
Coffenbury Lake

50 foot riparian corridor



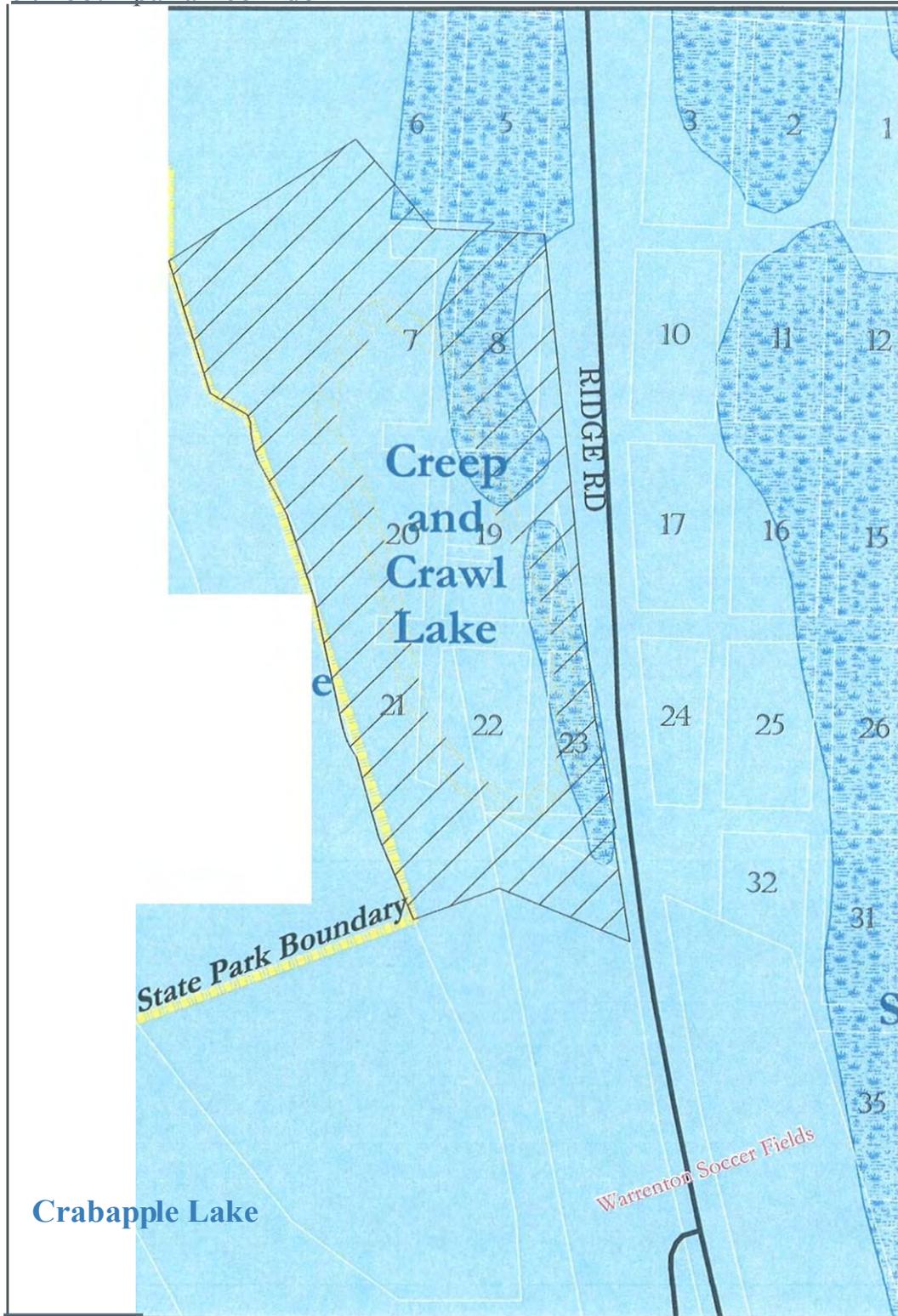
RIPARIAN CORRIDOR UNIT 16
Crabapple Lake

50 foot riparian corridor



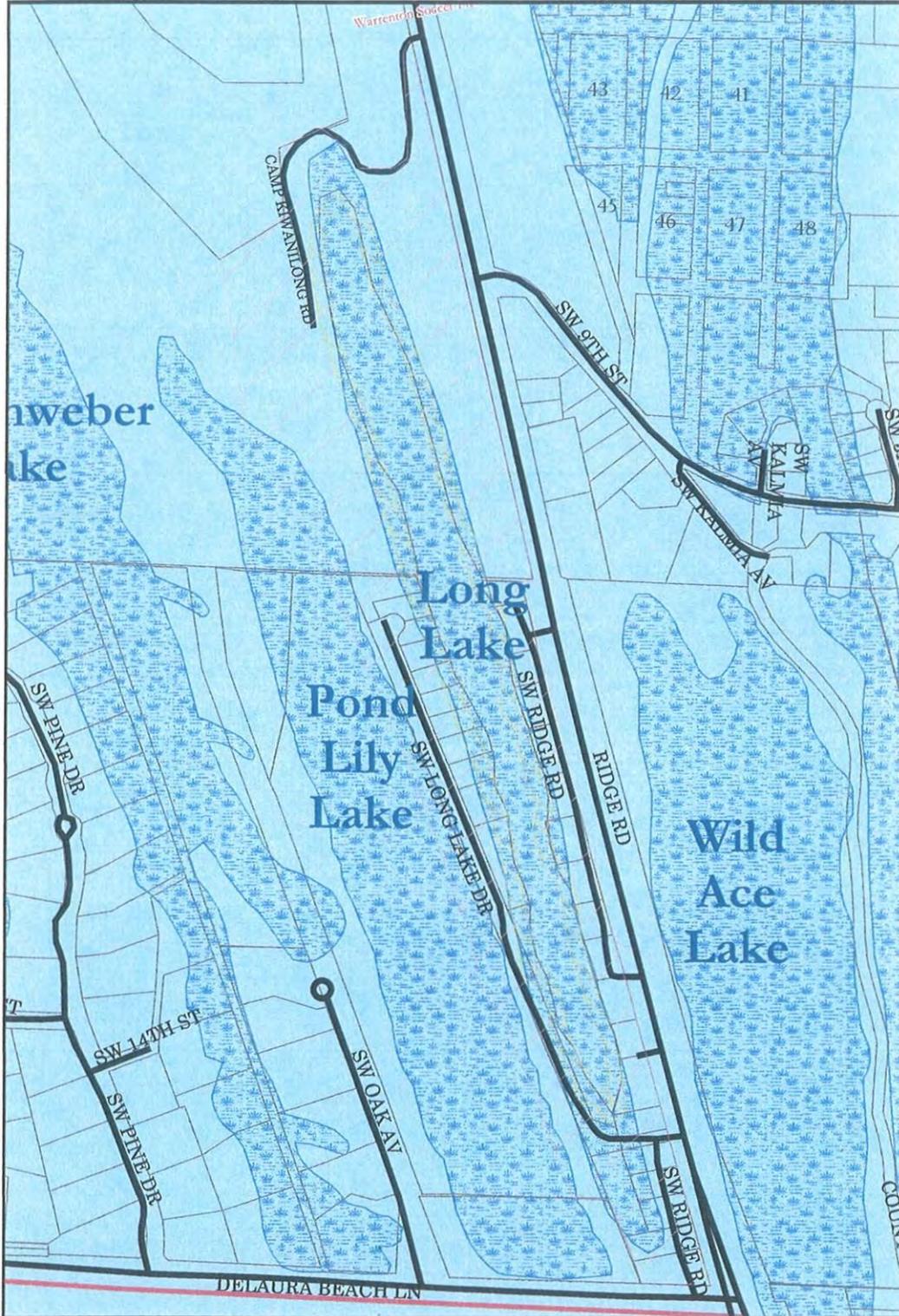
RIPARIAN CORRIDOR UNIT 17
Creep and Crawl Lake

50 foot riparian corridor



RIPARIAN CORRIDOR UNIT 18
Long Lake

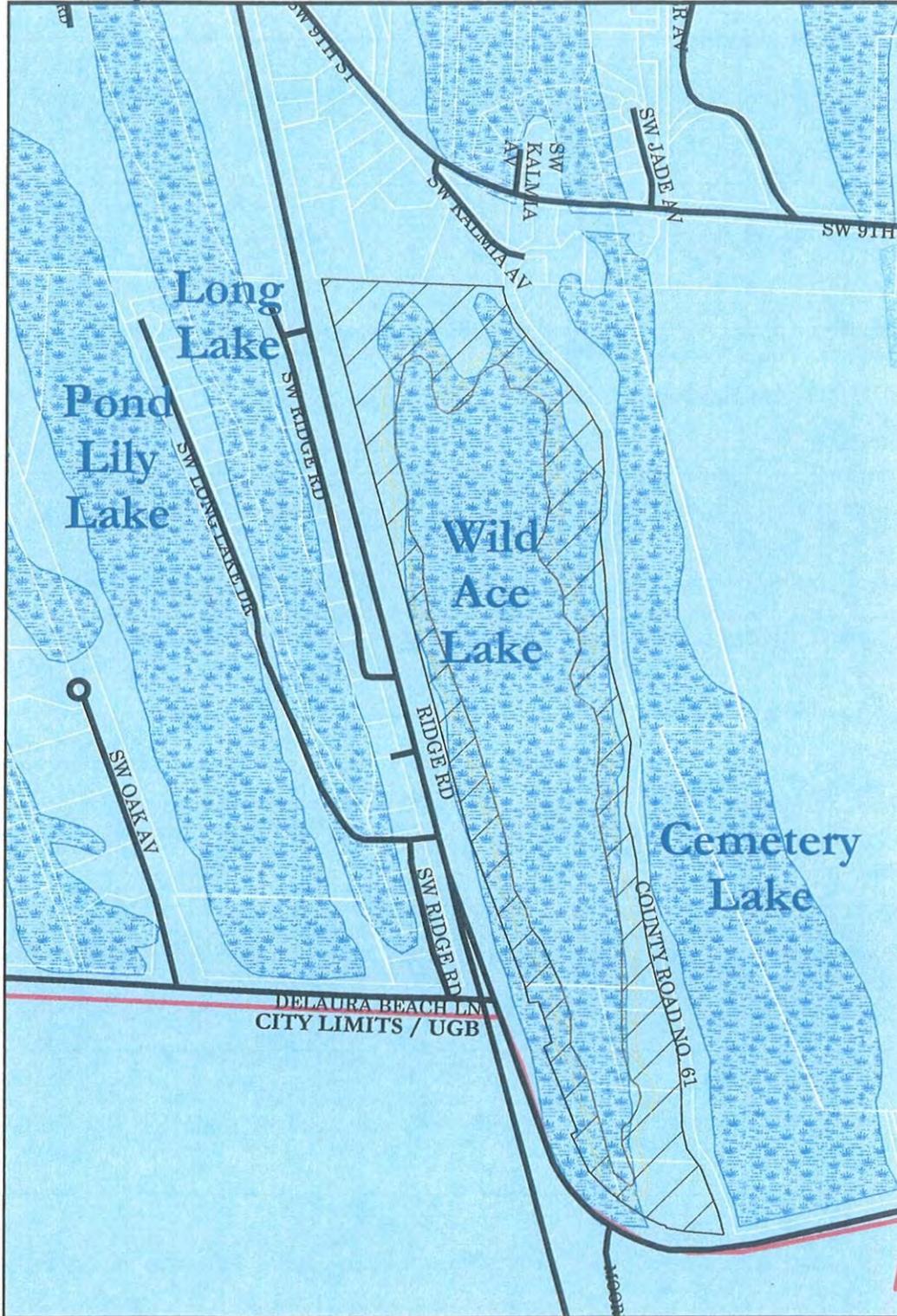
50 foot riparian corridor



RIPARIAN CORRIDOR UNIT 19

Wild Ace Lake

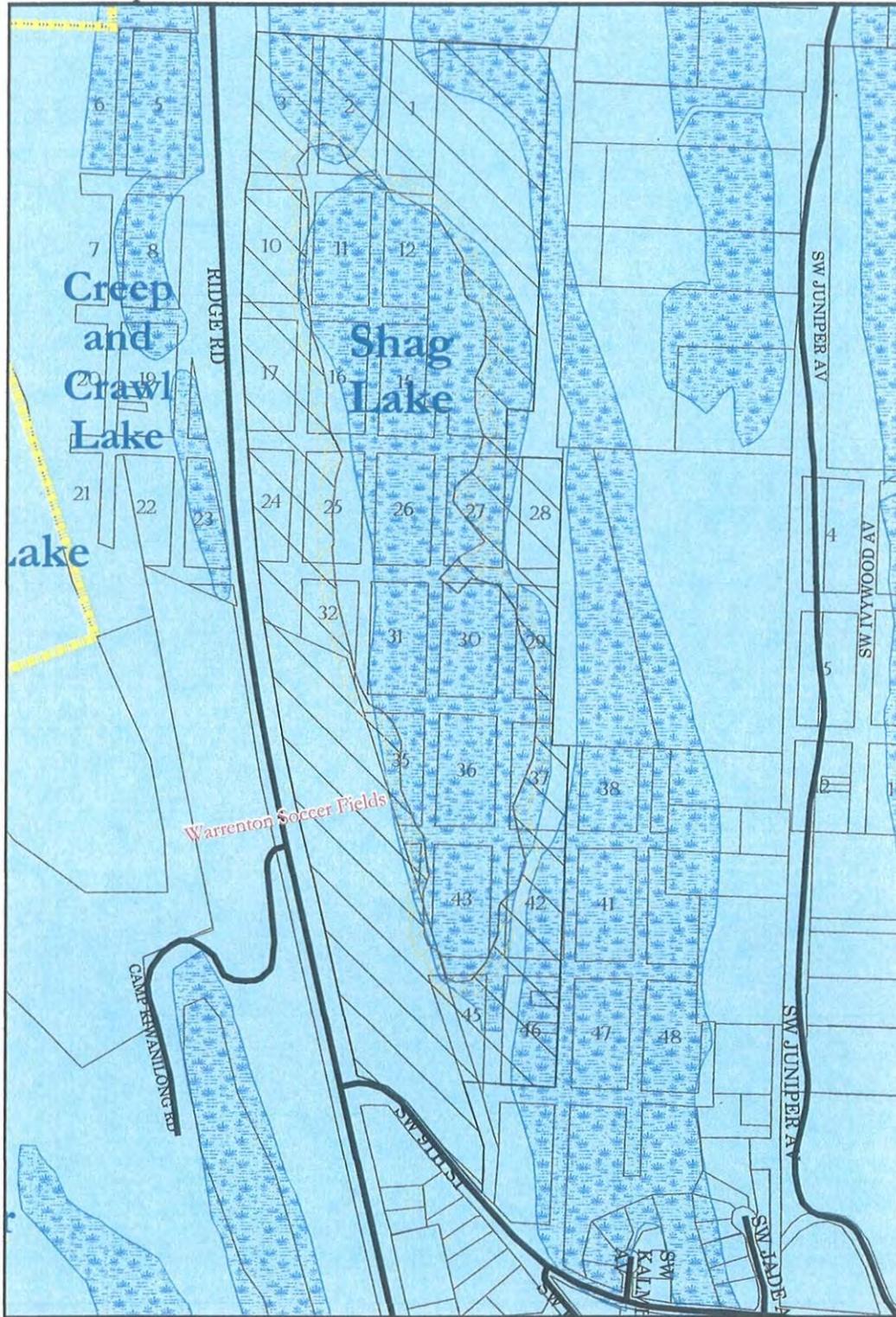
50 foot riparian corridor



RIPARIAN CORRIDOR UNIT 20

Shag Lake

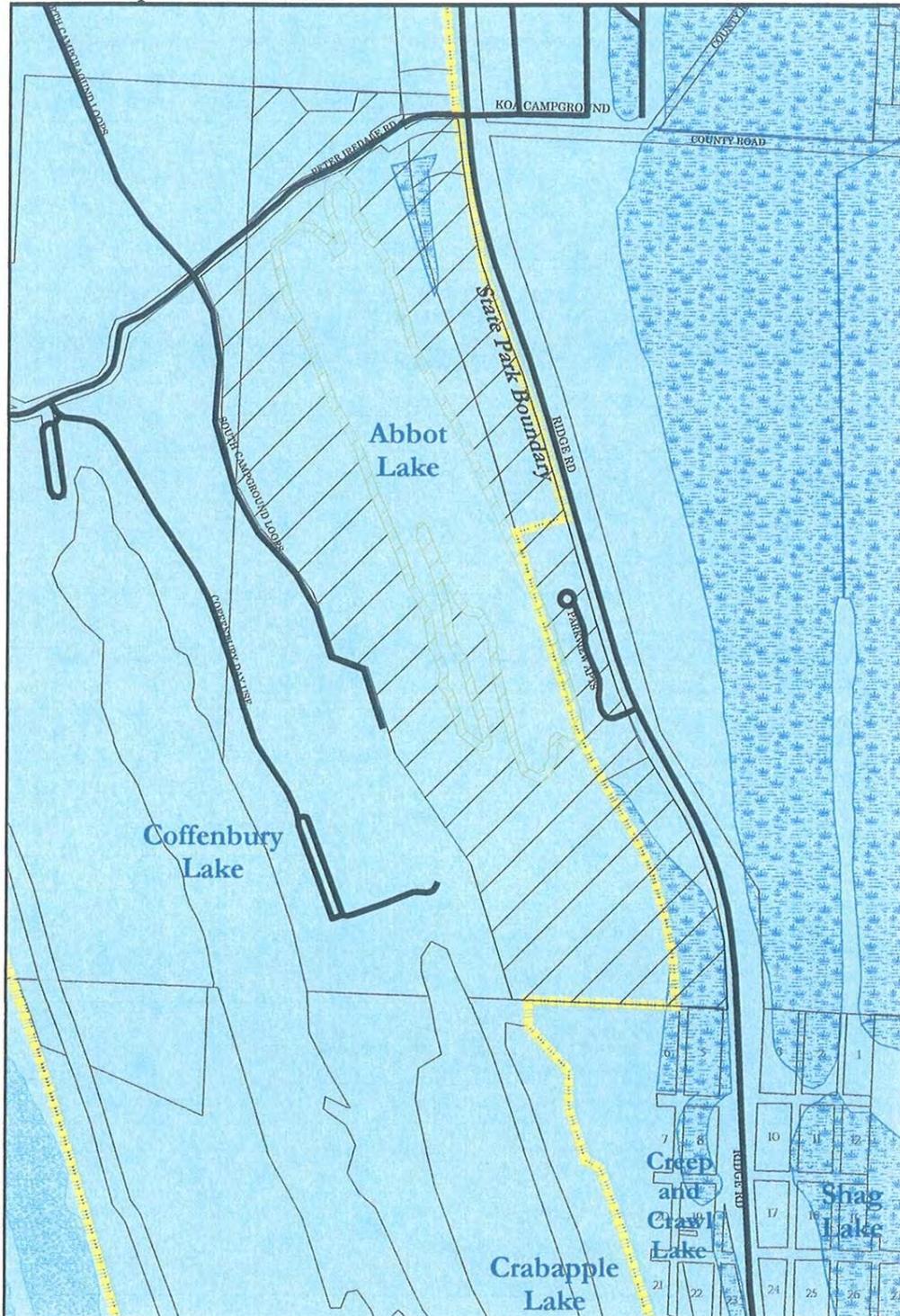
50 foot riparian corridor



RIPARIAN CORRIDOR UNIT 21

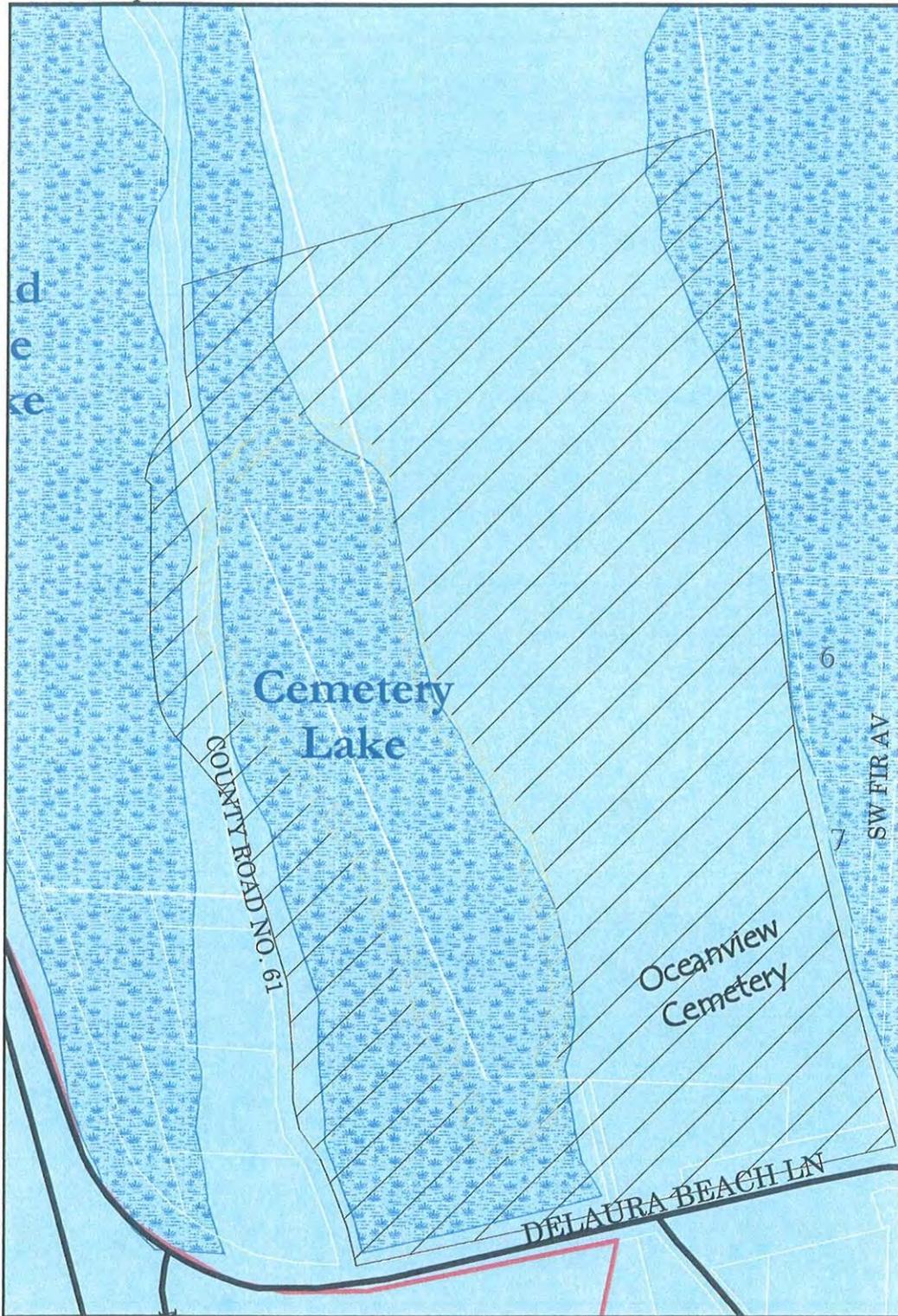
Abbot Lake

50 foot riparian corridor



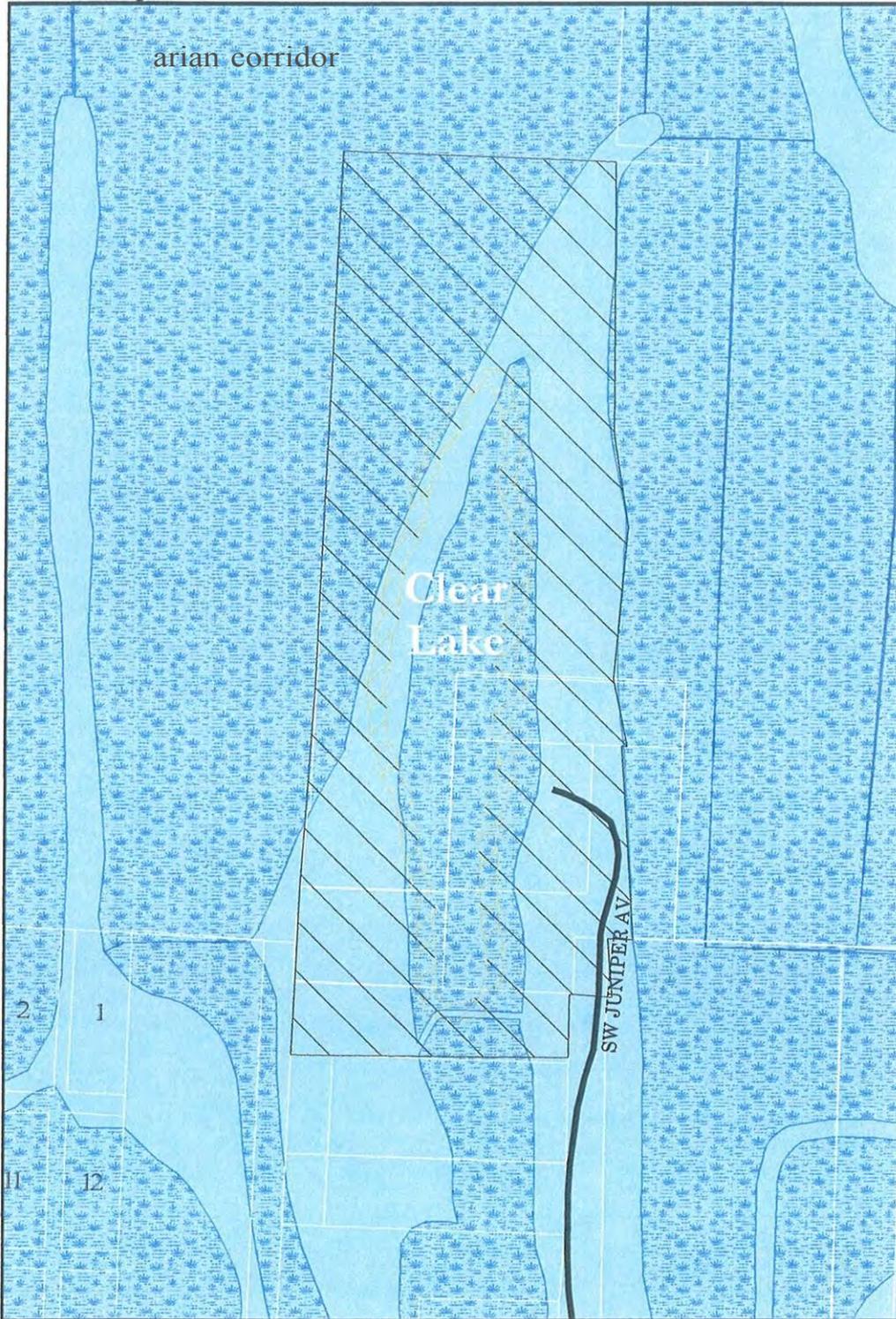
RIPARIAN CORRIDOR UNIT 22
Cemetery Lake

50 foot riparian corridor



RIPARIAN CORRIDOR UNIT 23
Clear Lake

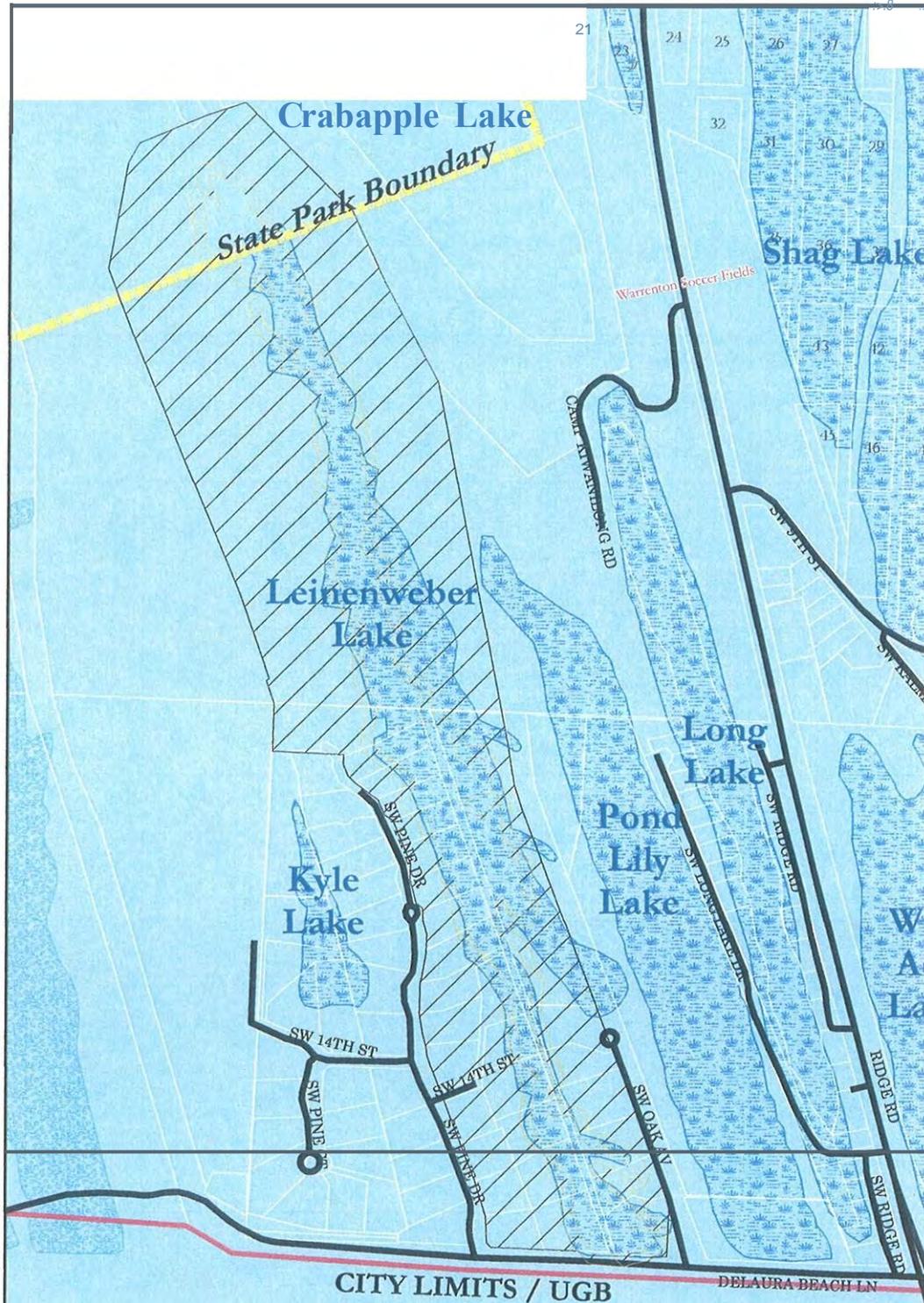
50 foot rip



RIPARIAN CORRIDOR
UNIT 24

50 foot riparian corridor

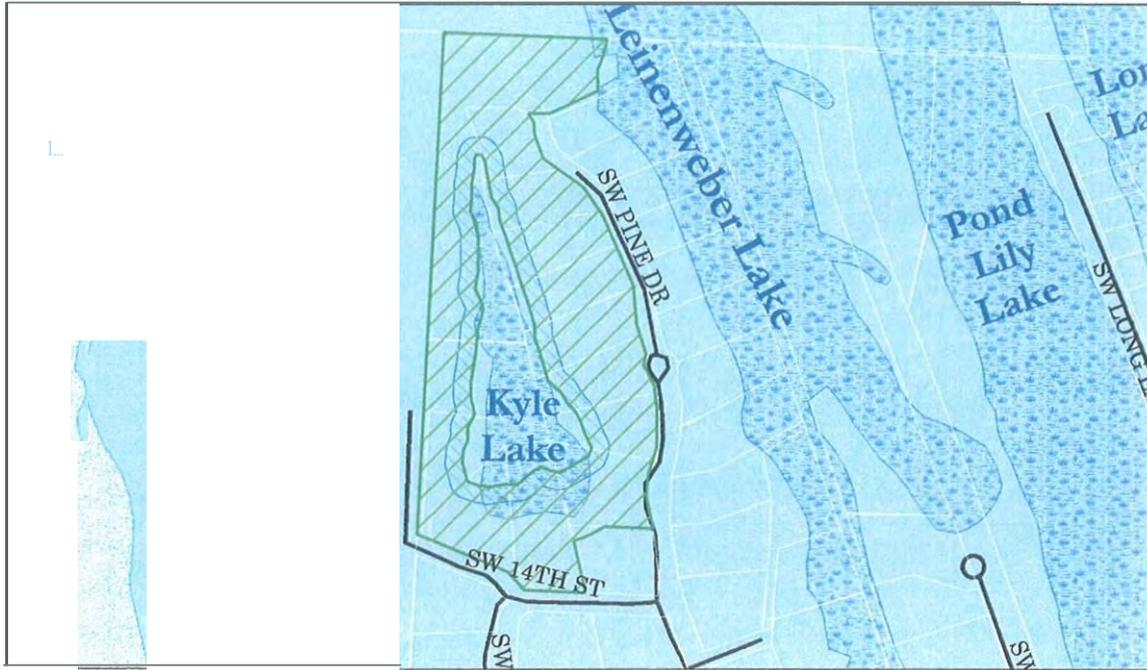
Leinenweber Lake



Riparian Corridor Unit No. 25:

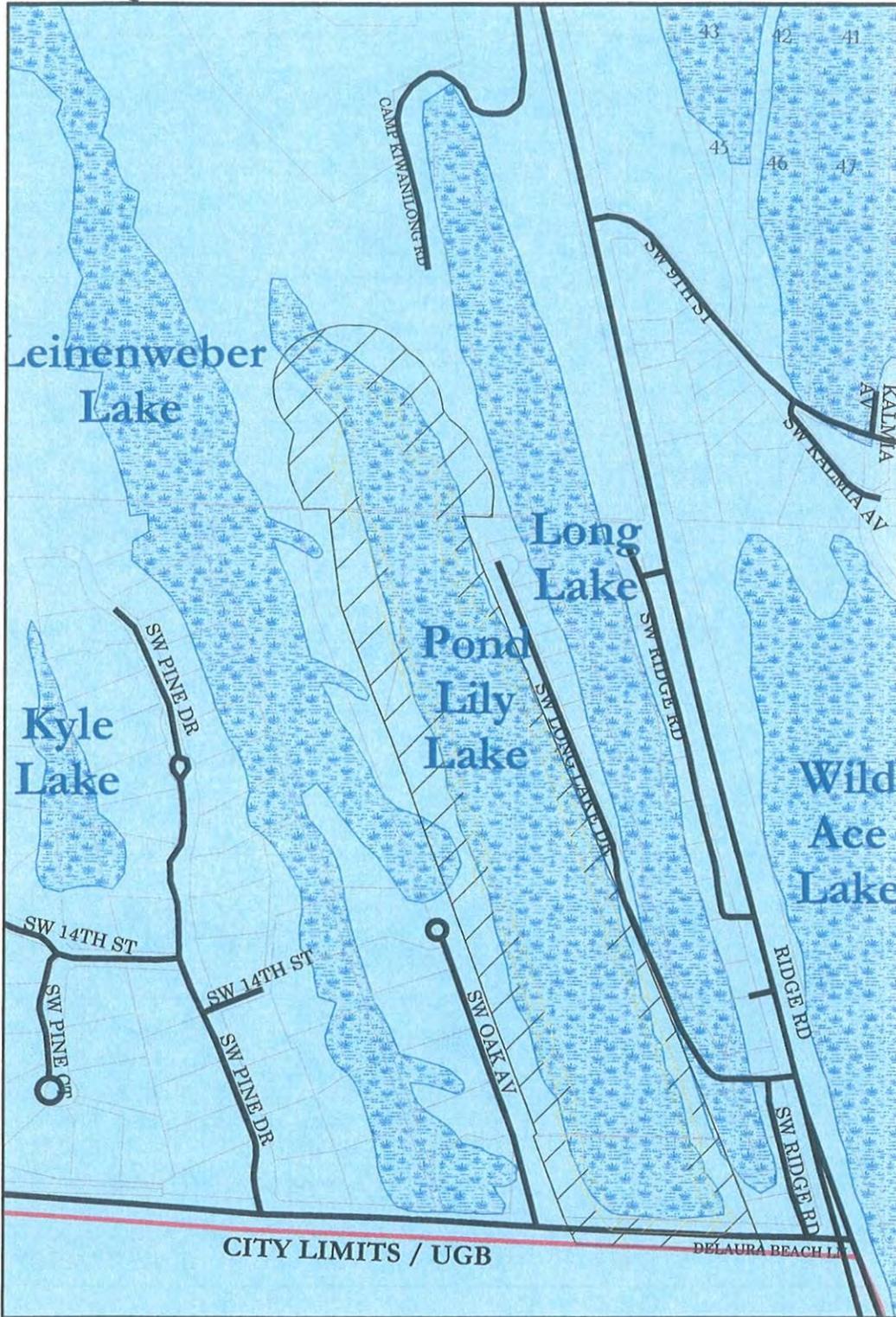
KYLE LAKE

50 foot Riparian Corridor



RIPARIAN CORRIDOR UNIT 26
Pond Lily Lake

50 foot riparian corridor



- The barge moorage area on the East side of Tansy Point.
- The flowlane disposal area south of the main channel (600 feet wide or to the 20-foot bathymetric contour, whichever is narrower).

(b) Conservation Aquatic:

- The area at the southern end of Alder Cove where effluent from the Warrenton sewage ponds is discharged.
- The mouth of Alder Cove from the 3-foot bathymetric contour north to the flowlane disposal area.

(c) Natural Aquatic:

- Remaining aquatic area within Alder Cove.

(d) Water-Dependent Development Shorelands:

- All shoreland areas are designated Water-Dependent Development Shorelands, except for a portion of dredged material disposal site Wa- S-9.4, which is designated Development Shorelands.

(e) The regulatory shoreland boundary is 50 feet from the Columbia River Estuary shoreline, or from the landward toe of dikes and associated toe drains, whichever is greatest, except where it extends further inland to include the following features:

- Shoreland areas designated Water-Dependent Development Shorelands.
- Mitigation site M3 from the *Mitigation and Restoration Plan for the Columbia River Estuary*.
- Dredged material disposal site Wa-S-9.4 from the *Columbia River Estuary Dredged Material Management Plan*.
- A wetland at Tansy Creek identified as significant under Oregon Statewide Planning Goal 17.

Section 5.130 North Warrenton Subarea. Findings

(1) General Description - This subarea consists entirely of shorelands. It is bounded by Tansy Creek on the north, the dike adjacent to Alder Cove on the northeast, N.E. Skipanon Drive on the east, and N. W. Warrenton Drive on the south and west. It includes about 260 acres of rural, residential and commercial areas all within the City of Warrenton.

(2) Shoreland Designations

(a) All of the shorelands in this subarea are designated Development Shorelands, except for Alder Creek and Tansy Creek which are designated Conservation Shorelands.

(b) The regulatory shoreland boundary is 50 feet from the Columbia River Estuary shoreline or the landward side of dikes and associated toe drains, whichever is greatest, except where it extends farther inland to include the following features:

Dredged material disposal site Wa-S-10.1 from the *Columbia River Estuary Dredged Material Management Plan* (1986) .

- Significant Oregon Statewide Planning Goal 17 wetlands and surrounding riparian vegetation at Alder and Tansy Creek.

Section 5.140 Middle Skipanon River Subarea Findings

(1) General Description - This subarea includes shorelands on both sides of the Skipanon River, diked lands east of the Skipanon, and aquatic areas between the Harbor Drive Bridge and Highway 101. Although parts of downtown Warrenton and a major shopping center are included, the subarea consists largely of vacant land, residential areas and low density commercial / light industrial areas. The entire 550 acre subarea lies within the Warrenton City limits.

(2) Aquatic and Shoreland Designations

(a) The marsh islands and fringing marshes in the Skipanon River between the Harbor Drive Bridge and the Eighth Street dam are designated Conservation Aquatic. Remaining aquatic areas between the Harbor Drive Bridge and the Eighth Street dam are designated Development Aquatic.

(b) All of the shorelands of this subarea are designated Development Shorelands, except the river upstream from the Eighth Street dam south to the end of the subarea, which is designated Conservation Shorelands.

(c) The regulatory shoreland boundary is 50 feet from the shoreline or the landward side of dikes and associated toe drains, whichever is greatest, except where it extends farther inland to include the following features:

- Dredged material disposal site Wa-S-10.5 from the *Columbia River Estuary Dredged Material Management Plan* (1986).

- The following wetlands classified as significant under Oregon Statewide Planning Goal 17: Skipanon River above the 8th Street dam and associated wetlands; Skipanon Slough; and Holbrook Slough.
- Significant riparian vegetation around the Skipanon River upstream of the 8th Street dam and around Skipanon Slough.

Section 5.150 Mouth of the Skipanon River Subarea Findings

(1) General Description - This subarea contains filled and diked shorelands north of Harbor Drive and east of Skipanon Drive; the Skipanon River from the Harbor Drive Bridge to its mouth; the East and West Skipanon Peninsulas; and adjacent Columbia River waters out to the navigation channel. Parts of downtown Warrenton are also included.

(2) Aquatic and Shoreland Designations

(a) Development Aquatic:

- The Skipanon waterway between the Harbor Drive Bridge and the main navigation channel.
- Approximately 7.8 acres of tidal marsh and flats on the west side of the West Peninsula.
- The flowlane disposal area south of the main channel (600 feet wide or to the 20-foot bathymetric contour, whichever is narrower).
- The area from the Skipanon Channel to the eastern boundary of the Subarea and from the line of aquatic vegetation on the East Peninsula north to the Columbia River navigation channel.

(b) Conservation Aquatic:

- The aquatic area between the shoreline and the flowlane disposal area west of the Skipanon Channel.

(c) Development Shoreland:

- The area adjacent to the mooring basin east to N.E. Iredale Avenue.
- The area north of Harbor Drive on the east side of the Skipanon waterway.
- An area on the south side of the West Peninsula.

The area east of Holbrook Slough.

(d) Water-Dependent Development Shorelands:

- All other shorelands are designated Water-Dependent Development.

(e) The regulatory shoreland boundary is 50 feet from the Columbia River Estuary shoreline, or the landward toe of dikes plus associated toe drains, whichever is greatest, except where it extends farther inland to include the following features:

- The East Skipanon Peninsula including:

All shoreland areas on the northern 96 acres of the East Skipanon Peninsula

- The West Skipanon Peninsula, including:

All upland adjacent to Alder Cove and east of N. E. Skipanon Drive, with the exception of the area designated commercial by the City of Warrenton Zoning Ordinance;

Dredged material disposal site Wa-S-10. 7 from the *Columbia River Estuary Dredged Material Management Plan*; and

The Holbrook Slough wetland, classified as significant under Oregon Statewide Planning Goal 17.

Section 5.160 Youngs Bay Subarea Findings

(1) General Description - Youngs Bay is one of the more biologically productive parts of the estuary. This subarea extends from the old Highway 101 bridges over the Youngs River and the Lewis and Clark River to the 20-foot bathymetric contour adjacent to the navigation channel of the Columbia River. It includes large fringing marshes, tideflats, open water, and restored wetlands at the Airport Mitigation Bank. The subarea boundary follows the shoreline, except adjacent to the Port of Astoria and the East Peninsula of the Skipanon River. No shorelands are included. Youngs Bay is in Warrenton, Astoria and Clatsop County. About half of the 2,800 acre subarea is in Warrenton.

(2) Aquatic Designations - The authorized navigation channels and an area approximately 110 acres in size bounded on the south by the 20 foot bathymetric contour line, the north by the Columbia River navigation channel and extending between 1800 and 2000 feet to the east of the eastern boundary of the Mouth of the Skipanon Subarea are designated Development Aquatic. The mud flats, tidal flats, and fringing marshes are designated Natural Aquatic, except for areas adjacent to the old PP&L

facility, the site of a former net storage building south of the new Youngs Bay Bridge, and the existing structure at the former Columbia Boatworks, which are designated Conservation Aquatic. All other water areas are designated Conservation Aquatic.

Section 5.170 Airport and Vicinity Subarea Findings

(1) General Description - This subarea consists of diked shorelands that are part of or adjacent to the Port of Astoria Airport. The subarea is bounded by the shoreline on the north and east, Highway 101 to the northwest, and alternate Highway 101 on the south. The subarea lies within the Warrenton city limits and Urban Growth Boundary, except for an area between S.E. 11th and alternate Highway 101, which is outside the Urban Growth Boundary. There are no estuarine aquatic areas in this 1,000 acre subarea.

(2) Shoreland Designations - Shorelands north of the former railroad right-of-way are designated Rural Shorelands. East of Vera Creek, the shoreland within the Warrenton city limits is designated Development Shorelands. Agricultural areas outside the Warrenton city limits are designated Rural Shorelands and a small forested area is Conservation Shorelands. West of Vera Creek to S.E. Pacific Avenue and Holbrook Slough is designated Rural Shorelands. All clear zones at the ends of the airport runways are designated Rural Shorelands. Vera Creek Slough extending 1,000 feet inland from the tidegate is designated Natural Shorelands. The rest of Vera Creek Slough, and other creeks and sloughs in this subarea, are designated Conservation Shorelands. The remainder of the subarea west to Highway 101 is designated Development Shorelands.

The regulatory shoreland boundary in this subarea is 50 feet from the estuary shoreline, or from the landward toe of dikes and associated toe drains, whichever is greatest, except where it extends farther inland to include the following features:

- Vera Creek Slough extending 1,000 feet inland from the tidegate.
- The following dredged material disposal sites from the *Columbia River Estuary Dredged Material Management Plan*: Wa-S-12.6, Wa-S-12.5, Wa-S-12.1, Wa-S-11.9, Wa-S-11.8, and Wa-S-11.7.

Section 5.180 Hammond Subarea

(1) General Description - This subarea includes aquatic and shoreland areas within the former Town of Hammond. The subarea boundaries are the waterward extension of Railroad Drive on the east, Pacific Drive on the east, Pacific Drive on the south, the Urban Growth Boundary on the west, and the 20-foot bathymetric contour on the north. The mooring basin is included in this subarea.

(2) Aquatic Designations - The aquatic area is designated Conservation except for an area between Point Adams Packing and the east subarea boundary, which is designated Development; and the Mooring Basin, which is also designated Development.

The Shoreland area is designated General development Shorelands except for:

- A Water-Dependent Development area between the east subarea boundary and Fleet Street extending between the shoreline and the regulatory shoreland boundary.
- A Water-Dependent Development area south and west of the Mooring Basin designated Recreational Commercial.
- A Conservation area at the northern undeveloped part of the national Marine Fisheries Service research station.

SECTION 5.200 GOALS

- (1) Recognize and protect the unique environmental, economic, and social values of the Columbia River Estuary, and its associated wetlands and shorelands.
- (2) Protect, maintain, restore where appropriate, and develop where appropriate the long-term environmental, economic and social values, diversity and benefits of the Columbia River Estuary, and its associated wetlands and shorelands.

SECTION 5.300 POLICIES

Section. 5.301 Deep-Water Navigation, Port and Industrial Development

These policies apply to port and industrial development occurring in and over Columbia River Estuary waters, and on adjacent shorelands. This section also applies to navigation projects related to deep-draft maritime activities, such as channel, anchorage and turning basin development or expansion.

- (1) Shorelands with adjacent deep-water access, adequate rail or road access, and sufficient backup land shall be reserved for water-dependent recreational, commercial, industrial, or port development.
- (2) Federally-designated channels, anchorages and turning basins, including necessary side slopes, shall be in Development Aquatic zones.

(3) Development, improvement and expansion of existing port sites is preferred prior to designation of new port sites.

(4) Aides to navigation, including range markers, buoys, channel markers and beacons, shall be protected from development impacts that would render them ineffective. This policy does not preclude development subject to U.S. Coast Guard approved reorientation or relocation of navigation aides.

(5) Evaluation of proposals involving treated or untreated wastewater discharge into the estuary will rely on the point source water pollution control programs administered by the Oregon Department of Environmental Quality and the Washington Department of Ecology.

(6) The following development sites described in the *Economic Evaluation of the Columbia River Estuary* are suitable for development of expansion of marine terminal facilities:

Tansy Point
 East Skipanon Peninsula Port
 of Astoria
 Tongue Point
 Driscoll Slough

West Skipanon Peninsula
 East Hammond
 East Astoria
 Bradwood
 Wauna.

These sites are in Water-Dependent Development Shorelands, Development Shorelands, and Development Aquatic designations in the *Columbia River Estuary Regional Management Plan*. Development of new marine terminal facilities at any of these sites (except at the Port of Astoria) will trigger a reassessment of whether the remaining undeveloped marine terminal sites are still needed.

Table 1 (below) includes acreage estimates for water-dependent shorelands in Warrenton as required under Statewide Planning Goal 17.

Table 1 Current and Former Water-Dependent Acreage

SITE	CURRENT (acres)	FORMER (acres)	TOTAL (acres)
East Skipanon Peninsula	-	49	49
West Skipanon Peninsula	65	-	65
Warrenton Mooring Basin	18	-	18
Tansy Point	50	-	50
Hammond Mooring Basin	20	-	20
TOTALS	153	49	202

The five sites listed in the table above are described in more detail in the following paragraphs. The column in Table 1 labeled "current" lists the acreage of the site that is currently used for water-dependent uses. This addresses the requirement in OAR 660-37-0050(2a). The column in Table 1 labeled "former" lists the acreage meeting the criteria in OAR 660-37-0050(2b). "Water- Dependent" is defined in OAR 660-37-0040(6) and in the Statewide Planning Goals.

Based on this data, Warrenton needs to protect at least 202 acres as water-dependent development shorelands. Data about these five sites are in the following paragraphs.

East Bank of the Skipanon Peninsula: This 172-acre (approximately) site consists of both shoreland and aquatic areas. The northern 96 acres of the site includes approximately 40 acres of shorelands which were added to the inventory of ESWD Shorelands by an amendment adopted in 2005. The remainder of the northern 96 acres is aquatic area that is zoned A-1. The southern 76 acres are designated Other Shorelands and are in the City's Urban Recreation / Resort zone.

Warrenton Mooring Basin: This site is immediately southwest of the East Bank site, and consists of water-dependent development shorelands around City of Warrenton Mooring Basin. Also included is Warrenton Boat Works and other lands around the mooring basin in the C-2 and RC zones. This site covers about 30.1 acres of shorelands. About 18 acres are currently in water-dependent use.

West Bank of the Skipanon Peninsula: The west bank of the Skipanon River is occupied by a saw mill owned by Weyerhaeuser. About 65 acres are committed to water-dependent use according to the 1999 CREST study. The entire site contains about 122 acres of shorelands in a water-dependent shorelands zone (I-2).

Tansy Point: Warrenton Wood Fiber, Point Adams Packing, BioProducts, and Carruthers Equipment occupy a portion of the water-dependent site centered around Tansy Point. The entire site consists of about 173 acres of shorelands in a water-dependent development shorelands zone (I-2). According to a 1999 CREST study, Warrenton Wood Fiber occupies about 40 acres. Point Adams Packing covers about four acres. The water-dependent portion of BioProducts covers about six acres. The balance of the site, 123 acres, is either vacant or occupied with non-water-dependent uses.

Hammond Mooring Basin: This site consists of land zoned for water-dependent development around the Hammond Marina, in the northwest part of the City. The site consists of about 39.4 acres of shorelands in the RC zone, a water-dependent development shorelands zone. Approximately 20 acres are used for water-dependent purposes, primarily marina parking and dredged material disposal.

Based on this analysis, the Goal 17 administrative rule requires that Warrenton

protect at least 202 acres of shorelands for water-dependent use. Under the current zoning, the City protects about 403 acres for water-dependent uses. See Table 2 below.

Table 2: Current Water-Dependent Zoning

SITE	CURRENT
East Skipanon Peninsula	40
West Skipanon Peninsula	122
Warrenton Mooring Basin	30
Tansy Point	173
Hammond Mooring Basin	39
TOTAL	403

SECTION 5.303 Diking

These policies apply to the construction, maintenance and repair of flood control dikes in Columbia River Estuary shoreland and aquatic areas. These policies do not apply to dredged material containment dikes.

- (1) Dike breaching or removal may be permitted as part of a restoration or mitigation project subject to the applicable Mitigation and Restoration Policies.
- (2) New dike alignment or configuration shall not cause an increase in erosion or shoaling in adjacent areas, or an appreciable increase in seasonal water levels behind dikes. Waterway channelization shall be avoided.
- (3) New dikes shall be placed on shorelands rather than in aquatic areas unless part of an approved fill project, as a temporary flood protection measure, or subject to an exception to the Statewide Planning Goal 16.
- (4) The effects of limited intertidal dredging along fringing marshes for the purposes of dike maintenance are not well-known. A small pilot project to determine these impacts should be undertaken.

Section 5.305 Dredging and Dredged Material Disposal

These policies are applicable to all estuarine dredging and dredged material disposal in the Columbia River Estuary, shall be allowed only:

(1) If, allowed by the applicable zone and required for one or more of the following uses and activities:

(a) Navigation, navigational access, or an approved water- dependent use of aquatic areas or adjacent shorelands requiring an estuarine location; and

(b) A need (ie., a substantial public benefit) is demonstrated and the use or alteration does not unreasonably interfere with public trust rights; and

(c) No feasible alternative upland locations exist; and

(d) Adverse impacts are minimized, avoided, and mitigated; and

(e) An approved restoration project; and

(f) Excavation necessary for approved bridge crossing support structures, pipeline, cable, or utility crossing; and

(g) Maintenance of existing tidegates and tidegate drainage channels where a Goal 16 exception has been approved; and

(h) Aquaculture facilities.

(2) The appropriate review / permitting process for impacts to an ESA- listed species has been followed and is approved / permitted by the appropriate Fisheries agency; and

(3) The activity abides by all required local, state and federal permits.

(4) Dredging and dredged material disposal shall not disturb more than the minimum area necessary for the project and shall be conducted and timed so as to minimize impacts on wetlands and other estuarine resources. Loss or disruption of fish and wildlife habitat and damage to essential properties of the estuarine resource shall be minimized by careful location, design, and construction of:

(a) Facilities requiring dredging; and

(b) Sites designated to receive dredged material disposal; and

(c) Dredging operation staging areas and equipment marshalling yards.

Dredged materials shall not be placed in intertidal or tidal marsh habitats or in other areas that local, state, or federal regulatory agencies determine to be unsuitable for dredged material disposal. Exceptions to the requirement concerning disposal in an intertidal or tidal marsh area include use of dredged material as a fill associated with an approved fill project or placement of dredged materials in the sandy intertidal area of a designated beach nourishment site. Land disposal shall enhance or be compatible with the final use of the site area.

(5) The effects of both initial and subsequent maintenance dredging, as well as dredging equipment marshalling and staging, shall be considered prior to approval of new projects or expansion of existing projects. Projects shall not be approved unless disposal sites with adequate capacity to meet initial excavation dredging and at least five years of expected maintenance dredging requirements are available.

(6) Dredging subtidal areas to obtain fill material for dike maintenance may be allowed under some circumstances (see the Development Code). Some dikes in the estuary are not accessible by barge-mounted dredges or land-based equipment. Dredging intertidal areas to obtain fill material may be the only option for maintaining these dikes. Approval of intertidal dredging will require an exception to Statewide Planning Goal 16.

(7) Where a dredged material disposal site is vegetated, disposal should occur on the smallest land area consistent with sound disposal methods (e.g., providing for adequate de-watering of dredged sediments, and avoiding degradation of receiving waters). Clearing of land should occur in stages and only as needed. It may, however, be desirable to clear and fill an entire site at one time, if the site will be used for development immediately after dredged material disposal. Reuse of existing disposal sites is preferred to the creation of new sites provided that the dikes surrounding the site are adequate or can be made adequate to contain the dredged materials.

Dredged Material Disposal Site Selection and Location Policies

(8) When identifying land dredged material disposal sites, emphasis shall be placed on sites where (not in priority order):

(a) The local designation is Development provided that the disposal does not preclude future development at the site;

(b) The potential for the site's final use will benefit from deposition of dredged materials;

(c) Material may be stockpiled for future use;

(d) Dredged spoils containing organic, chemical, and / or other potentially toxic or polluted materials will be properly contained, presenting minimal health and environmental hazards due to leaching or other redistribution of contaminated materials;

(e) Placement of dredged material will help restore degraded habitat; or where

(f) Wetlands would not be impacted.

Important fish and wildlife habitat, or areas with scenic, recreational, archaeological, or historical values that would not benefit from dredged material disposal and sites where the present intensity or type of use is inconsistent with dredged material disposal shall be avoided. The use of agricultural or forest lands for dredged material disposal shall occur only when the project sponsor can demonstrate that the soils can be restored to agricultural or forest productivity after disposal use is completed. In cases where this demonstration cannot be made, an exception to the Oregon Statewide Planning Goal 3 or 4 must be approved prior to the use of the site for dredged material disposal. The use of shoreland water-dependent development sites for dredged material disposal shall occur only when the project sponsor can demonstrate that the dredged material placed on the site will be compatible with current and future water-dependent development. Dredged material disposal shall not occur in major marshes, significant wildlife habitat and exceptional aesthetic resources designated under Oregon Statewide Planning Goal 17.

Engineering factors to be considered in site selection shall include: size and capacity of the site; dredging method; composition of the dredged materials; distance from dredging operation; control of drainage from the site; elevation; and the costs of site acquisition, preparation and revegetation.

(9) Estuarine in-water disposal sites shall be in Development Aquatic areas identified as low in benthic productivity, unless the disposal is to provide fill material for an approved fill project, and where disposal at the site will not have adverse hydraulic effects. Estuarine in-water disposal sites shall only be designated and used when it is demonstrated that no feasible land or ocean disposal sites with less damaging environmental impacts can be identified and biological and physical impacts are minimal. An in-water disposal site shall not be used if sufficient sediment type and benthic data are not available to characterize the site.

(10) Flowlane disposal sites shall only be allowed in Development Aquatic areas within or adjacent to a channel. The Development Aquatic area adjacent to the channel shall be defined by a line 600 feet from either side of the channel or the 20-foot bathymetric contour, whichever is closer to the channel. Flowlane disposal within this area shall only be allowed where:

(a) Sediments can reasonably be expected to be transported downstream without excessive shoaling,

(b) Interference with recreational and commercial fishing operations, including snag removal from gillnet drifts, will be minimal or can be minimized by applying specific restrictions on timing or disposal techniques,

(c) Adverse hydraulic effects will be minimal,

(d) Adverse effects on estuarine resources will be minimal, and

(e) The disposal site depth is between 20 and 65 feet below MLLW.

(11) Beach nourishment sites shall only be designated on sandy beaches currently experiencing active erosion. Dredged material disposal at beach nourishment sites shall only be used to offset the erosion and not to create new beach or land areas. Beach nourishment sites shall not be designated in areas where placement or subsequent erosion of the dredged materials would adversely impact tidal marshes or productive intertidal or shallow subtidal areas. Designation of new beach nourishment sites shall require an exception to Statewide Planning Goal 16.

(12) Dredged material disposal sites with adequate capacity to accommodate anticipated dredging needs for at least a five year period shall be identified and designated.

(13) In order to ensure the adequacy of identified dredged material disposal site capacities for anticipated five year disposal requirements, an analysis of the dredge material disposal site inventory shall be completed every five years. The analysis shall include:

(a) A determination of the sites utilized for dredged material disposal and the volume received by each site during the preceding period, noting also the project source of the dredged material and the interval separating the most recent from the next anticipated dredging event.

(b) A determination of the number and usable volume of sites remaining in the inventory, and the relationship between these sites and present or expected navigation-related dredging or water- dependent development projects in the following five year period.

(c) An analysis of the adequacy of the dredged material site inventory shall include notification of updating inventory information to affected property owners and local, state and federal agencies. Of particular importance, is the addition, and / or deletion, of dredged material disposal sites.

(d) The City of Warrenton shall cooperate with other jurisdictions and CREST on the Columbia River Estuary in monitoring of dredged material site availability and in dredged material disposal plan update.

Section 5.307 Estuarine Construction

These policies apply to over-water and in-water structures such as docks, bulkheads, moorages, boat ramps, boat houses, jetties, pile dikes, breakwaters and other structures involving installation of piling or placement of riprap in Columbia River Estuary aquatic areas, and to excavation of shorelands for creation of new water surface area. This section does not apply to structures located entirely on shorelands or uplands, but does apply to structures, such as boat ramps, that are in both aquatic and shoreland designations.

(1) Proper stream-side vegetation management is the preferred method of shoreline stabilization, followed by planting of new vegetation, installation of riprap and installation of a bulkhead.

(2) Navigational structures, such as breakwaters, jetties, groins, and pile dikes are major estuary alterations with long term biological and physical effects. Proposals for new or enlarged navigational structures, or for removal of existing structures, must demonstrate that expected benefits outweigh potential adverse impacts on estuarine productivity.

(3) New non-water-dependent uses in aquatic areas or in shoreland areas zoned Water-Dependent Industrial Shorelands, Marine Commercial Shorelands or, shall not preclude or pose any significant conflicts with existing, proposed or probable future water-dependent uses on the site or in the vicinity.

(4) Piling or dolphin installation, structural shoreline stabilization, and other structures not involving dredge or fill, but which could alter the estuary may be allowed only if all of the following criteria are met:

(a) A substantial public benefit is demonstrated; and

(b) The proposed use does not unreasonably interfere with public trust rights; and

(c) Feasible alternative upland locations do not exist; and

(d) Potential adverse impacts, as identified in the impact assessment, are minimized.

(5) Individual single-purpose docks and piers are discouraged in favor of community moorage facilities common to several uses and interests. The size and shape of a dock or pier shall be limited to that required for the intended use. Alternatives to docks and piers, such as mooring buoys, dryland storage, and launching facilities shall be investigated and considered.

Section 5.309 Fill

These policies apply to the placement of fill material in the tidal wetlands and waters of the Columbia River Estuary. These policies also apply to fill in non-tidal wetlands in shoreland designations that are identified as "significant" non-tidal wetlands.

(1) New non-water-dependent uses in aquatic areas and in areas zoned Marine Commercial Shoreland or, Water-Dependent Industrial Shorelands shall not preclude or pose any significant conflicts with existing, proposed or probable future water-dependent uses on the site or in the vicinity.

(2) Reduction of surface area or volume of aquatic areas and significant non-tidal wetlands in shoreland areas shall be minimized in the location and design of facilities requiring fill.

(3) Construction on piling is preferred over construction on fill.

(4) Mitigation may be required for fills (see Mitigation and Restoration Policies).

(5) Fill in estuarine aquatic areas may be permitted only if all of the following criteria are met:

(a) If required for navigation or for other water-dependent uses requiring an estuarine location, or if specifically allowed under the applicable aquatic zone; and

(b) A substantial public benefit is demonstrated ; and

(c) The proposed fill does not unreasonably interfere with public trust rights; and

(d) Feasible upland alternative locations do not exist; and

- (e) Adverse impacts, as identified in the impact assessment, are minimized.

Section 5.311 Fish and Wildlife Habitat

These policies apply to uses and activities with potential adverse impacts on fish or wildlife habitat, both in Columbia River estuarine aquatic areas and in estuarine shorelands.

- (1) Endangered or threatened species habitat shall be protected from incompatible development.
- (2) Measures shall be taken protecting nesting, roosting, feeding and resting areas used by either resident or migratory bird populations.
- (3) Major non-tidal marshes, significant wildlife habitat, coastal headlands, and exceptional aesthetic resources within the Estuary Shorelands Boundary shall be protected. New uses in these areas shall be consistent with the protection of natural values, and may include propagation and selective harvest of forest products, grazing, harvesting, wild crops, and low intensity water-dependent recreation.

Section 5.313 Fisheries and Aquaculture

These policies apply to all projects that could conceivably affect fisheries (either commercial or recreational) or aquaculture in the Columbia River Estuary. This subsection is also applicable to the development of aquaculture facilities and to fisheries enhancement projects.

- (1) Traditional fishing areas shall be protected when dredging, filling, pile driving or when other potentially disruptive in-water activities occur.
- (2) Sufficient space for present and anticipated needs shall be reserved for the following uses:
 - Fishing vessel moorage;
 - Seafood receiving and processing; Boat repair;
 - Gear storage; Ice making; Cold storage;
 - Other seafood industry support facilities.
- (3) Increased hatchery production and other fish enhancement efforts shall be supported where feasible, and when consistent with other applicable plan provisions.

(4) Aquaculture facility location, design and operation shall minimize adverse impacts on estuarine and shoreland habitat, navigation channels, water quality, and public access points.

(5) Existing aquaculture and hatchery facilities and areas identified as having significant aquaculture potential shall be protected from conflicting uses.

(6) Aquaculture and hatchery structures shall not interfere with commercial or recreational navigation.

(7) The following development sites (described in the *Economic Evaluation of the Columbia River Estuary*, as well as other potential development sites in the Columbia River Estuary, are suitable for development or expansion of facilities related to commercial fishing and seafood processing. Facilities that could be developed at these sites include, but are not limited to commercial fishing vessel moorage; fuel; ice; fish receiving facilities; gear storage; marine hardware sales and repair; seafood processing and storage facilities; boat building and repair; upland boat storage; and related facilities.

Tansy Point East
Hammond
Chinook Boat Basin
AMCCO
Port of Astoria

Warrenton Boat Basin Ilwaco
Boat Basin Cathlamet Boat
Basin South Astoria
East Astoria

These sites are in Water-Dependent Development Shorelands, Development Shorelands, Development Aquatic and Conservation Aquatic designations in the *Columbia River Estuary Regional Management Plan*. Other sites may also be suitable for commercial fishing and seafood processing facilities.

Section 5.315 Land Transportation System

These policies apply to the maintenance and construction of railroads, roads and bridges in Columbia River estuary shoreland and aquatic areas. Public, as well as private facilities are covered under this subsection. Forest roads, however, are excluded.

(1) New non-water-dependent uses in aquatic areas or in Marine Commercial Shorelands or Water-Dependent Industrial Shorelands shall not preclude or pose any significant conflicts with existing, proposed or probable future water-dependent uses on the site or in the vicinity.

(2) Land transportation systems shall be maintained and improved to support existing urban areas, allow industrial site development and support rural and recreational uses.

(3) New land transportation routes shall not be located in aquatic areas or in significant non-tidal wetlands in shoreland areas except where bridges are needed, and where no feasible alternative route exists.

(4) New land transportation routes shall be located so as not to reduce or downgrade the potential for development of Marine Commercial Shorelands, Water-Dependent Industrial Shorelands, or Development Aquatic areas.

(5) When feasible, new public roads in scenic areas shall provide rest areas, view-points and facilities for safe bicycle and pedestrian travel.

(6) Construction of new land transportation facilities and maintenance of existing land transportation facilities shall be undertaken in a manner that minimizes expected impacts on aquatic and shoreland estuarine resources.

Section 5.317 Log Storage

These policies apply to the establishment of new, and the expansion of existing, log storage and sorting areas in Columbia River Estuary aquatic and shoreland areas.

(1) New or expanded aquatic area log storage facilities shall be designed and located so as to minimize potential adverse impacts on aquatic habitat.

Section 5.319 Mining and Mineral Extraction

These policies are applicable to the extraction of sand, gravel, petroleum products and other minerals from both submerged lands under aquatic areas and from shoreland areas in the Columbia River Estuary. These policies and standards are also applicable to outer continental shelf mineral development support facilities built in the estuary.

(1) Proposals for aquatic and shoreland area mining may be approved subject to protection of adjacent property and fishery resources from potential adverse impacts, including sedimentation and siltation.

(2) Mining operations in aquatic and shoreland areas shall use technology and practices which minimize potential damage to estuarine resources.

(3) Mineral extraction or gravel or sand dredging from the estuary may be permitted only when these resources are not otherwise available at an economically feasible upland location.

(4) Aquatic area mining or mineral extraction projects may be approved only for the least biologically sensitive areas.

(5) Mining and mineral extraction activities shall not be approved in areas of major marshes, significant fish and wildlife habitat, or exceptional aesthetic resources.

(6) Wastewater associated with mining shall be handled in a manner that preserves water quality.

(7) The surface mining regulations administered by the Oregon Department of Geology and Mineral Industries shall be relied upon with respect to surface mining practices.

(8) The following development sites (described in the *Economic Evaluation of the Columbia River Estuary*), as well as other potential development in the Columbia River Estuary, are suitable for development of offshore mineral development support facilities:

Tansy Point

Ilwaco Boat Basin

East Astoria

West Skipanon Peninsula

Port of Astoria

Tongue Point

Several different types of facilities could be associated with offshore mineral development at these sites, and at other sites. The need for sites designated for activities associated with offshore mineral development will be reevaluated after Outer Continental Shelf areas adjacent to the Oregon and Washington coast are leased. These sites are designated Water-Dependent Development Shorelands in the *Columbia River Estuary Regional Management Plan*.

Section 5.321 Mitigation and Restoration

These policies apply to estuarine restoration and mitigation projects on Columbia River Estuary aquatic areas and shorelands.

Mitigation Policies for Aquatic Areas and Non-tidal Wetlands

(1) Any fill activities that are permitted in Columbia River Estuary aquatic areas or dredging activities in intertidal and shallow to medium depth subtidal areas shall be mitigated through project design and / or compensatory mitigation (creation, restoration or enhancement) to ensure that the integrity of the estuary ecosystem is maintained. The Comprehensive Plan shall designate and protect specific sites for mitigation which generally correspond to the types and quantity of aquatic area proposed for dredging or filling.

(2) Mitigation for fill in estuarine aquatic areas or dredging in intertidal and shallow to medium depth subtidal areas of the Columbia River Estuary planning area shall be implemented through the following mitigation actions:

Project Design Mitigation Actions

(a) Avoiding the impact altogether by not taking a certain action or parts of an action;

(b) Minimizing impacts by limiting the degree or magnitude of action and its implementation;

(c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment (e.g., removing wetland fills, rehabilitation of a resource use and / or extraction site when its economic life is terminated);

(d) Reducing or eliminating the impact over time by preservation and maintenance operations;

Compensatory Mitigation Actions

(e) Creation, restoration, or enhancement of an estuarine area to maintain the functional characteristics and processes of the estuary, such as its natural biological productivity, habitats, and species diversity, unique features and water quality.

Any combination of the above actions may be required to implement mitigation requirements. The compensatory mitigation actions listed in section (e) shall only be implemented after impact avoidance, reduction and rectification techniques have been considered, and unavoidable adverse impacts remain.

(3) The full array of wetland and aquatic area values shall be addressed when making mitigation site decisions and when designing mitigation action requirements. The list includes but is not limited to: fish and wildlife habitat, flood storage and de-synchronization, food chain support, passive recreation, shoreline anchoring and water purification functions.

(4) All mitigation actions shall be required to begin prior to or concurrent with the associated development action.

(5) Developments in low-value diked freshwater non-tidal wetlands can be mitigated by treating estuarine restorations or creations as in-kind mitigation actions. The final decision on the relative value of diked freshwater non-tidal wetland shall be made through a cooperative effort between Warrenton and state and federal regulatory agencies. Values

considered shall include but are not restricted to fish and wildlife habitat, flood storage and de-synchronization, food chain support, passive recreation, shoreline anchoring and water purification functions.

(6) If any of the compensatory mitigation actions are required, Warrenton shall request that the U.S. Fish and Wildlife Service make a Resource Category determination for the site proposed for development. The classification shall be listed on the permit application and review notice. If the area subject to impact is in a Resource Category 2 of lower (4 = lowest) , the following sequence of mitigation options shall be considered:

- In-Kind / On-Site
- In-Kind / Off-Site
- Out-of-Kind / On-Site
- Out-of-Kind / Off-Site

(7) If out-of-kind mitigation is found to be the only option, the applicant shall first seek restoration of historically and / or present-day scarce habitat types.

(8) All completed mitigation sites shall be adequately buffered from development and other activities to minimize the potential adverse impacts on the mitigation site. Buffer requirements shall be determined through a cooperative effort between Warrenton and state and federal regulatory agencies.

(9) No mitigation action shall endanger or obstruct adjacent properties. The potential for present or future endangerment or obstruction shall be determined in advance of the mitigation action . Responsibility for rectifying potential damage to adjacent property shall be determined prior to permit approval.

(10) Warrenton will cooperate with CREST and state and federal resource agencies in the periodic review of the region's mitigation plan. Reviews shall occur every four to seven years. The review shall include re-examination of site availability, degree of plan implementation, changed policies and legal requirements and possible new projects that may require mitigation.

(11) Additional mitigation sites shall be designated by local jurisdictions as the need arises. New designations shall be coordinated with CREST, Warrenton, state and federal resource agencies. New sites shall be subject to the same policies and standards as sites presently designated.

(12) All designated mitigation sites shall be protected and shall facilitate mitigation actions through appropriate zoning ordinance measures. For any new site not designated in the plan, but included or partially included in the shoreland base or overlay zone, mitigation shall be implemented through the shoreland base or overlay zone. If the new site is only partially included in the shoreland base or overlay zone, the portion of the site outside the shoreland base or overlay zone shall be treated as though it is inside the zone.

(13) Estuarine alterations in Washington can be mitigated by actions in Oregon and vice versa if local and state authorities from both states and federal authorities with statutory responsibility for administering mitigation requirements approve the mitigation site selected and the mitigation action proposed.

(14) Shorelands that are in a Marine Commercial Shorelands Zone or Water-Dependent Industrial Shorelands Zone, can only be used for mitigation subject to a finding that the use of the site for mitigation will not preclude or conflict with water-dependent uses.

(15) Full consideration shall be given to existing significant Goal 17 resources when designing a mitigation project that may potentially alter, impair or destroy all or any portion of these resources. The minimum consideration will be to discount value from the credit potential of the mitigation action proportional to the existing value of the Goal 17 resource. Significant Goal 17 resource areas (major marshes, significant wildlife habitat and exceptional aesthetic resources) can only be used for mitigation subject to a finding that the use of the site for mitigation will be consistent with the protection of natural values.

(16) Any acquisition strategy for bringing designated mitigation sites (pre- or post-mitigation action) into public ownership or into ownership of a private nonprofit land trust organization is encouraged.

(17) All mitigation sites designated on public lands shall remain in public ownership.

(18) An area in forest production, and considered for mitigation purposes, shall be evaluated for its present use value and compared with its potential value as a wetland before conversion of the site is acceptable.

(19) A developer may create, restore or enhance more wetland area than required for immediate development impacts. Subject to federal, state and local approval, this "surplus mitigation" may be credited against future development. The reserve wetland area shall not be considered a mitigation bank unless it is acquired and managed by the Division of State Lands.

(20) After a mitigation action takes place Warrenton shall amend its plan and implement a zone change for the site to reflect the aquatic character of the site.

Mitigation Bank Policies

(21) Any area where a mitigation action has taken place, and mitigation credits are available for future development, and the site is owned and managed by a federal or state land management agency, shall be designated as a mitigation bank. Oregon Division of State Lands shall be responsible for administration of a mitigation bank area throughout the period it serves as a bank.

(22) An agreement between Warrenton and state and federal authorities shall serve as the implementing instrument establishing a mitigation bank and for continuing management of a bank. Such an agreement is necessary to document the initial conditions of a bank's formation, including the means by which a mitigation bank shall be administered. The agreement shall also detail ownership of the site and include an itemized presentation of project costs, a technical plan outlining the habitat mitigation action, and include the number of mitigation credits available in the bank. A plan for monitoring the mitigation site shall be provided, including the goals, costs, and responsibility of the monitoring program. The agreement shall specify the mechanisms by which mitigation "credits" will be transferred from the bank and applied to the activity qualifying for use of the bank. The agreement shall also specify the means by which proportional mitigation bank creation costs will be assessed.

(23) Mitigation credits in mitigation banks shall be reserved for use by small scale development projects (5 acres or less of impacted wetland and / or aquatic area). This does not apply to the Airport Mitigation Bank.

(24) A variety of habitats shall be created in a mitigation bank whenever possible, such that the opportunity of replacement for wetland resources lost to a variety of development activities is possible. The mitigation bank shall be of sufficient capacity to meet the requirements of a number of expected development projects.

(25) Mitigation banks shall be created by written agreement with the Director of Oregon Division of State Lands (DSL) and shall be administered by DSL. Such agreements shall provide the basis for creation and operation of the bank and shall specifically provide for the following:

(a) The exact location of the real property.

(b) Proof of ownership or control, i.e., deed or title report.

(c) The nature and extent of the mitigation action. This analysis shall require information about the site salinity, elevation, wave and current actions, substrate, and other physical and biological characteristics.

(d) How and when the mitigation action shall be performed.

(e) A statement of informed opinion as to what habitat shall result from the action and a statement as to the relative value of each anticipated habitat type.

(f) How the resulting changes shall be monitored and evaluated [OAR 141-85-254 (12, 14)] and what contingencies are planned if goals are not satisfied within a reasonable time period.

(g) How the mitigation bank shall be protected (e.g., dedication, conservation easement, deed transfer).

(h) How funding for necessary construction or alteration work and potential remedial action shall be guaranteed (e.g., bonding).

(i) The price that may be charged for credits from the bank.

(26) Applicants for removal and fill permits requiring mitigation are not obligated, or automatically entitled, to use an existing mitigation bank to meet the mitigation needs of any project. Permit applicants shall negotiate directly with the administrator of the bank, resource agencies, and regulatory agencies to secure the right to use the bank. Agreements between the administrator of the bank and the permit applicant are subject to the City's approval of the number of mitigation credits charged against the bank.

Restoration Policies for Aquatic Areas and Non-tidal Wetlands

(27) Restoration of tidal and non-tidal wetlands in the Columbia River Estuary area may be done either as a mitigation action or as an action outside of the context of mitigation.

(28) Restoration outside of the context of mitigation shall be allowed at designated mitigation sites if the site is a middle or low priority site and findings are made that it is no longer needed for mitigation.

(29) All restoration projects shall serve to revitalize, return, replace or otherwise improve the wetland and aquatic ecosystems in the Columbia River Estuary area. Examples include restoration of natural biological productivity, fish and wildlife habitat, aesthetic or historic resources that have been diminished or lost due to past alterations, activities, or catastrophic events. In selecting projects, priority shall be given to those

projects which provide substantial public benefits and which restore those wetland and aquatic habitat types, resources, or amenities which are in shortest supply compared to past abundance.

(30) After a restoration takes place Warrenton shall amend its plan and implement a zone change for the restored area to reflect the aquatic character of the site.

(31) Restoration of economically marginal and unused low-lying diked areas to estuarine wetland shall be encouraged; active restorations to provide potential for diverse habitat (e.g., mudflat and marsh) as well as passive restorations are encouraged. Except through public condemnation procedures, removal of dikes or excavation on private lands shall not occur without consent of the landowner.

(32) Shorelands in a Marine Commercial Shorelands Zone or Water- Dependent Industrial Shorelands Zone can only be used for restoration subject to a finding that the use of the site for restoration will not preclude or conflict with water-dependent uses.

(33) Significant Goal 17 resource areas (major marshes, significant wildlife habitat, and exceptional aesthetic resources) can only be used for restoration subject to a finding that the use of the site for restoration will be consistent with protection of its natural values.

(34) Consideration shall be given to restoring water circulation in historically shoaled areas. Circulation enhancements must outweigh any potential damages to wetlands before they are implemented.

(35) Old piling, navigational structures, and buildings that are a hazard to navigation and contribute to excessive shoaling, or pose a threat to life or property shall be removed. Prior to removal, the costs and benefits associated with removal shall be evaluated. Factors requiring consideration include:

- Potential erosion or sedimentation problems that may result from removal;
- The structure's habitat value and probable longevity; and
- The structure's historic and scenic values.

(36) Restoration of riparian vegetation around wetlands and waterways in the Columbia River Estuary planning area is a high priority. Protection of these areas shall be implemented using various strategies (e.g., zoning, acquisitions, easements, and transfer of development rights).

- Long Term Mitigation and Restoration Policies

(37) Federal and state resource agencies should be requested to intensify existing programs to identify Resource Categories of wetlands and Section 404 wetlands in the Columbia River Estuary area to give developers greater certainty regarding available development sites and potential mitigation requirements. The net result shall be greater certainty and a more streamlined permit process.

(38) CREST shall make an effort to develop a program to identify and assess the relative values of non-tidal wetlands. This inventory effort shall provide baseline data that can be used to give greater certainty regarding site potential for development and mitigation requirements.

(40) A method of quantifying enhancement credits for estuarine and non-estuarine wetland mitigation should be developed. A method for quantifying non-estuarine wetland values should also be developed and incorporated into local statutes. Ideally, this system should be compatible with the system used in Oregon's Estuarine Mitigation Law. The system would have to be reviewed and accepted by state and federal resource and regulatory agencies.

(41) A system should be devised whereby wetland impacts that are allowed under a regional or nationwide permit, and that do not require any permit procedure, may be reported to the local government so that an accurate record of cumulative wetland impacts can be maintained.

(42) The following framework for restoration implementation is recommended for the Columbia River Estuary:

(a) Develop and provide educational materials for landowners explaining the benefits of natural area protection and various options for restoring land to natural conditions and protecting the restored land.

(b) Establish an incentive system in the Columbia River Estuary area whereby landowners can effectively utilize a variety of options for restoration and protection of their land.

(c) Identify landowners with economically marginal production land (e.g., forest or agricultural production), that was historically wetland, and to inform them of any incentive-oriented restoration systems for restoration and encourage their participation.

(43) The following techniques are suggested as potential methods to establish a wetland restoration and protection incentive system:

(a) Development of effective acquisition power through private non-profit organizations and federal and state grants (acquisition may be through sale, trade or land donations) . Public ownership is encouraged.

(b) Protection through restrictions while landowners retain title to the land, (e.g., conservation easements, mutual covenants, deed restrictions and leases) .

(c) Provide tax incentives for landowners that allow restoration to take place on their land.

(d) Deed restrictions, wildlife easements or fee acquisition on Farmers Home Administration farm foreclosure inventory lands.

Section 5.323 Public Access

These policies are applicable to uses and activities in Columbia River Estuary shoreland and aquatic areas which directly or indirectly affect public access. "Public access" is used broadly here to include direct physical access to estuary aquatic areas (boat ramps, for example), aesthetic access (viewing opportunities, for example), and other facilities that provide some degree of public access to Columbia River Estuary shorelands and aquatic areas.

(1) Existing public ownerships, right-of-ways, and similar public easements in estuary shoreland s which provide access to or along the estuary shall be retained or replaced if sold, exchanged or transferred. Right-of-ways may be vacated to permit redevelopment of shoreland areas provided public access across the affected site is retained.

(2) Public access in urban areas shall be preserved and enhanced through water-front restoration and public facilities construction, and other actions consistent with Warrenton's public access plan.

(3) Proposed major shoreline developments shall not, individually or cumulatively, exclude the public from shoreline access to areas traditionally used for fishing, hunting or other shoreline activities.

(4) Special consideration shall be given toward making the estuary accessible for the physically handicapped or disabled.

(5) Warrenton will develop and implement programs for increasing public access.

(6) The City will cooperate with the State Parks Division on issues concerning Fort Stevens State Park.

(7) The City will consider the recreational and public access value of any public lands proposed to be leased or sold to private interests, or used for public purposes which would reduce needed public access. The City will hold a public hearing to dispose of or lease public property, and will consider public input.

Section 5.325 Recreation and Tourism

These policies are applicable to recreational and tourist-oriented facilities in Columbia River Estuary shoreland and aquatic areas.

(1) New non-water-dependent uses in aquatic areas or in areas zoned Marine Commercial Shorelands or Water-Dependent Industrial Shorelands shall not preclude or pose any significant conflicts with existing, proposed or probable future water-dependent uses on the site or in the vicinity.

(2) Recreation uses in waterfront areas shall take maximum advantage of their proximity to the water by providing water access points, waterfront viewing areas, and structures visually compatible with the waterfront.

(3) The following sites (described in the *Economic Evaluation of the Columbia River Estuary*), as well as other potential development sites in the Columbia River Estuary, are suitable for estuary-related recreational development, including moorage, boat building and repair, charter offices, fuel, boat ramps, and associated facilities:

Warrenton Boat Basin
Ilwaco Boat Basin
Skamokawa
South Astoria
East Astoria
Hammond Boat
Basin

Chinook Boat
Basin
Cathlamet Boat
Basin
Port of Astoria
Bradwood

Development of a new recreational marina at any of these sites, or at another site in the Columbia River Estuary, will trigger reevaluation of the need for remaining vacant sites designated for recreational development.

Section 5.327 Residential, Commercial and Industrial Development

These policies apply to construction or expansion of residential, commercial or industrial facilities in Columbia River Estuary shoreland and aquatic areas. Within the context of this subsection, residential uses include single and multi-family structures, mobile homes, and floating residences (subject to an exception to Oregon Statewide Planning Goal 16). Duck shacks, recreational vehicles, hotels, motels and bed-and-breakfast facilities are not considered residential structures for purposes of this subsection.

Commercial structures and uses include all retail or wholesale storage, service or sales facilities and uses, whether water-dependent, water-related, or non-dependent, non-related. Industrial uses and activities include facilities for fabrication, assembly, storage, and processing, whether water-dependent, water-related or non-dependent non.- related.

(1) New non-water-dependent uses in aquatic areas and in Marine Commercial Shorelands or Water-Dependent Industrial Shorelands shall not preclude or pose any significant conflicts with existing, proposed or probable future water-dependent uses on the site or in the vicinity.

(2) Residential, commercial or industrial development requiring new dredging or filling of aquatic areas may be permitted only if all of the following criteria are met:

(a) The proposed use is required for navigation or other water- dependent use requiring an estuarine location, or if specifically allowed in the applicable aquatic zone; and

(b) A substantial public benefit is demonstrated; and

(c) The proposed use does not unreasonably interfere with public trust rights; and

(d) Feasible alternative upland locations do not exist; and

(e) Potential adverse impacts are minimized.

(3) Piling or dolphin installation, structural shoreline stabilization, and other structures not involving dredge or fill, but which could alter the estuary may be allowed only if all of the following criteria are met:

(a) A substantial public benefit is demonstrated; and

(b) The proposed use does not unreasonably interfere with public trust rights; and

(c) Feasible alternative upland locations do not exist; and

(d) Potential adverse impacts are minimized.

Section 5.329 Shallow-Draft Port and Marina Development

These policies apply to development of new marinas and improvement of existing marinas in aquatic areas of the Columbia River Estuary. Also covered are adjacent shoreland support facilities that are in conjunction with or incidental to the marina. Included under this subsection's coverage are both public and private marinas for either recreational, charter or commercial shallow draft vessels.

(1) Proliferation of individual single-purpose docks and moorages is discouraged. Public or commercial multi-vessel moorage is preferred. The size and shape of a dock or pier shall be limited to that required for the intended use. Alternative to docks and piers, such as mooring buoys, dryland storage, and launching facilities, shall be investigated and considered.

(2) Navigational access to the estuary and its tributaries shall be maintained. Peripheral channels, streams and sloughs shall not be closed to navigation. Necessary maintenance dredging for traditional moorage areas shall be allowed, subject to the requirements of the designation, state and federal permits, and local plan and ordinance provisions.

Section 5.331 Significant Areas

These policies are intended to protect certain shoreland and aquatic resources with estuary-wide significance. Significant shoreland resources are identified as such in the area and subarea description. Significant aquatic resources are found in Natural Aquatic areas. This subsection applies only to activities and uses that potentially affect significant shoreland or aquatic resources. Other resources without estuary-wide significance are not covered by this subsection. Only those resources identified as significant under Statewide Planning Goal 17 are covered by these policies and standards.

(1) Significant estuarine aquatic and shoreland resources shall be protected from degradation or destruction by conflicting uses and activities.

(2) Major marshes, significant wildlife habitat, and exceptional aesthetic resources shall be protected. Uses in these areas shall be consistent with the protection of natural values and may include selective harvesting of forest products consistent with the Oregon Forest Practices Act, grazing, harvesting, wild crops, and low-intensity water-dependent recreation.

(3) Significant riparian vegetation shall be protected to the extent identified in local comprehensive plans, except as provided for in Zoning Ordinance Significant Area Standards 1, 2, and 5.

Section 5.333 Water Quality Maintenance

These policies are intended to help protect and enhance the quality of water in the Columbia River Estuary. Impacts on water quality in aquatic areas and in tidewater sloughs in shoreland areas are covered.

(1) Non-point source water pollutants from forest lands, roads, agricultural lands, streambank erosion and urban runoff shall be controlled by state Section 208 water quality programs, the Oregon Forest Practices Act and its Administrative Rules and Soil Conservation Service programs.

(2) New untreated waste discharges into tributary streams, enclosed bays and sloughs shall not be permitted.

(3) Petroleum spill containment and clean-up equipment should be located in the estuary area. This equipment should be capable of controlling a large spill in all areas of the estuary.

(4) Permits for activities in Warrenton with potential water quality impacts in Washington's waters will be coordinated with both Oregon Department of Environmental Quality and Washington Department of Ecology.

Section 5.335 Water-Dependent Development Areas

These policies are applicable only to those Columbia River Estuary Shorelands that are in the Marine Commercial Shorelands Zone or the Water-Dependent Industrial Shorelands Zone. The purpose of these policies and standards is to assure that adequate sites are available for water-dependent uses.

(1) Shorelands zoned Marine Commercial Shorelands or Water-Dependent Industrial Shorelands shall be protected for water-dependent uses. Temporary uses which involve minimal capital investment and no permanent structures, and uses in conjunction with and incidental to a water-dependent use, may also be permitted in these areas.

(2) Shorelands especially suited for water-dependent recreational, commercial and industrial uses shall be placed in either a Water-Dependent Industrial Shorelands or Marine Commercial Shorelands Zone. Some factors which contribute to this special suitability are:

(a) Deep water close to shore;

(b) Supporting land transport facilities compatible with ship and barge facilities;

(c) Potential for aquaculture;

(d) Protected areas subject to scour which would require little dredging for use as marinas;

(e) Potential for recreational utilization of the estuary or riparian areas.

Section 5.337 Implementation

These policies are intended to assure consistent region-wide implementation of the *Columbia River Estuary Regional Management Plan*.

- (1) Pre-permit application meetings and site visits shall be encouraged.
- (2) Initial site visit shall be structured such that key issues will be addressed and consensus, to the degree possible, is established on each issue. This will require a structured format listing goals, objectives, and specific activities.
- (3) Amendments to the *Columbia River Estuary Regional Management Plan* must be coordinated with the Columbia River Estuary Study Taskforce (CREST).
- (4) CREST will provide planning assistance to member agencies, review local comprehensive plans and shoreline management master programs, and make recommendations which will result in coordination and conformance with the *Columbia River Estuary Regional Management Plan*.
- (5) CREST will provide technical information and assistance to members and other agencies for *Columbia River Estuary Regional Management Plan* implementation.
- (6) CREST members will maintain the coordinated *Columbia River Estuary Regional Management Plan* by mutually adopting Plan amendments during scheduled Plan updates.
- (7) Policies and standards that regulate the repair and maintenance of existing structures are not intended to replace or supersede Warrenton's non-conforming use ordinance requirements. Where they contradict, the City's non-conforming use requirements shall be followed.

Section 5.339 Federal Consistency

These policies establish procedures for ensuring that federal actions are consistent with this Comprehensive Plan.

(1) Federally licensed or permitted activities affecting the estuary and shoreland area shall be consistent with the Warrenton Comprehensive Plan. If the activity requires a local permit, the permit review will be used to establish project consistency with the plan. If the activity does not require a local permit, Warrenton may review the activity against the mandatory enforceable policies of the plan for consistency. Warrenton may then forward its findings of the review to the Oregon Department of Land Conservation and Development.

(2) Federal development projects and other activities that directly affect the estuary and shoreland area in the coastal zone shall be consistent to the maximum extent practicable with the mandatory enforceable policies of Warrenton Comprehensive Plan. Federal agencies address the consistency requirements by submitting a written consistency determination to the Oregon Department of Land Conservation and Development. The local government may review the consistency determination against its plan and communicate comments to Department of Land Conservation and Development. Department of Land Conservation and Development has the authority to make a final decision on the consistency determination. The federal agency has the option of applying for a local permit to demonstrate consistency with the Warrenton Comprehensive Plan.

(3) Federal activities in the Columbia River Estuary that are most likely to directly affect the coastal zone and require a determination of consistency with the plan include, but are not limited to, the following:

- (a) dredging or dredged material disposal associated with maintenance or construction of federal navigation projects;
- (b) maintenance or construction of other federal navigation improvements including jetties, groins, breakwaters and pile dikes;
- (c) maintenance or construction of federal flood control projects such as dikes and associated drainageways and structures, and shoreline stabilization projects;
- (d) docks and other in-water structures, dredging, and dredged material disposal associated with federal facilities such as Coast Guard bases and naval installations;
- (e) federal refuge improvements;
- (f) mitigation and restoration actions;
- (g) road construction in the coastal watershed;
- (h) waste discharge in the coastal watershed; and

- (i) land acquisition, disposal, or exchange.

The consistency requirements apply to both planning and implementing these federal activities.

- (4) An activity shall generally be considered a federal activity when at least 50% of the project design work and 50% of the construction is funded by federal agencies.
- (5) Federal activities on federal lands within the geographic limits of the coastal zone are excluded from the consistency requirements if the federal agency demonstrates that the activity will not directly affect adjacent, non- federal portions of the coastal zone.
- (6) The phrase "consistent to the maximum extent practicable" (see Policy 2) shall be interpreted to mean that a federal agency may deviate from full consistency only if:
 - (a) compliance is prohibited based upon the requirements of existing law applicable to the federal agency's operations, or
 - (b) when such deviation is justified because of some unforeseen circumstances arising after the approval of the management program which present the federal agency with a substantial obstacle that prevents complete adherence to the approved program.
- (7) Warrenton may review Outer Continental Shelf activities for consistency with their Comprehensive Plans and forward their findings to the Oregon Department of Land Conservation and Development.
- (8) Warrenton may review federal grant or financial assistance proposals for activities affecting the coastal zone for consistency with their Comprehensive Plan. The review includes grants to state agencies, cities, counties, special purpose districts, and regional bodies. Review findings may be forwarded to the Oregon Department of Land Conservation and Development.
- (9) Warrenton may perform consistency reviews administratively or through public hearings.

Section 5.341 Middle Skipanon River Subarea

- (1) Development along the east shoreline of the Skipanon River between Harbor Drive and 8th Street shall include a tourist/ commercial mixture of water-dependent, water-related and other uses.

(2) The Development Aquatic designation of the Middle Skipanon is provided to accommodate marina development and other water-dependent and water-related uses as the highest priority of use. Non-water-dependent uses are not appropriate in the aquatic portions of this sub-area.

(3) The water quality impacts of development in the Middle Skipanon will be evaluated prior to approval of projects, particularly in the area between the 8th Street dam and the Harbor Drive Bridge. Alterations which have a negative water quality impact or result in a decrease in the flushing rate will not normally be permitted.

(4) The City will consider taking an exception to Oregon Statewide Planning Goal 16 if a marina or other major development proposed for the Middle Skipanon would require major alteration of the islands or fringing marshes.

(5) The City will pursue the possibility of constructing bicycle/ walking paths on top of the City dikes along the Columbia River, Youngs Bay and the Skipanon River. The priority order of construction should be:

(a) The west bank of the Skipanon River from Harbor Drive south to SW Third Street.

(b) A trail between downtown and the Youngs Bay Plaza area. This trail could follow the old railroad right-of-way west of the downtown intersection a distance of one mile, and follow the dike for approximately 3,000 feet to its intersection with US 101, near the shopping center.

(c) The Airport loop from US 101 at the Youngs Bay Bridge to the old Youngs River Bridge. The trail could then follow Airport Road back to US 101.

(d) The east bank of the Skipanon River dike from Harbor Drive to SE Eighth Street.

Section 5.343 Tansy Point/ Alder Cove Subarea

(1) Portions of this subarea are subject to provisions of the 1981 Mediation Panel Agreement. Development in these areas must be consistent with the relevant portions of the Agreement.

(2) Notwithstanding the fact that residences within the Water-Dependent Development Shorelands of this subarea are a nonconforming use, reconstruction may be allowed in the event of destruction by fire or other disaster in accordance with the nonconforming use regulations of the Warrenton Zoning Ordinance.

(3) The Natural Aquatic tideflats and marshes of Alder Cove shall be protected from alterations. Such protection, however, should not preclude intensive development of the adjacent Water-Dependent Development Shorelands or Development Shorelands nor necessary dike maintenance.

(4) Large-scale fills are not appropriate in the Development Aquatic portions of this subarea. Filling shall be allowed only for bulkheading or quay construction along the present shoreline. No substantial parcels of new land shall be created.

(5) The potential for impacts on tidal and non-tidal wetlands shall be evaluated during development review. Prior to development approval, the Corps of Engineers and Oregon Division of State Lands must be consulted to determine if the site contains wetlands within their respective regulatory jurisdictions.

(6) The Tansy Point development site is suitable for the following types of uses:
Marine terminal development;
Commercial fishing and seafood processing facilities;
Forest products processing facilities;
Offshore mineral development support facilities;
Facilities related to estuary recreation; and
Other water-dependent uses.

(7) The City is committed to the construction and maintenance of the Eben Carruthers Memorial Park. Park development will follow the park Master Plan. The park will be a passive recreation area with the primary purpose of providing pedestrian access to the Columbia River. Parking and rest room facilities shall be located close to Fort Stevens Highway.

(8) The City will pursue the possibility of constructing bicycle/ walking paths on top of the City dikes along the Columbia River, Youngs Bay and the Skipanon River. The priority order of construction should be:

(a) The west bank of the Skipanon River from Harbor Drive south to SW Third Street.

(b) A trail between downtown and the Youngs Bay Plaza area. This trail could follow the old railroad right-of-way west of the downtown intersection a distance of one mile, and follow the dike for approximately 3,000 feet to its intersection with US 101, near the shipping center.

(c) The Airport loop from US 101 at the Youngs Bay Bridge to the old Youngs River Bridge. The trail could then follow Airport Road back to US 101.

- (d) The east bank of the Skipanon River dike from Harbor Drive to SE Eighth Street.

Section 5.345 North Warrenton Subarea

(1) Widening and strengthening of the dike to enable its use by heavy vehicles shall be allowed on the shoreland side of the dike, except along the sewage lagoons. If fill is required on the Alder Cove side of the dike, other than fill or riprap associated with normal dike maintenance, an exception will be required to Oregon Statewide Planning Goal 16's prohibition on fill in aquatic areas for non-water-dependent uses.

Section 5.347 Mouth of the Skipanon River Subarea

(1) The maximum amount of fill that may be allowed within that portion of the described Aquatic Development area in Alder Cove is 7.8 acres. Specific proposals for fill must be justified at the time of permit application.

(2) Any development or use of the Holbrook Slough DMD / Mitigation site shall be consistent with protection of aquatic and riparian habitat at Holbrook Slough.

(3) The approximately 40 acre Holbrook Slough DMD / Mitigation site is reserved for mitigation of development impacts on the East Skipanon peninsula. Offsite mitigation may be considered as part of the required mitigation or in addition to this onsite mitigation. Acreage not used for mitigation would then become available for DMD or development, but not until the site is fully developed.

(4) Development of shorelands and adjacent aquatic areas on the East and West Peninsulas of the Skipanon River shall include provision for vegetative buffers and other means for shielding the developed areas from adjacent marshes and flats.

(5) Existing and new uses which are associated with wood processing and handling shall be allowed in the Water-Dependent Development Shorelands area on the West Peninsula of the Skipanon River.

(6) The Development Aquatic designations along both sides of the Skipanon are provided to accommodate future water-dependent uses. However, the designations do not create the presumption that dredging, filling or other alterations will be permitted automatically.

(7) The City will continue to upgrade the mooring basin / boat ramp area by improving parking and access facilities. The City will attempt to attract private/ public partnerships to the mooring basin, including a motel / restaurant/ commercial development on public land, when feasible.

(8) The City will pursue the possibility of constructing bicycle/walking paths on top of the City dikes along the Columbia River, Youngs Bay and the Skipanon River. The priority order of construction should be:

- (a) The west bank of the Skipanon River from Harbor Drive south to SW Third Street.
- (b) A trail between downtown and the Youngs Bay Plaza area. This trail could follow the old railroad right-of-way west of the downtown intersection a distance of one mile, and follow the dike for approximately 3,000 feet to its intersection with US 101, near the shopping center.
- (c) The Airport loop from US 101 at the Youngs Bay Bridge to the old Youngs River Bridge. The trail could then follow Airport Road back to US 101.
- (d) The east bank of the Skipanon River dike from Harbor Drive to SE Eight Street.

Section 5.349 Youngs Bay Subarea

(1) Proposed developments shall be evaluated for their impact on existing aquaculture operations. Aquatic sites that are especially suitable for aquaculture development shall be reserved for that use whenever possible.

Section 5.351 Airport and Vicinity Subarea

(1) The City will pursue the possibility of constructing bicycle/ walking paths on top of the City dikes along the Columbia River, Youngs Bay and the Skipanon River. The priority order of construction should be:

- (a) The west bank of the Skipanon River from Harbor Drive south to SW Third Street.
- (b) A trail between downtown and the Youngs Bay Plaza area. This trail could follow the old railroad right-of-way west of the downtown intersection a distance of one mile, and follow the dike for approximately 3,000 feet to its intersection with US 101, near the shopping center.
- (c) The Airport loop from US 101 at the Youngs Bay Bridge to the old Youngs River Bridge. The trail could then follow Airport Road back to US 101.
- (d) The east bank of the Skipanon River dike from Harbor Drive to SE Eighth Street.

(2) A new access road to serve airport uses should be developed. Filling of Holbrook and Vera Creek sloughs and damage to riparian habitat shall be minimized. An exception to Oregon Statewide Planning Goal 17 may be necessary.

(3) New airport uses shall be designed and sited to minimize conflict with residences along the present access road. Potential circulation conflicts shall be evaluated.

ARTICLE 6 BEACH AND DUNE

SHORELANDS SECTION 6.100 FINDINGS

Beach and dune shorelands include a large part of Warrenton and are characterized by a series of sand ridges roughly parallel to the ocean shoreline which are separated by low-lying (interdune) areas. These shorelands have been formed during the past 4,000 years as a result of Columbia River sediments, off-shore currents, local winds and other factors. Until the 1930s, a significant portion of the shorelands consisted of wind-drifted sand. The dunes were then stabilized with fences and vegetation.

Portions of the beach and dune shorelands West of Ridge Road in (zones 1 and 2 of the Clatsop County Soil and Water Conservation District) are the most sensitive to development and are consequently considered to be critical beach and dune shoreland areas. Construction on dunes in these areas is often hindered by a high wind erosion potential, and moderate or steep slopes. Difficulties range from slight to severe. Another development concern is the beach and foredune erosion caused by ocean waves. While the stable dune areas east and west of Ridge Road can tolerate higher density of development than other dune forms, removal of stabilizing vegetation can cause erosion due to the high sand content in the soil. In the interdune locations, development is likely to be hampered by water problems and in some locations, by the tendency of the soil to compress when subject to structural loads.

The City of Warrenton treats significant wetlands and riparian corridors that are located in the City's Goal 17, Shoreland zone as Goal 5 resources.

This section addresses parts of Statewide Planning Goals 17 and 18.

SECTION 6.200 GOAL

To reduce the hazard to human life and property from natural or human-induced actions associated with beach and dune areas.

SECTION 6.300 POLICIES

(1) Residential development and commercial and industrial building on beaches, on active foredunes, on conditionally stable foredunes subject to ocean undercutting or wave overtopping, and on interdune areas subject to ocean flooding shall be prohibited. Development other than residential, commercial, or industrial buildings in these areas shall be permitted only if it is demonstrated that the proposed development:

(a) Is adequately protected from any geologic hazards, wind erosion, undercutting, ocean flooding and storm waves; or is of minimal value; and

(b) Is designed to minimize adverse environmental effects; and

(c) The findings required by Beaches and Dunes Policy 2 are made.

(2) The Statewide Beaches and Dunes Planning Goal, Implementation Requirement 1, requires that the following findings be made for all development in beach and dune areas, other than older stabilized dunes:

(a) The type and use proposed and the adverse effects it might have on the site and adjacent area;

(b) Temporary and permanent stabilization programs and planned maintenance of new and existing vegetation;

(c) Methods for protecting the surrounding area from any adverse effects of the development; and

(d) Hazards to life, public and private property, and the natural environment which may be caused by the proposed use.

These findings will be made either by site-specific investigations for areas listed in Beaches and Dunes Policy 3, or by findings adopted as part of the Comprehensive Plan.

(3) Site-specific investigations undertaken by a registered geologist shall be required for future construction in all areas lying within the "A zone" as delineated on the *Flood Insurance Rate Map, City of Warrenton, Oregon, Clatsop County*.

(4) Vegetation removal shall be kept to the minimum required for the placement of structures. Structures shall be designed as much as possible to minimize the removal of existing vegetation.

(5) A detailed description of a dune stabilization program shall be a part of the application for a building permit for any proposed development which potentially will reduce the stability of a dune area and threaten adjacent property. The revegetation program shall be designed to return areas at least to their pre-development levels of stability within a specified period of time. The programs shall be initiated as soon as possible during or following construction. The City may submit site investigations or revegetation programs to the Soil Conservation Service or other agency for review prior to issuance of a building permit.

(6) During construction, adequate measures shall be required (included as permit conditions) to minimize wind erosion, such as the provision of temporary ground cover.

(7) All construction shall be in conformance with the recommendations of the site investigation report and applicable FEMA flood management requirements. A time period for revegetation of open dune sand shall be established.

(8) Beachfront protective structures (rip-rap, seawalls) shall be permitted only if:

(a) Visual impacts are minimized;

(b) Necessary access to the beach is maintained;

(c) Negative impacts on adjacent property are minimized; and

(d) Long-term or recurring costs to the public are avoided.

(9) Breaching of foredunes shall be permitted only for extreme measures, such as fighting fires, or cleaning up oil spills. The dunes shall be restored to their original contours and revegetated after breaching occurs.

(10) Grading or sand removal necessary to maintain views or to prevent sand inundation may be allowed for structures in foredune areas, only if the area is committed to development or is within an acknowledged urban growth boundary; and only as part of an overall plan for managing foredune grading. A foredune grading plan shall include the following elements based on consideration of factors affecting shoreline stability, including sources of sand, ocean flooding, and patterns of accretion and erosion (including wind erosion), and effects of beachfront protective structures and jetties. The plan shall:

(a) Cover an entire beach and foredune area subject to an accretion problem, including adjacent areas potentially affected by changes in flooding, erosion, or accretion as a result of dune grading;

(b) Specify minimum dune height and width requirements to be maintained for protection from flooding and erosion. The minimum height for flood protection is four feet above the 100 year flood elevation;

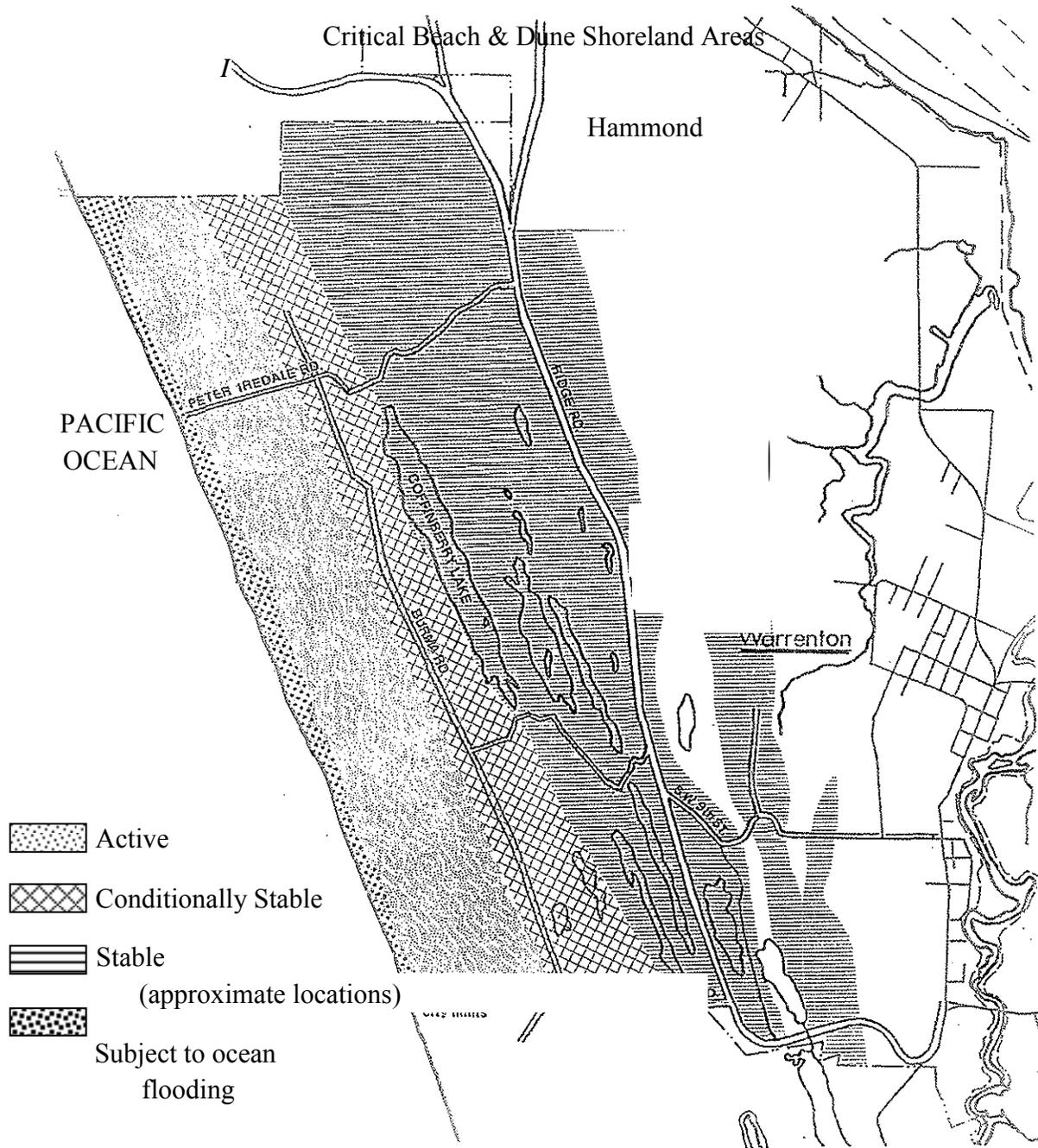
(c) Identify and set priorities for low and narrow dune areas which need to be built up;

(d) Prescribe standards for redistribution of sand and temporary and permanent stabilization measures including the timing of these activities; and

(e) Prohibit removal of sand from beach-foredune system. Before construction can begin, the foredune grading plan must be adopted as an amendment to the Comprehensive Plan.

(11) Warrenton shall protect the groundwater in dune areas from drawdown which could lead to loss of stabilizing vegetation or water supplies, by reviewing all proposed wells to ensure that findings are made to address the above factors. Building permits for single-family dwellings are exempt from this requirement if appropriate findings are provided at the time of subdivision approval.

(12) The City has determined that its entire ocean front was undeveloped, as defined by Beaches and Dunes Implementation Requirement 5 of Statewide Planning Goal 18, on January 1, 1977.



ARTICLE 7 COMMUNITY FACILITIES AND SERVICES

SECTION 7.100 FINDINGS

Warrenton is an appropriate area for future development in Clatsop County, in part, because of the availability of community facilities and services. The capacity of many of these including the water and sewer systems, have been increased to accommodate the substantial amounts of growth.

The *Warrenton Comprehensive Plan Background Report* provides additional information pertaining to public facilities in Warrenton. This section together with the relevant background report sections, address requirements of Statewide Planning Goals 8 and 11.

Section 7.110 Water Service

A water system is operated by the City and supplies water to Warrenton, Fort Stevens State Park, Sunset Beach Water District, Cullaby Lake, Smith Lake, Gearhart and scattered properties in the Clatsop Plains rural area. Except for the Gearhart portion of the system, the City of Warrenton is responsible for servicing all water lines within the system.

Water is obtained from the Lewis and Clark River and three of its tributaries. Water collected at these impoundments is piped either directly to the treatment plant or through a 16 million gallon raw water reservoir, located near the treatment plant. This 16 million gallon reservoir was constructed in 1986 for the purpose of storing untreated water that could be utilized during periods in which the turbidity of the impoundments rose above acceptable levels. The treatment plant is located about eleven miles southeast of Warrenton where water is treated by sedimentation and chlorination and carried by a major pipeline to Warrenton and other locations.

Section 7.120 Wastewater Facilities

In November, 2002 the City of Warrenton completed its Wastewater Facilities Plan with the aid of HLB & Assoc., and HP Esvelt Engineering. In 2005, the City began construction of its new wastewater treatment plan and it was on-line and operational by the first part of 2007.

The 2002 Wastewater Facilities Plan showed that the wastewater lagoons were seriously overloaded. The BOD and TSS influent loadings to the lagoons were at about two times the recommended loading level for facultative lagoons as recommended by DEQ.

Section 7.121 Wastewater Flow and Load Projections

The wastewater flow and load projections are based on the existing and projected populations of the service area, as well as historical wastewater flows and loads measured at the treatment plant. The existing (2001) and 20-year (2023) wastewater flows and loads are shown in Table 1.1. These flows and loads include City growth, Clatsop County Corrections Transitional Facility (inside city limits) and the Miles Crossing Sanitary Sewer District (outside the UGB). The analysis used to project the wastewater flows and loads is presented in Section of the facility's report.

TABLE 1.1 EXISTING AND FUTURE WASTEWATER FLOWS AND LOADS

Parameter	Existing (2001)	Future (2023)
Wastewater Flow (mgd)		
Annual Average	0.7	1.1
Maximum Month Wet Weather Avg	1.1	1.6
Maximum Day, Wet Weather	1.5	2.3
Hydraulic, Peak Instantaneous Flow	3.4	4.7
Wastewater Load (lb/day)		
BOD (Bio-chemical Oxygen Demand)		
Annual Avg	1,000	1,720
Maximum Month Avg, Summer	1,500	2,500
TSS (Total Suspended Solids)		
Annual Avg	1,300	2,000
Maximum Month Avg	1,900	2,900
Ammonia, Max	150	250

The DEQ estimates that the lagoons are only operating at 50% of design efficiency because of the build-up of bio-solids. Therefore, the combination of the overloaded sewer influent and the build-up of bio-solids results in an effective overloading of approximately four times the design capacity of the sewer lagoons. Additional analysis and information on the wastewater treatment system is presented in Section 7 of the report.

Section 7.122 Collection System

The core infrastructure of this system has exceeded its design life. It continues to perform well, but needs additional upgrades to meet new flows from additional areas of development. Development in outer areas, away from the core system, and current core system conditions now necessitate upgrades to the gravity system, the pressure system, and the pump station system. These upgrades are described in Section 6.3 of the Facilities Plan.

In the case of the pump station system, several of the Warrenton Pump stations are now obsolete, making it very difficult if not impossible to continue obtaining parts to keep them operating. It is now cost effective to renovate or replace those stations.

Inflow and infiltration (I/ I) at the East Warrenton Industrial Park (currently inside City limits) continues to be a problem for the collection system, particularly the five (5) pump stations on the East Warrenton Interceptor. This additional loading is creating wear / maintenance / electrical costs to soar.

Additional areas of development that would add to the collection system are not part of this discussion, but all costs should be borne by the parties that are seeking to develop, such as the areas north of Harbor and east of Highway 101. This also would include outside sources seeking to benefit from the City of Warrenton's wastewater treatment.

Section 7.123 Wastewater Treatment Analysis

The existing sewage treatment system consists of a two (2) cell stabilization lagoon, currently operated in series, followed by disinfection by chlorination. The existing wastewater treatment system is currently overloaded and has experienced permit violations that are expected to increase in frequency if improvements are not made. Some interim improvements have been made to the lagoon system. In March of 2000, construction of the Sewer Lagoon Improvements Project was completed. The improvement consisted of the following:

- Relocate 12" diameter force main into treatment plant
- Construct a new influent Parshall flume (flows frequently exceeded the capacity of the old flume)
- Install influent flume flow monitoring equipment Install an influent flume composite sampler
- Transfer pipe modifications with floating inlet to transfer pipe (to transfer flow from Cell # 1 to Cell #2)
- Install a floating baffle in Cell #2 to redirect flow throughout all of Cell #2 preventing "short-circuiting" in this cell.

Following the above described improvements, the wastewater treatment system improved the overall quality of the effluent. Those improvements were not designed to completely address all of the sewer system overloads. Additional improvements to the wastewater treatment system are still needed both for the high level of influent loading and to allow for future growth.

The recommendations for possible approaches to upgrading the wastewater treatment system include the following:

- (1) Expand the existing lagoons onto the City-owned land to the West of the existing lagoons.
- (2) Modify and expand the existing lagoon system, incorporating an aerated lagoon and a constructed free water surface wetlands.
- (3) Modify the existing lagoons to construct a Sequencing Batch Reactor (SBR) with sludge holding lagoons and Ultraviolet (UV) disinfection.

Additional analysis and evaluation of the existing wastewater treatment system along with a detailed discussion of each of the above alternatives for upgrading the treatment system is presented in Section 7 of the facilities plan. The final alternative selected by the City for further evaluation was the Sequencing Batch Reactor (SBR) system with sludge holding lagoons and ultraviolet (UV) disinfection. Details of the recommended system, including construction and annual operating costs, can be found in Section 7 and Appendix C of the facilities plan.

Since the preparation of the Draft Plan, a Mixing Zone Study (Appendix B in the facilities plan) has been completed determining that an extended outfall to the Columbia River would be required to meet water quality standards. The estimated construction cost of the recommended treatment alternative including the proposed outfall pipe is as follows:

Sequencing Batch Reactor (SBR)	\$5,736,000.00
Core Conveyance System Improvements	\$1,123,000.00
Outfall to Columbia River	\$1,130,000.00
Total Cost	\$7,989,000.00

Section 7.124 Interim Improvements

The Mutual Agreement and Order (M UO) between the City and DEQ states

that the City may submit for DEQ approval an Interim Engineering Study for proposed interim improvements to the existing lagoons needed to provide capacity to allow additional waste loads during the term of the MAO. The City has chosen to exercise this option and has therefore had a report prepared that proposed interim improvements that would accommodate City growth in the interim period along with projected waste loads from the Miles Crossing Sewer District and Fort Clatsop National Park. The details of the interim improvements can be found in Section 7 and Appendix A of the facilities plan.

The City of Warrenton has requested that the Oregon Department of Environment Quality (DEQ) approve an increase in the flows and loadings to the existing wastewater treatment facility on an interim basis. The recommended improvements to the City's lagoon treatment facilities recommended in this report are intended to provide the additional interim treatment capacity needed for treatment of added waste loads from Miles Crossing, Fort Clatsop and City growth, while meeting the interim effluent requirements as agreed to in the Mutual Agreement and Order (MAO) , dated December 24, 2001.

The following table summarizes the list of improvements that will be required to complete the interim capacity upgrades. The improvements include pump station upgrades required to convey Miles Crossing effluent from the point of connection to the treatment plant.

Mechanical plant improvements		\$555,000.00
Pump station improvements - Airport (e. Warrenton Interceptor Area)		\$960,000.00
Marlin Avenue force main replacement Bio- solids removal**	*	\$200,000.00
		\$480,000.00
	Total	\$2, 195,000.00

*The actual costs of pump station upgrades is dependent upon the amount of I&I removal at the airport, and tributary areas.

** Bio-solids must be removed by September, 2003.

It is critical that the inflow and infiltration (I&I) at the airport be reduced prior to implementation of the proposed interim improvements. The design of the pump station improvements at the airport will be based on design flows that will be effected by the percentage of I&I removal.

It is assumed at this time that the City of Warrenton will be receiving sewer flows from the Miles Crossing Sewer District. If this assumption changes, the cost will be less since infrastructure improvements would not be required at the time of the interim improvements.

The MAO defines interim waste discharge limits that are to be in effect until full operation of the facility has been achieved. The limits are as follows:

Interim Limits for City of Warrenton Wastewater Treatment Facility					
All Year Round					
Outfall Number 001 (Lagoon discharge)					
			Average		
	Avg. Effluent Conc				
Parameters	Monthly	Weekly	Monthly	Weekly	Daily
	mg/L	mg/L	lb/day	lb/day	lb/day
BOD	75	100	469	704	938
TSS	75	120	469	704	938

Section 7.125 Bio-solids Management

The Warrenton treatment facility has been accumulating solids since its original construction in 1969. Bio-solids have accumulated to unacceptable levels contributing to overloading problems primarily due to the resulting reduction of the water column in the lagoons.

A Bio-solids Management Plan, dated January 2002, and a Bio-solids Site Authorization Submittal, dated February 2002, has been prepared by Lee Engineering, Inc. for the City of Warrenton. Both have been submitted to DEQ for review and approval. Both reports are included in Appendix J of the facilities report. The purpose of the Bio-solids Management Plan is to outline how the bio-solids will be removed, transported and land applied in accordance with OAR 340-050-0031 and Federal 503 regulations. The submittal includes a management agreement between the City of

Warrenton and the owner of the application site property and details regarding management of the sites.

The Bio-solids Management Plan outlines two (2) methods of bio- solids removal. They are as follows:

- (1) complete removal of all bio-solids and land application this year (2002)
- (2) construct a dike that divides Cell # 1 into two (2) smaller cells; pump to the new storage cell to the east and remove sludge over a longer period of time.

The revised schedule of the bio-solids removal meets the requirements of the recently signed Memorandum of Agreement and Order. The bio-solids removal was originally scheduled for the summer of 2002. This schedule is contingent on the City receiving DEQ approval of the Bio- solids Management Plan and The Bio-solids Site Authorization.

The total estimated cost for bio-solids removal, transportation, and land application is \$480,000.00. The removal of bio-solids must occur by September of 2003 to accommodate the proposed interim capacity improvements.

Section 7.126 Recommended Improvements and General Schedule.

The City of Warrenton is undertaking an aggressive schedule for implementing the planned wastewater improvements. A general schedule and estimated construction costs of the proposed improvements is shown in the following tables.

RECOMMENDED COLLECTION SYSTEM UPGRADES

<u>Completion Date</u>	<u>Improvement</u>	<u>Estimated Cost</u>
September 2003	Inflow/ infiltration reduction work at airport	cost not available
September 2005	Core downtown pump station improvements*	\$1,1123,000.00
By 2007	Main Avenue Sewer	\$290,000.00
By 2008	Dolphin Road Sewer	\$310,000.00
By 2015	Inflow/infiltration reduction work throughout City	\$675,000.00
By 2015 *These improvements need to take place at the time of the treatment plant improvements.	Conveyance system upgrades throughout city	\$3,800,000.00

RECOMMENDED TREATMENT SYSTEM UPGRADES

Date	Improvement	Estimated Cost
September 2003	Bio-solids removal	\$480,000.00
May 2004	Wastewater treatment plant	\$5,736,000.00
September 2004	Outfall construction	\$1,130,000.00

A detailed breakdown of the implementation program and finance plan can be found in Section 9.6 of the facilities plan. The tables above summarize the improvements while Section 9.6 in the facilities plan identifies milestones for the submittals to DEQ, report preparation, permitting, construction and ultimately full operation of the proposed treatment plant.

Section 7.127 Financing

The City conducted a one-stop meeting on December 11, 2001 at which time the project was discussed along with available funding options. The meeting was attended by the City of Warrenton staff, United States Department of Agriculture Rural Development (OECDD) staff, DEQ staff and a representative from the Governor's Community Solutions Office. At this meeting, three sources of funds were identified as follows:

- (1) USCA RD has funding available for the project. Due to the high cost of the project, it is anticipated that USDA RD would participate with other funding agencies.
- (2) The DEQ may have funds for this project from the Clean Water State Revolving Loan Fund (SRF).
- (3) The Oregon Economic and Community Development Department (OECDD) has funds available for this project. The City qualifies for the Water / Wastewater Financing Program. The OECDD, DEQ and state agencies will work with the city in pursuing funding for the project once overall scope and cost of the wastewater system improvements are determined. See Section 9 in the facilities plan for further detail regarding financing for the project.

Since the time of the Draft Wastewater Facilities Plan was submitted, the City has also decided to consider the submission of a General Obligation Bond to the Warrenton Votes in 2003 to pay for construction of the treatment plant.

Section 7.128 Wastewater Rates

The City of Warrenton recently received recommendations for a new rate

methodology for both their water and wastewater systems. To prepare the rate methodology study, the City and their consultant have used approximate cost estimates for system improvements developed to date. The City approved the new rates on March 20, 2002.

The City currently charges only a nominal connection fee without any System Development Charge (SDC) for new connections. The City should actively pursue and take all necessary steps to calculate and implement an appropriate SDC for the proposed sanitary sewer system improvements. An SDC for new sewer improvements will be required in order for new connections to pay their "fair share" of the needed improvements to the sanitary sewer system.

Section 7.130 Municipal Support Structures

In 2002 the city built and moved its administrative offices, planning and building department and fire department into its new building. By November, 2003 the western portion of the new building was completed and the police department moved from the city's old offices. Public works department still remains in its original location between SW First and SW 2nd Streets behind Main Street Market, The Iredale and the building which once housed city hall.

The City's fire department has two (2) paid fire personnel with approximately 30 volunteers. This department provides fire protection to the city and to areas within the Warrenton Rural Fire Protection District. A second fire station is located near the Hammond Mooring Basin.

As the city grows - population and structures - there is a growing need to increase city personnel in every department that provides services to the community of Warrenton and areas outside of its city limits.

Housing the city's administrative offices, planning and building department, police and fire departments under one-roof has provided efficient communication and coordinating between these city departments. This has also provided the community with city services that are easily accessible.

Section 7.140 Other Services

Solid waste is collected in Warrenton, trucked to a transfer station in Astoria and then hauled to a landfill outside of the County. The City, in cooperation with a private contractor and other Clatsop County local governments, is exploring development of a new landfill site in eastern Clatsop County.

Other City facilities and services are provided mainly within Warrenton and include a storm drainage/ flood control system; a 24-acre community park northeast of the intersection of SW Cedar Avenue and SW Seventh Street; and two municipally-owned and operated marinas.

Section 7.150 Public Recreation

The City recognizes that Fort Stevens State Park provides a valuable recreation resource for all of the people of the State of Oregon, including Warrenton residents. Over a million people per year visit the Park. Most of the Park is located within the City limits. Warrenton provides water, sewer, garbage, police and fire services directly to the park. Direct City revenues are in the form of park user charges for water, sewer and garbage. There is no revenue paid directly for police and fire service cir the impacts that the location of the Park has on other City services. The Park no longer contracts with Clatsop County or the Oregon State Police for law enforcement services.

Camp Kiwanilong is a publicly-owned educational and recreational facility in Warrenton located south of Fort Stevens State Park. The Camp is owned by Clatsop County, and operated by a non-profit organization as a summer camp. The Camp is a valuable asset to Warrenton and to the region.

Section 7.160 Stormwater (See Stormwater Master Plan for more detailed information)

The City of Warrenton contracted with HLB-OTAK, Inc. in 2007 for Phase 2 of their Stormwater Master Plan to study their stormwater management system and develop a stormwater management plan with Capital Improvement projects for the City to implement in anticipation of continued growth .

The City previously undertook Phase 1 of the effort, working with CH2M Hill and HLB, Inc. to perform a large data collection effort that included an inventory of the tidegates and topographic survey data on many of the stormwater conveyances in Warrenton.

The scope of work for Phase 2 included Meetings, Public Involvement, Characterization of the City's watersheds, development of a stormwater management strategy, and preparation of a Stormwater Master Plan that includes recommendations for existing facility maintenance and a Capital Improvement Plan. The stormwater management strategy was primarily focused on conveyance and flooding issues.

Section 7.161 Basin Boundaries, Location and Areas

The Study Area was divided into four major basins based on drainage to Alder Creek, Skipanon River, Lewis and Clark River and directly to the Columbia River. Only a small portion of the City drains to the Lewis and Clark, the remainder is divided among the other three basins.

Each basin was divided into subbasins based on topography and locations of levees, roads and existing conveyance features such as pipes and ditches. Information from

conversations with City employees and an April 2007 site visit was also factored into the determination of basin boundaries. A total of 38 subbasins were delineated, 30 of which are completely within the Study Area and 8 that are partially within the Study Area but still contribute stormwater runoff. The total contributing area, excluding subbasins that empty to the Columbia or Skipanon River without first passing through a tidegate is approximately 5727 acres. Figure 4 shows the major basin and subbasin boundaries for the Study Area.

Stormwater Management Plan - City of Warrenton



Legend

- City Limits
- Urban Growth Boundary
- Fort Stevens State Park
- Pump Station
- Elevation

-- Highway
 ---- street

Open Conveyance

The topography of the Study Area, especially within the developed area is fairly flat. As such, the subbasins interact with each other in both directions, not just upstream to downstream. Stormwater flows in and out of the subbasins depending on the tidal conditions and storm magnitude. These interactions create complex drainage patterns which are heavily influenced by factors such as antecedent soil moisture conditions and groundwater. In some cases a defined control, such as a culvert, exists and limits subbasin interactions. In other cases the subbasin interaction covers a broad area. Each subbasin eventually drains to a particular tidegate in the City levee system, with a chain of subbasins contributing to some outfalls and only a single subbasin contributing to others.

Section 7.162 Surface Water Features and Drainage System

The Skipanon River, Alder Creek and other streams in the watershed are derived mostly from groundwater. Changes in the groundwater hydrology will most likely have greater effects on surface water features than changes in land use in the upper elevations of the watershed which represents proportionally less area.

Except during the winter months, fresh water flow in the Skipanon River is low, averaging approximately 50 cubic feet per second (cfs). Columbia River water and ocean water are the main water masses observed below the 8th street dam. The Skipanon River is also fed by the outflow from Cullaby Lake. There is no continuous discharge data available for the Skipanon River or for Alder Creek.

The land between the Skipanon River and the airport is characterized by four large sloughs, named Skipanon, Holbrook, Vera, and Adams. A slough is a shallow, secondary channel off of the main waterway. They typically have stagnant or slow moving water and are flushed regularly by the tide. If healthy, sloughs can be quality habitat for a variety of aquatic species. Warrenton's sloughs drain a large portion of the land east of the Skipanon River. Flow into and out of these sloughs is regulated by a tidegate through the levee system. Skipanon Slough empties into the Skipanon River, and the Holbrook, Vera, and Adams Sloughs drain to the Columbia River. The tidegate at the entrances to each of these water bodies has been categorized as a potential fish barrier. The Columbia River Estuary Study Taskforce (CREST) has recently been conducting tests on a new, "fish friendly" tidegate on Adams Slough. The City has expressed concerns; however, that these fish passage tidegates will create flooding issues in the developed area surrounding the sloughs. Water surface elevations should be monitored on Adams Slough by the City to substantiate or disprove these concerns prior to further installation of additional tidegates.

Drainage facilities consist primarily of roadside ditches with culverts for street crossings. Storm sewer pipe systems are also used in and around the Hammond and Downtown areas. The slope of most of these conveyances are basically flat, leading to sedimentation issues in many of the ditches and pipes in the city, which further reduces capacity. The levee system along the Columbia, Skipanon and Lewis and Clark Rivers prevents high tides from inundating the City. A series of culverts with tidegates connect the City's drainage system to the natural waterways. During high tide, the majority of these tidegates close and do not allow stormwater to drain out of the City. The trapped

stormwater is routed to two pumping stations on the west bank of the Skipanon River just north and south of the downtown area. These two stations pump stormwater over the levee system and into the Skipanon River, continuing to drain the City until the tide lowers enough to allow stormwater through the tidegates. Currently only the southern pump station is operational. A 1999 survey of the tidegates by the Skipanon River Council showed that 6 of the 23 tidegates were in need of repair. Many of the current tidegates are old iron doors that no longer work properly or are missing entirely. City maintenance personnel stated these disabled tidegates may allow Columbia River water into the City during high tide, potentially reducing available flood storage. This is especially true of the two tidegates in the Hammond Marina.

Section 7.163 Water Quality and Sediment Sources

In general, water quality is typically managed to protect the most sensitive beneficial use. In Warrenton, managerial responsibility varies depending on the location. The City of Warrenton, the Port of Astoria, Clatsop County, the State of Oregon and federal agencies all manage different parts of the watershed and its array of wetlands, sloughs and stream channels. In the case of the Skipanon River watershed, the most sensitive beneficial use is likely salmonid fish spawning. It is assumed that if the water quality is sufficient to support the most sensitive use, then all other less sensitive uses will also be supported. For the Study Area, temperature and dissolved oxygen are considered to be the areas of greatest concern in regards to water quality. (Skipanon River Watershed Assessment, 2000) The levee tidegate structures along the Skipanon and Columbia Rivers significantly reduce the "flushing effect" of the tidal fluctuations. As a result, waterways behind the levees become stagnant and subject to contamination. Water bodies can become dissolved oxygen deficient or anoxic under certain conditions. Lack of shoreline shade in the majority of the Study Area further exacerbates this problem by increasing water temperatures, especially in the summer months. Water's ability to absorb dissolved oxygen decreases as temperature increases. Salinity intrusion occurs whenever salinity is present in the adjacent Columbia River waters. Despite the low fresh water flow, strong vertical differences in salinity occur during the fall, and bottom waters may also become stagnant. Dissolved oxygen levels well below state and federal standards have been observed (Boley, 1975). Water quality and dissolved oxygen has been a major concern in the City's many sloughs, particularly during the drier summer months.

In the Skipanon River watershed, slope instability, road instability, and rural road runoff were determined to be the most significant sediment sources based on the location of the watersheds (Oregon Coast Range) and the local land use. (Skipanon River Watershed Assessment, 2000) Streamside landslides and slumps can be major contributors of sediment to streams, and shallow landslides frequently initiate debris flows. Rural roads are a common feature of this watershed. Washouts from rural roads contribute sediment to streams, and sometimes initiate debris flows. The density of rural roads in the upper watershed, especially unpaved gravel and dirt roads, indicates a high potential for sediment contribution to the stream network, which could impact water quality downstream within the study area.

Section 7,164 Soils

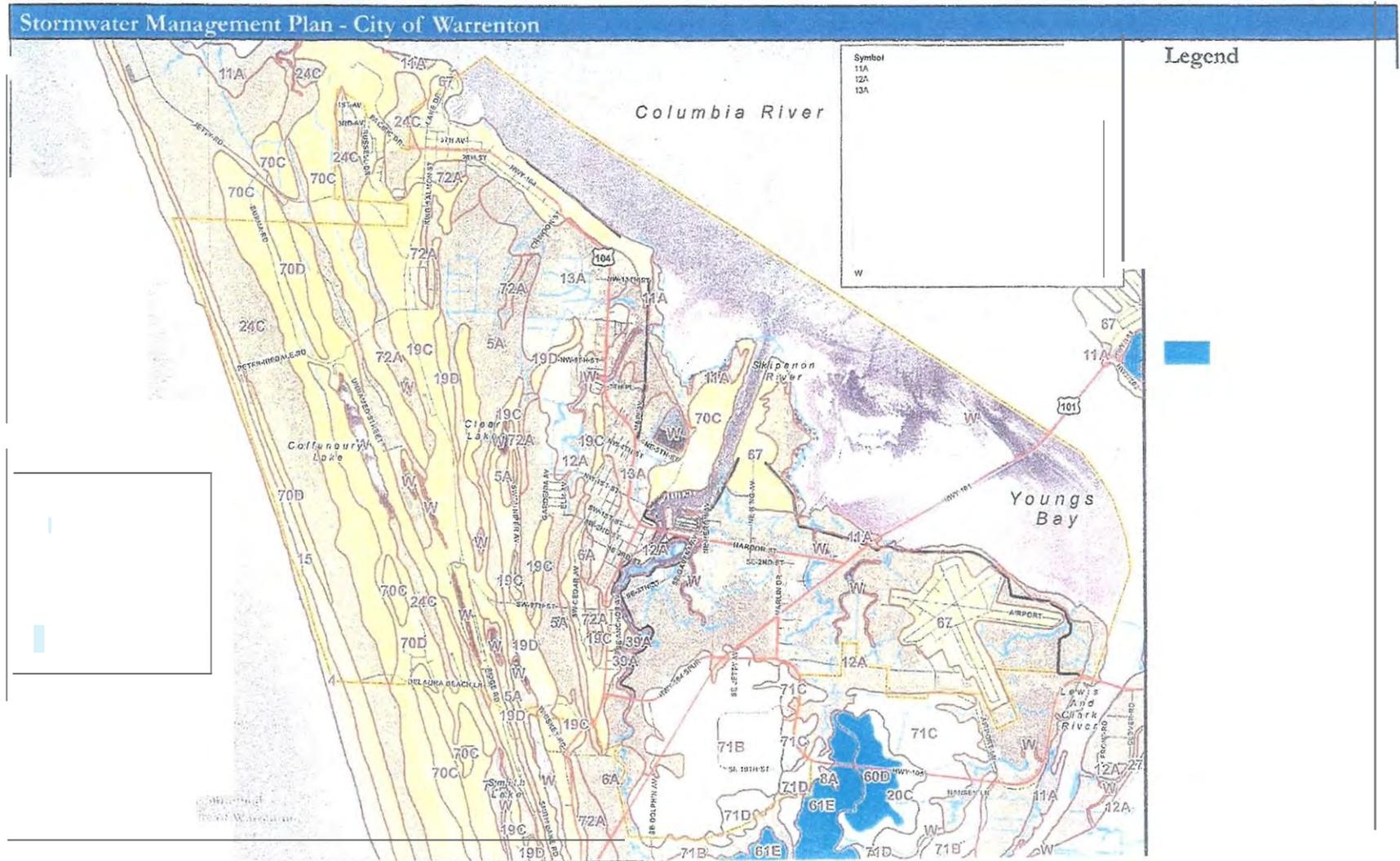
Knowledge of local soil conditions and their response to precipitation is essential for evaluating a drainage system. Many disposal paths are possible for precipitation. Precipitation may evaporate, collect in depressions, be intercepted and used by plants or infiltrate into the soil. Stormwater runoff occurs when precipitation exceeds the capacity of these paths. The existing degree of soil saturation and the slope of the drainage basin also affect runoff rates. Runoff potential is based on the soil's capacity to absorb precipitation. Sandy soils have higher infiltration capacity and lower potential than soils with a high percentage of clay.

A portion of the Study Area is made up of the Clatsop Plains, which are comprised of sand dunes, tidal flats and floodplain alluvium. The Clatsop Dunes are a series of sand ridges formed by wind. The source of these dunes is sediment from the Columbia River deposited since Pleistocene time that is constantly reworked by wind, waves and rain. In some parts of the dunes the sand is over 150 feet deep. Flood plain alluvium occurs along the Columbia River and Skipanon River at the Northern End of the Clatsop Plains (Hansen and Harris, 1974).

The primary soils of the Study Area are the Coquille-Clatsop (C-G) , Grindbrook-Walluski-Hebo(G-W-H) , and Waldport-Gearhart-Brailler (W-G- B). The C-C soils are very deep, very poorly drained silt loam and muck and are located on tidally influenced flood plains. The G-W-H soils are deep to very deep soils, moderately well drained or poorly drained silt loam and silty clay loam found on terraces. The W-G-B soils are very deep, and are either: excessively drained, somewhat excessively drained, or poorly drained fine sand, fine sandy loam, or mucky peat found in dunes and swales (Smith and Shipman, 1988).

The Natural Resource Conservation Service (NRCS) rate soils into four categories based on their infiltration capacity, water transmission rate and runoff potential. Hydrologic Soil Group (HSG) D produces the greatest amount of runoff and HSG A produces the least amount. Within the study area, approximately 53.6 percent is HSG D, 7.5 percent is HSG C, less than 1 percent is HSG B and 34.5 percent is HSG A. The remainder is water.

Figure 8 is a map of the soil types for the study area.



Section 7.165 Tidal Influence, Levees, Tide Gates and Pump Stations

Tailwater conditions are an important factor in the performance of any drainage system. A high tailwater can greatly reduce the ability of stormwater runoff to pass through a culvert or storm pipe. Backwater effects due to a high tailwater can significantly lower the capacity of existing drainage ditches and culverts. The City's low elevation and its close proximity to the tidally influenced Columbia River make tailwater conditions a key component of the stormwater puzzle. As Warrenton lies approximately between river miles 5 and 9 of the Columbia River, water elevations in the Columbia River and the Skipanon River are heavily influenced by Pacific Ocean tides. Water elevation can fluctuate 7 feet diurnally, with a mean high water of elevation 8.15 and a mean low water of elevation 1.38 and can differ as much as 15 feet annually, ranging from elevation -2 to elevation 13. Table 3.7 gives some statistics from the Astoria tide station. All reported elevations were converted to NAVD-88. All information was gathered from the NOAA website.

TABLE 3.7 ASTORIA TIDE INFORMATION

Statistic	Elevation (ft)
Mean Tidal Level -	6.74
Mean High Water	8.82
Mean Low Water -	8.15
Mean Higher-High Water	1.38
Mean Lower-Low Water	0.21
Maximum Station Water Level	12.58 (1983)
Minimum Station Water Level	-3.64 (1979)

In lieu of using a constant tailwater condition, a time series was created that varied the tailwater elevation at the outfall over a period of several days. This allowed the stormwater model to reflect the varied tidal effects. Tide data was collected from the published NOAA database for the tide station in Astoria, Oregon (Station ID#9439040). The water surface elevation difference between Astoria and Warrenton is typically only +/- 0.1 feet, so no correction was made in the data for this study. Approximately 15 years of data was reviewed for use in the model. Statements made during the April 2007 Citizen Advisory Committee meeting about periods of significant flooding in town allowed particular periods to be isolated.

November 11-17, 2001 was chosen as the primary time series to use. Three other events were also tested in the model. The November 2001 storm represents a period of high low tides on the Columbia and a 2-year storm event in Warrenton. Table 3.8 gives summary statistics of several tidal events. The City experiences most of its flooding problems when the

low tide in a tidal cycle is unusually high. The invert elevations of most of the City's tidegates are below elevation 4. When the low tide does not drop below this elevation, a large portion of the City is unable to drain effectively through the gravity fed tidegates for days at a time. Flooding within the City occurs if this high tide cycle coincides with a large rain event in the City. Adjusting the tide time series and the precipitation intensity allowed the model to test a wide variety of scenarios.

TABLE 3.8 TIDE EVENTS

Name	Start Date	End Date	Max El (NAVO-88)	Min El (NAVO-88)	Diff (ft)	Avg. El (NAVO-88)	% of time Over El=4
Tide 1	11/11/01	11/17/01	11.2	-0.97	12.17	5.2	61%
Tide 2	2/17/96	2/24/96	11.95	1.16	10.79	6.7	77%
Tide 3	12/10/99	12/17/99	10.68	1.76	8.92	6.4	84%
Tide-4	12/11/02	12/18/02	11.2	0.25	10.95	6.1	79%

The city's levees range in height from elevation 15 to elevation 17 (NAVD-88). The levees were modeled in conjunction with the City's tidegates. The Columbia and Skipanon Rivers were separated in the model from the City by links representing the tidegates. The levees are effectively modeled by only allowing runoff to drain to the river through the tidegates. The overtopping elevation of the boundary nodes were set at the levee crest elevations. No storm events or tidal conditions were modeled that overtop the levees. LIDAR data was used to estimate available stormwater storage behind the levee in each subbasin at elevation 1 through elevation 11 in 1 foot increments. This allows runoff to fill the available storage area behind the levee and then release to the river as tidegate capacity and tailwater conditions allow. The maximum elevation of the runoff in each storage area for each scenario provides insight into potential flood areas.

The tidegates are critical to the City's stormwater system as the vast majority of the City's stormwater runoff passes through them. The tidegates regulate flow between the City and the rivers, which is dictated by the tidegate culvert's size, material and invert elevation. The majority of Warrenton's tidegate are made of cast iron and hinged at the top. The tidegate itself is attached to a culvert, either wood stave or corrugated metal that runs through the levee. Tidegates on Alder Creek and Adams Slough are rectangular concrete boxes. "As-built" construction drawings of the levees and tidegates provided by the USACOE were used to populate the model with required tidegate dimensional information. Manning's "n" were estimated based on the construction material and the tidegate photos from the Phase 1 site visits. Typically the older tidegates are constructed of wood stave pipe and the newer tidegates are concrete box culverts or corrugated metal pipes. Entrance and exit loss coefficients were applied when applicable. Exit losses were typically

increased to simulate the losses due to the large restorative force associated with cast-iron, top-hinged tidegates. By design, tidegates, when functioning properly, only allow flow in one direction. During high tailwater conditions water pressure and lack of head differential between the inland and riverside of the tidegate closes the tide gate flap. XP-SWMM only has a "tidegate" modeling option for the outfall. The software does however have an option to permit "downhill" flow only in conduits. The option allows the model to simulate any number of tidegates without having to create a large number of outfalls. Altering this option enables the model to simulate a combination of tidegates in the City that are either operational or non-operational. It also makes simulating the tidal effects uniformly throughout the model possible. A table found in Appendix D of the facilities plan, lists the City's tidegates and gives some summary information about material, size and condition. A photographic summary is also found in the Appendix D of the facilities plan.

Recognizing the flooding hazard during high tide periods, the City installed two pump stations in the 1970's in the downtown area. The pump stations consist of a grated ditch inlet connected to a wet well. The vertical shaft-driven pump siphons stormwater out of the wet well and pumps the runoff over the levee through ductile iron pipes and into the Skipanon River. Each pump is equipped with a 40 horsepower motor that turns on and shuts off automatically at pre-set water elevations in the wet well. By the mid-1990's the southern pump station's pump motor was no longer operable. The City moved the motor from the northern pump station to the southern pump station, fixing the problem, but leaving the northern pump station out of commission. The southern pump station continues to function as the City's lone stormwater pump, but is susceptible to power outages and periodic mechanical conditions resulting in pro-longer downtime. There is no defined hydraulic connection between the two pump station's subbasins, though several overland routes and small drainage pipes provide an indirect connection during high flows. While these pump stations have the potential of being an integral part of a successful stormwater system, their current condition limits their capabilities and their reliability to function as designed. Figure 3.2 is a schematic of how the current pump stations are configured.

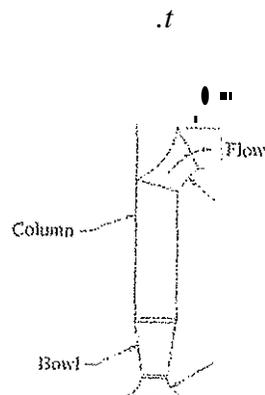


Figure 3.2 - Schematic of existing stormwater pump

The pump stations are modeled in XP-SWMM using the software's pump station feature at their appropriate locations in the stormwater system. They are modeled as "static head pumps" with specific elevations at which the pump turns on and off. The "pump-on" and "pump-off" elevations were taken from as-builts and converted to NAVD-88. Very little information is known about the performance curve of the pump itself, so assumptions were made based on the motor's identification plate. The pump was estimated to have a 50% efficiency rating. The head differential was estimated at 7 feet based on as-built drawings showing water elevations. From this information, the pump's output was calculated to be approximately 20 cfs or 8,750 gpm. The lack of pump performance curve information necessitated the assumption of a constant output flow rate regardless of inlet water elevations (i.e., static head). Upgraded pump stations simulated during the CIP analysis were modeled in XP-SWMM using performance curves provided by a local pump supplies.

Section 7.166 Existing Storm System Evaluation

Warrenton's existing conveyance system was evaluated. It is extremely flat in most places, allowing bi-directional flow depending on tailwater conditions. Only two parts of the city, the downtown area and the Hammond / Brailer Ditch-Enterprise area, have a continuous system of significant pipes and engineered drainage ditches. The rest of the City's system is localized and sporadic. It consists primarily of roadside ditches and drainage canals the capacity of which, are typically reduced by vegetation and debris. Most of these drainage facilities have not been maintained in many years. Many of the piped systems in the outlining areas consist of catch basins and pipes with diameters of 8-inches or less. They are primarily used to drain parking lots and other impervious areas and empty to the nearest ditch or channel. Survey revealed that many of the catch basins and pipes have suffered from sedimentation. Two aspects of the City's system lend themselves to evaluation through stormwater modeling.

The first of these is the City-wide system of levees and tidegates. As stated earlier in this chapter, the modeling effort focused on the tidegates, tidal effects, pump stations and available stormwater storage behind the levees. The peak flow rate passing through each tidegate was compared to the peak flow rate entering each subbasin through rainfall and inter-basin transfer of runoff. Stormwater accumulations in the storage areas were also analyzed.

Limitations were identified and addressed in the recommended Capital Improvement Projects (CIP) . The area affected behind the tidegate played a large role in determining which tidegates should be upgraded. For instance, much of the land east side of the Skipanon River is either wetland or forest. These areas had a lower priority than tidegates that served a heavily developed area. Table 3.9 shows the performance of tidegates for the 25-year design storm under existing conditions.

TABLE 3.9 - TIDEGATE PE! FORMAN CE
(Results from 25-year Design Storm)

Tidegate #	Conduit Model Name	Max Computed Flow:JeJ	Max Compute Velocity (ft/ s)
1	1.30 in CMP	14.8*	3.1
2	2.30 in CMP	9.8*	2.4
-	EntCon	33.9*	3.6
4	D1-A3+24	1083.0	8.7
5	D1-14+12	99.7	6.2
6	42 in CMP	58.2*	6.1
7	D2-2+16	12.2*	7.1
8	G3+40	0.9	2.0
9	3rd St. TG	92.4	5.8
10	D2-41+90	0.9	1.2
11	8th Street Dam	413.4*	2.5
12	64+85	11.0*	6.5
13	R2+21.2	34.1	7.4
14	111+00	10.5"	6.3
15	37+81	38.3	5.2
16	Galena TG	4.4*	8.0
17	22+00	131.1	6.0
18	177+00	64.2	6.5
19	125+00	102.5	5.5
20	95+28	250.0	5.9
21	59+88	26.3	5.4
22	26+45	117.8*	9.3
23	Link 4	47.6*	4.7

-3-

* Indicates max computed flow exceeds design flow- Possible because of head build-up on the upstream end of the culvert.

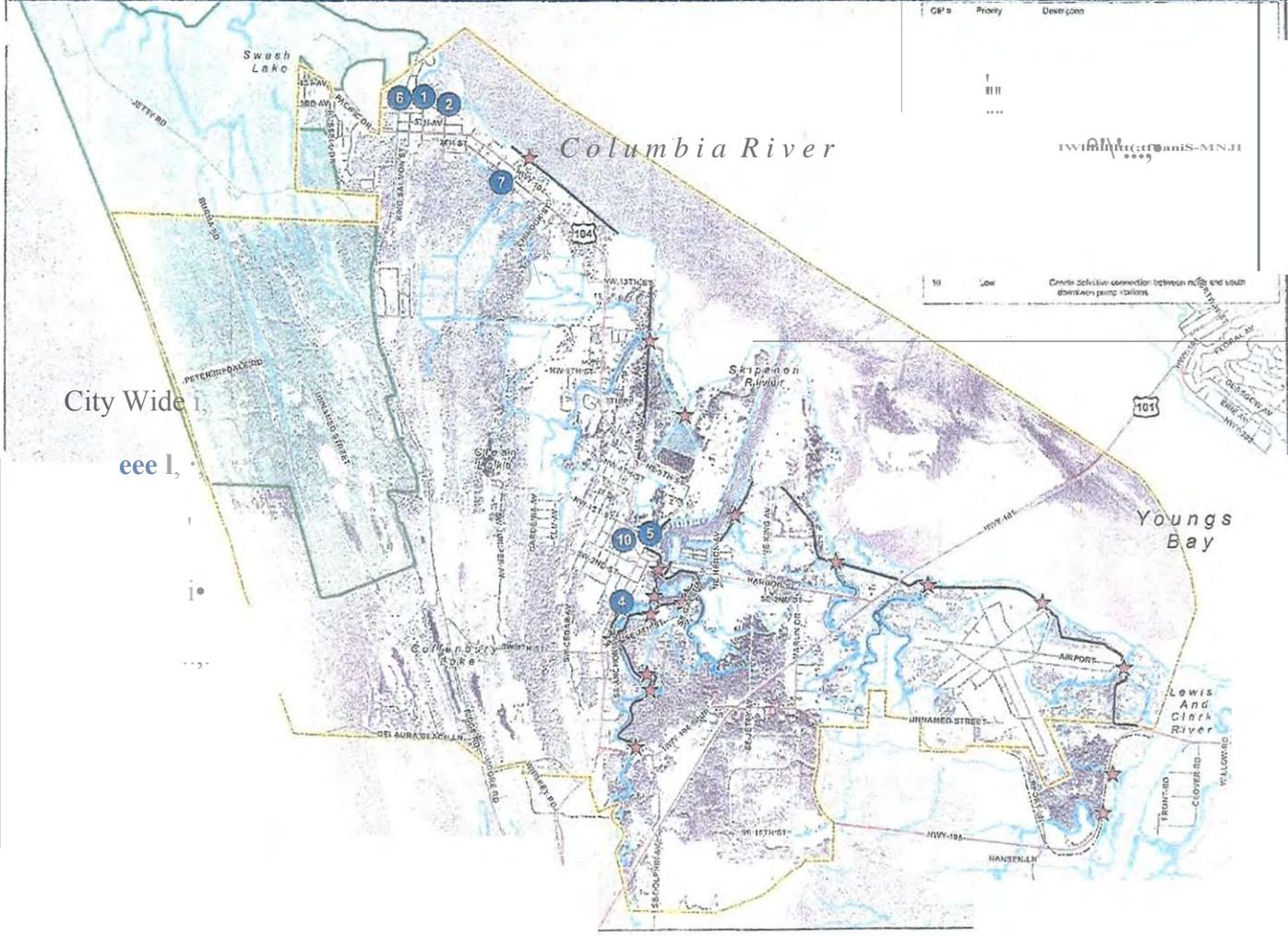
Two portions of the City's existing system were modeled in detail using XP-SWMM. The downtown subbasins and the Hammond / Brailier Ditch-Enterprise area both have a system of continuous pipes and ditches that drain to specific tidegates. These two areas are shown in detail in Figures 1 Oa and 1 Ob. All major existing drainage/conveyance components were included in the evaluation. Three separate XP-SWMM stormwater models were created as part of the CIP evaluation for these two areas. One covered the West Hammond subbasin and tidegate. The second modeled the East Hammond and Brailier Ditch-Enterprise subbasins. The final model covered the two downtown subbasins. See the CIP's in Chapter 5 of the facilities plan for a discussion of the existing system and recommended improvements.

This section of the Stormwater Management Plan (SWMP) outlines strategies and provides recommendations that will update the City of Warrenton's water quality and natural resource management and regulations guidelines. This information is specifically designed to address the management of stormwater quality in the context of the City's location within the 100-year floodplain of the Columbia River. Accordingly, the need to control the potentially deleterious effects of stormwater runoff as it relates to maintenance and operation of storm and surface water conveyances (ditches, culverts, and tidegates) and the protection of natural resources is discussed.

Section 7.167 Existing Facility Maintenance

A key piece to the City's Stormwater Management Plan is the recommended Existing Facility Maintenance and Capital Improvement Projects (CIP). The CIP's were selected based on their ability to meet the City's stormwater goals. Factors included in the decision were the City's stormwater needs, modeling results, capacity calculations, input from City staff, inputs from the general public, observations during site visits conducted by HLB-OTAK staff, and project costs. Table 5.1 summarizes the 12 CIPs chosen for detailed study. Figure 2 shows the approximate location of each CIP.

Stormwater Management Plan - City of Warrenton



CP #	Priority	Description
1	III	
2	III	
3	III	
4	III	
5	III	
6	III	
7	III	
8	III	
9	III	
10	III	

Legend

Highway

(p. 11, 2001)

City Wide i

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i•

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The levees and tidegates which protect the City from high tides in the Columbia and Skipanon River, and the conveyance system, consisting of culverts, drainage ditches, storm pipes and other facilities which drain the City and directs stormwater runoff to the tidegates. The tidegates and levees are under a constant barrage of destructive forces, including corrosion from the saltwater, erosion caused by the tidal cycle and waves, runoff flowing through the tidegates, water and wind erosion during storm events, and the erosive effects of vegetation and burrowing creatures. The City's stormwater conveyance is also constantly having its effectiveness and efficiency reduced through a myriad of factors. The flatness of the City's system is a perfect recipe for sedimentation in drainage ditches, storm pipes, inlets and manholes.

The wet, nutrient rich environment encourages rapid and dense vegetation growth in drainage ditches. Individuals, not fully understanding the impacts, place debris, such as dirt and grass clippings, into drainage ditches, blocking the flow path. The City must continue to aggressively maintain its levees, tidegates and conveyance system. Recent interpretations of environmental laws have resulted in regulation of more waterways, including many ditches. This change in regulation requires additional permitting hassles and has discouraged the City from regular maintenance of many ditches.

The USACOE inspects the levee system once a year. Inspection reports for the period 1995-2006 show Warrenton has received an "A" or "B" grade. Typically one or two discrepancies are discovered per inspection and the City's Public Works staff quickly goes out to make the needed repairs. The repairs have included: removing vegetation, replacing tidegates, and repairing slumps and slides.

Many of the tidegates are leaking and most of the tidegate headwalls are eroded or in need of repair. A majority of the City's tidegate culverts are constructed of wood stave pipe and are nearing the end of their service life. Replacement should be based on current condition and the associated flood protection value of areas serviced by a particular tidegate. It also should consider factors such as upstream natural resources to determine fish passage requirements and/ or mitigation opportunities. Two of the City's tidegates, the 8th Street Dam and the Adams (Vera) Slough, have already undergone modification to allow for better fish passage, as well as improved water quality due to increased flushing. While these changes have positive effects, there can also be potentially negative results, such as higher water levels upstream of the tidegate, especially during high tide. Understanding the impacts of changes to tidegate construction and operation is critical to maintaining the City's current level of flood protection.

The City's stormwater conveyance system is in need of maintenance, especially its drainage ditches, many of which have reduced capacity due to vegetation and sediments. This results in decreased conveyance and

storage capacity of the system, as well as decreased water quality at the outfall due to stagnant water and lack of flushing between tidal cycles. Not all of these drainage ditches are on City owned property. The City should consider confirming existing right-of-ways and / or easements for critical drainage ditches such as the Brailer-Enterprise ditch and others that are on private land to ensure they are properly maintained. There are concerns about whether permits are required to conduct maintenance within the existing drainage ditches, primarily due to the high density of wetlands within the City boundaries. This issue must be resolved before a ditch maintenance plan can begin in earnest. If and where permits would ultimately be required for the maintenance of some or all of such facilities, a programmatic maintenance permit is recommended as a CIP. This would allow the City to perform routine maintenance of all drainage ditches where conditions dictated in the permit are met. A programmatic maintenance permit, or Nationwide Permit, can be approved for a five or ten year period. Conversations with the USACOE and NOAA revealed that the approving regulatory agencies are extremely open to the idea. The CIP has been given a high priority. Once a permit is in place, the City should set aside an annual budget to maintain all of the drainage ditches, culverts and related drainage facilities, first focusing its effort on those drainage ditches which impact the City's stormwater system the most. Many of these key drainage ditches are identified in the drainage system improvement CIP's for the downtown, Brailer-Enterprise Ditch, and Hammond area.

Section 7.168 Capital Improvement Projects (CIP)

Table 5.1 lists the recommended CIP's, provides a priority, and estimated implementation costs. A City map with CIP locations is shown in Figure 2. There are two basic categories of Capital Improvement Projects; those that deal with the regulatory and planning aspects of stormwater management, and those that involve the improvements of structures and facilities in the City's stormwater drainage system. It is recommended that the regulatory related CIP's be addressed and, where permitting is required, implemented before physical upgrades to the system are accomplished. This will allow the City to be in full compliance with regulatory requirements, and fully aware of what can and cannot be done within the City's tidegates, drainage ditches and wetlands. Implementing the O&M plans for the existing tidegates and drainage ditches will ensure the City's complete inventory has been studied and the most critical conveyance system components are maintained and / or modified first. When considering system upgrades, it is recommended that downstream projects such as tidegate repair and pump station upgrades be implemented first.

Increasing the capacity at the downstream end of the drainage system will ensure that any later maintenance, modifications, or additions to the upstream drainage ditches and pipes will result in real changes to the water surface elevations in town during flood events. If pipes and drainage ditches are maintained or, in some cases, modified through enlargement before the downstream outlets are improved, backwater effects from a

broken tidegate or for example neutralize any intended flood reduction.

All of the CIP's that recommend maintenance or upgrade improvements to the drainage system can be done in phases, as time and finances allow. For this study, the cost estimates were determined for complete maintenance or upgrade improvements of each drainage system. It is entirely feasible to split these sub-basin wide projects into pieces and maintain or upgrade specific drainage ditches and pipes as needed. Unit costs were based on bid tabulations from recent projects on the north Oregon coast from ODOT Region 2 data. These prices reflect the cost for a contractor to be hired to do the work. Significant cost savings could be realized for any portion of a CIP, which could be constructed in-house by Public Works staff. Many of these recommended maintenance and improvement tasks are within City Streets, especially in the downtown area.

The CIP implementation of recommended improvements could occur in conjunction with street improvements, such as resurfacing or upgrades to other utilities like water and sewer. Such combined projects would reduce engineering and construction fees for the stormwater piece of the improvements. It is also feasible to place new storm pipes and drainage ditches in a parallel street, if a street improvement project is planned for that particular street. A good example of this would be 8th Avenue in Hammond. A key drainage ditch that connects the East Hammond subbasin to the Brailer-Enterprise Ditch subbasin runs along the north side of 8th Avenue. A CIP recommends this ditch to be maintained through cleaning out sediment. It would be conceivable to place a storm pipe or ditch on 7th Avenue instead if this street was scheduled to be improved.

For several of the main drainage ditches, especially in the Hammond / Brailer-Enterprise Ditch area, the City needs to confirm its rights-of-way associated with these facilities. It is recommended that formal easements are acquired for these facilities. This will ensure the City continued access for maintenance and upkeep.

TABLE 5.1: CIP SUMMARY

CIP #	Priority	Description	Estimated Cost (2007 Dollars)
1	High	Repair / Refurbish West Hammond Marina Tidegate	\$344,190
2	High	Repair / Refurbish East Hammond Marina Tidegate	\$349,033
3	High	Tidegate Repair & Replacement Pln	\$115,050
4	High	Evaluate and upgrade existing pump station adjacent to SE 3rd / 4th Streets	\$721,762
5	High	Refurbish existing pump station adjacent to NE 1st St.	\$721,762
6	Low	Upsize storm system in west portion of Hammond Marina subbasin	\$135,879
7	High	Relieve stormwater drainage issue in the East Hammond / Brailer-Enterprise Ditch Area	\$494,086 - Sys \$1,944,854 - PS
8	High	Address whether need exist for programmatic permit to allow O&M routine maintenance of some or all of the City drainage ditches and obtain such permits if necessary	\$52,000
9	Low	Create and Implement Monitoring Plan for City of Warrenton	\$87,029
10	Low	Upgrade downtown conveyance system and create definitive connection between north and south downtown rium:i stations	\$861,794
11	High	Sanitary Sewer Inflow / Infiltration Study	\$96,466
12	High	Stormwater Rate Study	\$15,000 - \$20,000

Section 7.170 Marinas

Section 7.171 Hammond Marina

The Hammond Marina (basin) is located at the NW corner of the City of Warrenton in what was once the town of Hammond (now within the City of Warrenton) , with a total city population of approximately +/- 4600. The basin is within Clatsop County on the

south shore of the Columbia River in the NW corner of Oregon. The small embayment and adjacent lands are leased for recreational and commercial development to the City by the US Army Corp of Engineers. The marina improvements are owned and operated by the City of Warrenton.

The purpose of the master plan is to provide a plan for improvements to the marina based on current information. An original plan dated June 1991, was prepared by Leslie Simons & Hanforth, Larson & Barrett, Inc. In September 2005, the original master plan was updated by HLB / OTAK. It is the intent of this document to: (1) pursue funding for marina improvements, (2) compile a plan that summarizes the current community vision of the future of the marina, and (3) identify the priorities for improvements that will revitalize the marina property to its full potential for the economic and recreational benefit of both the community and all of its visitors.

A. Existing Utilities - serviced with water, sewer, electricity, cable, telephone, and high speed internet (DSL) . Natural gas exists to Jetty Street and Fourth Avenue. A high pressure water main for fire protection extends to Third Avenue on Lake Drive, but this service does not adequately serve fire flow to the basin. Dockside services include water and except for Dock C, electricity; cable is available on Dock A.

B. Boat Trailer Parking - Heavy congestion problems occur periodically between 3 and 10 days a year within a three week period ending with Labor Day.

The existing multi-directional access to the ramp allows the boat trailers to line up on Lake Drive while waiting to launch. Parking and access from both sides severely hampers the ramp's efficiency often extending the duration of each launch. This situation produces a gridlock condition which creates problems for local traffic and makes access to private property difficult on the affected streets.

C. Existing Fuel Dock - is inadequate for the proposed marina improvements. It is able to handle only 1 or 2 vessels at a time and is not suited to bundling (spillage control) for marina safety.

D. Access Channel - This 100' channel may need to be realigned as it impedes on the optimum layout of the marina docks.

Section 7.171.1 Recommended Improvements

The full development master plan (September, 2005) proposes to separate uses. The major components of the plan are (for full descriptions see the Master Plan):

- A. Charter Craft/ Rental Basin
- B. Boat Trailer circulation & parking

- C. Holding docks
- D. Private moorage
- E. Access channel adjustment
- F. Dry storage yard
- G. Basin configuration & Edging
- H. Mitigation of Wetlands
- I. Fuel Dock and Bunkering facilities
- J. Marina signage
- K. Multi-purpose building
- L. Utilities

Section 7.171.2 Financing & Sources of Funding

All estimated costs are approximated for planning purposes and will need to be refined or developed at the time the particular project is considered for funding. Some enhancement will require additional studies to confirm scope and cost. The enhancements will occur as funding becomes available. The City will consider several funding sources for the development of the marina. Examples include: federal and state grants and loans; services in lieu of funding such as National Guard or Reserve; private foundation grants; private development funds (public-private partnership); and long term debt.

Section 7.172 Warrenton Marina

The Warrenton Marina is located on the north side of Harbor Drive in the city limits of Warrenton. This marina is the home to many commercial fishing boats as well as recreational fishing boats. The existing facilities at the Warrenton Marina are a manager's shack, 370 commercial and recreational boat slips, 1 boat ramp (2 lane) , 2 hoists, 1 dry storage area, and restroom and showers (these facilities are dilapidated and need replacement as well as expansion).

A master plan for the Warrenton Marina has never been compiled; the city is currently in the process of creating a master plan for this marina.

SECTION 7.200 GOAL

Develop a timely, orderly and efficient arrangement of public facilities and services which will serve as a framework for development and, to the extent practical, meet the needs of local citizens and others dependent on these facilities and services.

SECTION 7.300 POLICIES

Section 7.310 Community Facilities and Services

- (1) It is the City's policy to help meet community needs by establishing a capital

improvements program, using appropriate site acquisition methods, carefully selecting service activities and undertaking other desirable actions.

(2) The City will continue to make necessary improvements to its community facilities and services as the need for such improvements dictate, and to the extent funding sources or mechanism are available.

(3) Prior to offering new types of public services, the City should consider:

- (a) the coverage and adequacy of any existing services of this kind which are being provided,
- (b) relative need for this type of service compared to other kinds which could be offered, and
- (c) financial capability of the City to pay or help pay the necessary costs.

(4) Efforts shall be undertaken to:

- (a) promote construction of needed educational facilities,
- (b) support greater use of the community schools concept,
- (c) help establish a county-wide library system which would offer some services in Warrenton,
- (d) install appropriate improvements for handicapped people in new and existing City community facilities,
- (e) support effective operation of hospitals, clinics and other medical facilities in Clatsop County,
- (f) encourage more doctors to maintain offices in Warrenton,
- (g) aide sound programs for senior citizens, and
- (h) allow churches and other semi-public uses in desirable locations when suitable standards and conditions are satisfied.

(5) The City will cooperate with the school district in providing needed educational facilities by providing the district with updated population projections and coordinating with school district officials. City approval of major developments, which would cause a substantial increase in population. While the school district has

presently reserved two sites for expanding facilities, the City will consider making suitable City-owned land available for a school site if a future need arises.

(6) The actual cost of providing municipal services to Fort Stevens State Park users should not be borne solely by the City of Warrenton with its limited resources but should be shared. The City shall determine actual costs and dollar impact of Fort Stevens State Park on the operations of the City of Warrenton. The City's goal is to not be burdened with a greater share of the costs of the location of the Park than is equitable in the circumstances.

Section 7.320 Water, Sewer and Storm Drainage/Flood Control

(1) Support desired growth by using sound evaluation, construction financing, scheduling and other techniques to upgrade the water, sewer, stormwater drainage, and flood control systems.

(2) Efforts will be made to evaluate means of expanding the capacity of the water and sewer systems to accommodate future growth in the City and other areas.

(3) The City will continue to upgrade its sanitary sewer system in order to provide the necessary level of service to residential, commercial and industrial uses. The following projects have the highest priority:

- (a) Upgrading the sewage treatment plant through expansion of the lagoon treatment system;
- (b) Upgrading sewer pump stations;
- (c) Correcting infiltration / inflow problems, particularly in the East Warrenton and Port of Astoria Airport area;
- (d) Providing service to presently unserved commercially zoned property along Highway 101, Marlin Avenue and East Harbor Drive; and
- (e) Providing service to presently unserved industrially zoned property at the east bank of the Skipanon River and at Tansy Point.

(4) The City will continue to upgrade its water system to provide the necessary level of service to residential, commercial and industrial uses. The following projects have the highest priority:

- (a) Construction of a water filtration plant was constructed in 2005.
- (b) Water system improvements to serve commercially zoned property in the commercially zoned property along Highway 101, Marlin Avenue and

East Harbor Drive.

(c) Water system improvements to provide greater fire flow capability in the area west of the Skipanon River.

(d) Water system improvements to serve industrially zoned property such as the east bank of the Skipanon River and the General Industrial area at SE Dolphin Road.

(5) The City will continue its efforts to upgrade and maintain a system of dikes and tidesgates which help prevent flooding in Warrenton.

(6) The City will continue working with the U.S. Army Corps of Engineers to implement the reconstruction of Dike # 1. The City will also cooperate with the U.S. Army Corps of Engineers in future studies to evaluate the requirements for improvements to Dike #2 and #3.

(7) The City will assess the impact of proposed subdivisions and large-scale commercial developments on the capacity of the community's water, sewer and storm water runoff facilities. Such developments will only be allowed if sufficient capacity exists or suitable evidence indicates it will exist prior to completion of development construction. In deciding the sufficiency of capacity, consideration will be given to possible increases in flows resulting from activities of existing system users and facilities which are likely to be built due to the proposed use but which are not a part of the development.

(8) Proposed subdivisions, new large-scale commercial developments in Warrenton will not be allowed unless satisfactory provisions are made for water supply, sewage disposal and storm water runoff facilities. Satisfactory provisions, in part, mean that the size of any water, and sewer lines and drainage ways will be sufficient to meet the needs of the development and, where desirable, be able to accommodate growth in other areas. Suitable arrangements, including dedication of land or use of easements, shall be made so that the City will be able to maintain appropriate water, sewer and drainage facilities. The construction of lengthy pressure-forced sewer lines to the site, which by-pass undeveloped properties, will be discouraged.

(9) Persons developing property will generally be responsible for the cost of any water, sewer or storm drainage facilities which are required to meet the needs of the site being developed. Extra costs resulting from the need to construct facilities which will also accommodate future growth in other locations will often initially be the responsibility of the City and eventually be paid for by the people who develop these locations. In some instances, use of assessment districts may be appropriate for paying a portion of the costs for system extensions. Assessments of property for extensions should be levied only where there is a significant benefit to the property being assessed. Efforts usually will be made to obtain federal and state grants to help pay for major system

improvements which are eligible for funding.

(10) Water and sewer rates will be increased as needed in order to provide the necessary funds for maintaining and upgrading the systems. Consideration shall be given to changing the present water rate structure so there is more encouragement for water conservation; and requiring a meter for each existing connection without a meter and for each new connection. The costs of connecting to the water and sewer systems (hook-up charges) shall be revised periodically to reflect the cost of making the connection. Hook-up charges will not be used to recover general capital costs of the system since other methods exist which are more equitable and less expensive to the user.

(11) Sewer service will be made available only in Warrenton and incorporated portions of Fort Stevens State Park. Water service will continue to be provided to a much larger area. No major water system expansions outside the City limits will be permitted unless sufficient system capacity has been reserved for existing and future Warrenton uses and the projected revenues resulting from the project will be enough to pay for anticipated operation costs. Preference will be given to major water system expansions within urban growth boundaries and county-designated rural service area. Sizes of new water lines shall be in conformance with the appropriate jurisdiction's comprehensive plan.

(12) Planned capital improvements to the City's water system, wastewater treatment system, stormwater drainage system and dikes are described in each facility's master plan.

Section 7.330 Fire, Police, Recreation and Solid Waste Management

(1) It is the City's policy to upgrade fire protection, provide sound police protection, increase recreational opportunities and improve solid waste disposal activities through effective public and private actions.

(2) The City will work to upgrade fire protection in Warrenton. This shall include:

- (a) trying to achieve a fire insurance rating of 5 or lower;
- (b) evaluating the City's waterfront fire protection capability;
- (c) adequately scheduling and financing needed improvements; and
- (d) requiring proposed subdivisions and large-scale commercial developments to have satisfactory hydrant and other water facilities.

(3) Consideration will be given to:

- (a) enlarging the existing fire station;
 - (b) eventually building another station or substation, east side of Hwy 101 in Warrenton and providing sufficient equipment for the facility; and
 - (c) supporting the installation of needed facilities at Fort Stevens State Park.
- (4) Sound police protection will be provided by:
- (a) adding more personnel when necessary to accommodate local growth or other increases in staff responsibilities;
 - (b) expanding the amount of police department office space when funding becomes available;
 - (c) periodically reviewing equipment needs and purchasing appropriate items;
 - (d) working closely with other law enforcement agencies; and
 - (e) encouraging public cooperation in crime prevention.
- (5) Increased recreational opportunities will be made available to local residents, in part by:
- (a) helping to expand the recreational programs currently being provided in the area;
 - (b) adding more facilities to the City's approximately 24-acre community park, when financially feasible;
 - (c) expanding and improving the City's two boat basins as funding is available; and
 - (d) working closely with the Warrenton-Hammond school district to allow additional use of school recreational areas by the general public.
- (6) Thought will be given to requiring new residential subdivisions to dedicate land for parks, pay fees in lieu of giving land or establishing privately owned and maintained recreational facilities.
- (7) Existing public ownerships, right-of-ways, and similar public easements which

provide access to estuarine or coastal beach areas shall be retained or replaced if sold, exchanged or transferred. Right-of-ways may be vacated to permit redevelopment of shoreland areas provided public access across the affected site is retained.

(8) Efforts will be made to work with other governmental bodies to find a satisfactory site for recycling and disposing of solid wastes from Warrenton and other parts of the county. Until a large-scale recycling operation begins, encouragement will be given to activities, perhaps sponsored by businesses or local non-profit groups, which focus on recycling only a few types of materials. Garbage collection rates, personnel needs and equipment requirements shall be periodically reviewed and appropriate actions will be undertaken.

ARTICLE 8 TRANSPORTATION

SECTION 8.050 INTRODUCTION

The City of Warrenton, in conjunction with the Oregon Department of Transportation (ODOT), initiated a study of the City's transportation system in 2002. The study resulted in the creation of the 2003 Warrenton Transportation System Plan (TSP). The TSP has been adopted as an addendum to this Plan and is referenced throughout this Article. This work was completed as part of periodic review as required by state law. If any goals or policies of this Plan are found to be contradictory or otherwise inconsistent with the TSP, standards of the TSP shall prevail.

The 2003 Warrenton TSP addresses ways to improve the transportation system to support anticipated growth in the City and associated traffic volumes in a way that will emphasize the local street network and protect the function of US 101 as a statewide highway. The TSP establishes a system of transportation facilities and services adequate to meet the City's transportation needs to the planning horizon year of 2022. The TSP plans for a transportation system that includes all modes of travel (that is, rail, pedestrian, bicycle, auto, marine, and public transportation), serves the entire urban area, and is well coordinated with the State, regional, and County transportation network.

The Warrenton TSP identifies planned transportation facilities and services needed to support planned land uses as identified in the Warrenton Comprehensive Plan in a manner consistent with the TPR (OAR 660-012) and the Oregon Transportation Plan (OTP). Preparation and adoption of a TSP for the City provides the following benefits:

- Assure adequate planned transportation facilities to support planned land uses during the next 20 years
- Provide certainty and predictability for the siting of new streets, roads, highway improvements and other planned transportation improvements
- Provide predictability for land development
- Help reduce the cost and maximize the efficiency of public spending on transportation facilities and services by coordinating land use and transportation decisions

The TSP will guide the management and development of appropriate transportation facilities in Warrenton, incorporating the community's vision, while remaining consistent with State, regional, and other local plans. The Warrenton TSP addresses ways to improve the transportation system to support anticipated growth throughout the City. The TSP considered future traffic volumes and circulation patterns in a way that emphasizes the City and County street network and protects the function of the primary state highway corridor serving Warrenton; US 101. The TSP pays particular attention to the tourist and recreational aspects of the area and the transportation conditions created by the unique traffic characteristics. The TSP establishes a system of transportation facilities and services adequate to meet Warrenton's transportation needs to the planning horizon year of 2022. The TSP includes plans for a transportation system that incorporates all modes of travel (that is, rail, pedestrian, bicycle, auto, marine, and public transportation) , serves the urban area, and is coordinated with the State, regional, and County transportation network.

Specific elements of the Warrenton TSP include:

- A street network with connections and extensions to provide for local circulation and access off of US 101
- Street standards that comply with the TPR
- Appropriate improvements along the primary City, County and State highway corridors that serve Warrenton to support planned land uses and measures to protect the long-term functionality of US 101
- Pedestrian and vehicle circulation improvements to reduce the need for short car trips on State highways and improve pedestrian safety throughout the planning area.
- Trails - existing and proposed trails to link the scenic areas of Warrenton with Fort Stevens, the beach and Fort Clatsop. Development of proposed trails, with maintenance of existing and new trails.
- Amendments to the City's Development Code and other land use-related ordinances; the comprehensive plan; and any relevant financing plans, such as a capital improvement plan or other similar documents

The contents of the Warrenton TSP are guided by Oregon Revised Statute (ORS) 197.712 and the Department of Land Conservation and Development (DLCD) administrative rule known as the Transportation Planning Rule (TPR).

These laws and rules require that jurisdictions develop the following:

- A road plan for a network of arterial and collector streets
- A public transit plan
- A bicycle and pedestrian plan
- An air, rail, water, and pipeline plan
- A transportation financing plan
- Policies and ordinances for implementing the transportation system plan

The TPR requires that alternative travel modes be given equal consideration with the automobile, and that reasonable effort be applied to the development and enhancement of the alternative modes in providing the future transportation system. In addition, the TPR requires that local jurisdictions adopt land use and subdivision ordinance amendments to implement the provisions of the TSP. Finally, local communities must coordinate their respective plans with the applicable County, regional, and State transportation plans. This coordination occurred

throughout the preparation of the Warrenton TSP.

Preparation of the Warrenton TSP also was guided by an Intergovernmental Agreement (IGA) entered into by Warrenton and ODOT to address capacity and access issues on US 101. An IGA was signed in January 2001 and provided direction regarding access and traffic signalization on US 101. The principles of the IGA have been incorporated into the Warrenton TSP.

In 2008, ODOT and the City of Warrenton signed a Cooperative Improvement Agreement for Dolphin Lane at Hwy 101 and Hwy 104 Spur. This agreement has two (2) conditions for the construction of "Ensign Lane", which is between Hwy 101 and Hwy 104 Spur:

- (1) As part of the approval to construct Ensign Lane, SE Dolphin Ave's access off of Hwy 101 will be removed; and
- (2) if a rezone proposal is submitted to the city for any of the tax lots on the south side of SE Dolphin Ave (between Hwy 104 Spur and Hwy 101), the property owner(s) / developer(s) shall submit a Traffic Impact Analysis (TIA). The TIA shall be scoped by ODOT and shall recommend any needed highway improvements at the Hwy 104 Spur connection. In addition, the analysis shall evaluate if reasonable alternative access exists to adequately serve the current residential uses on SE Dolphin Avenue. If reasonable alternate access is found to not exist, then the SE Dolphin Avenue connection to Hwy 104 Spur shall be realigned to meet current spacing standards in accordance with OAR 734-051-0135; however, if reasonable alternate access is determined to exist, then SE Dolphin Avenue to connection to Hwy 104 Spur shall be closed.

Because of this agreement, Ensign Lane will be constructed serving Lum's Auto, Home Depot and other commercial development on the west side of Hwy 101; Ensign Lane is proposed to cross Hwy 101 and serve the proposed relocation of Costco and other commercial development on the east side of Hwy 101.

SECTION 8.100 FINDINGS

Warrenton is served by a transportation system that utilizes a wide range of travel modes and allows movement by land, water and air. Street right-of-ways are the focus of this system. They provide the major routes for the movement of people and goods between communities and are the principle means of access to activity centers and other property. The most important streets are US Highway 101, East Harbor Drive, Main Avenue and NW Warrenton Drive. Although most public streets are maintained by the City, upkeep of some of the major ones is the responsibility of the State or County. Streets and other local land transportation facilities provide mobility by making use of automobiles, trucks, buses, bicycles and other travel modes. Considerable additions and improvements to these facilities will be needed during the next twenty years.

Transportation by water occurs on the Skipanon River, Columbia River, Lewis and Clark River, and Young's Bay. Much of this transportation activity is generated by marinas that provide berths for commercial fishing boats, charter fishing boats and pleasure boats. Some activity is also directly associated with waterfront industrial uses in the City. A potential exists for marina expansion and more of port-related industrial activities.

Transportation by air is available from the Astoria Regional Air port, which is owned and operated by the Port of Astoria. The airport is used by the US Coast Guard, general aviation aircraft and, at times, commercial air carriers.

There are several existing and proposed trails in various locations in the City of Warrenton. The trail system provides recreation, transportation, and economic growth to and in our community.

This section addresses the requirements of Statewide Planning Goal 12.

SECTION 8.200 GOAL

Encourage and help provide a safe, convenient, well-maintained and economic transportation system that recognizes the relationship of the system to other land uses and takes into account the value of various modes of transportation.

SECTION 8.300 POLICIES

Section 8.310 Street Classification.

- (1) The City will work to improve the local circulation system by appropriately classifying each public street according to its transportation function as an arterial, collector, or local street and by using this classification to determine transportation characteristics of the right-of-way.
- (2) Each public street in Warrenton has been classified according to its transportation function. Figure 5-2 of the Warrenton Transportation System Plan (TSP) provides the functional classification for each roadway in the City. This classification is related to the circulation requirements of the City and surrounding areas, and to the present and future land use of adjacent property. The street classification helps determine future right-of-way widths, pavement widths, access points, permissibility of on-street parking and other street design standards.
- (3) One of the following classifications has been selected for roadway in the City (see also Figure 5-2 of the TSP):
 - (a) **ARTERIAL** - The primary function of an arterial roadway is to provide mobility. Therefore, arterials typically carry higher traffic volumes and allow higher travel speeds while providing limited access to adjacent properties. Within

Warrenton, US Hwy 101 is the only designated arterial roadway.

(b) **COLLECTOR** - The function of a collector roadway is to collect traffic from local streets and provide connections to arterial roadways. Generally, collectors operate within moderate speeds and provide more access in comparison to arterials. Within Warrenton, ODOT has designated Ridge Road and DeLaura Beach Lane as rural major collectors and Fort Stevens Hwy 104, Fort Stevens Hwy 104 Spur, East Harbor Drive, and Warrenton-Astoria Hwy 105 are designated as urban collectors. The City has designated NE Skipanon Drive, NE 5th Street, SE 12111 Place, SW 9111 Street, SW 2nd Street, NW 1st Street, SE Neptune Drive, Seventh Ave. (in Hammond), Lake Drive (in Hammond), Pacific Drive (in Hammond) , and SE 19th Street (North Coast Business Park Road) as collectors.

(c) **LOCAL** - The primary function of a local street is to provide access to local traffic and route users to collector roadways. Generally, local roadways operate with low speeds, provide limited mobility, and carry low traffic volumes in comparison to other roadway classifications. Within Warrenton, all roadways not mentioned above are designated as local streets.

(4) Public streets have been classified as indicated on the Functional Classification Map (Figure 5-2) of the Warrenton TSP. If the exact location of a proposed public street shown on the map has not been determined, the precise location of the street or relevant portion of the street will be established when property in the area is developed and / or during the process of approving construction of the street. New public streets not shown on the map will be classified by the City during the process of approving the street for development or the process of accepting a street into the City's street system.

Section 8.320 Street Design

(1) New or relocated streets will be designed in a manner which meets circulation needs, promotes safety, minimizes damage to the environment, eliminates unnecessary development and maintenance costs, and achieves other objectives of the Warrenton Comprehensive Plan and Transportation System Plan.

(2) Layouts for new or relocated streets will be required to conform to the standards of the TSP in a manner which:

- (a) relate to the natural contours of the site insofar as is practical;
- (b) minimize grading quantities;
- (c) when reasonable, avoid excess runoff concentrations and the need for storm sewers; and

- (d) achieve other design standards which reduce damage to the environment and development or maintenance costs. In residential areas, encouragement will be given to street layouts that discourage high travel speeds by using curving streets, where possible.
- (3) A review of the appropriate use of undeveloped public right-of-ways in Warrenton will be undertaken by the City to determine whether these should be vacated or the area in which they are located should be re-platted in order to improve the street layout or achieve other objectives of the Comprehensive Plan. Consideration will be given to the desirability of using undeveloped right-of-ways for bikeways, trails, and access to private lots, public property and waterfront areas.
- (4) New intersections shall be designed so that, whenever feasible:
- (a) the intersecting streets meet at right angles;
 - (b) turning lanes are provided at heavily-traveled intersections;
 - (c) they are not located on curves, just below or at the crest of a hill; and
 - (d) other intersections are not too close.
- (5) New or relocated streets will be developed in a manner consistent with the TSP which avoids overly steep grades, reverse curves too close together and sharp curves. Standards related to these characteristics shall vary with the type of street. Pavement designs will be appropriate for the traffic load, sub-grade soil, surface drainage, ground water and climate conditions existing at the pavement's location. Pavement edge treatments other than curb and gutter may be used only where there will still be adequate drainage and the roadway and sidewalk base will not be adversely affected.

Section 8.330 Street Width, Access And Parking Design

- (1) The City will establish street width, right-of-way width and access standards consistent with street classifications and other relevant factors and utilize parking standards suitable for the use being served, the location and the size of the facility.
- (2) Right-of-way widths allowed for new or relocated streets shall conform to the Cross Section drawings for local streets, collector roadways, and arterial roadways illustrated in Figures 5-3, 5-4, and 5-5, respectively, of the TSP.
- (3) Greater widths may be required where higher than normal traffic volumes for the type of street are expected; or where additional area is needed for turning lanes or a turn-around. Narrower widths may be permitted when desirable due to topography, poor soils or other natural characteristics. Right-of-ways for most streets may also be smaller when satisfactory provisions are made for pedestrian ways, bike paths or

utilities outside the street right-of-way. In addition, minor street pavement and right-of-way widths may be less when access will be provided to only several lots or suitable arrangements are made for more than the normal amount of off-street parking.

(4) The right to purchase access control along state highways rests with the Oregon Department of Transportation. The Department issues road approach permits subject to the approval of City, County or other governmental agencies having either joint supervision over the section of highway or authority to regulate land use by means of zoning and / or building regulations. It shall be the permit applicants' responsibility to determine the necessity of and obtain any such approval required.

(5) Where access to an arterial or collector is permitted, appropriate techniques will be used to preserve roadway capacity and safety. Techniques may include: use of joint access points, marginal access roads, minimum distances between driveways and intersections, acceleration or deceleration lanes, other special turning lanes, minimum driveway widths, adequate sight distances, one-way driveways, and other access control methods.

(6) Controls on access to local streets will generally be minimal. However, access to local streets from moderate- or high-intensity land uses will not be allowed unless the street is a marginal access street or other street primarily providing access to moderate- or high-intensity land uses, no desirable option exists, or the use currently has access to the street:

(7) Every new land use shall have an adequate amount of off-street parking to serve the use. Most types of uses, however, will not be required to have this parking on the same property if the parking is provided within a reasonable distance from the structure reacquiring the spaces. Considerable parking areas will be encouraged in the central commercial district, waterfront areas and in other appropriate locations. Surfacing, landscaping, access points, on-site circulation patterns and other parking-related characteristics will be suitable for the use being served, the location and size of the facility. Parking areas with a large number of spaces may have a limited number of smaller-than-normal spaces for compact cars.

Section. 8.340 Street and Parking Financing and Improvement

(See also TSP Section 6, Transportation Funding Plan)

(1) The City will help achieve the street system needed by equitably distributing improvement costs, establishing improvement priorities, and partially satisfy the demand for parking by constructing and suitably financing City parking lots in appropriate locations.

(2) Street construction and maintenance projects in which the City is financially involved will be included in the capital improvements program for community facilities. All costs associated with construction of collector and local streets shall be the responsibility of the developers. Dedicated streets, not maintained by the State or County, will be maintained by the City upon their formal acceptance. Street widening project

costs will be paid by abutting property owners, large-scale development interests benefiting from the improvements and / or by the City when improvements will benefit the general public.

(3) The City, with the assistance of others involved in financing the work, will establish priorities for street improvements. Emphasis should be placed on upgrading arterials and collectors which do not meet City standards. Types of projects that ought to be given special consideration include continuing regular street maintenance, street widening and intersection improvements. As funding becomes available, the City will pay the cost of work for which it is responsible. Encouragement will be given to the State and County to correct deficiencies in streets which they maintain, as soon as feasible.

(4) Consideration will be given to constructing City-financed or partially City-financed parking lots in the downtown area and other appropriate locations. Some of the spaces could be rented to establishments which need the spaces to satisfy off-street parking requirements. Several of the potential funding sources include business tax fees, revenue bonds and special assessments.

Section 8.350 Multi-Mode Transportation

(1) Transportation options for individuals and organizations will be promoted in a variety of ways in order to stimulate the economy, conserve energy, increase personal convenience and attain other objectives.

(2) Increased use of the Astoria Regional Airport shall be encouraged and efforts by the Port of Astoria to make needed improvements in the airport will be supported. Emphasis on the airport area as a multi-purpose facility for commercial passenger service, air cargo, US Coast Guard operations, general aviation aircraft, industrial activities and other suitable purposes will be promoted. In addition, the City will appropriately regulate nearby development, primarily through the use of height limitations. See also the Air System Inventory located in Section 2 of the TSP.

(3) Efforts will be made to protect the airport from incompatible land uses. This will involve trying to avoid hazards resulting from the height of structures, smoke, glare from buildings, lights which shine upward, radio interference from transmission lines and similar uses in the approach zones. Residential uses will be excluded from locations where aviation noise and the potential for aviation accidents is a serious threat to safety or livability. The Oregon Department of Transportation and the Port of Astoria will be allowed to review building permits for construction within the Airport Hazard Overlay Zone.

(4) Expansion of local boating and shipping activities is advocated by the City. This should be supported by proper management and maintenance of local waterways -such as increasing channel depths where desirable, undertaking periodic dredging to maintain appropriate channel depths, prohibiting reduction of channel areas and setting and enforcing speed limits for the Skipanon Channel. Locations suitable for waterfront development activities include the Skipanon River from the mouth to the Eighth Street dam, a portion of the aquatic areas along the shoreline between Tansy Point and the historic Hammond town

limits, along the shoreline of the Hammond Marina, and some relatively small areas in Young's Bay and Alder Cove that are near the peninsulas adjacent to the Skipanon River. Potential water quality and other environmental hazards must be minimized to the extent feasible. See also the Water System Inventory of Section 2 of the TSP.

(5) Deep-draft facilities which can make use of the draft depth of the Skipanon should be encouraged to develop along both east and west banks, near the River's mouth.

(6) It is the City's position that the Skipanon channel and turning basin should be maintained from the bridge to the Columbia River Channel at a depth of 20 feet until greater depths are needed to accommodate local shipping activities. The Warrenton and Hammond Mooring Basins should be maintained at a depth of 16 feet. The City shall continue to serve as a sponsor for maintenance dredging authorized by the Corps of Engineers in the Skipanon Channel and in the Hammond Basin and will procure and maintain adequate dredged material disposal sites for this maintenance project.

(7) The City will work to expand, as needed, the commercial boat moorage available at the Warrenton Boat Basin and to further develop the Hammond Marina to eventually support inclusion of commercial boat moorage at this facility. Improvements will include additional moorage, parking lot and access improvements, service docks, and other support facilities. In addition, consideration will be given to making the necessary upgrades to city infrastructure at these sites to provide increased opportunities for the development of desired water-dependant and water-related commercial, recreational, and industrial activities.

(8) North Coast regional transit provided by the Sunset Empire Transit District and inter-city bus service provided by Greyhound Bus Lines will be supported.

(9) Pedestrian walkways, often in the form of sidewalks located in street right-of-ways, will be required in all high, medium, and intermediate density residential developments, unless the criteria for the Alternative Local Road Standard (TSP Figure 5-3) can be met. Pedestrian walkways will be required in the Warrenton and Hammond city center commercial districts, many waterfront areas, and in various other locations as depicted in the Pedestrian System Plan of the TSP (see Figure 5-7). Adequate safeguards for protecting pedestrians from vehicles will be encouraged. Ramps that comply with the American with Disabilities Act standards will be required at new crosswalks. Priority consideration will be given to repairing and / or replacing sidewalks in the downtown area.

(10) A local bikeway system will continue to be developed in accordance with the Bicycle System Plan of the TSP (see Figure 5-8) as funding becomes available. Bike/emergency parking lanes may be required along new arterials and collectors. State highway funds allocated to Warrenton for bikeways and monies obtained from other sources will be used to help finance the system. Efforts will be coordinated with activities of the Clatsop County Bike Route committee and Oregon Department of Transportation, including those involving the Oregon Coast Trail. Consideration will be given to the construction of bicycle paths.

(11) Desirable trucking and pipeline operations will be promoted by the City in accordance with the policies of the TSP (see Figures 5-6 and 2-12, respectively). Efforts will be made to encourage truck access to Warrenton's industrial and waterfront areas while minimizing disruptions to downtown areas. A high priority is improvement of the intersection of Main Avenue, East Harbor Drive and NE Skipanon Drive.

(12) The City supports the continued development of new and expanded transportation facility improvements which includes the Warrenton Trails Master Plan (March, 2008).

Section 8.400 Trails

The Warrenton Trails Master Plan aims to develop a comprehensive network of trails that link destinations, natural features, historic landmarks, public facilities, and business districts. The trail system provides recreation, transportation, and economic growth. The trail system provides connections for residents to travel to work, to shop and to recreate. It provides connections to regional trails, adjacent communities, and State and Federal parks.

The trails link the residential neighborhoods, community facilities like the library and city hall, parks, schools, historic areas, the downtown, as well as other commercial and retail activity centers in Warrenton.

Section 8.410 Economic Benefits

Trails are associated with increased real estate values and special events, and other users, and the quality of life can make an area more attractive for business relocations and in-migration.

According to the National Association of Homebuilders, the most desired amenity of prospective buyers is trails, over swimming pools and exercise rooms. The group surveyed people nationwide and found that trails were preferred 57 percent of the time (source: ocregister.com, 11-12-06).

Trails can generate income from tourists. Trails connecting to parks generate economic benefits. Annual visitation to Fort Stevens State Park overall is about 1.4 million, including about 10,000 to the fort site; 350,000 to the campgrounds; and 900,000 to other day use areas in the park. Some of the campers are counted more than once as they also visit the fort and other day use areas.

Warrenton's trail system is designed to provide access along the City's waterways: the Pacific Ocean, the Columbia River, the Skipanon River, Young's Bay, Shag Lake, Long Lake, Wild Ace Lake, Cemetery Lake and its parks (Fort Stevens State Park, Skipanon Park, and Eben Carruthers Park). Warrenton is comprised largely of diked wetlands intermixed with dune ridges and other uplands. It is bordered on three sides by major water bodies: the Pacific Ocean shore to the west; the Columbia River and the Lewis and Clark River on the east. Bisecting the City north to south is the Skipanon River waterway, a tributary of the Columbia River.

Section 8.430 Cultural and Historical Attractions

The trail system creates a physical connection to the historical and cultural sites in and around Warrenton including the State and Federal Parks, which the city borders. Some of the important historical sites in and around Warrenton include: Tansy Point, Warren Mansion, Peter Iredale wreck, Lewis & Clark National Park, Camp Rilea, Neacoxie Creek, the Columbia River and the Pacific Ocean.

Section 8.440 Existing Trails

The existing network of Warrenton Trails are described below:

A. Warrenton Waterfront Trail (length 4.5 miles) - begins at the Skipanon River Park at 3rd Street Park trailhead, from this point the trail route proceeds along the Skipanon River Dike under the East Harbor Drive Bridge and along Harbor Drive, past the Lighthouse Park to NE 1st Street where it then picks up the old railroad bed traveling northwest along the old railroad right-of-way under a canopy of trees emerging at the Alder Creek outlet with a stunning view of the Columbia River. Proceeding northwest the trail reaches Tansy Point, at the northwest end of NW 13th Street. The trail then follows 13th Street southwest and connects to Hwy 104/NW Warrenton Drive, following Warrenton Drive for a short distance north then cuts back toward the waterfront through Eben H. Carruthers Park and trailhead. From the Lewis and Clark interpretive center at the park waterfront, the trail proceeds north along the old railroad right-of-way until Enterprise or Gray Street where it continues to Pacific Drive. At Heceta Street, it jogs right and then left onto Pacific Drive to Heceta Place where it turns right and continues to Hammond Marina. The trail follows Iredale Street through the Hammond Marina to Seafarers Park where it connects onto the Fort Stevens State Park **trail system**

B. Lagoon Trail Spur (.5 miles) - at the Alder Creek crossing there is a spur off the Warrenton Waterfront Trail which follows the City's dike southeast

toward NE 5th Street.

C.1. Skipanon River Loop Trail (2 miles) - begins at the 3rd Street Skipanon Park trailhead. From this point the trail proceeds along the Skipanon River dike under the Harbor Drive Bridge. The trail then turns onto the Harbor Drive Bridge and follows Harbor Drive to the Warrenton Marina parking lot, continuing through the parking lot, then north to the Skipanon River dike, following the dike back under the Harbor Drive Bridge and along the east river bank of the Skipanon River. At the 8th Street Dam the trail crosses the Skipanon River and continues on the west river bank following the dike to 3rd Street and back to the Skipanon River Park trailhead.

C.2. East Skipanon River Spur (same map as C.1. above) (1 mile from 8th Street Dam) A spur of the Skipanon River Loop Trail continues past the 8th Street Dam along the east river bank dike. This trail connects to the Skipanon Peninsula Trail at the Warrenton Marina. The south end of the trail connects to Alternate Highway 101 near Warrenton High School.

D. DeLaura Beach Trail (1 miles) - follows the south shoulders of DeLaura Beach Lane from Clatsop County's Burma Road trail and beach access trail east to Ridge Road. This trail starts near the dunes and the ocean, crosses the southern tip of Long Lake, and then traverses a short distance uphill to Ridge Road. It is a favorite trail for equestrians.

E. Airport Dike Trail (2 miles) - starts at a small, makeshift trailhead along Business Hwy 101 at the foot of the Lewis and Clark Bridge. The trail follows the Airport Dike from this point along the waterfront of Young's Bay. The Airport Dike ends at the foot of the Young's Bay Bridge and the trail turns west to follow Hwy 101 to the Harbor Drive crosswalk and ends at the Warrenton Shopping area. From this point the trail connects to the Port of Astoria's Skipanon Peninsula Trail and Spurs.

F. Grade School Trail (.5 miles) - follows the abandoned railroad bed from the Warrenton Elementary School to downtown Warrenton (2nd and Alder Street) and the Warrenton City Park.

G. Hammond Post Office Trail (.5 miles) - begins at the Hammond Post Office on the corner of Pacific Drive and Iredale Street. The trail follows Iredale Street south and continues onto the undeveloped platted Iredale Street turning west onto the undeveloped platted 9th Street and continuing on 9th Street to Ridge Road.

H. Spirit Loop Trail - (1.5 miles) - begins at an unofficial trailhead along 9th Street just east of Juniper Street. From this point the trail

meanders south onto an old logging road which spurs off to the east and west, both spurs lead to the Oceanview Cemetery. The trail follows the west spur to the northern end of the cemetery and then goes south along the Cemetery Lake to DeLaura Beach Lane and then loops around the east side of the cemetery north back to the old logging road.

I. Skipanon Peninsula Trail and Spurs (4-5 miles) - runs along the Skipanon Peninsula Dike from the toe of Young's Bay Bridge following the Young's Bay waterfront to the Skipanon River and along the east bank of the Skipanon River to the Warrenton Marina. This trail has spurs at several places through the undeveloped wetlands of the peninsula, including a spur running along platted King Street to Harbor Drive. The Skipanon Peninsula Trail connects to the Skipanon Loop trail through the Warrenton Marina.

J. Skipanon River Water Trail - The Skipanon River, from the 2nd Street small craft launch ramp features flat navigable waters that flow through residential and natural landscapes with a portage required over the 8th Street Dam to travel upstream. From the 2nd Street dock one can also paddle downstream to the commercial and recreational Harbor area with vistas of boat yards, the Warren Mansion and ocean going vessels. With planning, the tides can facilitate an upstream or downstream paddle trip past islands, commercial fish processing plants, old growth Sitka Spruce and connect to a proposed landing at the Fort to Sea Trail Bridge over the Skipanon. Traveling upstream from the 8th Street Dam the Skipanon takes lazy turns through town passing under old Hwy 101, past the Warrenton High School Fish Hatchery and then through old growth Sitka forested shores and wetlands. The Skipanon River Water Trail is suitable for inclusion in the bi-state 146 mile lower Columbia River Water Trail network.

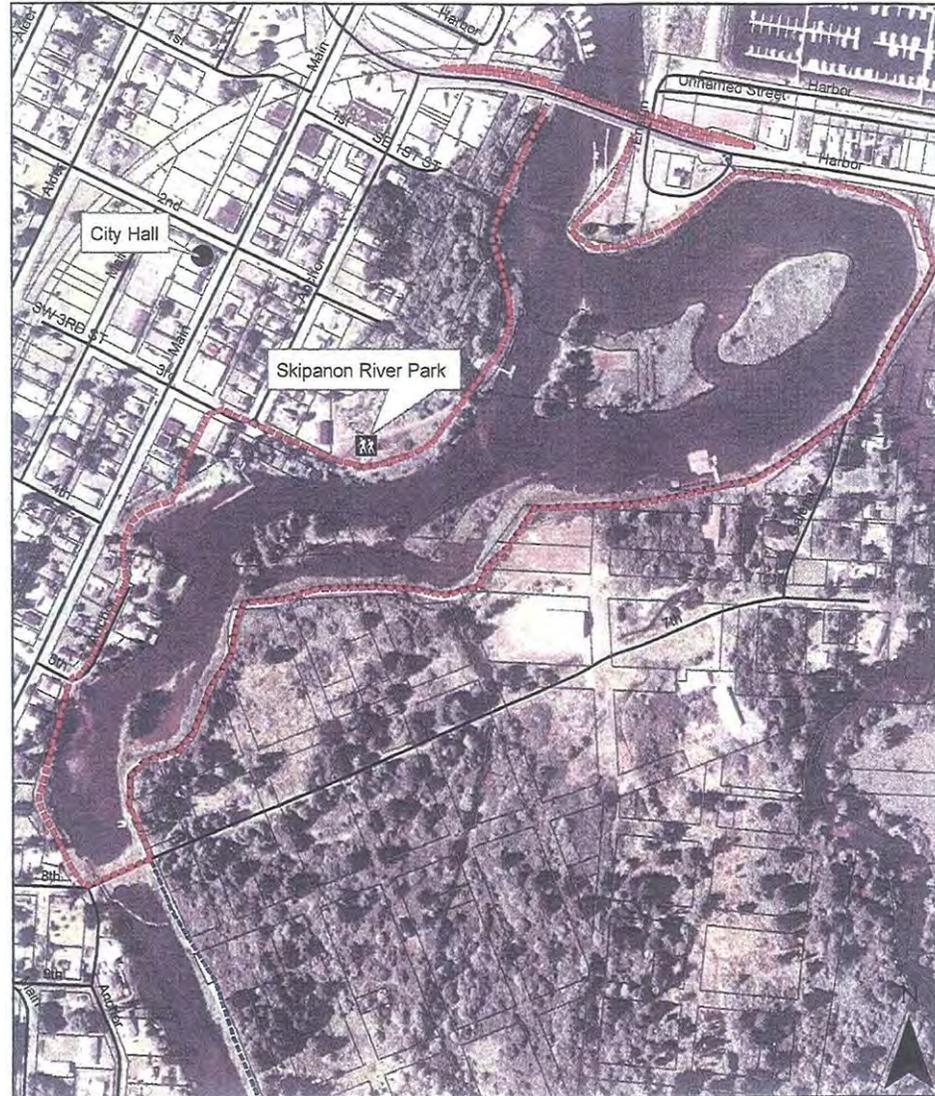
Skipanon River Loop Trail
Warrenton,
Oregon
Feb. 2008

Skipanon River Loop Trail

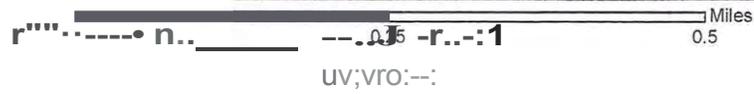
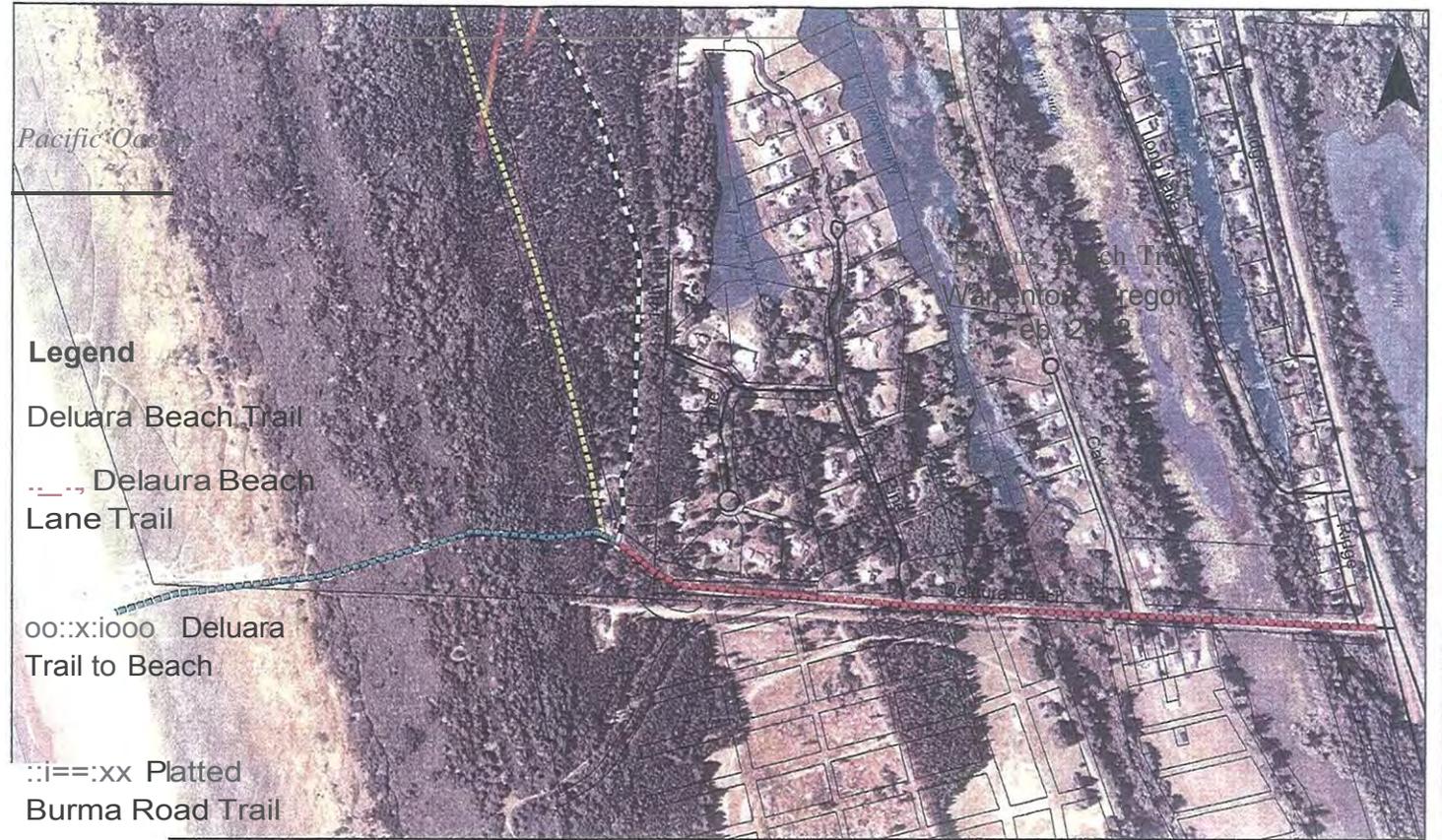
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Legend
City Hall
Skipanon River Park



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Airport Dike Trail

Warrenton.
Oregon Feb.
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Legend

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— — — Proposed Path in

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CITY OF WARRENTON



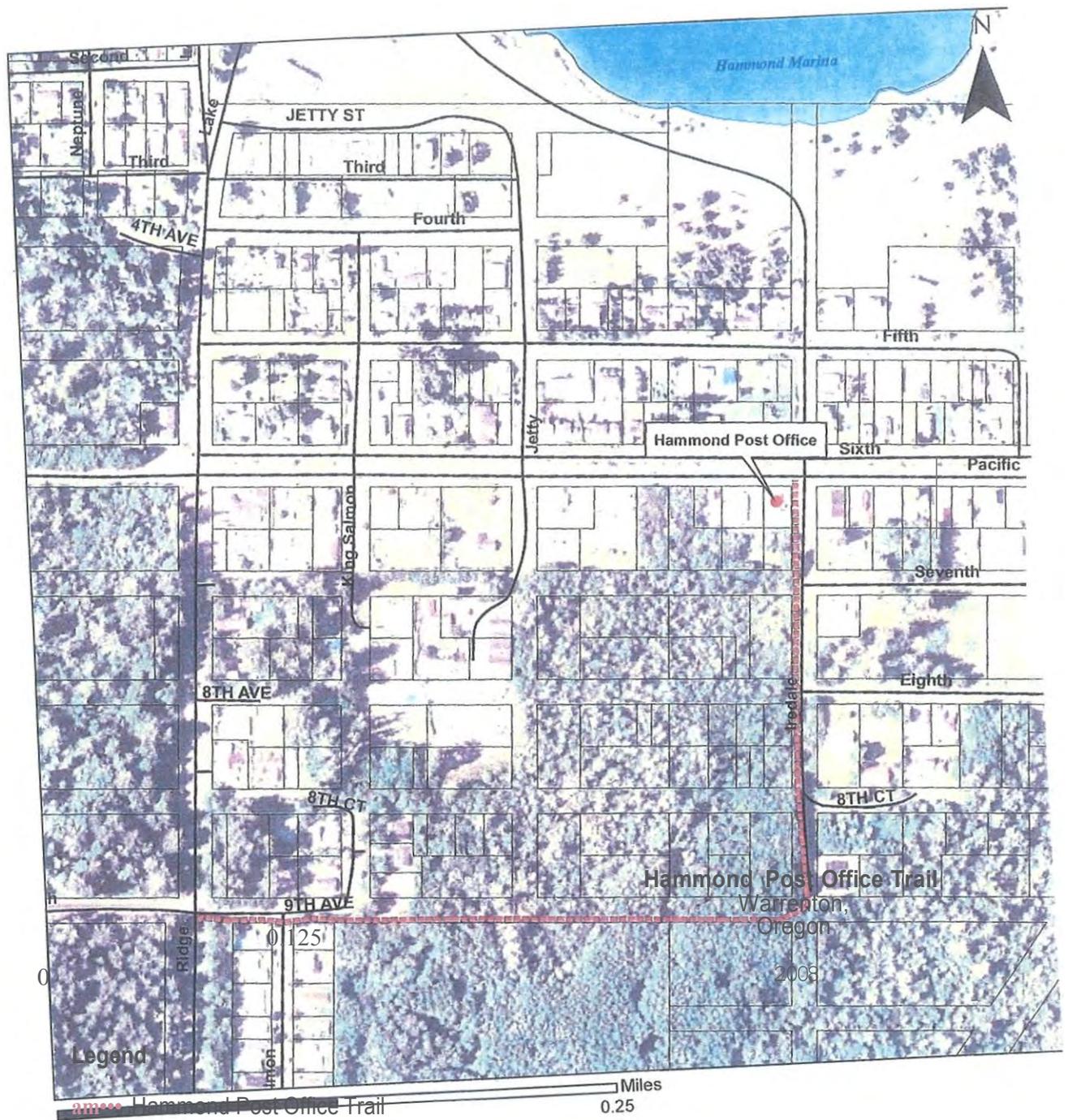
Grade School Trail

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—••— Warrenton Grade School Trail

Warrenton,
 Oregon
 Feb. 2008





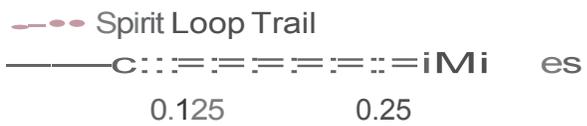
*" The Hammond Post Office Trail follows the City platted Iredale and 9th Streets

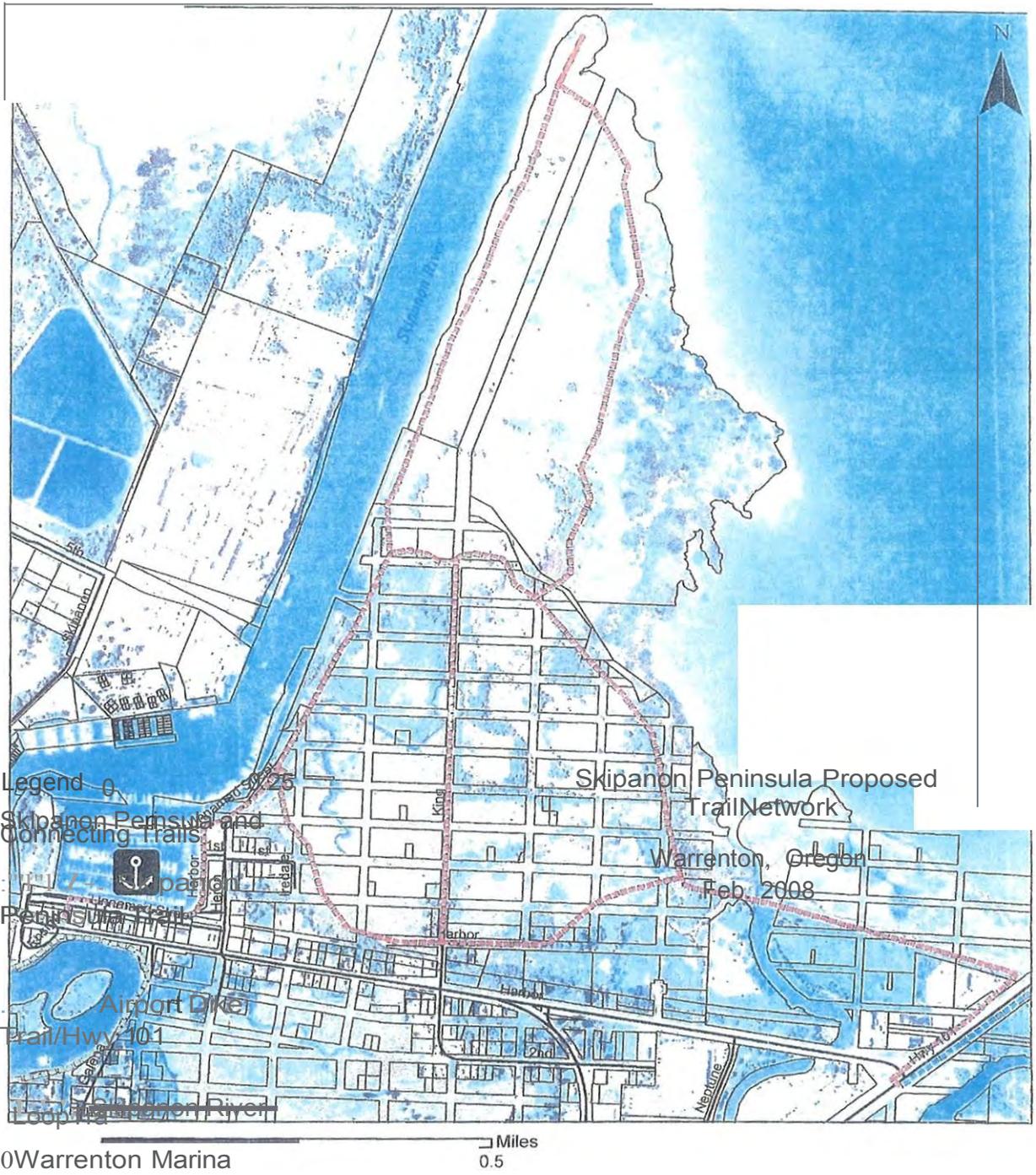




Spirit Loop Trail
 Warrenton, Oregon
 Feb. 2008

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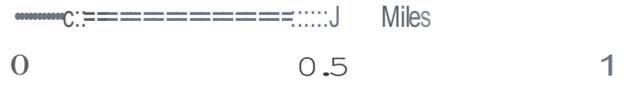


Skipanon River Water Trail



Alder Creek Water Trail

--i Possible Smallboat (non-motorized)
Launch Points



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Section 8.450 Proposed Trails

The City has published the Warrenton Tsunami Evacuation Map showing evacuation routes from various parts of the City. If streets become impassible, the establishment of these proposed local trails could provide alternative routes for people to travel.

- A. Beaver Trail (approximately 2.8 miles) - begins at the Hammond Post Office at the corner of Pacific Drive and Iredale Street. The trail follows Iredale Street south and continues onto the undeveloped platted Iredale Street. Then the trail meanders south following the remnants of an old logging road through to the platted 11th Street and the KOA Kampgrounds. From this point, the trail is proposed to continue south to the Warrenton Soccer Fields.

 - B. Creekside Trail (approximately 2.2 miles):
 1. Northern Section - follows existing road shoulders and begins at the intersection of King Street and Harbor Drive and follows the shoulders of Harbor Drive and follows the shoulders of Harbor Drive southeast to Marlin Avenue, the route then goes south along Marlin Avenue. At the intersection of Marlin Ave and Hwy 101 the route turns southwest on the shoulders of Hwy 101 then crossing Hwy 101 at the Business Hwy 101 intersection. The route then follows Business Hwy 101 east to Southeast Jetty Ave turning south onto Southeast Jetty Ave. The route follows Southeast Jetty Ave to Southeast 14th Street running east on 14th Street. Following Southeast 14th Street as it turns into a dirt road heading south. This dirt road leads to the North Coast Business Park near the Clatsop County Animal Shelter.

 2. Eastern Section - connects with the Eastern Skipanon River Trail 'Spur at the intersection of this trail and Hwy 104 Spur. From this point, the trail would follow Hwy 104 Spur northeast to Ensign Lane. The trail would turn southeast onto Ensign Lane along the shoulders of this street southeast, across Hwy 101 ending at the North Coast Business Park near the Clatsop County Animal Shelter.

 3. Southern Section - continues south of the North Coast Business Park, meandering along scenic waterways and old logging roads found in this area. This proposed trail does not have a defined route but would ideally connect with residents and communities located south of the North Coast Business
-

Park. Significant development and re-routing of streets with business and housing are currently planned for this area.

C. Shag Lake Trail (approximately 1 mile) - begins at the west end of 2nd Street and continues along platted 2nd Street turning south along Juniper Street and then meandering westward toward Shag Lake. From the lake the trail follows an existing (unofficial) trail southwest to the Warrenton Soccer Fields.

D. Platted 11th Avenue - this trail follows platted and undeveloped 11th Avenue. This proposed trail traverses farms, fences, gates, wetlands and the KOA properties at the west end of this trail are significant considerations and challenges to maintaining an open trail.

E. PreMarq Center to North Coast Industrial Park - this area is very populous during business hours and signage indicating a roadway shoulder trail to the North Coast Industrial Business Park is needed. This proposed trail would currently direct people to Marlin Avenue and then to Hwy 105 (old 101) and the entrance to the North Coast Business Park.

Beaver Trail

Warrenton, Oregon

2008

Legend

Proposed Trail and
Connecting Trails

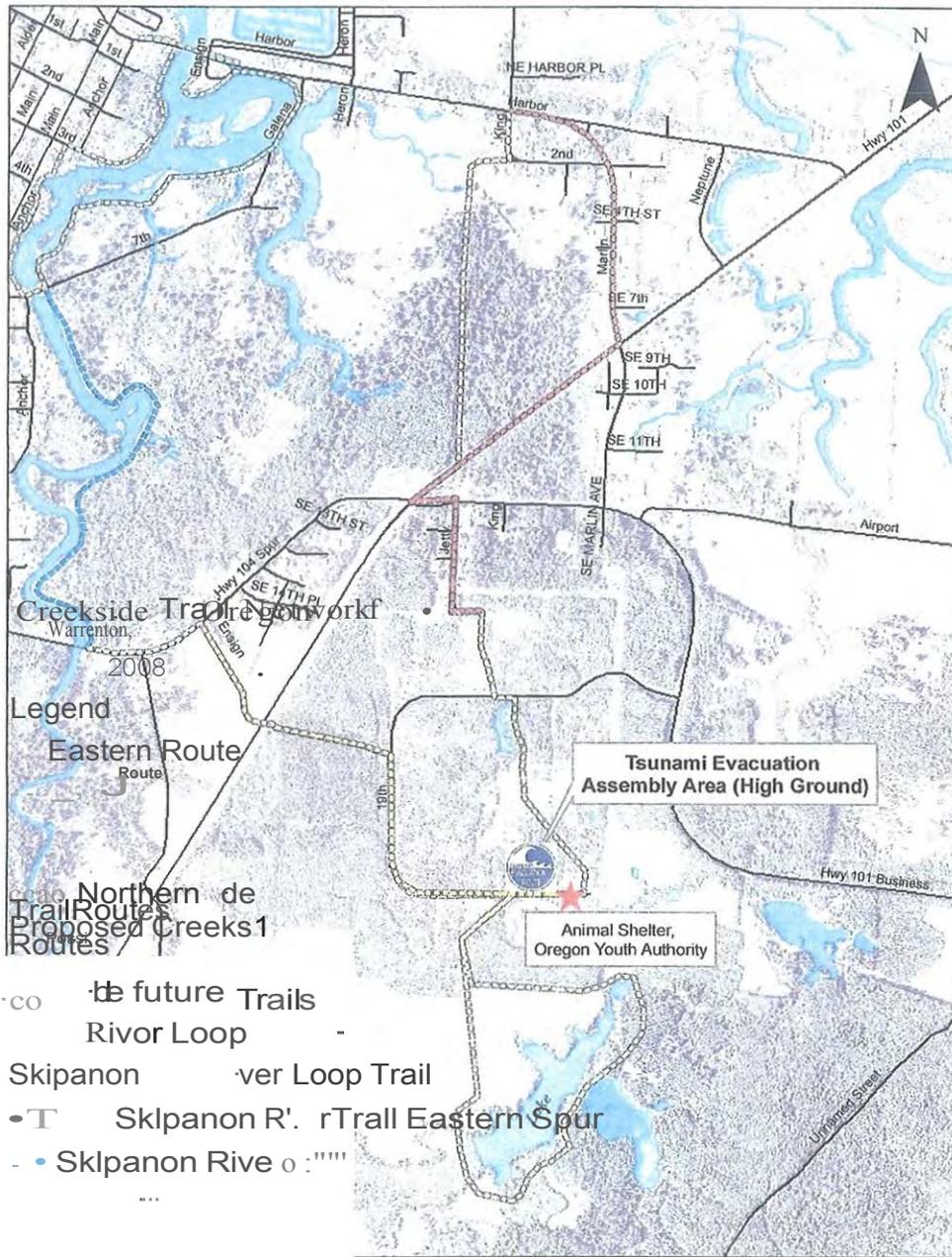
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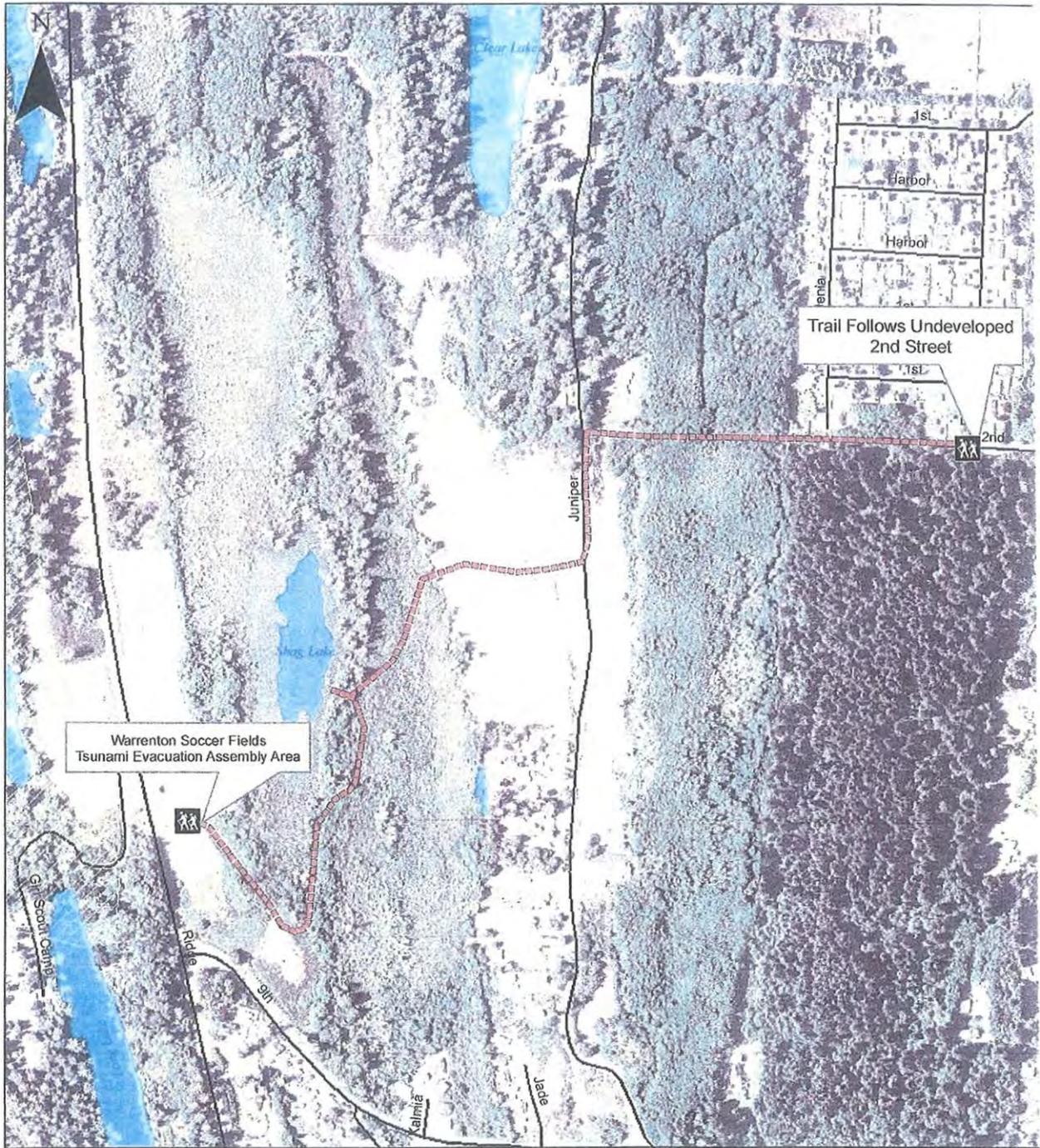
Hammond Post
Office Trail

Fort Stevens State Park

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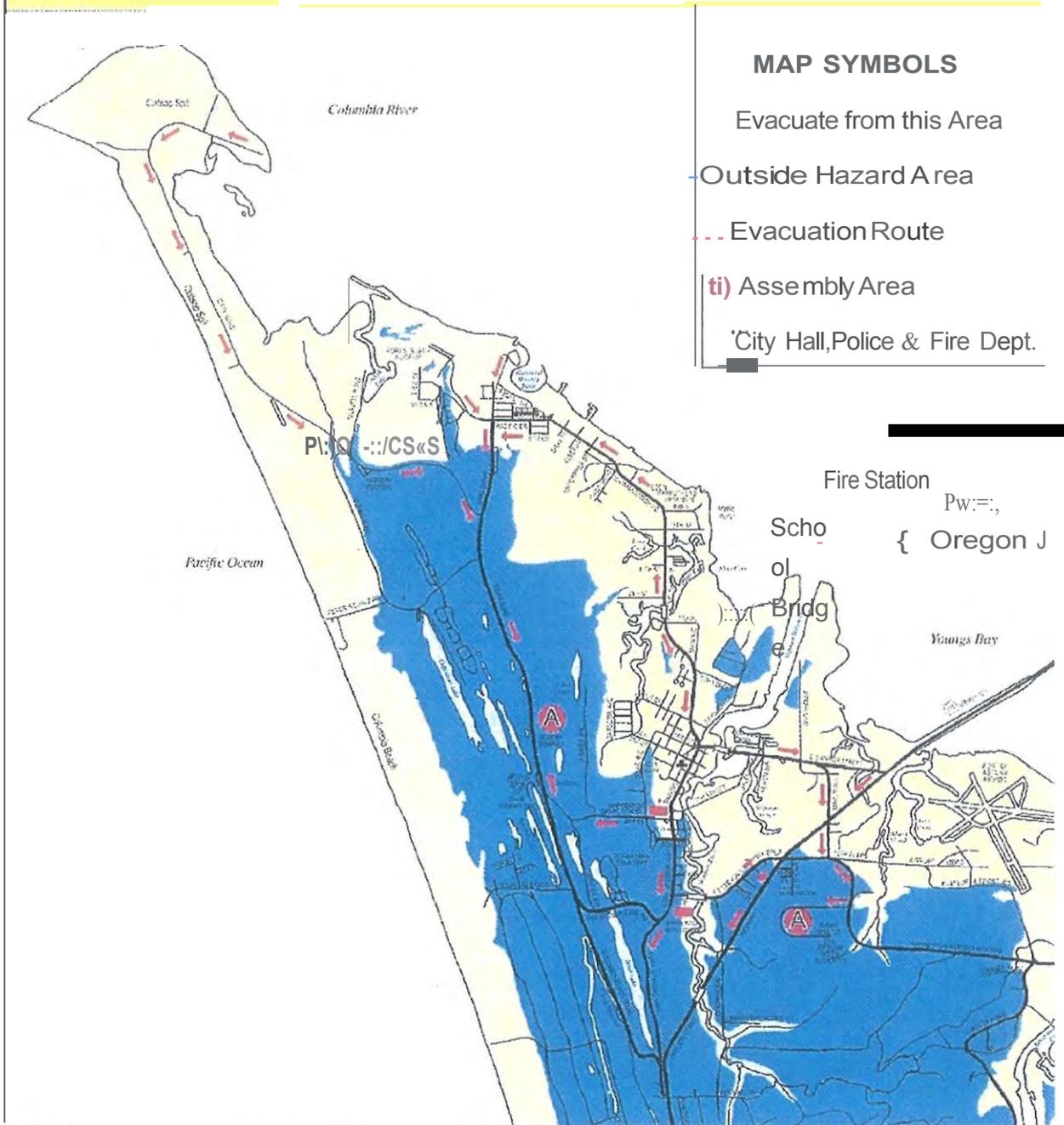


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- Route Fort
- Stevens State
- Park

Shag Lake Trail
 Warrenton, Oregon
 2008





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Section 8.460 Strategies

* Design and seek funding for trail improvements, such as leveling and hard surfacing that will allow for bicycle passage and disabled access.

 If opportunity arises, acquire trail access along the rivers.

* Work with Oregon Parks and Recreation Department to open the Fort Stevens gate at Seafarer's Park to allow access by pedestrians and visitors in and out of the park at this location.

" Market the trails in brochures and other regional tourist information.

* Design, develop, and place interpretive panels along the trails at historical, cultural, and wildlife habitat locations. Potential interpretive topics include local fisheries, such as species fished, gear, processing, ships and shipping on the Columbia.

" Improve trail surface where trail follows city streets, improve road shoulders for pedestrian use.

* Improve trail surface for multi-use.

* Provide signs for direction and trail connections and the Tsunami Evacuation Routes

* Complete the trail under the East Harbor Drive Bridge

* Research land use and access to the dike on the west bank south of 3rd Street to determine the feasibility of a full waterfront route along the west bank.

* Design and build multi-use trails.

* Identify particular scenic spots and build benches for walkers to rest and view wildlife and boaters.

* Create a pedestrian friendly access point from Alternate Highway 101 bridge to the south entrance of the Eastern Skipanon River Spur Trail.

* Work with the Port of Astoria to obtain easements or public use agreements for official designation of this trail.

Section 8.470 Goals

1. Locate trailheads at or in conjunction with park sites and community facilities to increase local access to the trail system.
 2. Furnish trail systems with trailhead improvements that include interpretive and directional signage systems, benches, and parking.
 3. Maintain up-to-date trail plans and maps.
 4. Encourage trail use by schools for science education and athletic training.
 5. Enhance access for people with disabilities.
 6. Partner with local groups such as bird watchers.
 7. Partner with local groups to help with trail maintenance.
 8. Properly sign and maintain trails, including the creation of interpretive signage.
 9. Market the waterfront access and trails system as a recreational resource to both residents and visitors.
 10. Establish an "Adopt a Trail Program"
 11. Design and build a portage over the 8th Street Dam
 12. Identify other public access sites on the river that could feature a dock, ramp, landing or steps for a public small craft access point.
 13. Design and build public access points for small craft; maintain
-

pedestrian and small boat ramp and dock at 2nd Street Skipanon River access point.

14. Design and post boater information signage.

15. Create a water trail informational brochure and map

16. Proposals with earmarked funds and Clatsop County dedicated trail funds are directed toward developing a trail along the south shoulder of DeLaura Beach Lane.

Section 8.480 Funding

Federal and state grants, private/public partnerships, and community fundraisers.

Section 8.490 Design Guidelines

The trails in this Plan primarily serve pedestrians with safe and direct connections to and within local destinations, such as schools, parks, natural areas, waterways, and community centers. There are two categories of local trails: Multi-User Trails and Natural Trails.

Multi-User Trails - City trails are typically paved or made of a smooth surface to accommodate most trail users. Ideally these trails should be constructed to ADA standards to provide for all trail users.

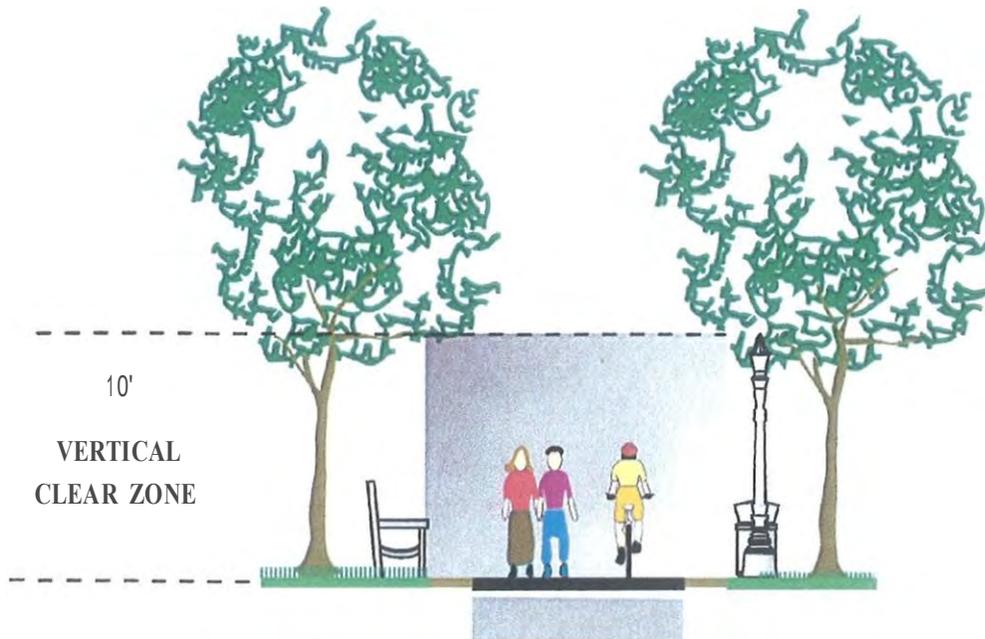
Nature Trails - Natural trails are soft-surface trails typically found in undeveloped parks and natural areas and aim to provide a natural outdoor experience. These trails are usually for pedestrians only, but some trails could be open to mountain bikes and / or equestrians.

A. Trail Design Types - The following cross sections illustrate standard treatments for trail design opportunities in Warrenton. This section reflects ODOT's Design Standards (1994 Bicycle and Pedestrian Transportation Plan) and may be supplemented with other trail design documents (ODOT's Bicycle and Pedestrian Master Plan, AASHTO, and the MUTCD). The following table provides a reference chart for the various types of trails and their standards.

Table 1. Trail Design Types and Standards

	Multi-User Trail	Natural Trail
Facility Type	Shared use path	Soft Surface trail
Users	bicyclists pedestrians wheelchairs baby strollers equestrians	bicyclists pedestrians equestrians
Width	8' - 10', 1' soft shoulders	3' - 12'
Surface	Asphalt or Other smooth-rolling surface to accommodate all trail users	Earth, gravel, wood shavers, or other soft surface material

Figure 1. Multi-User Trail



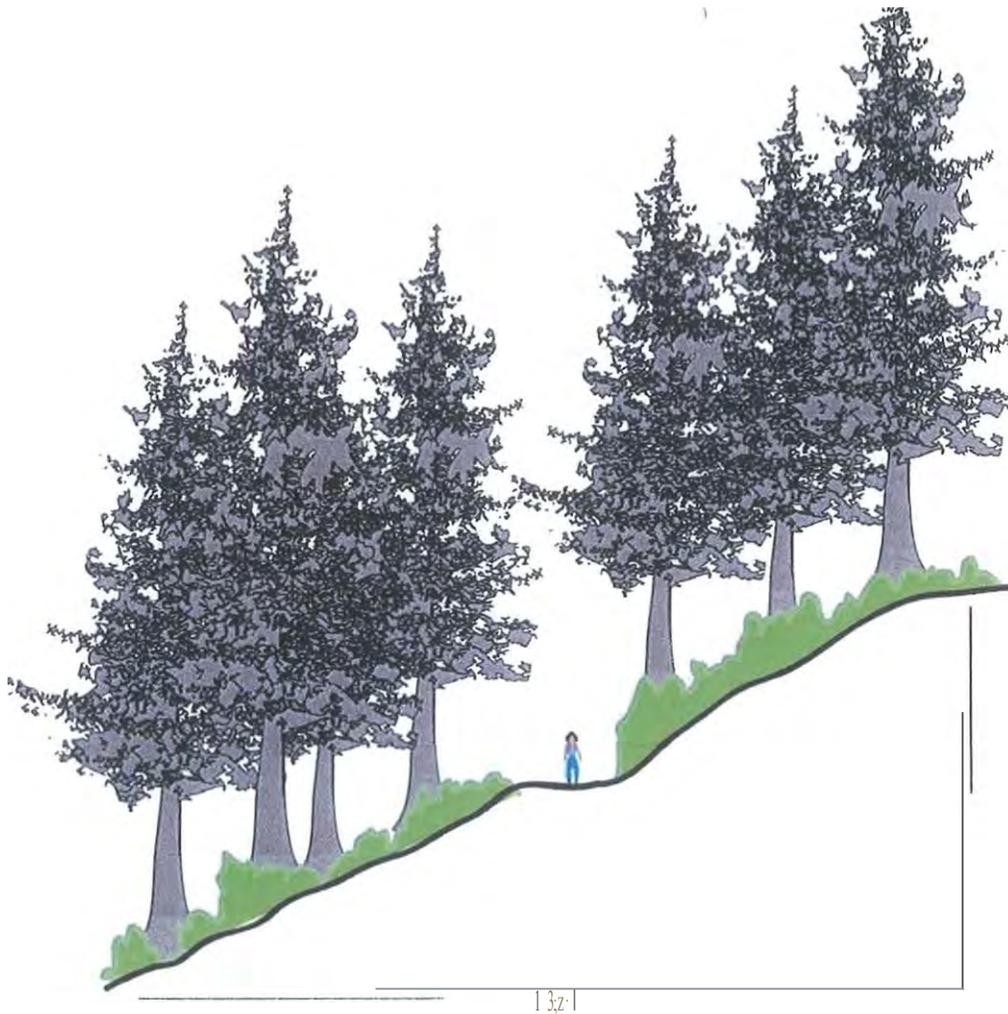
1. Multi-User Trail - Figure 1 illustrates a typical multi-user trail which provides access for most, if not all, trail users within neighborhoods, parks, green spaces, and other recreational areas. They typically have their own right-of-way and serve only non-motorized users. These trails should be at least 8' wide and at least 10' wide if bicycle use is anticipated. All efforts should be made so that at least one ADA accessible trail is available and serves the most desirable parts of the area (ie., picnic areas, viewpoints, playground, etc.).

Typical shared use path design that is appropriate for some natural trails. This trail is designed to accommodate two-way bicycle and pedestrian traffic, typically has its own right-of-way, and can accommodate maintenance and emergency vehicles. This type of trail is typically paved (asphalt or concrete) but can also be a surface that provides a smooth surface, as long as it meets ADA requirements. Wider soft shoulders should be provided for equestrians and runner/joggers if space allows.

2. Natural Trail - Figure 2 illustrates a typical natural trail which is usually considered when a trail is desired next to a natural resource. Trail width will vary depending on the existing topographic and environmental conditions. Natural trails should take into consideration drainage, erosion, compaction/impaction from anticipated use, presence of waterways and sensitive riparian areas, habitat areas, and environmental guidelines.

Trail width will depend on intended users. For example, narrower widths should be used in environmentally constrained areas with only hiking uses intended. Wider widths are desirable for shared bicycle and/or equestrian use. Areas with natural trails (i.e., natural parks and green spaces) should have a complimentary accessible route that meets or exceeds ADA standards in addition to the natural trails.

figure 2. Natural Trails



SOFT SURFACE TRAIL

B. Trail Features - There are a number of amenities that make a trail inviting to the user. Below are some common items that make trail systems stand out.

1. Interpretive Installations - Interpretive installations and signs can enhance the trail experience by providing information about the history of Warrenton. Installations can also discuss local ecology, environmental concerns, and other educational information.

2. Water Fountains and Bicycle Parking - Water fountains provide water for people (and pets, in some cases) and bicycle racks allow trail users to safely park their bikes if they wish to stop along the way, particularly at parks and other desirable destinations.

3. Pedestrian-Scale Lighting and Furniture - Pedestrian-scale lighting improves safety and enables the trail to be used year-round. It also enhances the aesthetic of the trail. Providing benches at key rest areas and viewpoints encourages people of all ages to use the trail by ensuring that they have a place to rest along the way. Benches should be simple and made from recycled plastic for sustainability and longevity.

4. Maps and Signage - A comprehensive signing system makes a trail system stand out. Informational kiosks with maps at trailheads and other pedestrian generators can provide enough information for someone to use the trail system with little introduction – perfect for areas with high out-of-area visitation rates as well as the local citizens.

5. Art Installations - Local artists can be commissioned to provide art for the trail system, making it uniquely distinct. Many trail art installations are functional as well as aesthetic, as they may provide places to sit and play on.

ARTICLE 9 ECONOMY (2007 Buildable Lands Inventory does not apply to a developer / property owner's right to development. The Zoning and Wetland Maps apply to ability to develop.)

SECTION 9.100 FINDINGS

Statewide Planning Goal 9 is intended to identify existing and emerging economic opportunities within the Warrenton Urban Growth Boundary (UGB). This work includes a buildable lands inventory and an Economic Opportunities Analysis consistent with the rules and requirements of Oregon Land Use Planning Goal 9 (Economy), OAR 660-009-0015, and the "Industrial and Other Employment Lands Analysis Guidebook" (2005).¹ A goal is to establish a clear economic development direction for Warrenton that is consistent with local, regional, and state market trends and planning policies. The following steps have been taken to ensure that the City of Warrenton meets these objectives:

- " Identify employment opportunities and trends for the next 20 years.
- ., Ensure an adequate supply of land within the City's urban growth boundary (UGB) to meet 20-year employment needs.
- " Identify long-term (20-year) land needs for additional employment, considering the following factors:
 - > Projected 20-year employment forecasts, considering population projections, current mix of employment, projected future industry trends and other factors.
 - > Factors that determine land needs for specific types of employment uses.
 - > Locational factors related to different types of businesses and employment areas.
 - > Identify amount of land in each zoning designation needed to accommodate projected employment.
- " Conduct an inventory of "buildable" land within the City's UGB that is zoned to allow for employment development.
- " Compare the supply of land in different employment zones to the estimated need for employment in each zone to ensure that there is enough land within the City's UGB and that it is zoned appropriately to meet long term employment needs.

(1) Economic Data and Assumptions - The Economic Opportunities Analysis is based on data derived from a number of sources.

The US Census - demographics, employment, industry data

¹ Oregon Department of Land Conservation and Development, Goal 9 Industrial and Other Employment Lands Guidebook, by Cogan Owens Cogan and Otak, Inc., 2005.

Oregon Employment Department 10-Year Forecast for Clatsop County,

County Business Patterns

Oregon Prospector

Applied Geographic Solutions

Proprietary economic data (ESRI BIS, Urban Land Institute, Marketek, Inc.)

Demographic data is for 2000-2005

Future projections are for the years 2005-2025.

Information was coordinated by Cogan Owens Cogan, LLC and Marketek, Incorporated. Marketek bases assumptions upon the analysis of composite and comparison data. Further refinement of data will take place as the process progresses and additional information becomes available.

" Future Projections: For the retail spending potential and supportable square feet (2005 - 2025): the analysis uses the county population projections and a constant persons per household of 2.44 to determine household units.

(2) Current Businesses and Economic Conditions - Warrenton has a natural resource-based economy which is closely intertwined with the economy of the County as a whole. Wood processing, food processing and commercial fishing are three of the natural resource-oriented activities which have been particularly important to the City's economy historically. These economic activities have significantly benefited trade and service establishments in the downtown area, Highway 101 corridor, and other locations. Trade and service firms have also benefited from tourists visiting Fort Stevens State Park, using local marinas, and traveling through the City on US Highway 101. Recent economic drivers in the City include large scale commercial development, especially along the Highway 101 corridor. Following is summary of current conditions in Warrenton based on US Census and other economic and demographic data.

" Total business establishments rose from 182 in 2000 to 185 in 2004, reflecting strong growth for a small community. Employees in business establishments increased from 2,045 in 2000 to 2,228 in 2004.

Employment is concentrated in Retail Trade (32%), Manufacturing (25.5%), and Services (21.4%). The manufacturing employment is relatively high, reflecting a more balanced economy than many rural communities do and generally healthier wages than retail or services.

Total percentage of establishments and number of employees for businesses in Warrenton are as follows:

- o 1-4 employees - 63.8%
- o 5-9 employees - 17.6%
- o 10-19 employees - 11.6%
- o 20-49 employees - 4.0%
- o 250-499 employees - two employers (less than one percent of firms but a more significant percentage of overall employment)

Average travel time to work is 21.3 minutes

" Unlike other coastal communities that see a growing retiree population, Warrenton's median age is 37.3 years, which nearly parallels the state average (37.6 years)

(3) Land Use and Zoning - The City limits encompass an area of about 10,500 acres, or approximately 16.4 square miles. The unincorporated Urban Growth Boundary area adds approximately another 120 acres to the urban land base. Eight (8) zoning designations allow commercial and/or industrial development.

" General Commercial (C-1)

" Commercial Mixed Use (C-MU) "

Marine Commercial (C-2)

e Recreational Commercial (RC)

" General Industrial (I-1)

" Water Dependent Industrial Shorelands (I-2)

" Urban Recreational Resort (URR) (There is no longer any land with this designation within the city,)

• Aquatic Development (A-1)

(4) Future Economic Development Conditions - While the local economy of Warrenton has been dependent on manufacturing, fisheries, and forest products, new jobs are anticipated within the retail and service sectors. Much of Warrenton's future commercial demand will be tied to an expanding retail market of the North Coast and the opportunities presented by the redevelopment of key opportunity sites within the community-most notably the County-owned and other property along Highway 101 Business and the Dolphin Avenue area and along the harbor. Warrenton serves as a retail hub for the Seaside, Gearhart and Astoria market areas. Growth in these areas, as well as

Warrenton will continue to increase the demand for retail services in Warrenton. Commercial services will also play an important part as new development and re-development of sites along the harbor, Skipanon River and in city center take place, as does the increased visitor use of the Fort Stevens State Park continue.

Implementation of industrial and commercial development strategies in Warrenton's Comprehensive Plan are critical to attracting and sustaining the resource-based manufacturing, food processing, and services for local, national and international markets. In addition, as the residential growth of coastal communities takes place, retail for North Coast residents and the visitor market will be key. With the investment planned or occurring through these and other key community initiatives, Warrenton is poised to fulfill the market vision of being the destination retail center on the northern Oregon coast.

Recommendations for changes to the Comprehensive Plan are intended to encourage cooperation and coordination with businesses and regional economic development efforts such as the Clatsop County Economic Development Division, Columbia-Pacific Economic Development District (Col-Pac), NW Oregon Economic Alliance and the Northwest Oregon Regional Partnership; strengthening and enhancing Warrenton's downtown core and helping existing businesses expand locally. Encouraging more tourism and home occupations within the City are proposed to diversify the local economy.

(5) Vacant and re-developable land supply - Table 1 shows the total supply of net buildable lands for commercial and industrial employment. There are more than 467 net acres of vacant, partially vacant and re-developable employment lands zoned within Warrenton's UGB. Employment lands include parcels zoned as A1, C-1, C-2, RC, commercial and I-1 and I-2, industrial. Approximately 179 acres of land are zoned for commercial use and located along Highway 101 and in the Hammond area. While there are 288.1 acres of vacant industrial land, the A-1, Aquatic Development District zone also allows some level of industrial use, totaling 19.7 acres. There are only three lots in this designation, which are all categorized as re-developable. We've apportioned 50% of the land designated Commercial Mixed Use (CMU) to commercial uses.

Table 1. Buildable Employment Lands (Acres)

Zone	Sunly	Parcels	Allowed Uses
Commercial	179.33	289	Commercial
Industrial	288.07	126	Industrial
Total	467.4	415	

Source: Cogan Owens Cogan

(6) Retail Expenditures - Table 2. Retail Expenditure Potential (Exhibit R-1) shows the potential for retail expenditures 2005 -2025, broken out by merchandise or service category. Note that in the year 2025, 180,186 square feet of commercial space will be needed to fulfill the needs for shoppers and convenience goods, restaurants, entertainment/ recreation and personal services. This translates into over \$42 million in potential sales for the city and UGB market area only. This does not account for regional or visitor sales, which could significantly increase the sales and retail square footage requirements. These projections are consistent with our estimates of future commercial land needs.

A demand analysis for office space was not conducted. However, the space for office is included in the commercial land inventory. There is no need for additional land beyond that already identified in our analysis to accommodate office and other service job growth through the planning horizon.

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TABLE 2 · EXHIBIT R-1

RETAIL EXPENDITURE
POTENTIAL

Warrenton, Oregon

2005-2025

Merchandise or Service Category	Per Household Expenditure	*Target Sales \$/SFI	2005 Retail Potential		2010 Retail Potential		2015 Retail Potential		2020 Retail Potential		2025 Retail Potential	
			Sales	Space ISFI	Sales	Space (SF)	Sales	Space (SF)	Sales	Space (SF)	Sales	Space (SFI)
Apparel	\$1,459	\$209	\$2,646,626	12,663	\$2,878,607	13,773	\$3,155,817	15,100	\$3,433,272	16,426	\$3,710,237	17,752
Home Furnishings	\$1,069	\$199	\$1,939,166	9,745	\$2,109,137	10,599	\$2,312,247	11,619	\$2,515,357	12,640	\$2,718,467	13,661
Home Improvement	\$1,168	\$140	\$2,118,522	15,134	\$2,304,464	16,460	\$2,526,384	18,046	\$2,748,304	19,631	\$2,970,224	21,216
Misc. Specialty Retail <i>Shoppers Goods</i>	\$1,930	\$216	\$3,501,020	16,208	\$3,807,890	17,629	\$4,174,590	19,327	\$4,541,290	21,024	\$4,977,990	22,722
			\$10,205,564	53,750	\$11,100,098	58,461	\$12,169,038	64,091	\$13,237,978	69,721	\$14,306,918	75,351
Grocery	\$5,391	\$390	\$9,792,274	25,075	\$10,636,633	27,273	\$11,660,333	29,899	\$12,685,023	32,526	\$13,709,313	35,152
Health & Personal Care <i>Convenience Goods</i>	\$1,641	\$365	\$2,976,774	8,156	\$3,237,693	8,870	\$3,494,483	9,725	\$3,861,273	10,579	\$4,173,063	11,433
			\$12,756,048	33,231	\$13,874,136	36,143	\$15,210,216	39,624	\$16,546,296	43,105	\$17,882,376	46,585
<i>Restaurants</i>	\$2,887	\$263	\$5,237,018	19,913	\$5,696,051	21,658	\$6,244,581	23,744	\$6,793,111	25,829	\$7,341,641	27,915
<i>Entertainment/Rec</i>	\$918	\$90	\$1,665,252	18,503	\$1,811,214	20,125	\$1,985,634	22,063	\$2,160,054	24,001	\$2,334,474	25,939
<i>Personal Services</i>	\$612	\$151	\$1,110,168	7,352	\$1,207,476	7,997	\$1,323,756	8,767	\$1,440,036	9,537	\$1,556,316	10,307
<i>Total</i>			\$30,974,050	132,748	\$33,688,975	144,384	\$36,933,225	158,288	\$40,141,475	172,192	\$43,421,725	186,096

Five Year Net Gain	\$2,714,925	11,636	1	13,904	\$3,244,250	13,904	\$3,244,250	13,904
		\$3,244,250		1		1		.

19

190

190

190

Forest sales are based on the Urban Land Institute, "Dollars and Cents of
Sources: ESRI BIS; Clatsop County Planning Dept, Urban Land Institute;
© 2007 by Marketek, Inc.

(7) Job Density - Job density or the number of jobs per net acre is used to estimate how many jobs, on average, will be accommodated per acre of development. Net acres assume land taken out for public facilities and land constraints. The assumptions used for Warrenton follow:

Table 3. Jobs per Net Acre for Employment Sectors

Employment Sector	Jobs Per Net Acre
Industrial	8
Commercial	16
Institutions/ Government	6
Other/Uncovered Employment	6

These densities are typical of smaller communities in Oregon. Overall, the Warrenton area has the land and development potential to satisfy the needs of future population growth over the next 20 years. The supply of land far exceeds the needs for commercial and industrial job growth.

(8) Project Land Need and Ability to Meet Needs - The projected 5- year demand for employment lands and associated facilities is 28.62 acres and the 20-year demand totals 85.85 acres.² This results in a surplus of about 439 acres to accommodate jobs in the next 5 years and about 382 acres to accommodate jobs over the next 20 years. Table 4 shows that the majority of surplus land is designated for industrial uses, which does not allow development of commercial uses. Some of this land is in the process of being rezoned from a combination of commercial, institutional and residential uses. Warrenton can expect the majority of future jobs to be the manufacturing, commercial and service sectors. Specifically, employment projections show the greatest increase in jobs coming from the manufacturing, retail trade, services, and tourism industries. Analysis assumes that Warrenton will continue to capture a relatively high share of the county's manufacturing and commercial service jobs, while maintaining a relatively lower, but consistent share of other jobs.

Institutional, government and "other/uncovered" employment is anticipated to come from both industrial and commercial designations. The surplus totals in Table 4 capture the demand for these types of jobs, hence the surplus column totals do not add up only the industrial and commercial acreages.

² Source: Economic Opportunities Analysis conducted by Marketek, Inc, and Cogan Owens Cogan.

Table 4. Employment Lands Needs by Industry Type (Acres)

	Supply	5-Year Demand	5-Year Surplus/ (Deficit)	20-Year Demand	20-Year Surplus/ (Deficit)
Industrial ¹	288.1	6.9	281.14	20.8	267.3
Commercial ²	179.3	14.4	164.93	43.2	136.1
Institutional / Gov't ³		6.1		18.3	
Other/Uncovered		1.2		3.5	
Employment Total	467.4	28.6	438.8	85.8	381.5

² Includes C-1, C-2, RC zones. CMU vacant lands are apportioned 50% of their acreage to the Commercial category

³ It is assumed that institutional and government and "other/uncovered" jobs will be accommodated in existing industrial and commercial lands. Some jobs associated with Fort Stevens Park will be accommodated within Parks/Open Space. Surplus calculation totals reflect demand for all four categories.

Source: Cogan Owens Cogan

SECTION 9.200 GOAL

- (1) Retain, strengthen and expand the City's economic development activities to ensure that adequate land, funds, infrastructure, and services are available to meet the needs for jobs and industry.
- (2) Promote cooperative economic development partnerships.
- (3) Strengthen and enhance a strong commercial core within the City of Warrenton.

SECTION 9.300 POLICIES

Section 9.310 City Economy

- (1) Ensure sufficient land is zoned for business development, expanding public facilities and services, carrying out various economic growth projects, obtaining adequate funding for activities to achieve economic gains, and undertaking other appropriate economic development actions.
-

- (2) Encourage and support local industrial development in order to diversify beyond the City's three predominant industrial sectors (wood processing, seafood processing and commercial fishing), while maintaining strong support for these sectors.
 - (3) Work closely with individuals and organizations to increase desired industrial, general commercial and tourist commercial activities in Warrenton. Tourist-oriented establishments shall be encouraged to locate in Warrenton.
 - (4) Encourage present employers to expand their operations and aid them in doing what is necessary to maintain an economic base for employment within the City.
 - (5) Work with the local business community to strengthen the downtown commercial area as an important tourist and commercial center.
 - (6) Maintain an adequate supply of vacant commercial, industrial and waterfront development property to provide for the economic growth of the community.
 - (7) Work with the Clatsop County Economic Development Council and other related agencies and organizations to strengthen Warrenton's economy.
 - (8) Encourage residents, businesses and civic organizations to shop locally.
 - (9) Encourage successful home-based businesses.
 - (10) Institute a business license requirement for individuals and companies conducting business in Warrenton.
 - (11) Ensure public facilities and services are available to serve existing and prospective new businesses.
 - (12) Work with the Port of Astoria, community groups, and local businesses to identify and implement effective economic development strategies.
 - (13) Maintain and enhance all public infrastructure to create a pleasant and convenient business environment (from signage and pocket parks to sidewalks and
-

parking lots).



(14) Concentrate/ encourage small business and infill development in the core and not on the edges of the community.

(15) Ensure zoning allows for higher density, mixed-use development in the commercial core.

(16) Protect historic resources such as downtown buildings to maintain local character and attract visitors.

(17) Support the development and maintenance of a property inventory.

Section 9.320 Strategies

(1) Sufficient space shall be zoned for business growth and development activities and, to the extent practical, the capacity of streets and public facilities and services will be expanded to meet their needs.

Expansion of water and sewer system capacity and the efficient use of the present capacity will be particularly critical for some establishments, such as fish processing firms.

(2) The City will encourage the development of the area between East Harbor Drive, Marlin Avenue and US Highway 101 as a regional shopping center complex.

(3) Undertake activities to provide, protect, and enhance scenic and recreational attractions in the area. The City Commission will choose a committee or organization to help evaluate, initiate and carry out appropriate tourist-oriented projects.

(4) A group will be appointed by the City Commission to assist in selecting economic development projects for the Economic Development Administration (EDA) funding list. It should also investigate other potential sources of non-local funds for these projects.

(5) Fees from business licenses and/or lodging taxes should be used primarily to benefit the local economy, including helping to pay for tourist-oriented projects.

(6) The City will cooperate with the Port district to improve road access, utility service levels and other infrastructure to help develop the industrial park.

- (7) The City supports efforts by Clatsop County to develop a new county fairgrounds site and light industrial park at the Alumax property in the UGB.
- (8) Prepare and keep updated a current inventory of available buildings and land with complete data, including price, features, utilities, infrastructure, maps, photos or contact information. If selected properties are known to soon be vacant, include those in the review.
- (9) Determine which properties are ready for occupancy and which need renovation or complete site prep and development. Evaluate the condition, property owner attitude, price competitiveness and other factors to assess true market readiness.
- (10) Select and target the top five properties for tenants and property improvements. Work with property owners on an action plan for improvement and/or to sell the property. Identify incentives for rapid change.
- (11) The City will work through CEDC to achieve many economic objectives beneficial to the City and County as a whole, such as:
- (a) Increasing the emphasis on production of lumber and wood products in the County instead of log exports;
 - (b) Expanding CEDC and other fish hatchery programs in the Columbia River Estuary area;
 - (c) Relieving the shortage of moorage spaces, particularly moorages for commercial fishing boats;
 - (d) Improving the understanding of, and commitment to, the sustained yield concept, a concept which, when applied, means that resources (forestry, fishing or others) will not be overused for short-term gains;
 - (e) Increasing the number of tourists that visit Clatsop County during the off-season, including development of motels and tourist-oriented shopping facilities;
 - (f) Providing more training opportunities for people who want to learn skills needed for local economic activities; and
 - (g) Expanding existing business operations and encouraging other firms to locate in the area.
-

(12) Enhance urban design of the downtown core, while still recognizing the city's historic character through the provision of street furnishings, planters, way-finding and directional signage, paving and other features.

ARTICLE 10 PROCEDURES

SECTION 10.100 FINDINGS

As indicated in the Introduction, this Comprehensive Plan is intended to: provide sound goals, policies and plan strategies for Warrenton's future community development; be periodically updated as local goals and opinions change and new information is obtained; and establish a basis for zoning and other techniques used to implement the plan. In order to effectively carry out these and other plan objectives, and to meet the requirements of Statewide Planning Goals 1 and 2, it is essential that appropriate methods be used to review and revise the plan and to relate plan provisions to implementation actions. This section describes the City's Goal and Policies with respect to planning procedures.

SECTION 10.200 GOALS

Establish a comprehensive planning process which benefits the public as a whole by insuring the opportunity for local citizens to be involved during all phases of the process, requiring an adequate factual basis for decisions and actions, achieving a desirable level of coordination and consistency with other governmental bodies, and providing a suitable balance between stability and change.

SECTION 10.300 POLICIES

Section 10.310 Plan Review and. Update

- (1) Effective review and updating of the Comprehensive Plan will be carried out through extensive involvement of the Planning Commission.
- (2) The City will undertake a major review of its Comprehensive Plan in accordance with the State mandated periodic review schedule. The City will make other revisions to the Comprehensive Plan as necessary to address local needs and concerns.
- (3) All Comprehensive Plan amendments shall comply with the Statewide Planning Goals and will be supported by adequate evidence indicating the desirability of the proposed revisions. The desirability of changes in the intent

or boundaries of land and water use areas, as shown on the respective maps, will be determined in part by (a) the expected impact on the ability of the Plan to help satisfy land and water use needs; (b) the improvements to transportation facilities and community facilities and services, if any, necessary to accommodate the change; and (c) the physical development limitations and other natural feature characteristics of the areas involved.

(4) Amendments to the Comprehensive Plan text or map may be initiated by the City Commission, Planning Commission, Community Development Director, any City resident or any person or organization owning real property in the City. The person proposing the amendments will be responsible for providing justification for the revisions, and will also be responsible for providing a form of notice and for the text of any exception language, should such be necessary to meet Statewide Planning Goals.

(5) The Planning Commission and the City Commission shall hold public hearings on proposed amendments to the Comprehensive Plan or map. Notice of public hearing will be given in accordance with Development Code requirements.

(6) For purposes of reviewing and updating the Comprehensive Plan, the Planning Commission will be the officially recognized committee for citizen involvement. It will be appointed in an open and public manner and its membership shall be representative of a broad range of geographical, cultural and economic elements of the population in the Warrenton area. Adequate resources will be allocated for its activities and other citizen involvement efforts.

(7) The Planning Commission and City staff will provide the general public with an opportunity to be involved in inventory work, plan revisions and plan implementation. Efforts will be undertaken to respond to citizen suggestions and make technical information and minutes of meetings available to the general public.

(8) When reviewing and updating the Comprehensive Plan, the City will attempt to (a) give ample consideration to the comments and concerns of other governmental bodies; (b) achieve consistency with their policies to the extent appropriate; and (c) avoid unnecessary overlapping responsibilities. Affected special districts and appropriate local, regional, state and federal agencies will be notified by mail of public hearings on Comprehensive Plan amendments.

Section 10.320 Plan Implementation

(1) Implementation will occur in a manner which makes possible meaningful participation by local citizens and interested governmental bodies; consistency between the Plan and implementation measures intended to fulfill Plan objectives; and periodic review and update of these controls.

(2) Major actions undertaken to implement the Comprehensive Plan shall take place in a well-publicized, open atmosphere. The Planning Commission, general public and interested governmental bodies will be given an opportunity to comment on these actions before they are carried out.

(3) Provisions of the zoning ordinance, subdivision and partitioning regulations and other land and water use controls used to implement the Plan shall be consistent with the Plan. This does not mean, however, that these provisions have to be specifically authorized by the Plan or can not be more detailed than those in the Plan.

(4) Land and water use controls used to implement the Plan will be periodically reviewed and updated. Before changes in the regulations are adopted, there will be at least one public hearing on the proposal and adequate public notice of every hearing.