



River Industrial Zoning Background and Issues Report

June 19, 2007

Prepared for the River Plan Committee



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<http://www.portlandonline.com/planning/index.cfm?c=42540>

INTRODUCTION

Portland's working harbor is a West Coast trade gateway and Oregon's largest seaport, where the state's primary channel, rail, pipeline, and highway infrastructure comes together. The working harbor is also the region's largest heavy industrial area, characterized by facilities like marine terminals, rail yards, petroleum tank farms, steel mills, and heavy equipment manufacturing. Portland's "Industrial Sanctuary" zoning has an important role in reinforcing these economic functions by limiting incompatible land uses that could inhibit growth and reinvestment in the industrial district. The Greenway "River Industrial" zone (the i-overlay), established in 1987, further reinforces the specialized economic functions of the harbor area, by reserving the finite industrial land supply along the deepwater navigation channel primarily for river-dependent and river-related uses.

One component of the River Plan is to consider any revisions to Portland's industrial land policy and zoning provisions along Portland Harbor. The purpose of this report is to introduce key issues to address in that task, along with relevant background information and preliminary staff analysis for resolving them. An earlier draft of this report was used by the River Industrial Zoning Task Group, a group convened to discuss these issues, identify divergent stakeholder concerns and help work toward their resolution.

River Industrial zoning issues

How should industrial land policy and zoning be updated along Portland Harbor? The following issues are proposed to be considered by the River Industrial Zoning Task Group.

- Should the River Industrial policy, to reserve harbor riverfront primarily for river-dependent and river-related industry, be changed? Some stakeholders have recommended removing the policy and i-overlay zone to allow broader industrial use options on constrained sites, larger riparian setbacks, less impact from dredging and in-water structures, more riverfront trail opportunities, and land for expansion of nearby non-river-dependent industry. *The River Renaissance Strategy (2004) and River Concept (2006) have generally reinforced the current policy.*
- Should the definition of river-related be expanded or replaced? None of the businesses on Portland's diverse harbor appear to meet the current definition of river-related uses.
- Where should the i-overlay zone be applied? New constraints on river-dependent development and other changed conditions warrant an updated review of the i-overlay map.
- Should the City have a more stringent approach to manage and stabilize industrial land supply in the harbor area? Recent proposals have been made to convert industrial land to other uses at Linnton, St. Johns, and near the University of Portland.

1. TASK GROUP OVERVIEW

A. RIVER PLAN PROCESS

The River Plan is being developed as a comprehensive, multi-objective area plan for the land along the Willamette River in Portland. It will update the 1987 Willamette Greenway Plan, zoning overlay, and design guidelines and include recommendations for investments, partnerships, and other actions. It will be developed in three phases, the first one focusing on the North Reach, roughly between the Broadway Bridge and the Columbia River. The North Reach phase will also include preparation of a Working Harbor Reinvestment Strategy, a 10-year program of public investments in the economic vitality of the harbor industrial districts. Future planning will address the Central City and southern areas of the river.

The River Plan North Reach is being developed through the following process and is expected to be adopted in 2008:

- Public outreach and involvement opportunities are provided throughout the process, including the River Plan website, emailed River Plan News, task group meetings, periodic open houses and brownbags, presentations to community groups, interviews, River Plan Committee meetings, and public hearings.
- The River Concept was developed in late 2005 and adopted by City Council in April 2006. It synthesizes recent policy guidance and sets out riverwide direction for developing the River Plan.
- Stakeholder discussions in various “task groups” on specific river-related issues will inform preliminary staff recommendations and will eventually be integrated into a staff proposal to the River Plan Committee.
- An intergovernmental Willamette River TAC (Technical Advisory Committee) will meet quarterly to also review and inform staff recommendations.
- The River Plan Committee generally meets monthly to review development of the plan, hear public comments, and recommend a draft proposal to the Planning Commission.
- The Planning Commission will hold a public hearing, make revisions, and propose a draft plan to City Council.
- City Council will hold a public hearing, make revisions, and adopt the plan in final form.

B. PURPOSE OF TASK GROUP

River Plan staff has convened a variety of task groups to analyze specific river-related issues (e.g., trail alignment, watershed health, bank treatment, industrial zoning) to advise staff on development of the River Plan. The task groups consist of stakeholders, interested parties and agency staff. The task groups are asked to do the following:

- Provide critical review of background materials, identified issues, and staff proposals.
- Identify stakeholder concerns on issues and proposals.
- The task groups are not asked to reach consensus but rather to identify areas of agreement and the range of divergent concerns among stakeholders. This is a multi-interest task group, but its focus is on advancing industrial issues. The group is not expected to develop a totally integrated proposal.

C. STAKEHOLDERS

Who cares about River Industrial zoning and why?

- Property owners and occupants are required to comply with the zoning code.
- River-dependent businesses and the Port of Portland have a direct interest in the continued vitality of the working harbor. Various other organizations also have an economic development interest in harbor

vitality, such as Portland Development Commission (PDC), Portland Business Alliance, and Oregon Economic and Community Development Department (OECDD).

- Transportation agencies and businesses have made major investments in multimodal freight infrastructure along the harbor, including the U.S. Army Corps of Engineers, the railroads, pipeline operators, Oregon Department of Transportation (ODOT), and Portland Office of Transportation (PDOT).
- Statewide shippers (e.g., farmers, manufacturers) and consumers for whom Portland Harbor provides transportation cost savings.
- Oregon Department of Environmental Quality (DEQ), the U.S. Environmental Protection Agency (EPA), and Lower Willamette Group must design environmental cleanup projects to accommodate anticipated future uses. The Portland Bureau of Environmental Services (BES), NOAA Fisheries, tribal governments, U.S. Fish and Wildlife Service, and Oregon Department of Fish and Wildlife (ODFW) have related interests in natural resource protection that are affected by dredging, inwater facilities, and urban development.
- Nearby residents have an interest in reducing industrial impacts on adjacent neighborhoods.
- Boaters, trail users, nearby residents, and Portland Parks and Recreation have an interest in increased river access and river recreation opportunities.
- Portland Bureau of Development Services (BDS) implements industrial zoning requirements.

D. TASK GROUP PROCESS

The work of the task group did not start from scratch. Various state, regional, and local studies and projects since 1999 have refined the community's understanding of industrial land supply issues. The Portland Harbor Industrial Lands Study (PHILS) was prepared in 2002 essentially to examine the supply and demand for riverfront industrial land and inform revisions to the River Industrial overlay zone. And the specific industrial zoning issues and potential solutions described in this report have been discussed and distilled through various meetings since 2003 of the River & Industrial Economic Advisory Group (RIEAG), a policy discussion group of primarily harbor industrial stakeholders and the local government staff.

Five task group meetings were held from March through May 2007. Minutes of the task group discussions are posted on the River Plan website.

Meeting 1

At the first meeting, the group's purpose was established, to provide critical review of project materials and to identify stakeholder concerns. The task group was intended to be a small discussion group, representing a cross-section of interests affected by river industrial land policy and zoning. These include business and economic development, workforce, maritime security and Superfund regulatory interests.

Background research on river industrial land issues was presented and discussed, including industrial land policy and zoning, the economic role of the working harbor, land use inventories and trends, and a jobs/land development forecast. Staff proposed three main issue topics for discussion by the group, each to be the focus of a specific meeting: amendments to river industrial policy and zoning rules (meeting 2); amendments to the river industrial zoning map (meeting 3); and industrial land conversion criteria (meeting 4).

Meeting 2

The purpose of the second meeting was to discuss potential changes to City policy and zoning regulations that reserve the industrial riverfront along the harbor primarily for river-dependent and river-related industry. The task group had divergent views on whether the policy should be retained, relaxed or removed. Topics included that Portland has a competitive advantage and expanding market opportunity for river access;

Superfund, Endangered Species Act, and other constraints are emerging to in-water work; more space is needed by non-river-dependent uses; whether to take a long-term or short-term perspective; and tensions between the i-overlay, the greenway trail, and neighborhood desires.

No primary uses on the harbor appear to meet the current definition of river-related. Proposals to expand/replace the definition generally supported in previous industry discussions (River & Industrial Economic Advisory Group) were discussed, to allow rail-dependent uses and accessory businesses on sites in predominant river-dependent use. Objections to code flexibility were raised, along with disadvantages of shifting away from river-dependent uses. Members had differing views on whether to allow accessory businesses or rail-dependent uses; community input on new industrial uses; use of incentives in lieu of zoning rules; and allowances for interim uses and unlimited expansion of non-conforming uses.

Meeting 3

The purpose of the third meeting was to discuss amendments to the river industrial zoning map. Where should the i-overlay be applied? Discussion came back to whether the i-overlay is necessary at all. Map change issues were discussed regarding sites with numerous constraints for river-dependent use, the depth of the i-overlay zone, a land division loophole from i-overlay requirements, what constitutes the lack of river access, whether to accommodate or influence the design of the harbor Superfund cleanup, and whether or not to include Swan Island lagoon. Discussion of whether to amend the site-suitability criteria for applying the i-overlay focused on how much flexibility should be allowed. Current rules do not require river-dependent or river-related uses on sites found unsuitable for such uses through a greenway review process. Current site suitability criteria, however, are relatively open-ended and can lead to inconsistent, unfair results. A site-by-site analysis may be a viable option, with the understanding that too much flexibility may create problems.

Meeting 4

The purpose of the fourth meeting was to discuss industrial land retention policy. The group unanimously agreed that the City should have a more stringent approach to stabilize and manage the quantity of industrial land in the harbor area. Most conversions occur through a legislative, rather than quasi-judicial, process. Applying a more stringent approach to legislative as well as quasi-judicial proposals was urged.

The group disagreed about how stringent to be in restricting conversion of Regionally Significant Industrial Areas (RSIA's). Trying to restrict change on the best of the best land is difficult, as it may include nearly all land along the harbor. A "no net loss" rule would have implementation challenges. Acreage added to make up for conversion should have comparable infrastructure access, replacing like with like. The group generally agreed that applying the criteria used in Guild's Lake to the rest of the working harbor makes sense. In addition, industry needs to be protected from homeowners and commercial uses nearby, such as the bluff above Toyota, through something like a right-to-farm law.

Considering the dispersed prime industrial land in the working harbor and the buffer function of the bluffs, most of the existing industrial sanctuary boundary seems right as a long-term edge. Discussion focused on exceptions, including the McCormick and Baxter site, Ramsey Lake and other environmental zoning sites, St. Johns landfill, unbuffered areas east of I-5 in Lower Albina and along Columbia Boulevard, and the employment zoning at a housing site within Terminal 4.

Meeting 5

The fifth meeting served as a wrap-up session, during which the group reviewed and discussed its draft recommendations, and flagged issues that task group members did not agree on how to resolve.

2. BACKGROUND INFORMATION

A. EXISTING POLICY AND ZONING

1) Current industrial land policies

Statewide Planning Goal 9 – Economic Development

Oregon's statewide planning program requires that local governments adopt plans that meet 19 adopted goals and associated implementation rules. Goal 9 addresses economic development. It requires that local governments conduct an economic opportunities analysis and designate an adequate supply of industrial and employment land to accommodate projected needs identified during a 20-year planning period. Goal 9 Rule amendments adopted in 2005 also call for protection of prime industrial areas, defined as possessing characteristics that are difficult or impossible to replicate in the planning area such as marine ports, and for providing an adequate short-term land supply.

Statewide Planning Goal 15 – Willamette River Greenway

Goal 15 calls for cities and counties along the Willamette River to develop plans to protect, conserve, enhance, and maintain the natural, scenic, historical, agricultural, economic, and recreational qualities of lands along the Willamette River as the Willamette River Greenway. The multi-objective goal requires provision for recreational needs, adequate public access to the river, a natural vegetative fringe, a greenway setback (except for water dependent and water related uses), and continuation of committed urban uses including ports and industrial areas.

Metro Title 4 – Industrial and Other Employment Areas

Metro's Regional Framework Plan calls for a strong economic climate. Toward this goal, Metro's Title 4 requires cities and counties in the metro area to establish zoning rules that limit commercial uses in industrial and employment areas. Metro's Title 4 map corresponds to the industrial sanctuary and general employment designations on Portland's Comprehensive Plan map. Title 4 also designates Regionally Significant Industrial Areas, which include nearly all of the industrial zones in Portland's harbor districts.

City of Portland *Comprehensive Plan* (1980)

Urban development policies in the *Comprehensive Plan* support retaining the character of established business centers (Goal 2) and encouraging growth of industrial activities in the city through industrial sanctuaries (2.14). Economic development policies call for a strong and diverse economy with a full range of employment and economic choices (Goal 5), sufficient inventories of industrially zoned land (5.1.A), retention of industrial sanctuary zones (5.1.C), and a variety of industrial areas in the city (5.8). The city provides three major types of industrial land in the regional market: heavy industrial areas in the freight hub districts along the harbor and airport; mixed industrial/ employment districts in the Central City and business park settings; and small industrial areas in dispersed, advantageous locations.

Policy 2.14 Industrial Sanctuaries: Provide industrial sanctuaries. Encourage the growth of industrial activities in the city by preserving industrial land primarily for manufacturing purposes.

Goal 5 Economic Development: Foster a strong and diverse economy which provides a full range of employment and economic choices for individuals and families in all parts of the city.

Policy 5.1.C Retain industrial sanctuary zones and maximize use of infrastructure and multimodal transportation linkages with and within these areas.

Policy 5.4 Promote a multimodal regional transportation system that stimulates and supports long-term economic development and business investment.

Willamette Greenway Plan (1987)

The Willamette Greenway Plan implements statewide planning goal 15 to protect, conserve, enhance, and maintain the scenic, natural, historical, economic, and recreational qualities of lands along the Willamette River as the Willamette River Greenway. It designates the lands along the river as a unique and valuable resource that requires protection. The River Industrial (i-overlay) zone is one of four greenway overlay zones that implement the plan.

Objective 5: To maintain the economic viability of Portland's maritime shipping facilities, based on the overall economic importance of deep-channel shipping to Portland's and Oregon's economy. To achieve this, the Plan provides an overlay zone reserved primarily for river-dependent and river-related industrial uses.

River Renaissance Strategy, 2004

The City of Portland endorsed the *River Renaissance Vision* in 2001, calling for a long-term, multi-objective initiative to revitalize the Willamette River. The Vision proposed the maintenance and enhancement of a "prosperous working harbor" as one of five themes. The *River Renaissance Strategy (2004)* set out specific policy direction on each vision theme, including the following related to industrial land protection in the working harbor:

4.1 Stimulate Portland's competitiveness and growth as a major West Coast marine port and distribution and industrial center. Affirm and advance the critical role that the harbor and its industries and businesses play in the economy and quality of life of Portland and the Columbia and Willamette River basins.

4.3 Protect and enhance the industrial land supply, economic health and distribution-hub functions of the working harbor and Columbia Corridor industrial districts and ensure river access for river-related and river-dependent industry.

4.4 Maintain and enhance the buffers (riverine bluffs, major roadways, and mixed employment areas) that frame these industrial districts and separate them from other land uses, in order prevent the loss of industrial land, and to reduce impacts on adjacent neighborhoods.

River Concept, 2006

The River Concept provided the following additional, relevant guidance for developing the River Plan North Reach:

- The industrial riverfront will remain primarily in industrial sanctuary uses that are dependent on, or benefit from, a riverfront location.
- Retention of harbor industrial land will be coordinated with transportation and economic development investments, to capitalize on this unique location at the convergence of Oregon's primary rail, road, water, and pipeline infrastructure.
- Brownfields and unoccupied sites will be recycled into productive use through public and private investment and partnerships while pursuing polluter liability for cleanup costs. In the harbor area, these uses will be predominately industrial.

2) Current industrial zoning

The adequacy of the industrial land supply to meet demand and policy objectives is managed in various ways: regional adjustments to the urban growth boundary; efforts to overcome development constraints (e.g., contamination) on vacant and redevelopable land; designating and limiting land uses in industrial zones; and retention of industrially zoned land. The last two methods are implemented primarily through zoning.

Industrial base zones

Traditionally, a primary goal of industrial zones in the U.S. has been to limit the impacts of industry on other parts of the city. Accordingly, the mix of land uses allowed in those zones is less relevant and typically includes a substantial blend of commercial, institutional, and sometimes even residential uses. In contrast, the focus of Portland's industrial sanctuary policy is to encourage industrial growth in the city. This policy is implemented by limiting the mix of allowed uses in industrial zones essentially to support industrial vitality and growth. Industrial sanctuaries are mapped in the *Comprehensive Plan* and are implemented by the 13,830 acres of industrial zones (IH and IG) in the *Portland Zoning Code*. Portland's industrial zones do not allow residential or large-format commercial development. Retail, service, and office uses are limited in the industrial zones to no more than 3,000 square feet for up to four uses on a site, which could be expanded to 25,000 square feet for uses found to be suitable through a conditional use permit.

River Industrial overlay zone

The i-overlay zone is one of five Greenway overlay zones. It reserves land in industrial zones along Portland Harbor for river-dependent and river-related industrial uses, unless the site is found through a greenway review process to be unsuitable for such uses. This overlay implements Willamette Greenway Plan policy, intending to make the most of the city's finite industrial land supply along the harbor because of the importance of marine shipping to the state and local economy. River-dependent industrial uses include marine terminals, manufacturing and construction facilities that use the river for transporting goods, and vessel facilities (e.g., barge lines, Coast Guard).

B. RECENT RESEARCH ON INDUSTRIAL LAND SUPPLY

An abundance of recent research is available to inform industrial zoning issues in the harbor area and region. Some examples of relevant sources and key findings are provided below.

1) Regional studies and forecasts

- Required to keep a 20-year land supply for growth, Metro added approximately 4,000 acres of industrial land to the Urban Growth Boundary in 2002 and 2004, based on information from *the Regional Industrial Lands Study* (RILS, 1999 and 2001) and other background documents. The addition was based on projected demand and the current supply of vacant buildable land. RILS also found a significant shortage of development-ready industrial land in the region, especially larger parcels.
- The *Brownfield Greenfield Cost Comparison Study* (2004) analyzed development feasibility of four greenfield and comparable brownfield industrial sites in the region. While each site was different, the study found significant cost savings in the greenfield sites. Three of the four brownfield sites were found to be not financially feasible to develop for industrial use without public intervention.
- The *Portland/Vancouver International and Domestic Trade Capacity Analysis* (2006) projected that regional freight tonnage will double from 2005 to 2035 and grow by an average 2.2 percent annually. Consultant analysis of the forecast also emphasized the importance of maintaining and aggressively preparing waterfront industrial land.

2) Harbor-specific and Portland research

- *Portland Harbor Industrial Lands Study (2003)* examined existing conditions, trends, and competitive performance of industries present in the harbor area, focusing on the supply and demand of land for river-dependent/ related industry. The study assessed and mapped site constraints for such uses. It found competitive regional strength in a diversity of industries and that 1980-2000 industrial job growth in the Portland area was over three times the national average. Harbor business interviews conducted at the beginning of the recession found urgent concerns about area cost competitiveness and that many longtime manufacturers expected to need to reinvent their business lines to remain competitive.
- The *Citywide Industrial Land Inventory and Assessment (2003)* projected 1,900 gross acres of industrial land absorption in the City of Portland by 2025, accounting for most of the city's estimated 2,000 acres of vacant, "buildable" industrial land.
- The *Willamette River Conditions Report (2004)* examined the industrial economy in the harbor as an interrelated "system" of freight transportation networks, industrial land supply, industry clusters, jobs and labor market, and regulatory mechanisms. It summarized functions, existing conditions, trends, opportunities, and constraints for each of these elements of the industrial system.
- The *Industrial Districts Atlas, 2004* summarized and mapped current conditions in each of the city's eight industrial districts. The study found three types of districts in Portland, characterizing those along the harbor and airport as "freight hub districts" where most of the occupied land has multimodal freight access and is in heavy industrial use. Current conditions in each district were assessed for competitive land characteristics, transportation access, and labor access. The city's constrained 2,900 acre vacant industrial land supply was described in more detail than previous studies, mapping 1,100 acres of it in partly buildable floodplain and habitat areas and 920 acres in potential brownfields.
- A Bureau of Planning memo (November 2006) was written in response a spurt of recent industrial land conversion proposals across the city. The memo summarized current industrial land policy and conditions and recommended four key issues to address in each case (see discussion below on industrial land conversion).
- *Working Harbor Reinvestment Strategy: Business Interview Results (2006)* described comments from industry leaders in 25 area businesses and 4 industrial focus groups. Among the findings, over \$450 million of recent and funded investments (2004-07) were identified in property improvements on 30 harbor area sites, spanning each of the area's largest heavy industrial clusters. A tightening harbor land supply was found to be limiting growth options and increasing pressure to develop constrained land, use land more efficiently, and protect against residential encroachment.

C. INVENTORY OF HARBOR LAND SUPPLY AND FACILITIES

Table 1 below tallies the number of sites and acreage in various land uses along the harbor. These land use categories are in turn depicted on the following harbor area maps in Figures 1 and 2, showing the vacant and brownfield land supply and multimodal industry clusters, and land in river-dependent and rail-dependent uses. Figure 3 shows the regional map of Regionally Significant Industrial Areas adopted by Metro in Title 4.

Table 1. Land Uses in the Working Harbor Industrial Districts, 2006

	Sites	Percent of Total Sites	Acres in Sites	Percent of Total Acres	River Frontage (lineal feet)	Percent of Total River Frontage
All Sites in Harbor Industrial District:	1,003	100%	6,004	100%	126,908	100%
Multimodal facilities	140	14.0%	3,323	55.3%	92,187	72.6%
River Industrial (i-overlay) zone	138	13.8%	1,806	30.1%	116,530	91.8%
Vacant land or unoccupied brownfield	429	42.8%	1,063	17.7%	0	0.0%
Multimodal Facilities*						
Marine terminals, export/import cargo	12	8.6%	1,086	32.7%	42,204	45.8%
Metals & equipment mfg.	22	15.7%	580	17.5%	16,991	18.4%
Energy	17	12.1%	282	8.5%	11,741	12.7%
Heavy construction	19	13.6%	168	5.1%	16,689	18.1%
Vessel services	8	5.7%	27	0.8%	2,751	3.0%
Rail yards**	9	6.4%	581	17.5%	0	0%
Other rail users	53	37.9%	599	18.0%	1,811	2.0%
total	140	100%	3,323	100%	92,187	100%
* Facilities that use marine, rail, or pipeline transportation.						
** The 80-acre Intermodal Yard at T-6 is counted as a marine terminal site. Some parts of rail yards overlap with "other rail users."						
Land in River Industrial (i-overlay) zone*						
River-dependent uses	46	33.3%	1,077	59.6%	72,294	62.0%
River-dependent rail users	23	16.7%	902	49.9%	56,283	48.3%
Vacant land / unoccupied brownfields	84	60.9%	458	25.4%	37,416	32.1%
Non-river dependent uses	8	5.8%	271	15.0%	6,820	5.9%
total	138	100%	1,806	100%	116,530	100%
* The i-overlay zone reserves industrial (IH & IG zones) sites with harbor frontage for river-dependent and river-related uses.						
Rail users						
Rail users in harbor districts	92	9.2%	2,726	45.4%	70,865	55.8%
Vacant Land* & Unoccupied Brownfields						
Development-ready vacant sites**	89	20.7%	289	27.2%		
Partly buildable vacant land****	187	43.6%	310	29.2%		
Other unoccupied brownfields***	24	5.6%	250	23.5%		
Vacant land on partly occupied sites	129	30.1%	214	20.1%		
total	429	100%	1,063	100%		

* Unimproved land, tracked by Metro, 2005.

** Buildable vacant land on unoccupied sites with no environmental cleanup or investigation tracked by DEQ.

*** Environmental cleanup or investigation sites tracked by DEQ in ESRI database.

**** Vacant land, excluding open space, where development is allowed but limited: floodplain, 10+% slope, Metro Goal 5 inventory.

Figure 1. Vacant Land and Brownfields in the Working Harbor

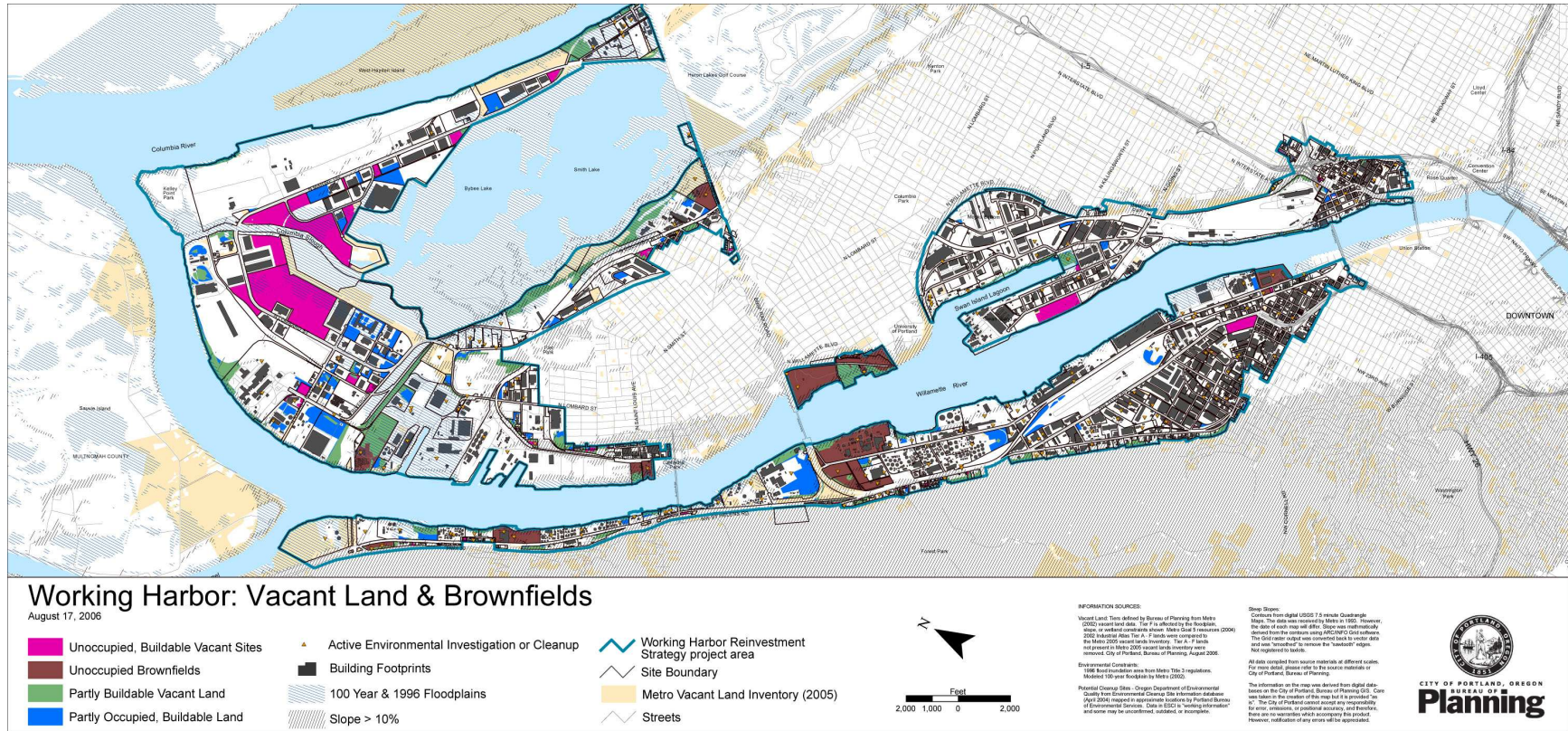


Figure 2. Multimodal Industry Clusters in the Working Harbor

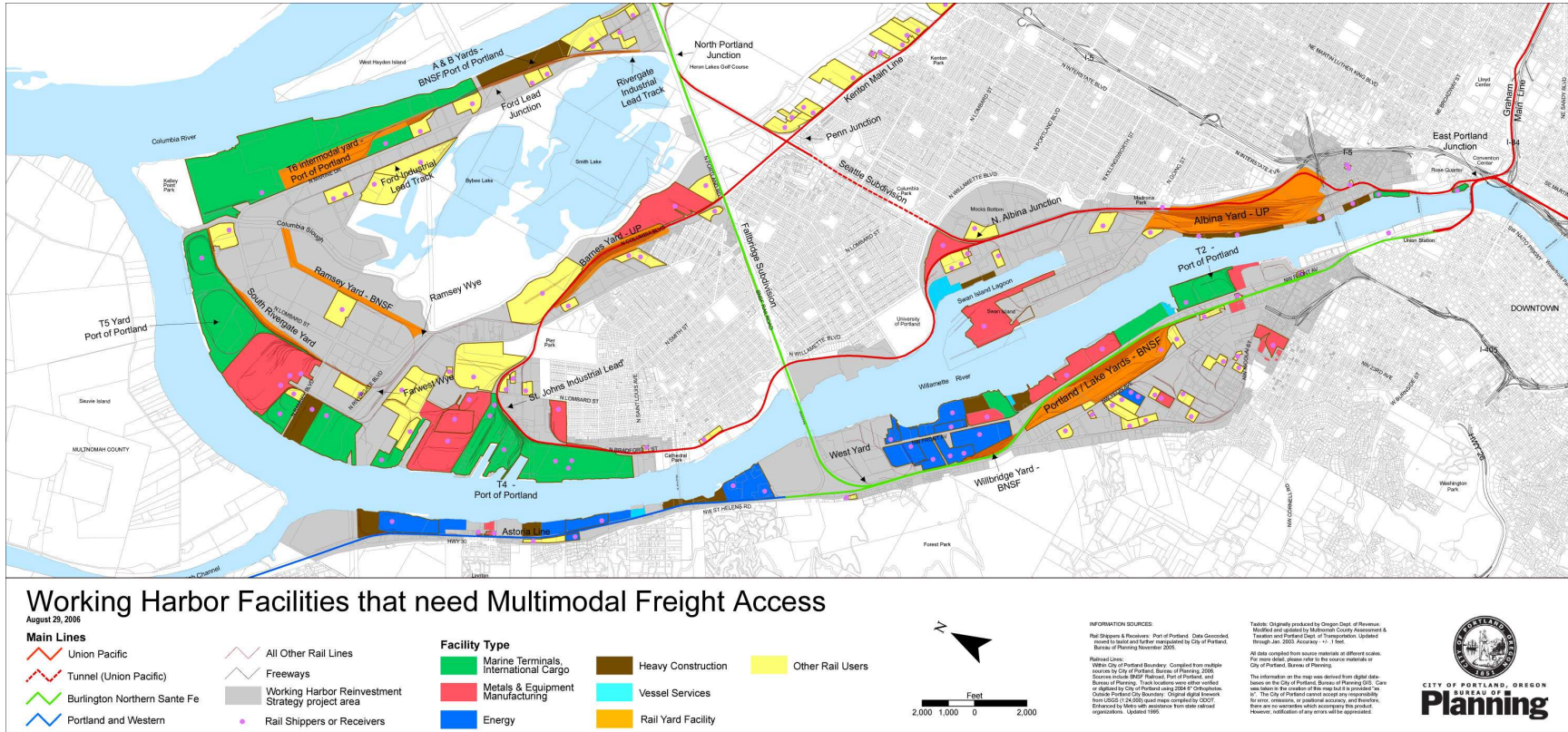
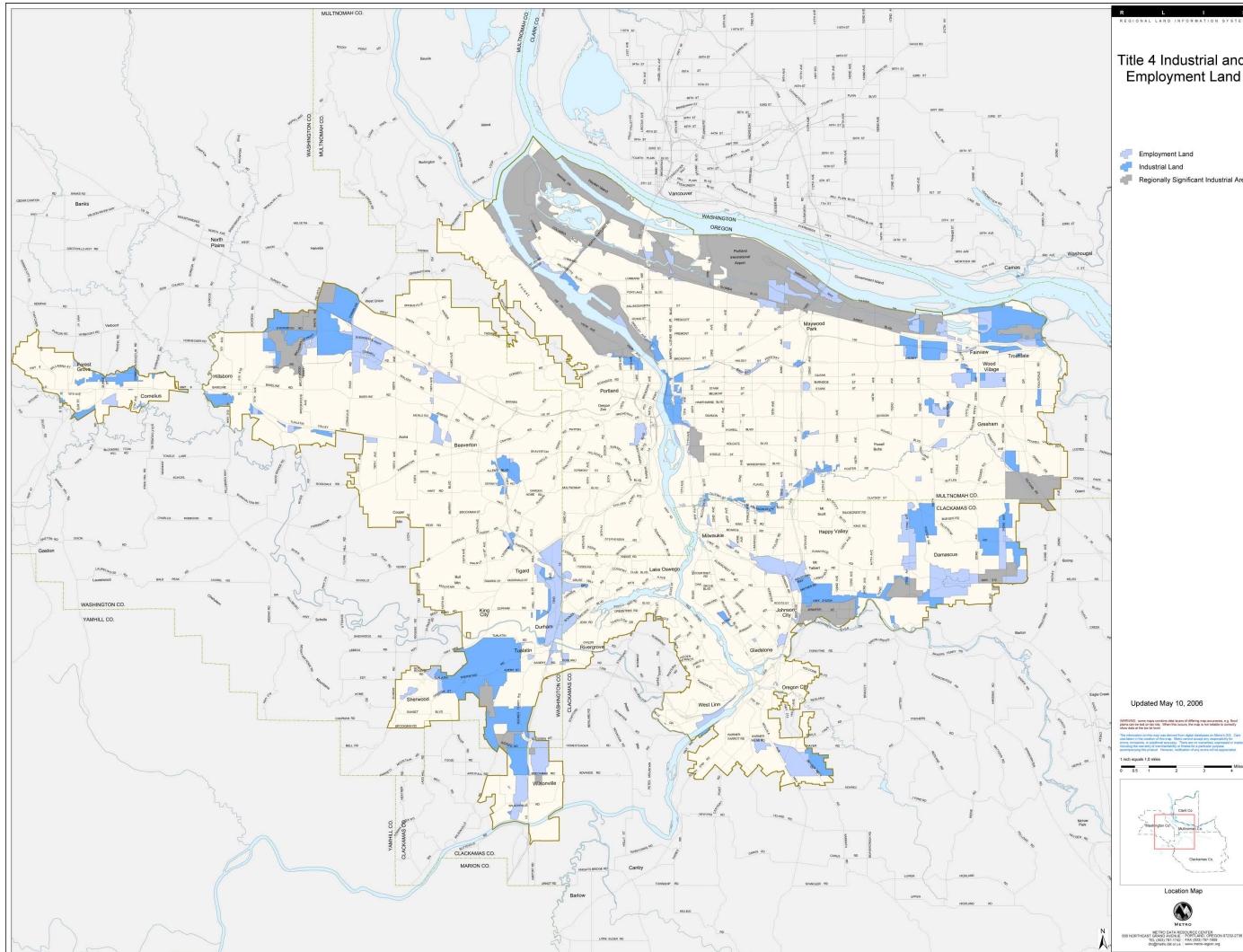


Figure 3. Regionally Significant Industrial Areas



D. HARBOR AREA DEMAND FOR INDUSTRIAL LAND

Long-term growth trends

- A metro area commodity flow forecast completed in 2006 (Port of Portland, Metro) projects average annual tonnage growth to be 1.43 percent for ocean cargo (1997 to 2035) and 1.04 percent for barge cargo.
- Most industrial land demand is not for marine or rail access facilities. Typical facility types are warehouse/distribution space or small services flex space. Typical speculative industrial development is in these categories.
- River-dependent industrial land absorption along the harbor averaged 21 acres annually in the 1990-97 and 1960-97 periods. Approximately 500 acres of land is being prepared for marine and industrial development at Columbia Gateway in Vancouver and approximately 400-500 acres is reserved by the Port of Portland at West Hayden Island for future marine terminal development.
- Industrial land conversion along Portland Harbor (downstream of the Broadway Bridge) has been confined to the Pearl District and the St. Johns Town Center/Willamette Cove area, based on 2040 Plan.

Harbor area site constraints that reduce potential demand

- Portland Harbor Industrial Lands Study (2003) mapped levels of site constraints for river-dependent uses harborwide based on 14 criteria, including appropriate zoning, moorage depth, rail and truck access, lot depth, contamination, nearby housing, and other environmental and building constraints. Results are describe in Section 3.C.1 below.
- Future liability for in-water cleanup is recognized by industrial developers as a significant financial barrier to development of vacant sites. The Portland Harbor Superfund Project lists nearly 70 sites as contributing properties.
- Brownfield complexity, cost, delayed availability, and stigma limit the range of industrial demand.
- The typical site development timeframe for traded sector industrial land, between site selection and readiness for building construction, is 6-12 months. Brownfield cleanup, multi-jurisdiction permitting approval for in-water work, and other constraints can take substantially longer to resolve.
- Most of the industrial land demand in region (some estimates reach 90 percent) is for business expansion or relocation.
- Area developers have identified substantial demand for small industrial service spaces in central Portland. Developers have said they have not yet been able to tap much that demand because of the challenges and risks of redevelopment on the small sites that are available.

Recent site investments

- \$450 million of completed or funded capital investments on 30 harbor area sites from 2004-2007. Most are on multimodal sites.
- Recent marine terminal expansion: 50 acres by Hyundai auto terminal, 21 acres by Toyota auto terminal; container cranes and intermodal investments; 15 acres by Tenex Management at T-5 (former Alcatel site) to supply equipment and materials to metal casting manufacturers.
- Recent heavy construction development with marine access: 6 acres by Advanced American Diving; 5 acres by Ash Grove Cement; and 21 acres by Rinker (concrete batch plant).
- Recent manufacturing development with marine access: about 10-20 acres of the Portland Shipyard site by US Barge for barge manufacturing; dock improvements by Schnitzer, Gunderson.
- The resulting land absorption by river dependent industry on Portland harbor since 2003 has been about 130 acres, approximately 32 acres per year.
- Petroleum terminal investments and expansion to accommodate new biofuels (e.g., ultra low sulfur diesel, biodiesel) are anticipated.

- Rail infrastructure investments have also been made recently at a few harbor sites: Toyota; Kinder Morgan; Canpotex; Oregon Steel; T-6 intermodal; South Rivergate yard; and Albina yard.

Harbor districts forecast

Ten-year employment and land development forecasts are shown in the Figure 4 and Table 2 below. The employment forecast is based on Metro's 2030 forecast updated in 2006. Overall, the forecast projects approximately 5,800 new jobs and land development affecting 880 acres in the harbor districts between 2005 and 2015.

Figure 4. 2015 Employment and Land Development Forecast by TAZ (transportation analysis zone)

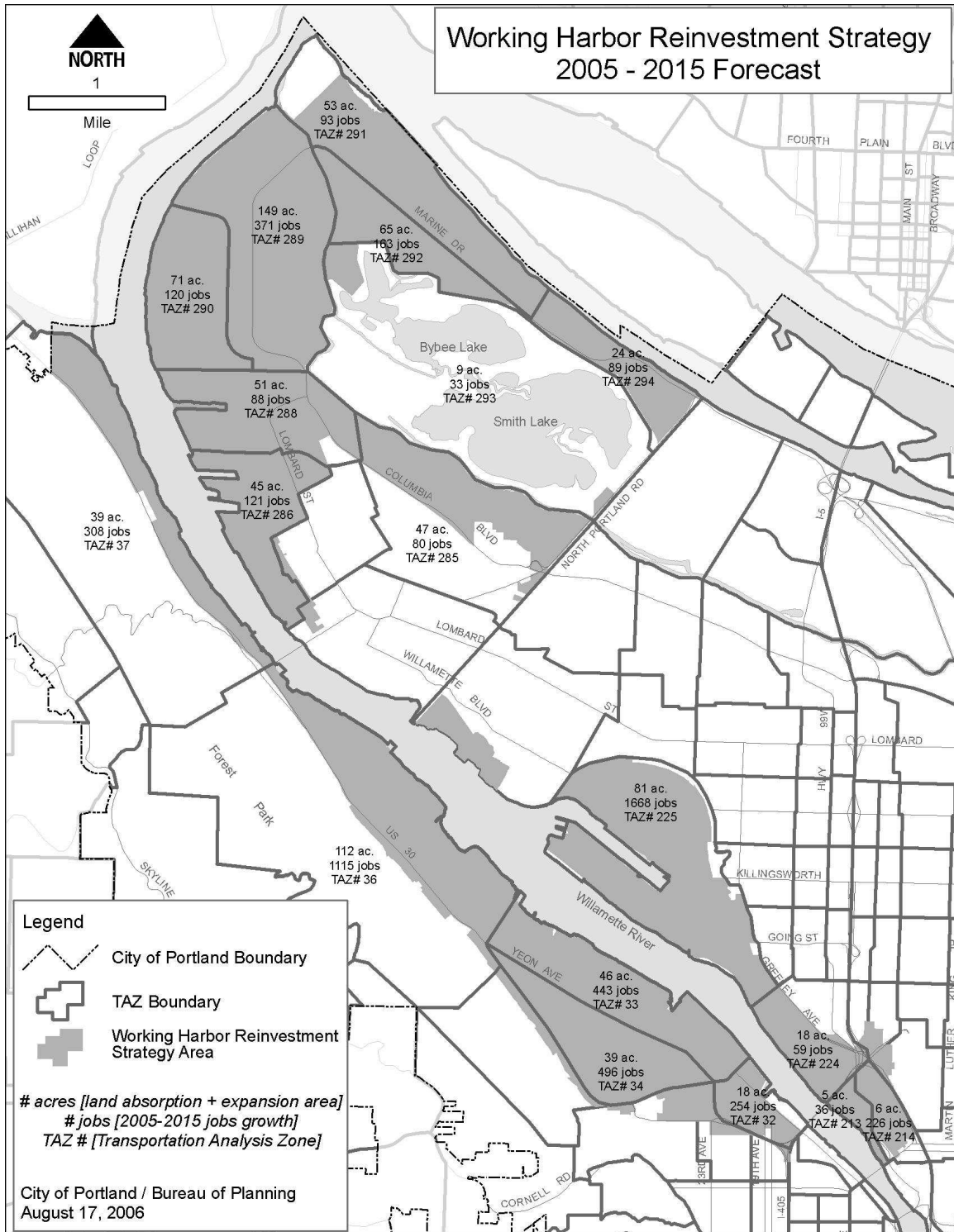


Table 2. 2015 Employment and Land Development Forecast, Portland Harbor Industrial Districts, August 17, 2006

TAZ	Total Employment		Employment Change		2005-2015 Land (acres) Affected by Development			
	(Metro Gen 2.3 Forecast)		2005-2030	2005-2015 (a)	Developable Land (ac.) Supply (b)	Land Absorption by New Development (c)	Land Affected by Expansion or Redevelopment (d)	Total
	2005	2030						
Northwest	16,430	22,970	6,540	2,616	249	124	129	253
32	2,532	3,166	634	254	21	11	8	18
33	4,156	5,263	1,107	443	14	7	39	46
34	5,346	6,587	1,241	496	16	8	31	39
36	3,718	6,505	2,787	1,115	153	77	35	112
37	678	1,449	771	308	45	22	16	39
Swan Island	17,018	21,989	4,971	1,988	42	21	89	110
213	461	551	90	36	3	1	3	5
214	2,062	2,627	565	226	1	0	6	6
224	1,358	1,505	147	59	4	2	16	18
225	13,137	17,306	4,169	1,668	34	17	64	81
Rivergate	10,636	13,532	2,896	1,158	531	266	247	513
285	812	1,012	200	80	55	28	20	47
286	1,433	1,735	302	121	23	12	33	45
288	1,332	1,553	221	88	27	14	38	51
289	2,581	3,509	928	371	205	102	47	149
290	1,634	1,934	300	120	78	39	32	71
291	399	632	233	93	4	2	50	53
292	1,042	1,449	407	163	103	51	14	65
293	43	125	82	33	13	6	2	9
294	1,360	1,583	223	89	23	11	12	24
(295) e	0	200	200		400			
Total	44,084	58,491	14,407	5,763	822	411	466	877

- a. Assume a straight line employment change, i.e., that 20 percent of the 25-year change will occur in the 2005-2015 period.
- b. Assume the developable land supply includes buildable vacant (unimproved) land (Industrial Districts Atlas Tiers A-E), plus half of the "partly buildable" vacant land (Tier F), plus unoccupied, developed brownfield land.
- c. Assume 50 percent of the vacant and brownfield acreage will develop by 2015.
- d. Assume land used for redevelopment and expansion by 2015 will include 10 percent of all developed land.
- e. The West Hayden Island TAZ 295, held by the Port of Portland for future marine terminal development, is not within the current city limits and not included in this forecast.

Source: Portland Bureau of Planning, Working Harbor Reinvestment Strategy

3. ISSUES AND PRELIMINARY RECOMMENDATIONS

Figure 5 below summarizes draft responses to the primary issues considered and discussed by the River Industrial Zoning Task Group. The group considered amendments to river industry policy and zoning, the current zoning map, and industrial sanctuary retention policy. Current “River Industrial” policy and zoning reserve the industrial riverfront along Portland Harbor primarily for river-dependent and river-related industry. The matrix specifies the issues considered, draft staff recommendations in response to each issue, the primary rationale for those recommendations, and alternative approaches identified by some task group members.

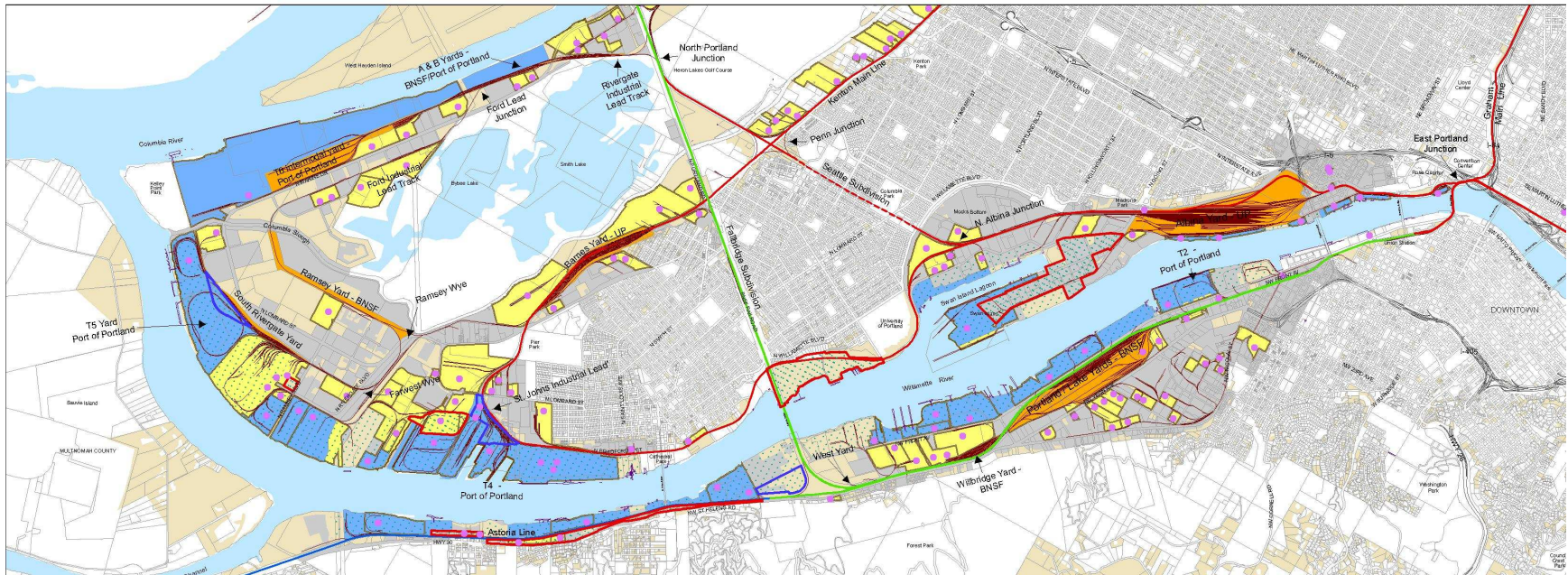
Figure 5. River Industrial Zoning Issues and Preliminary Recommendations			
Issue	Preliminary staff proposal	Rationale	Alternative approaches and interests
1. River Industrial Policy and Zoning			
1.A. Should the River Industrial policy, to reserve harbor riverfront primarily for river-dependent and river-related industry, be changed?	<ul style="list-style-type: none"> - Retain current policy, to provide an overlay zone reserved primarily for river-dependent and river-related industrial uses. - Recommend applying urban renewal and potentially other resources to help overcome brownfield and other development constraints on underutilized harbor sites. 	<ul style="list-style-type: none"> - The River Concept's policy priority in the North Reach is a prosperous working harbor, as Oregon's main seaport and distribution hub. - Current policy emphasizes the long-term market opportunity, competitive advantage, and economic priority of maritime shipping and river-dependent manufacturing for the state and region. - Long-term investments in specialized harbor infrastructure would be difficult or impossible to relocate, and its effectiveness relies on a finite land supply for related land uses. - Replacing the i-overlay with incentives would be inconsistent with current incentive programs, which are targeted to industry clusters, determined by a specific methodology, rather than to land uses. 	<ul style="list-style-type: none"> - Remove policy and i-overlay to allow broader industrial use options on mostly constrained sites, larger riparian setbacks, less impact from dredging and in-water structures, more riverfront trail opportunities, and land for expansion of nearby non-river-dependent industry. - Target development incentives to river-dependent uses as an alternative to more restrictive zoning approach.
1.B. Should the definition of river-related be expanded or replaced?	<ul style="list-style-type: none"> - Specify the following examples of river-related primary uses: businesses that maintain a dock for future use and also use rail or Olympic Pipeline access on the site; accessory businesses that are on sites predominantly in river-, rail- or Olympic Pipeline-dependent use and that are integral to the industrial operation of the predominant use (e.g., a contractor) or expand use of specialized facilities of the predominant use. 	<ul style="list-style-type: none"> - Shifting away from river-dependent emphasis could reduce available land supply for them and support environmental and trail policy options that could further reduce available supply. - Maritime shipping use of companies can be cyclical over the long-term, potentially contributing to longer vacancy as occupants turn over. - Some anchor river-dependent uses rely on closely linked accessory businesses on site. - The region's rail infrastructure is also concentrated along Portland Harbor, but rail has more location options for regional growth. 	<ul style="list-style-type: none"> - Allow only river-dependent uses in the i-overlay. If the design of the Superfund cleanup, trail access, and riparian protection is limited to accommodate river-dependent use throughout the i-overlay, then don't allow a broader mix of uses there. - Allow rail-dependent uses even on sites without docks, since rail is also concentrated along the harbor, and it is arguably a larger economic niche in Portland than river-dependent uses.

Issue	Staff proposal for discussion	Rationale	Alternative approaches and interests
1.C. Should other changes be made to provide more land use options in this zone? How?	- Eliminate non-conforming use restrictions on expansion within a site by existing uses that are not river-dependent or river-related.	<ul style="list-style-type: none"> - Applying non-conforming use rules to i-overlay use requirements would unduly restrict reinvestment. Review of non-conforming impacts on neighbors is not relevant to the i-overlay. - Allowing interim uses would create a difficult enforcement challenge and lack of enforcement could undermine i-overlay effectiveness. 	- Allow interim uses for up to two years on sites to allow use of constrained sites during site preparation.
2. River Industrial Zoning Map			
2.A. Where should the i-overlay be applied?	<ul style="list-style-type: none"> - Retain i-overlay zoning on industrially zoned riverfront sites on Portland Harbor. Leave i-overlay off of sites (as existing) at Front Ave. north of 107th in Linnton and end of Swan Island lagoon. - Remove i-overlay zoning from sites that lack long-term river access due to separation from the river by a street or main rail line. - Develop provisions to remove a loophole that gets around i-overlay requirements by creating a riverfront parcel that eliminates river access from part or all of i-overlay sites. - Adjust the i-overlay boundary on very deep sites to fit long-term features of the development pattern, as follows: include all of T-4, T-5, Oregon Steel, and Siltronic; remove Northwest Pipe. - Apply the i-overlay designation as a recommendation for Superfund remedy design to not preclude future river-dependent use at the site. 	<ul style="list-style-type: none"> - River-dependent industry is the predominant existing use across the length of the harbor. - Demand for river-dependent uses extends to small sites with multiple constraints for such uses, as shown by recent developments. - Short-term river-dependent/related demand exceeds available supply, the long-term trend is for maritime growth, and reducing the i-overlay acreage would reduce the long-term supply. - Removing the i-overlay in some areas could result in design of the Superfund cleanup, trail alignment, and riparian protection that diminish opportunities for future river-dependent uses there. - Depth of the i-overlay should reflect entire sites or long-term site features and retain the supply of large sites for river-dependent use. - The Harbor Superfund Record of Decision, due in 2010 or later, may not be specific enough to determine site feasibility for maritime access. Feasibility could come down to remedy options on specific sites. 	<ul style="list-style-type: none"> - Apply the i-overlay only in subdistricts that have more advantages and fewer constraints for river-dependent use, e.g., Rivergate. - Remove i-overlay zoning from the Swan Island lagoon area, due to being off of the Federal deepwater channel, predominant non-river-dependent use pattern, and past exceptions granted to i-overlay requirements. - Remove i-overlay zoning from sites with multiple or severe constraints for river dependent use. Consider the site constraints analyzed in the Portland Harbor Industrial Lands Study, including moorage depth, rail and truck access, lot depth, contamination, nearby housing, and other environmental and building constraints. - Once the Harbor Superfund remedy is confirmed, remove any sites from the i-overlay where the remedy precludes feasible moorage construction or dredging.

Issue	Staff proposal for discussion	Rationale	Alternative approaches and interests
2.B. Should the site suitability review or criteria be changed? How?	<ul style="list-style-type: none"> - Replace site suitability considerations with “feasibility criteria,” limited to physical characteristics that diminish engineering feasibility for river-dependent or river-related uses at the time of the application. - Limit approval to the lifespan of the proposed primary occupant at the site. 	<ul style="list-style-type: none"> - Existing site suitability considerations are open-ended, which can lead to inconsistent, unfair results. - Feasibility for river-dependent use on unusually constrained sites can potentially be assessed more effectively on a case-by-case basis. 	<ul style="list-style-type: none"> - Remove the option for discretionary site suitability review, due to the difficulty of predicting site feasibility and potential for unfair, inconsistent results.
2.C. Should the Swan Island Plan District be replaced with riverwide provisions?	<ul style="list-style-type: none"> - Remove the Swan Island Plan District and replace it with comparable riverwide provisions for off-site natural resource mitigation and accessory businesses on sites that are predominantly in river-dependent or river-related use. 	<ul style="list-style-type: none"> - The plan district would generally be made redundant by proposed riverwide provisions. - The plan district development plan for off-site mitigation expires in August 2007. 	
3. Industrial Sanctuary Retention			
3.A. Should the City have a more stringent approach to manage and stabilize industrial land supply?	<ul style="list-style-type: none"> - Add policy to stabilize and protect the industrial land supply of the harbor districts as a long-term public resource. - Develop criteria (in 3.b) to clarify and limit where industrial sanctuary conversion may occur. - Develop “right to industry” provisions, including notification of nearby housing of industrial sanctuaries and impacts. 	<ul style="list-style-type: none"> - The current approach lacks specific direction and predictability, reducing long-term supply stability. - The quantity of industrial land in the harbor districts supports the region’s traded sector competitiveness, accessibility of middle-income jobs, and transportation system efficiency. - State and regional policy require provision of adequate industrial land supply for growth. 	

Issue	Staff proposal for discussion	Rationale	Alternative approaches and interests
3.B. Under what conditions does it make sense to convert industrial sanctuaries in the harbor districts?	<ul style="list-style-type: none"> - Apply no-net-loss rules to harbor area RSIA. Require replacement of converted RSIA within Portland and equivalent replacement of harbor access sites. - Extend Guild's Lake conversion criteria to the rest of the harbor districts, limiting new uses to protect land use compatibility and transportation capacity. - Develop and use an industrial interests notification list for review of conversion proposals. - Limit conversion in the Central City based on a phased strategy for absorbing limited demand. 	<ul style="list-style-type: none"> - Discretionary review of conversion is hindered by general unfamiliarity with industrial district needs. - A loose equivalent to no-net-loss rules apply in residential and environmental zones. - RSIA's are areas near the region's most significant freight transportation infrastructure or other features that are not likely replaceable by UGB expansion if converted. - New state and regional policies call for protection of prime industrial land. - Industrial sanctuary zoning is designed on the premise that limiting incompatible uses in industrial districts is important to their vitality. 	<ul style="list-style-type: none"> - In lieu of a no-net-loss rule, add policy criteria for conversion, to maintain flexibility: exceptional circumstances no longer favor retention; avoid conversion in prime industrial areas that cannot be comparably replaced elsewhere; limit conversion within buffered districts to Mixed Employment; do not precede market feasibility for new uses.
3.C Where is the optimal long-term edge of the harbor industrial districts?	<ul style="list-style-type: none"> - Convert the McCormick & Baxter site to Mixed Employment in the Comprehensive Plan. Add a restriction to not allow residential development. - Do not apply conversion policy or criteria to sites east of I-5 in Lower Albina or NW sites south of Guild's Lake Plan District (south of Vaughn). - Anticipate adjustments in conversion criteria mapping within the upcoming Columbia Corridor Plan (e.g., how to map environmental protection zones) and Central Portland Plan (e.g., School District site in Lower Albina). 	<ul style="list-style-type: none"> - Existing district edges are generally well defined by topographical buffers and dispersed attributes of prime industrial land (channel, rail access). - Critically constrained industrial areas in the harbor appear limited to the McCormick & Baxter / Triangle Park sites, vacant since 1991, since they lack truck route access. - Areas unbuffered from neighborhoods appear limited to Lower Albina east of I-5 and some small residential areas in Rivergate. 	<ul style="list-style-type: none"> - Remove industrial sanctuary designations from environmental protection zones for clarity of allowed use. - Change the Comprehensive Plan designation from Mixed Employment to General Industrial on the housing sites (Harvest Homes) within T-4.

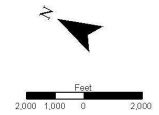
Figure 6. River Dependent Uses and i-overlay Recommendations in the Working Harbor



Working Harbor: Sites in River and Rail Dependent Use

June 13, 2007

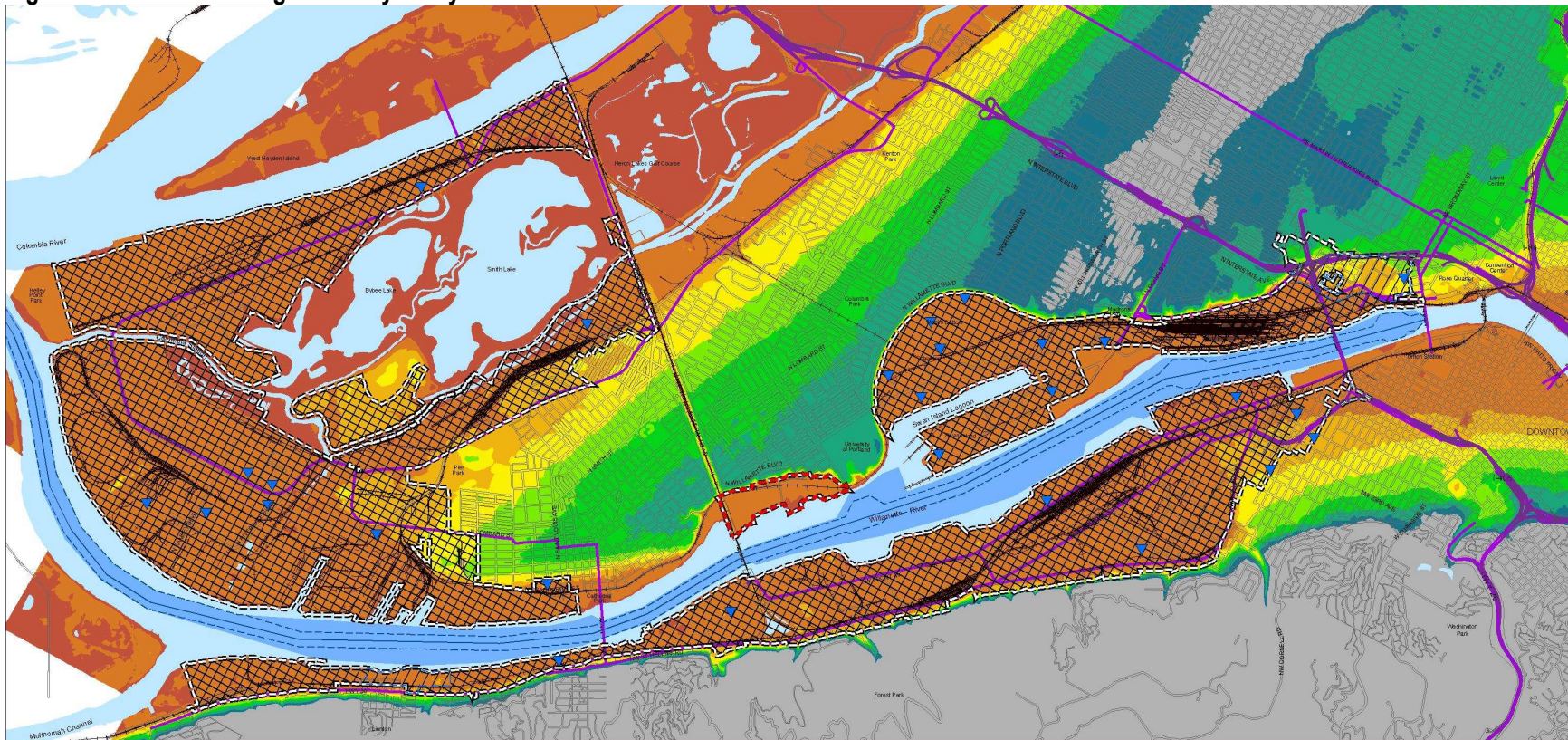
- | | | | |
|------------------------------|----------------------|--|---|
| Main Lines | | | |
| Union Pacific | All Other Rail Lines | River Industrial Overlay | Sites in River Dependent Use |
| Tunnel (Union Pacific) | Freeways | Draft Amendments to River Industrial Overlay | Other Rail Shippers or Receivers |
| Burlington Northern Sante Fe | Docks | Additions to River Industrial Overlay | Vacant and Unoccupied Land |
| Portland and Western | Rail Yard Facility | Deletions from River Industrial Overlay | Working Harbor Reinvestment Strategy project area |



INFORMATION SOURCES:
 Rail Shippers & Receivers: Port of Portland, Data Decoded, GrowthWatch and other maps prepared by City of Portland, Bureau of Planning (November 2005).
 Railroad Lines: Willamette Valley City of Portland Database. Compiled from multiple sources for City of Portland, Bureau of Planning, 2005.
 Vacant and Unoccupied Land: Bureau of Planning. Track locations were either verified or digitized by City of Portland using 2005 GIS information. Courtesy Portland City Database. Original digital source: from GIS 2005 (last updated by GIS 2005).
 River Industrial Overlay: Updated 2005.
 Working Harbor Reinvestment Strategy project area: Bureau of Planning, Bureau of Transportation, Updated through Jan. 2007. Accuracy +/- 5 feet.
 All data compiled from source materials of different scales. For more data, please refer to the source material or City of Portland, Bureau of Planning.
 This information has been prepared from digital data based on the City of Portland, Bureau of Planning GIS. Care was taken to ensure the accuracy of the data. It is possible that the City of Portland cannot accept any responsibility for errors, omissions, or additional inaccuracies, and therefore, this data is provided "as is" without any warranty, express or implied. However, neither the City nor its employees will be held liable for any errors or omissions.









Figure 7. Industrial Zoning Boundary Study and Recommendations

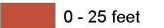

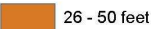
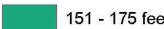
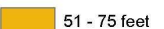

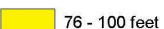
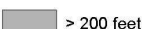
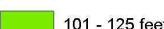
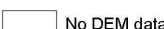


Harbor Industrial Zoning Study Map




Prime Industrial Area Features

-  Industrial Sanctuary Boundary [North Reach]
-  250 + Employees
-  Rail Lines
-  Truck Streets for Heavy Freight [TSP]
-  Federal Deepwater Navigation Channel
-  Vessel "Highway" and Turning Basins

Topographical Buffering

- | | |
|--|--|
|  0 - 25 feet |  126 - 150 feet |
|  26 - 50 feet |  151 - 175 feet |
|  51 - 75 feet |  176 - 200 feet |
|  76 - 100 feet |  > 200 feet |
|  101 - 125 feet |  No DEM data |

Draft Amendments

-  Convert IS to ME in Comprehensive Plan
-  Requires no net loss of RSIA
-  Apply Industrial Sanctuary Conversion Criteria

INFORMATION SOURCES:

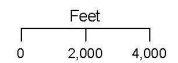
Federal Deepwater Navigation Channel: USACE, Portland District. Federally authorized navigation channel along the Oregon coast and the Columbia River. Taken from hydro-survey sheets developed by CENWP-OP-NWH.

Vessel "Highway" and Turning Basins: USACE, Portland District. A revised navigation channel for the Willamette River. This revised channel was developed with the input from river pilots. The river pilots defined the minimum area required to safely navigate the river for barge and deep draft vessels. In most areas, the channel was significantly reduced in size from the federally authorized channel, but in a few localized areas, the channel was expanded. These areas occur near river miles 1-1.5 and 6, on the east side of the channel.

Elevation: DEM of Portland metropolitan area, developed from 2001 METRO DTM

Industrial Sanctuary Boundary (North Reach): City of Portland, Planning Comprehensive Plan designated Industrial Sanctuary corresponding to the North Reach of the River Plan.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning



June 14, 2007



CITY OF PORTLAND, OREGON
BUREAU OF PLANNING

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A. RIVER INDUSTRIAL POLICY AND ZONING RULES

1) Should the River Industrial policy, to reserve harbor riverfront primarily for river-dependent and river-related industry, be changed? How?

Background

- *Current river industrial policy* is stated in Objective 5 of the Willamette Greenway Plan: “To maintain the economic viability of Portland’s maritime shipping facilities, based on the overall economic importance of deep-channel shipping to Portland’s and Oregon’s economy. To achieve this, the Plan provides an overlay zone reserved primarily for river-dependent and river-related industrial uses.” The policy is implemented by the River Industrial (i-overlay) zone, which reserves land in industrial zones along Portland Harbor for river-dependent and river-related industrial uses, unless the site is found through a greenway review process to be unsuitable for such uses.
- *Policy priority of North Reach.* The policy priority in the North Reach for the River Plan endorsed by City Council in the *River Concept* (April 2006) is to continue the area’s working harbor function, as Oregon’s main seaport and distribution hub. The primary policy direction statement for the North Reach in the River Concept is that it “will continue to provide Oregon with the access to global markets and support the region’s economy as a West Coast distribution hub and a heavy industrial area. Environmental cleanup, recreational access, and watershed health actions will contribute to the harbor’s long term vitality.”
- *Rationale for the policy.* Current policy emphasizes the long-term market opportunity, competitive advantage, and economic priority of maritime shipping and river-dependent manufacturing for the state and region. A second reason for the policy is to reinforce the value of past and continuing investments in transportation infrastructure, since the harbor is located at the hub of the state’s primary marine, rail, pipeline, and highway systems. Long-term investments in specialized harbor infrastructure would be difficult or impossible to relocate, and its effectiveness relies on a finite land supply for related land uses.
- *Recent policy statements* have generally reaffirmed the current harbor land use policy. River Renaissance Vision (2001) and River Renaissance Strategy (2004) highlight and support the overall goal of a prosperous working harbor. The Strategy provides further policy direction to ensure river access for river-related and river-dependent industry. The Guild’s Lake Industrial Sanctuary Plan (2001) includes a land use objective to preserve the district waterfront as a location for river-dependent and river-related industrial uses.
- *Burdens of the policy.* Portland’s industrial sanctuary zoning is unusual in restricting large scale commercial and business park uses that are common in U.S. industrial areas. The i-overlay restriction for river-dependent and river-related uses further limits the potential use of the site to a small fraction of regional industrial land demand. While periodic vacancy is assumed for any real estate, demand for river-dependent/related uses also has tended to occur sporadically, potentially contributing to lengthy vacancy on constrained brownfield sites. On the other hand, significant site development constraints and liability uncertainty might already limit the reuse market to occupants with very limited location options, such as river-dependent/related uses.
- *Industry support for i-overlay* – In a 2002 survey of harbor area business leaders (Portland Harbor Industrial Lands Study, most indicated that reserving riverfront sites for maritime industries would have

a positive effect on their companies. Of those responding, 31 expected a positive effect, 5 a negative effect, 18 no effect, and 9 uncertain. However, many indicated primary emphasis of not transitioning industrial land.

- *Demand for other industrial uses* – The harbor area is also an attractive location for a variety of non-river-dependent industrial uses. Three examples are apparent. First, Metro has estimated that roughly two thirds of projected industrial land absorption will be for warehouse and distribution uses, for which the harbor area’s central location and proximity to I-5/I-405 and rail yards is advantageous. For example, the UPS regional distribution facility (roughly 2,000 employees) at Swan Island has proposed to expand within the i-overlay, largely because of lower transportation costs. A second example of competing industrial demand is by regional industrial industry clusters that have been designated as target industries by the Portland Development Commission and are represented in the harbor area, such as high tech (e.g., Siltronics), apparel (e.g., Columbia Sportswear, Adidas), food processing (e.g., Bay Valley), and sustainable industries (e.g., biodiesel). Third, close-in locations have also been identified as an advantageous location for various small-scale industrial services.
- *River-dependent land absorption trends*. The Portland Harbor Industrial Lands Study (2003) examined the land supply and demand for river dependent uses. Between 1960 and 1997, net land absorption by river-dependent industrial uses at Portland Harbor grew at an average 21 acres per year, and marine tonnage grew by 250 percent. Since the harbor riverfront is nearly built out, however, this rate of land absorption is not sustainable and would be difficult to forecast accurately. Interviews with harbor area managers in 2002, revealed relatively stable activity through the recession but little expansion by river-dependent uses foreseen on the near horizon. Since 2004, substantial investment in property improvements has occurred at river-dependent facilities, as detailed in Section 2 above. While some maritime activities are likely to relocate to larger, less congested sites at other Columbia River ports over time, Portland’s competitive advantages for interregional distribution and manufacturing that relies on multimodal access appear to be sustainable, subject to maintaining the area’s industrial land supply and freight infrastructure capacity.
- *Evolving marine cargo facility needs is difficult to predict*. - The i-overlay zone emphasizes the area’s long-term harbor function over variable short-term demand. The demand for future river-dependent uses is difficult to predict over time. Recent development of auto and mineral bulk facilities on Portland Harbor were not generally foreseen 20-30 years ago, and substantial breakbulk cargo handled then has declined in relative significance.
- *Cargo trends* – Long-term economic trends of the region’s marine industrial economy are positive. Cargo moving through Portland Harbor increased by 250 percent from 1960 to 2000. A metro area commodity flow forecast completed in 2006 (Port of Portland, Metro) projects that freight tonnage moving through the region will more than double from 1997 to 2035. Average annual tonnage growth is projected to be 1.43 percent for ocean cargo to 2035, 1.04 percent for barge cargo, 1.52 percent for rail freight, and 2.52 percent for intermodal rail freight.
- *Land use stability and conversion*. The proportion of land in river-dependent use along Portland Harbor has been stable or growing since 1960, except for two areas that have since been rezoned: the Pearl District (and adjacent former T-1 South site) and St. Johns Town Center/Willamette Cove. These two conversion areas are designated regional and town center areas in the 2040 Plan, supporting their conversion to mixed use development.
- *Natural resource impacts* - The harbor land use policy has implications for natural resources and river access along the river. Recent Endangered Species Act and Superfund listings have resulted in increased review and scrutiny of new in-water facilities and dredging. The i-overlay map could be amended as needed to account for any sites acquired and restored as natural areas to improve watershed health or to any sites where harbor Superfund remedies might effectively remove the potential for affordable moorage improvements and dredging.
- *Limitations on river access* - Reserving harbor industrial riverfront for river-dependent/related industry also has implications for the River Renaissance goal of expanding river access, typically a riverfront

trail, to surrounding neighborhoods. Reserving land primarily for river-dependent industry concentrates heavy industrial loading and associated hazards (e.g., cranes) at the riverfront. Additionally, the i-overlay diminishes the long-term value of constructing a temporary riverfront trail on i-overlay sites not currently in river-dependent use, since the zoning requires future uses to be river-dependent or river-related upon a change in tenancy. A substantial area of new riverfront trail construction is feasible in the harbor area outside the i-overlay between Cathedral Park and University of Portland. Other river access options are also available in the harbor, including view trails overlooking the harbor and trail spurs to buffered viewpoints at the river's edge.

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-
- *Incentives.* Economic development incentives Targeting economic development incentives to river-dependent/related industrial uses could be used as an alternative to the restrictiveness of the i-overlay zone. The Port of Portland already has the ability to provide predevelopment assistance and infrastructure improvements on Port-owned sites. Other development incentives could include brownfield investigation and cleanup grants, enterprise zones, and various tax credits. The River Plan's Working Harbor Reinvestment Strategy could recommend incentives for river-dependent/ related industrial redevelopment.
-
- Replacing the i-overlay with economic development incentives for river-dependent and river-related uses would be inconsistent with current incentive programs, which are targeted to industry clusters, determined by a specific methodology, rather than to land uses.

Preliminary staff recommendation

1. Retain current policy, to provide an overlay zone reserved primarily for river-dependent and river-related industrial uses.
2. Recommend applying urban renewal and potentially other development incentive to help overcome brownfield and other development constraints on underutilized harbor sites.

Alternative approaches considered and supported by some stakeholder interests

3. Remove policy and i-overlay to allow broader industrial use options on mostly constrained sites, larger riparian setbacks, less impact from dredging and in-water structures, more riverfront trail opportunities, and land for expansion of nearby non-river-dependent industry.
4. Target development incentives to river-dependent uses as a more flexible alternative to i-overlay zoning.

2) Should the definition of river-related uses be expanded or replaced? How?

Background

- *Problems with current definition of river-related for i-overlay.* While the definition of river-dependent is clear and widely applicable (e.g., marine terminals, marine- and vessel-related services, and heavy industry with marine loading facilities), the river-related definition is less clear and no primary uses on Portland's diverse harbor appear to meet it.
- *Disadvantages of limiting harbor uses to river-dependent only (not allowing river-related)* - Maritime shipping use of companies can be cyclical over the long-term, potentially contributing to longer vacancy as occupants turn over. Some anchor river-dependent uses rely on closely linked accessory businesses on site.

- *Disadvantages of shifting policy emphasis too much away from a predominant river-dependent land use pattern.* Shifting away from river-dependent emphasis could reduce available land supply for them, undermining the policy rationale for the i-overlay. Shifting away from river-dependent emphasis could also support and result in environmental and trail policy options that further reduce available maritime land supply, such as Superfund cleanup options that make dock improvements or moorage dredging infeasible or new segments of harbor riverfront trail that would be controversial to remove later to accommodate future river-dependent uses.
- The current definitions are as follows:
 - **River-Dependent.** A use which can be carried out only on, in, or adjacent to a river because it requires access to the river for waterborne transportation or recreation. River-dependent also includes development, which by its nature, can be built only on, in, or over a river. Bridges supported by piers or pillars, as opposed to fill, are river-dependent development.
 - **River-Related.** A use or development which is not directly dependent upon access to a water body but which provides goods or services that are directly associated with river-dependent land or waterway use or development, and which, if not located adjacent to water, would result in a public loss of quality in the goods or services offered. Residences (including houseboats), parking areas, spoil and dump sites, roads and highways, restaurants, businesses, factories, and recreational vehicle parks are not generally considered dependent or related to water. Recreational trails and viewpoints adjacent to the river are river-related development. Bridge exit and entrance ramps supported by piers or pillars, as opposed to fill, are river-related development. Removal or remedial actions of hazardous substances conducted under ORS 465.200 through 465.510 and 475.900 are considered river-related development for the duration of the removal or remedial action.
- *Multiple unrelated purposes of definitions* - The definitions of river-dependent and river-related are partly confusing because they are used for different purposes to describe both primary and secondary uses. The i-overlay applies to primary uses (e.g., businesses), to reserve finite land for harbor functions. In contrast, the Greenway setback requirement exempts river-dependent and river-related accessory uses or development, such as docks or cranes—applying to only part of the primary use. The current definition of river-related applies specifically to accessory uses and development, such as recreational trails and viewpoints, but applies less clearly to primary uses.
- *RIEAG-supported proposal* - Expanding the definition of river-related has been discussed at several meetings since 2001 of the River Industrial and Economic Advisory Group (RIEAG), an industry stakeholder discussion group. Their preliminary discussions have generally supported expanding the definition to allow rail-dependent uses and accessory businesses on sites in predominant river-dependent or river-related use.
- *Allowing Rail-dependent uses.* The region's rail infrastructure is also concentrated along Portland Harbor, representing an economic advantage and priority comparable to maritime shipping, but rail has more location options for regional growth outside of the harbor. To explain, Portland Harbor is inherently a multimodal freight gateway. It has been developed as the region's primary concentration of maritime, rail, and pipeline infrastructure and industrial facilities that need access to that infrastructure. In addition to river-dependent uses, the region's rail yards and rail- and pipeline-dependent facilities are also concentrated along Portland and Vancouver harbors. Thus, one option for clarifying the term river-related, as it applies to the i-overlay, is to allow rail-dependent uses (rail yards and rail customers with sidings). Expanding the definition to include uses that need Olympic Pipeline access (the petroleum pipeline to the Puget Sound refineries) would be comparable, since those sites are limited to the harbor waterfront in Linnton and Willbridge, but redundant since the existing petroleum terminals are also river-dependent. An advantage of allowing rail-dependent uses is that it is arguably more consistent with the broader policy objective of maintaining the viability of maritime shipping at this location because of its economic importance. The harbor's economic competitiveness as a medium-sized, multiple-niche seaport relies on these other corridor-bound modes as well as advantageous truck access. The place-

bound facilities that need access to the harbor's multimodal system are not all river-dependent. A second advantage is to support retention and expansion of some of the large rail-dependent facilities that were once river-dependent, no longer use their docks, but might again in the future. For example, docks are a significant maintenance expense and the docks at Oregon Steel and Sulzer (both rail-dependent uses) are not currently used. Manufacturers on the harbor that need water access also tend to need rail access, and their use of harbor and rail facilities can vary over time. A disadvantage of allowing rail-dependent facilities in the i-overlay is that it would limit future land availability for river-dependent facilities on a nearly built-out harbor. In 2004, 22 percent of the land in the city's industrial districts had harbor access and 33 percent had rail access (including rail yards). Expanding the definition to include truck access, however, would make the i-overlay unworkable, since nearly all industrial uses need truck access and truck access is much more decentralized than harbor, rail, and pipeline access.

- *Allowing supportive accessory businesses at river-dependent or river related facilities* – Another option is to expand the definition of river-related to include supportive accessory business uses on sites where the predominant use on the site is river-dependent or river-related. For example, the Swan Island Plan District was created in 1993 and essentially provides an exception to i-overlay requirements on the Portland Shipyard site to allow various accessory uses, such as machine shops, ship painting and surface preparation contractors, and office space for contractors. The Schnitzer Steel scrapyards is a similar river-dependent primary use with various accessory businesses that operate on-site. The clustering of contractors and related firms on these large river-dependent facilities presumably improves their economic viability, which is the underlying policy goal of the i-overlay.
- *River water users* – Another suggestion has been to expand the definition to include large users of river water. Oregon Steel, for example, no longer uses their dock but use river water for cooling. This addition, however, would not support the policy goal of the economic viability of the harbor and maritime shipping facilities.

Preliminary staff recommendation

1. Specify the following examples of river-related primary uses in the definition of river related: businesses that maintain a dock for future use and also use rail or Olympic Pipeline access on the site; accessory businesses that are on sites predominantly in river-, rail- or Olympic Pipeline-dependent use and that are integral to the industrial operation of the predominant use (e.g., a contractor) or expand use of specialized facilities of the predominant use.

Alternative approaches considered and supported by some stakeholder interests

2. Allow only river-dependent uses in the i-overlay. If the design of the Superfund cleanup, trail access, and riparian protection is limited to accommodate river-dependent use throughout the i-overlay, then don't allow a broader mix of uses there.
3. Allow rail-dependent uses even on sites without docks, since rail is also concentrated along the harbor, and it is arguably a larger economic niche in Portland than river-dependent uses.
4. Expand the definition of river-related to include river water users.

3) Should other changes be made to reduce the burden on property owners of the limited land use options in this zone?

Background

- *Options recommended in RIEAG discussions.* As described above regarding River Industrial policy, the allowable uses in the i-overlay are unusually limited, representing only a fraction of industrial land

demand. As tenants turn over during periods of low demand, unoccupied sites could remain vacant longer. Industrial stakeholders at RIEAG meetings suggested allowing interim uses and unrestricted expansion of non-conforming uses in the i-overlay, to reduce the resulting burden on property owners: interim uses.

- *Interim uses.* Allowing temporary interim uses in the i-overlay zone could generate revenues that might enable property owners to proceed with brownfield cleanup quicker or recoup site costs until a viable river-dependent or river-related tenant emerges. The challenge of allowing interim uses (some more than others) is that it could undermine the effectiveness of the i-overlay zone, partly by taking the land out of the market for river-dependent/related industrial use and partly by creating a difficult enforcement challenge for removing temporary interim uses sometime in the future. Removal of docks or rail spurs to accommodate redevelopment for an interim use could also significantly reduce a site's advantage for river-dependent/related reuse. Substantial building or site improvements for interim uses would correspondingly extend the period of their tenancy needed to recoup that investment. These concerns could be partly addressed by allowing interim uses that require minimal investments and retain marine/rail infrastructure, such as outdoor storage (truck or auto parking, container or equipment storage) or building reuse (e.g., warehouse tenant). However, even with minimal site improvements, the lease rates for those interim uses could approach or exceed industrial rates and consequently diminish the incentive for river-dependent/related reuse. Limiting the duration of interim uses could reduce this effect (e.g., up to 2 years) but would present a significant enforcement challenge.
- *Non-conforming uses.* Another option is to reduce or eliminate restrictions on expansion of existing non-conforming uses. Applying non-conforming use rules to i-overlay use requirements can unduly restrict reinvestment. The zoning code contains various restrictions on expansion of non-conforming uses, such as the Siltronic semiconductor manufacturing facility in the i-overlay. Typically, non-conforming use rules apply to base zones, such as an industrial use in a residential zone, where the use has incompatible impacts on surrounding uses in that zone. In contrast, the i-overlay is intended to reserve a finite land supply for river-dependent/related uses, rather than reduce incompatibility impacts on the surrounding zone. Review of non-conforming impacts on neighbors is not relevant to the i-overlay.

Preliminary staff recommendation

1. Eliminate non-conforming use restrictions on expansion within a site by existing uses that are not river-dependent or river-related.

Alternative approaches considered and supported by some stakeholder interests

2. Allow interim uses for up to two years on sites in the i-overlay that do not require any building expansion or significant property improvements and that maintain any existing vessel-loading and rail-loading facilities.

B. RIVER INDUSTRIAL ZONING MAP

1) Where should the i-overlay zone be applied?

Background

- *Existing map* - The current i-overlay applies to all industrially zoned sites on the harbor except for part of the Front Avenue frontage in Linnton north of 107th and the City-owned site at the end of Swan Island lagoon.

- *Existing uses.* River-dependent industry is the predominant existing use across the length of the harbor, as determined by the presence of in-water loading and moorage facilities that are not known to be out of use. These uses cover 60 percent of i-overlay acreage. Of the remaining i-overlay acreage, 25 percent is vacant (mostly brownfields) and 15 percent is in non-river-dependent use (primarily Siltronic, Oregon Steel, and Sulzer). Oregon Steel and Sulzer have docks they no longer use, although Oregon Steel management is considering addition of a new dock.
- *Demand for river-dependent uses* – As described above, short-term river-dependent/related demand exceeds available supply, the long-term trend is for maritime growth, and reducing the i-overlay acreage would reduce the long-term supply.
- *Demand for larger marine terminal sites* – Marine terminal sites are getting larger to accommodate unit-train rail loops and other larger-scale technologies. The Port's Marine Terminals Master Plan identified the need for 100+ acre sites for new bulk and container terminals. Demand for very large sites can potentially be met at proposed port expansion sites, including approximately 500 acres at Columbia Gateway being developed by the Port of Vancouver and approximately 400-500 acres reserved by the Port of Portland at West Hayden Island for future marine terminal development.
- *Diversity of river-dependent uses and site needs* – Demand for river-dependent uses extends to small sites with multiple constraints for such uses, as shown by recent developments. Most river-dependent facilities on Portland Harbor are not marine terminals (see Figure 2). River-dependent manufacturers, heavy construction facilities, and vessel services are on sites as small as 2-3 acres.
- *Site constraints for river-dependent use* – Portland Harbor Industrial Lands Study (2003) mapped levels of site constraints for river-dependent uses harborwide based on 14 criteria, including appropriate zoning, moorage depth, rail and truck access, lot depth, contamination, nearby housing, and other environmental and building constraints. Of over 3,000 acres, 19 percent had no identified constraints (all in Rivergate), 51 percent had 1-3 constraints that could require some public intervention to facilitate new river-dependent use, 9 percent had 4-11 constraints, and 21 percent did not meet minimal requirements (industrial zoning and river frontage). The 9 percent with 4-11 constraints were concentrated in 3 areas: the McCormick & Baxter and Triangle Park LLC sites; Linnton area sites between St. Johns Bridge and the village center; and the narrow sites near Albina Yard. While conceptually useful, this generalized ranking of constraints is not necessarily an accurate indicator of the feasibility or likelihood of development by new river-dependent uses. For example, recent river-dependent development includes the Advanced American Diving site rated with 5 constraints and Ash Grove Cement expansion site with 4 constraints.
- *Retaining capacity for future maritime expansion* - Removing the i-overlay in some areas could result in design of the Superfund cleanup, a riverfront trail alignment, and riparian protection that diminish opportunities for future river-dependent uses in the areas removed. The Harbor Superfund Record of Decision, due in 2010 or later, may not be specific enough to determine site feasibility for maritime access. Feasibility could come down to remedy options on specific sites.
- *Existing i-overlay sites without river frontage* – Several i-overlay sites are located landward of the nearest parallel street (Swan Island) or main rail line right-of-way, which effectively precludes river access in the long-term.
- *Land division loophole from i-overlay requirements* – The i-overlay requirements are intended to reserve a given land supply for river-dependent and river-related uses. A loophole in the existing i-overlay rules allows owners to reduce that acreage or get around the i-overlay requirements entirely by creating a riverfront strip parcel that eliminates river access to the back portion of the site. The source of the loophole is an exemption from i-overlay requirements for sites that do not abut the river. Potentially, this provision could be eliminated and land divisions be prohibited that reduce land area with river access in the mapped i-overlay zone. The new requirement could also potentially specify adequate river frontage to accommodate barge access.
- *Need for i-overlay sites to have industrial zoning* - Industrial base zoning is assumed to be a prerequisite for effective i-overlay zoning, because the heavy industrial impacts of river-dependent

industry are not consistent with non-industrial (e.g., employment) zoning. Thus, if the Comprehensive Plan designation is changed from industrial sanctuary to mixed employment on the McCormick & Baxter site (or others) as discussed above, then the i-overlay is in turn less appropriate there. Conceptually, mapping the i-overlay consistently with the Regionally Significant Industrial Areas along the harbor makes sense, since both acknowledge sites with exceptional freight access advantages.

- *i-overlay depth on exceptionally deep sites* –The i-overlay is mapped between the river and nearest parallel street or rail right-of-way except in a few exceptionally deep sites, including parts of the Terminals 4 and 5, Schnitzer Steel, Oregon Steel, and Siltronic sites. The i-overlay depth appears to be inconsistent with parts of the current development configuration at those sites and could be adjusted to fit current conditions. Another option is to limit i-overlay depth to a certain measure, such as 1,000 feet used in the equivalent requirements applied in the Washington Streamside Management Act. However, given that the i-overlay only applies to Portland Harbor and that only a few river-dependent facilities are much deeper than 1,000 feet, adjusting the i-overlay to desired site-specific conditions on those few sites may result in more efficient site development than an arbitrary depth of 1,000 feet. Task group members generally urged that the depth of the i-overlay should reflect entire sites or long-term site features and retain the supply of large sites for river-dependent use.
- *High sedimentation areas in the harbor and dredging costs* – High sedimentation areas in the harbor, which are mainly at the Guild's Lake frontage (T-2 to Willbridge) and Post Office Bar (near Oregon Steel) represent significant maintenance dredging needs with recently inflated costs due to potentially contaminated sediments harborwide. Nevertheless, several existing river-dependent uses are located in these areas. The Corps of Engineers is currently preparing a Dredge Materials Management Plan that will assess and provide for future channel dredging needs.
- *Guild's Lake Plan* – The Guild's Lake Industrial Sanctuary Plan addressing the west side of the harbor south of St. Johns Bridge includes policy direction to reserve the harbor riverfront for river-dependent and river-related uses.
- *Inclusion of Swan Island lagoon in the i-overlay?* – Several issues make existing i-overlay requirements in the Swan Island lagoon less problematic. The lagoon is not on the 40-foot deep federal navigation channel, and the south half of the lagoon has average depths less than 20 feet. The Lower Willamette Dredge Materials Management Plan being developed assumes typical barge access needs of 17 feet channel depth. Nearly all of the lagoon sites lack rail access, which is needed at most of Portland's river-dependent facilities (vessel services and some petroleum terminals do not have rail access). The predominant pattern of existing lagoon uses is not river-dependent, and it includes some district cluster uses with high economic development impact, such as the Freightliner engineering facility and United Parcel Service's regional distribution hub facility. The Swan Island Plan District, which includes most of the lagoon frontage, already allows a range of non-river-dependent uses. And the i-overlay zoning was recently removed from the City-owned site at the end of the lagoon. On the other hand, river access sites on Portland Harbor are a finite, valuable resource.

Preliminary staff recommendation

1. Retain i-overlay zoning on industrially zoned riverfront sites on Portland Harbor. Leave i-overlay off of sites (as existing) at Front Ave. north of 107th in Linnton and end of Swan Island lagoon.
2. Remove i-overlay zoning from sites that lack long-term river access due to separation from the river by a street or main rail line.
3. Develop provisions to remove a loophole that gets around i-overlay requirements by creating a riverfront parcel that eliminates river access from part or all of i-overlay sites.
4. Adjust the i-overlay boundary on very deep sites to fit long-term features of the development pattern, as follows: include all of T-4, T-5, Oregon Steel, and Siltronic; remove Northwest Pipe.
5. Apply the i-overlay designation as a recommendation for Superfund remedy design to not preclude future river-dependent use at the site.

Alternative approaches considered and supported by some stakeholder interests

6. Apply the i-overlay only in subdistricts that have more advantages and fewer constraints for river-dependent use, e.g., Rivergate.
7. Remove i-overlay zoning from the Swan Island lagoon area, due to being off of the Federal deepwater channel, predominant non-river-dependent use pattern, and past exceptions granted to i-overlay requirements.
8. Remove i-overlay zoning from sites with multiple or severe constraints for river dependent use. Consider the site constraints analyzed in the Portland Harbor Industrial Lands Study, including moorage depth, rail and truck access, lot depth, contamination, nearby housing, and other environmental and building constraints.
9. Once the Harbor Superfund remedy is confirmed, remove any sites from the i-overlay where the remedy precludes feasible moorage construction or dredging.

2) Should the site suitability provisions of the i-overlay zone be changed?

Background

- *Current site suitability provisions* - Greenway code section 33.440.350. B. sets site suitability criteria for applying river-dependent/related use requirements in the i-overlay as follows: "River frontage lots in the River Industrial zone. In the River Industrial zone, uses that are not river-dependent or river-related may locate on river frontage lots when the site is found to be unsuitable for river-dependent or river-related uses. Considerations include such constraints as the size or dimensions of the site, distance or isolation from other river-dependent or river-related uses, and inadequate river access for river-dependent uses."
- *Whether to adjust the i-overlay map or site-suitability considerations* – If physical characteristics are currently known that make sites unsuitable for river-dependent use, then arguably the sites can and should be removed from the i-overlay map. A higher level of confidence in the i-overlay map results in less need for discretionary review of site suitability. However, feasibility for river-dependent use on unusually constrained sites can potentially be assessed more effectively on a case-by-case basis.
- *Open-endedness of current site suitability considerations* – Existing site suitability considerations used as the basis for discretionary review are notably open-ended, which can lead to inconsistent, unfair results. The current review criterion in the i-overlay, a finding of site unsuitability, is relatively open ended. Current examples of site suitability considerations apply only to the physical characteristics of the site. It is implied but not expressly stated that they do not include economic constraints from slack demand for river-dependent uses, which could create a widely applicable loophole that would compromise the intent of the regulations. For example, the site needs of a towboat operator or other vessel services are not nearly as limited as a new marine terminal. The Portland Harbor Industrial Land Study reviewed site suitability harborwide based on several criteria as described above. However, sites with multiple constraints in that analysis have not been an accurate predictor of river dependent use feasibility in recent years (e.g., the recent Advanced American Diving and Ash Grove Cement developments).
- *Harbor Superfund* – The current site-suitability considerations do not specifically address the Portland Harbor Superfund process, which creates uncertainty about future dock construction and moorage dredging feasibility on affected sites. If all 70 or so potentially contributing sites were deemed unsuitable for river-dependent or river-related uses, the result would substantially compromise the i-overlay and not necessarily be an accurate indicator of river dependent use feasibility (e.g., the recent Advanced American Diving facility was recently constructed on a brownfield site). Theoretically, the River Plan will provide for land use direction that will be accommodated in the design of the Superfund

project, but the cleanup remedy might effectively preclude future moorage construction and dredging at some sites.

- *Should the current site suitability criterion be clarified?* – Expressly limiting the site suitability criterion to physical characteristics that diminish engineering feasibility for barge or ship access (and potentially rail access if allowed as river-related uses), assuming that is the policy intent, would improve the predictability and effectiveness of the i-overlay. Other physical considerations could include lack of truck street access, narrow site depth (e.g., 400 foot depth was used in PHILS analysis; the Ash Grove terminal near Albina Yard is less than 150 foot deep); cleanup remedy precludes feasible moorage construction or dredging.

Preliminary staff recommendation

1. Replace site suitability considerations with “feasibility criteria,” limited to physical characteristics that diminish engineering feasibility for river-dependent or river-related uses at the time of the application, such as insufficient moorage depth for barge access, lack of rail and truck access, inadequate site size or dimensions, and sediment contamination barriers to moorage construction or dredging.
2. Limit approval to the lifespan of the proposed primary occupant at the site.

Alternative approaches considered and supported by some stakeholder interests

3. Remove the option for discretionary site suitability review, due to the difficulty of predicting site feasibility and potential for unfair, inconsistent results.

3) Should the Swan Island plan district be replaced with comparable citywide regulations?

Background

- *The purpose of the Swan Island Plan District*, adopted in 1993, is “to foster the continuation and growth of the Portland Ship Repair Yard.” The plan district, however, extends beyond the shipyard site, to several other properties owned by the Port of Portland in 1993, including most of the waterfront on Swan Island lagoon and the proposed Rinker batch plant site south of the shipyard. Most of the plan district is no longer in Port ownership. The plan district establishes alternatives to particular land use and setback requirements of the Greenway overlay zones.
- *Land use provisions in the Swan Island Plan District* - Since the demand for use of the ship repair facilities is not constant, it allows nonriver-related or nonriver-dependent activities to temporarily use the underutilized portions of the repair yard facility, including the following: construction of modular housing, large scale metal fabrication of such things as cranes, bridge trusses and spans, platforms and derricks, and military and aeronautics machinery. Due to the large size and unique nature of ship repair activity, it also allows the following accessory uses:
 - Office: Temporary (up to 2 years) office trailers, office space for contractors and subcontractors, offices of naval architects, testing services and government offices.
 - Household or Group Living: Temporary (up to 2 years) housing for Navy and other vessel crews. Housing is allowed only if associated with a ship repair/refurbishing project.
 - Industrial Services: Welding, machine tooling, metalworking, carpentry, plumbing, and other building activities supporting a ship repair or other large construction project occurring in the shipyard are allowed for up to 2 years. Surface preparation and painting of ships and other equipment being constructed in the ship repair yards. Warehousing of materials and supplies needed for ship repair and fabrication projects. Exterior storage and laydown areas for ship’s

and contractor's equipment and supplies. Temporary storage of equipment used to cleanup or manage hazardous waste. In-ground fuel tanks and pumps for shipyard tenants. Grit storage and handling and grit recycling. Barge-mounted surface preparation and coating facilities. Temporary storage of vehicles and equipment.

- *Setback provisions of the Swan Island Plan District* – The plan district allows for approval of a riverbank development mitigation plan as an alternative to greenway setback and setback landscaping requirements. A development plan for off-site mitigation proposed by the Port of Portland was approved in 1997 for development within the plan district and will expire in August 2007.
- *Are the plan district provisions still relevant?* – Several changes have made the plan district less relevant now than when first adopted. To remain viable, Cascade General (the shipyard owner) has diversified operations at the site to include wastewater recycling, equipment painting, barge construction, et al. A comparable harborwide provision is now proposed to allow accessory businesses on sites in predominant river-dependent or river-related use. The mitigation plan that provided an alternative to on-site setback and landscaping requirements provided for development of the upland district sites over the last ten years and is expiring this year. And the River Plan process is exploring a comparable riverwide program that allows for off-site mitigation requirements, which are not limited to the plan district. The plan district would generally be made redundant by proposed riverwide provisions.

Preliminary staff recommendation

1. Remove the Swan Island Plan District and replace it with comparable riverwide provisions for off-site natural resource mitigation and accessory businesses on sites that are predominantly in river-dependent or river-related use.

Alternative approaches considered and supported by some stakeholder interests

2. Update the plan district as needed to reflect current conditions.

C. INDUSTRIAL SANCTUARY CONVERSION

1) Should the City have a more stringent approach to manage and stabilize industrial land supply?

Background

- *Current City policy on industrial land retention* - City economic development policies support retention, at least generally, of the entire existing industrial sanctuary land supply in the harbor area. (See economic development and industrial policy direction in the Comprehensive Plan, River Renaissance Strategy, and River Concept described in Section 2 above.) Policy 5.1.C in the Comprehensive Plan is to, "Retain industrial sanctuary zones and maximize use of infrastructure and multimodal transportation linkages with and within these areas."
- *Industrial land conversion trends despite current retention policy* – Comprehensive Plan amendments have been approved that converted approximately 400 acres of formerly designated industrial land citywide since 1991, approximately 3 percent of the current supply. Most of that conversion was done through area plans. Conversion along Portland Harbor (downstream of the Broadway Bridge) has been confined to the Pearl District and the St. Johns area (Town Center to University of Portland), all prior to

1991 except for the December 2006 conversion of the Triangle Park LLC site near University of Portland.

- *Lack of specificity and predictability in current retention policy* – Current industrial sanctuary retention policy lacks specific direction and predictability for determining where and what kinds of conversion may make sense, reducing the long-term stability of the industrial land supply and districts. Quasi-judicial amendments to the Comprehensive Plan (Portland Zoning Code 33.810.050) are broadly evaluated for being supportive on balance with the relevant policies of the entire plan—a framework for conversion decisions that is very general and not predictable. Metro’s Title 4 establishes an additional level of regional review for conversion of industrial areas and “regionally significant industrial areas,” but similarly does not currently provide specific direction on where future conversion might be justified or not. More specific direction is provided in one district, the Guild’s Lake industrial sanctuary, where map amendments are required to meet criteria that protect industrial functions in the overall district.
- *State and regional policy on industrial land* - Statewide Planning Goal 9 and Metro’s Title 4 set requirements for cities and counties to provide an adequate industrial and employment land supply for 20 years of growth.
- *Regional industrial land demand* – Industrial employment growth in the Portland metro area has far outpaced national trends, growing by 37 percent between 1980 and 2000 compared to 12 percent nationally. Metro forecasts 0.8 percent average annual job growth in manufacturing from 2000 to 2030, 1.5 percent for transportation and utilities, and 1.6 percent for wholesale trade. In 2002 and 2004, Metro added about 4,000 acres of industrial land to the urban growth boundary (UGB) to meet projected 20-year land absorption, and the amount added assumed retention of the entire existing supply (except in the Central Eastside). In other words, projected 20-year regional need exists for the city’s entire industrial land supply in the harbor districts, and converted sites would need to be made up for by future UGB expansion.
- *Competing market demand for residential and commercial land* – Residential land absorption has also been strong in the city and region through the 1990s and even into the 2002-04 recession. Residential land was added to the UGB around 2002 to meet forecast growth needs. The current allocation of land among competing urban uses accounts for both residential and industrial growth needs. In the working harbor, Metro’s Functional Plan Metro designates the current harbor industrial zones as “industrial” (except the Front Avenue sites in Linnton are designated employment). Residential and office growth in the city is less constrained by land supply than industrial growth, since they are being substantially accommodated by higher density development. Commercial land uses tend to be oversupplied in cities, driven by the market incentive of higher land values and the widespread market visibility advantages of arterial streets.
- *Conversion risk discourages long-term industrial investment* – Interviews with harbor area business leaders in 2006 revealed common concerns about recent industrial land conversion proposals, increasing residential development nearby, and long-term uncertainty about the City’s willingness to retain close-in industrial land. These concerns pose risks to industrial investment and expansion. Industrial sanctuaries were also identified by some harbor area managers as one of Portland’s most significant and unique competitive advantages for industrial investment.
- *Social welfare benefits of industrial jobs* - A range of economic and social benefits are provided by retaining industrial land in the city as part of a balanced economy. Industrial sectors support the diversity of the community and local economy. One in four Portland jobs is in its industrial districts. Moreover, industrial jobs play a significant role in expanding access to middle-income jobs across more of the community, since the industrial sectors provide significantly higher than average wages that are more widely available to the majority of the workforce that do not have bachelor’s degrees. These social welfare functions of industrial land are supported by the economic development goal (5) of Portland’s *Comprehensive Plan*: foster a strong and diverse economy which provides a full range of employment and economic choices for individuals and families in all parts of the city.

- *Traded sector land supply* – To support the global competitiveness of Portland’s economic base (the traded sector businesses that compete in markets outside the region and bring income into the region), an ample long-term supply of traded sector land and a diverse supply of available development sites are important tools. Portland’s traded sector land supply consists primarily of its industrial districts, central city office areas, and a few institutional sites (e.g., universities). Moreover, most Portland industry, particularly heavy industry, needs to be located in industrial areas—more than 75 percent of the city’s manufacturing and distribution jobs (the bulk of the industrial sectors) in 2004 were located in industrial districts. Market driven real estate development that rezones industrial land will likely increase land values and may increase job density on the site, but it also likely reduces the city’s capacity to expand its economic base, except in Central City areas converted for office development.
- *Linking land use and transportation planning* - Industrial land retention also reinforces accumulated investments in primary regional freight infrastructure – navigation channels, railroads, freeways, pipelines – that are concentrated in Portland Harbor and Airport industrial districts.
- *Compatibility with nearby neighborhoods* – Close-in heavy industrial districts create challenges for controlling industrial impacts on surrounding neighborhoods. Comprehensive Plan policy (5.9) calls for buffering the edges of industrial districts to limit adverse impacts. The harbor industrial districts are relatively well buffered in most areas from surrounding neighborhoods that are sensitive to industrial impacts. However, sensitivity may increase over time with urban growth and rising neighborhood income levels.

Preliminary staff recommendation

1. Add policy direction to stabilize and protect the industrial land supply of the harbor districts as a long-term public resource, which supports the region’s traded sector competitiveness, accessibility of middle-income jobs, and transportation system efficiency.
2. Develop criteria (in 3.b) to clarify and limit where industrial sanctuary conversion may occur.
3. Develop “right to industry” provisions, including notification of nearby housing of industrial sanctuaries and impacts.

Alternative approaches considered and supported by some stakeholder interests

Task group members generally agreed that the City should have a more stringent approach to manage and stabilize industrial land supply in the harbor area. No alternative approaches were supported.

2) Under what conditions does it make sense to convert industrial sanctuaries in the harbor districts?

Background

- *New state and regional policies call for protection of “prime” industrial areas.* In 2004, Metro designated RSIA’s in Title 4 with somewhat more stringent land use requirements in Title 4, relative to other industrial and employment areas (see Figure 5 above). RSIA’s are areas near the region’s most significant freight transportation infrastructure or other features that are not likely replaceable by UGB expansion if converted. Also, conversion in these areas to residential or commercial zoning, which support higher land values, is likely to be irreversible. In 2005, the Oregon Land Conservation and Development Commission (DLCD) updated the Statewide Planning Goal 9 (Economic Development) Rule, requiring local governments to protect “prime industrial” land, defined to include site characteristics that are difficult or impossible to replicate in the planning area or region, comparable to Metro’s RSIA’s.

- *How were the harbor area RSIA's determined?* About 80 percent of the city's industrial sanctuary land is in harbor and airport industrial districts that provide for Portland's function as a West Coast trade gateway and Oregon's distribution hub. Nearly all of the land in these "freight hub districts" was designated as RSIA. They represent a unique location in Oregon at the convergence of its primary rail, highway, water, and pipeline infrastructure. These districts differ from others in that most of their land has multimodal freight access and is in heavy industrial use (*Industrial Districts Atlas 2004*). The Columbia Corridor East district (east of I-205, north of Sandy Boulevard) and Brooklyn Rail Yard area are also included as RSIA's, based on the advantage of their regional rail and truck infrastructure. If the Brooklyn Rail Yard is closed sometime in the future, the RSIA designation should be reconsidered in that area. City staff did not propose, and Metro did not designate, the city's other industrial sanctuaries as RSIA, indicating that a more flexible, finer grain approach is desired there than anticipated by Title 4 rules. Industrial sanctuaries not designated as RSIA include the Central Eastside and eastern portion of Lower Albina in the Central City; the smaller, dispersed industrial areas along I-84, I-205, and Johnson Creek; and a few specific sites in the harbor and airport districts.
- *Discretionary review or no-net-loss protection of prime industrial areas?*
 - *No-net-loss policy for housing capacity and environmental zones* - A policy precedent does exist for considering the adequacy of land supply for uses that are vulnerable to market conversion. For housing, the *Portland Zoning Code* (33.810.050.A.2) does not allow comprehensive plan map amendments that would result in a net loss of potential housing units, which particularly protects the supply of affordable housing that is most vulnerable to conversion. For fish and wildlife habitat, the zoning code (33.430) applies an approach to avoid, minimize and mitigate for development in environmental zones and consequently for boundary changes. These policies reduce the flexibility of the city's land supply to respond to competing demands for scarce urban land, but they make up for market deficiencies that do not adequately provide for some land uses with high social value. The relatively low density and market values of industrial land makes it similarly vulnerable to market conversion.
 - *Differences in state/regional/neighborhood/site interests.* The beneficiaries of retaining industrial land in Portland's "freight hub" districts along the harbor and airport are primarily statewide and regional. Their existence supports a significant share of the region's economic base and reduces freight transportation costs for Oregon consumers and exporters (e.g., eastern Oregon farmers). In contrast, beneficiaries of conversion are very localized, including the property owner and potentially nearby owners and neighborhoods. If the discretionary review processes to consider conversion emphasize local participation and interests (not informing the beneficiaries statewide), such processes are likely to be less effective in representing regional and statewide interests.
 - *General unfamiliarity with industrial districts and their needs* – The public is generally unfamiliar with the industrial districts in the region, how they work, how they differ, and their competitive needs. Like conversion of natural resource protection zones, discretionary review of prime industrial area conversion is not necessarily suited to discretionary zoning review processes that emphasize site-focused criteria, neighbor notification and participation, and processes designed to consider the focus of zoning codes on land use compatibility and impacts.
 - *Inflexibility of "no net loss" rules.* Portland uses what are essentially no-net-loss rules to maintain housing capacity and environmental zoning acreage. Such rules provide somewhat more flexibility than an all out prohibition of conversion. However, the potential to add industrial land in the city, to meet a no-net-loss requirement, is limited and relatively small. Annexation of West Hayden Island would provide for potential addition of 400-500 acres.
- *Industrial land is in districts.* About 96 percent of the city's industrial land is within intact districts, contiguous areas that are buffered in varying degrees from nearby neighborhoods. These districts range from 626 acres in size (Inner Eastside) to 5,686 acres (Airport District). While conversion may be considered at the site level, these areas function as districts that have a limited mix of primarily

industrial land uses. Only about 5 percent of the developed, occupied land in Portland's 13,800 acres of industrial zones in 2004 was in non-industrial use.

- *Industrial district boundaries and competing demand* – As cities grow and change, market demand and policy priorities for land among different uses in particular areas can also change. In the short term, demand for land among competing uses is managed by zoning regulations that support districts of compatible uses. In the long term, area plans provide flexibility for considering such map changes based on place-specific policy priorities.
- *Will particular new uses undermine an industrial district?* - Industrial sanctuary zoning is designed on the premise that limiting incompatible uses in industrial districts is important to their vitality. Portland's industrial zones do not allow residential or large-scale commercial uses, in order to support industrial vitality and growth there. Limiting the mix of land uses in industrial zones supports industrial growth in the city in several ways. First, it reduces land use conflicts by restricting or limiting uses that are sensitive to industrial impacts. Industrial sanctuaries provide a place where higher level impacts from very large-scale facilities, noise, lighting, 24-hour operations, and outdoor storage can be the norm—impacts that are likely to draw “bad neighbor” complaints and potential limits to expansion in neighborhoods and mixed use areas. Second, industrial zones limit uses that would drive up land costs beyond competitive levels in the regional industrial land market. Average land values in the city's industrial districts in 2004 were \$4.70 per square foot, competitive with suburban greenfield sites. Third, limiting uses in industrial sanctuaries supports freight mobility there. Average vehicular traffic generation per acre by large-scale commercial uses is many times higher than industrial uses. Fourth, limiting incompatible uses enables a supportive industrial environment and synergies to build up, including large “heavy industrial” facilities that can anchor districts, linked supply chains of industrial firms that trade with each other, and specialized industrial infrastructure.
- *Guild's Lake conversion criteria* - The following industrial conversion criteria in the Guild's Lake Plan District (*Portland Zoning Code*, 33.810.050) address this issue of protecting the viability of the overall district (paraphrased): no significant adverse impacts on industrial uses in the district or district character; adequate capacity of transportation system to support new uses; no significant interference with industrial use of the transportation system; preserve physical continuity of district.
- *Constrained industrial sites*. Most industrial sites contain a variety of development constraints, which limit their range of suitable uses, and thus they typically develop for uses they are most suited to. However, some vacated sites also have severe long-term constraints for almost any industrial reuse, because for example surrounding land is converted to incompatible uses or the site lacks truck route access. The only area of the existing harbor industrial districts that appears to fit this category is the now isolated McCormick & Baxter and Triangle Park LLC sites which have been vacant since 1991. Adjacent former industrial sites extending north to the St. Johns town center have since converted to other uses. This area is also unique in the harbor in lacking truck route access, located over a mile across residential streets from the nearest designated truck routes on Lombard and the St. Johns Bridge. The University of Portland proposed and City Council approved in December the conversion of the Triangle Park LLC site to a general employment designation for university expansion.
- *When are market conditions ripe to support conversion?* Premature zone changes can result in lengthy vacancy or underinvestment at the site and undue disruption. Real estate development tends to occur in cycles, and market conditions for housing, office, retail, hotel, and industrial development commonly operate within separate cycles. Periods of soft market conditions, high interest rates, high regional vacancy, and other circumstances can significantly delay redevelopment and reuse of a given site. A zone change that occurs ahead of the market can result in unnecessary disruption of existing and nearby industrial tenants. Lack of comparable space at the time of change could also prompt the relocation of existing industrial facilities outside the city or region.
- *Timing of conversion to accommodate Central City expansion* - Districts within the Central City compete for limited market demand for high density office and mixed use development. The South Waterfront area remained mostly vacant for over a decade after industrial land conversion, as the Pearl District

boomed, and Lloyd District development continues to lag behind the west side districts. If an area plan proposed industrial land conversion in Lower Albina, as shown in the 2040 Plan map, the timing of potential demand would depend on market advantages and urban renewal strategies in other central city districts.

- *Office industrial functions.* In reinventing their business lines to remain competitive, industrial business could shift to more space for office functions and less for production/distribution functions in Portland facilities. If new zoning rules strictly limit industrial land conversion, it could in turn potentially limit increases in large-scale office functions of industrial businesses in the harbor. At least three options are available to accommodate such office functions: a small general employment area in the industrial districts, such as the Freightliner headquarters area of Swan Island; large on-site office functions at industrial facilities, such as at ESCO or Siltronic; or locating headquarters offices downtown, such as Oregon Steel or Columbia Grain. Current zoning allows unlimited space for accessory offices or headquarters offices at industrial facilities.

Preliminary staff recommendation

1. Apply a no-net-loss rule to harbor area RSIA. Require replacement of converted RSIA within Portland and equivalent replacement of harbor access sites.
2. Extend Guild's Lake Plan District conversion criteria to the rest of the harbor districts, limiting new uses to protect land use compatibility and transportation capacity.
3. Develop and use an industrial interests notification list for review of conversion proposals.
4. Limit industrial sanctuary conversion in the Central City based on a phased strategy for absorbing limited demand for new uses.

Alternative approaches considered and supported by some stakeholder interests

5. In lieu of a no-net-loss rule, add policy criteria for conversion, to maintain flexibility: exceptional circumstances no longer favor retention; avoid conversion in prime industrial areas that cannot be comparably replaced elsewhere; limit conversion within buffered districts to Mixed Employment; do not precede market feasibility for new uses.

3) Where is the optimal long-term edge of the harbor industrial districts?

Background

- *Existing district edges generally reflect long-term features* - Where are the optimal long-term edges of the harbor industrial districts? Existing district edges are generally well defined by topographical buffers and dispersed attributes of prime industrial land (channel, rail access). Based on long-term geographical features, "prime" (unusually advantageous and difficult to replace) industrial land characteristics and natural buffers from upland neighborhoods, the existing boundary makes sense in nearly all areas, as shown in Figure 4. Policy 4.4 in the *River Renaissance Strategy* reinforces these existing edges of the harbor districts: "Maintain and enhance the buffers (riverine bluffs, major roadways, and mixed employment areas) that frame these industrial districts and separate them from other land uses, in order to prevent the loss of industrial land and to reduce impacts on adjacent neighborhoods." However, the unusual sites described below may warrant specific consideration of whether to apply Industrial Sanctuary conversion rules. Also, the River Plan provides an opportunity to propose amending the RSIA or Industrial Sanctuary boundaries at this time, where it might be warranted.
- *Severely constrained sites for industrial use* - Most industrial sites contain a variety of short-term development constraints (e.g., cleanup or infrastructure needs) or limitations on their range of suitable

uses. Presumably, these constraints can be overcome in the long run, potentially requiring public intervention. However, some vacant sites have severe long-term constraints for industrial use that arguably cannot be overcome, such as lack of truck route access or committed open space (e.g., environmental protection zone, public greenspace acquisition).

Long-term industrial use constraints:

- Critically constrained industrial areas in the harbor appear limited to the McCormick & Baxter / Triangle Park sites, vacant since 1991, since they lack truck route access. Adjacent former industrial sites extending north toward the St. Johns town center have since converted to other uses. This area is unique in the harbor districts for lacking truck route access, located over a mile across residential streets from the nearest designated truck routes on Lombard and the St. Johns Bridge. The University of Portland proposed and City Council approved in December 2006 the conversion of the Triangle Park LLC site to a general employment designation for university expansion.

Potentially committed open space land

- The Ramsey Lake area is designated partly as Open Space and partly as Industrial Sanctuary. The Port of Portland owns part of the Industrial Sanctuary area, which has Environmental Protection Overlay zoning that essentially does not allow development, and the rest is owned by the City.
 - Another similar wetland area in Rivergate is the Columbia Slough frontage of the Barnes Rail Yard and Columbia Steel Casting sites, which is designated as Industrial Sanctuary with Environmental Protection Overlay zoning. An adjacent part of the same wetland area also has Environmental Conservation Overlay zoning, which allows but limits development so does not constitute committed open space.
 - Another wetland area in Rivergate designated as Industrial Sanctuary is used as a BPA powerline right-of-way and railroad corridor. The part of the site outside of the Greenway Overlay has Environmental Conservation Overlay zoning. The site is in multiple ownerships by the Port of Portland, BPA right-of-way, Metro, and PGE. The BPA right-of-way extends across the river between the Smith and Bybee Lakes complex and Forest Park, both large Open Space zones.
 - St. Johns Landfill site – About 75 percent of the St. Johns landfill, adjacent to Smith and Bybee Lakes and owned by Metro, is designated Industrial Sanctuary (and Regionally Significant Industrial Area) and the rest is designated Open Space. While this area has significant habitat value, the former landfill site (filled, treeless, and disturbed) may not. The former landfill site may be an opportunity to add significantly needed rail yard capacity, since it is located between the nearby Barnes and Ramsey Rail Yards.
- *Industrial Sanctuary sites that lack an effective buffer from adjacent neighborhoods* – Bluffs and wooded slopes provide important buffers between the river plateau industrial areas and nearby upland neighborhoods in nearly all of the harbor districts (see Figure 4). Rail, arterial street, and freeway corridors also provide buffers. Areas unbuffered from neighborhoods appear limited to Lower Albina east of I-5 and some small residential areas in Rivergate:
- The Lower Albina Industrial Sanctuary district has a few upslope sites that extend east of I-5 (under the elevated freeway). The largest is a City of Portland transportation maintenance yard. One site in this area was converted from Industrial Sanctuary to Mixed Employment in 2005.
 - The Industrial Sanctuary area north of Columbia Blvd. in Rivergate has minimal slope buffering. Columbia Blvd. provides some buffering between housing on the south side and industrial uses on the north side. Potentially a sound barrier wall or similar improvements could improve the arterial street's effectiveness as a buffer. More challenging, a residential subdivision extends north of Columbia Blvd. in part of this area adjacent to the Barnes Rail Yard. Potentially, landscaping can provide some buffering advantages between the largely built-out subdivision and the adjacent rail yard.

- *Regionally Significant Industrial Area boundaries* - All of the harbor industrial sanctuary areas were included as RSIA in 2004, except the following areas where area planning was underway or flexibility for a finer grain mix of uses over time was desired near mixed-use centers: the proposed Linnton Village site; the McCormick & Baxter and Triangle Park LLC sites described above; and the area east of the Union Pacific main line in Lower Albina. Conditions have since changed on the Linnton Village site. This site was left off of the proposed RSIA map to allow for a legislative process that was getting underway. The proposed neighborhood plan drafted by the Linnton Neighborhood Association proposed conversion of approximately 35 acres of industrial sanctuary to accommodate mixed use development for expansion of the Linnton Village area from the current commercial corridor along Highway 30. The Bureau of Planning initiated a study in 2005 to consider the land use change. City Council turned down the legislative conversion request in 2006 based on safety concerns.
- *Central City expansion*
 - *NW Vaughn.* The Guilds Lake Industrial Sanctuary Plan and Northwest District Plan recently designated the Vaughn Corridor as the boundary (described as a “steel curtain”) between the Central City expansion area for urban mixed use development (from the Pearl District) and the heavy industrial Northwest Industrial District. The ESCO steel mill on the north side of Vaughn and other large nearby industrial employers - Graphic Arts Center (printing), Electrical Construction Co., and Rejuvenation (lighting manufacturer) - anchors this boundary.
 - East of Union Pacific rail line in Lower Albina, where the Interstate light rail line was recently installed. Interest has been expressed for conversion to allow mixed use development around station areas and in the Portland School District’s Blanchard site for institutional (e.g., baseball stadium), residential, or mixed use development.
- *Marcom site.* Conversion of the former Marcom shipyard site, closed around 2002, was considered and rejected in the St. Johns Lombard Plan. The plan converted land in industrial use south of the St. Johns Bridge to a central employment designation, allowing mixed use development, and retained area north of the bridge, including the former Marcom site, as industrial sanctuary. The Port of Portland is in the process of trying to acquire the north half of the Marcom site for expansion of the adjacent Toyota marine terminal at T-4.
- *Residential facility at T-4* – A senior housing facility (Harvest Homes) is located within Port of Portland’s Terminal 4. The small housing complex is incompatible with the surrounding marine terminal, a heavy industrial facility. The site is designated “mixed employment” in the Comprehensive Plan. Conversion of the site to industrial sanctuary could be considered. There are many examples of residential pockets surrounded by industrial sanctuary in the city. While some of the larger residential areas are designated as residential or mixed employment in the Comprehensive Plan, the numerous small residential sites in the harbor and Columbia Corridor districts are typically designated as industrial sanctuary. The mixed employment designation at this site in T-4 is inconsistent with this general pattern, particularly in this site’s heavy industrial context.

Preliminary staff recommendation

1. Convert the McCormick & Baxter site to Mixed Employment in the Comprehensive Plan. Add a restriction to not allow residential development.
2. Do not apply conversion policy or criteria to sites east of I-5 in Lower Albina or NW sites south of Guild’s Lake Plan District (south of Vaughn).
3. Anticipate adjustments in conversion criteria mapping within the upcoming Columbia Corridor Plan (e.g., how to map environmental protection zones) and Central Portland Plan (e.g., School District site in Lower Albina).

Alternative approaches considered and supported by some stakeholder interests

4. Remove industrial sanctuary designations from environmental protection zones for clarity of allowed use.
5. Change the Comprehensive Plan designation from Mixed Employment to General Industrial on the housing sites (Harvest Homes) within T-4.



Infrastructure



Land



Workforce

Working Harbor Reinvestment Strategy Business Interview Results

December 2006

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Appendices under separate cover include complete interview results and descriptions of the businesses participating in interviews.

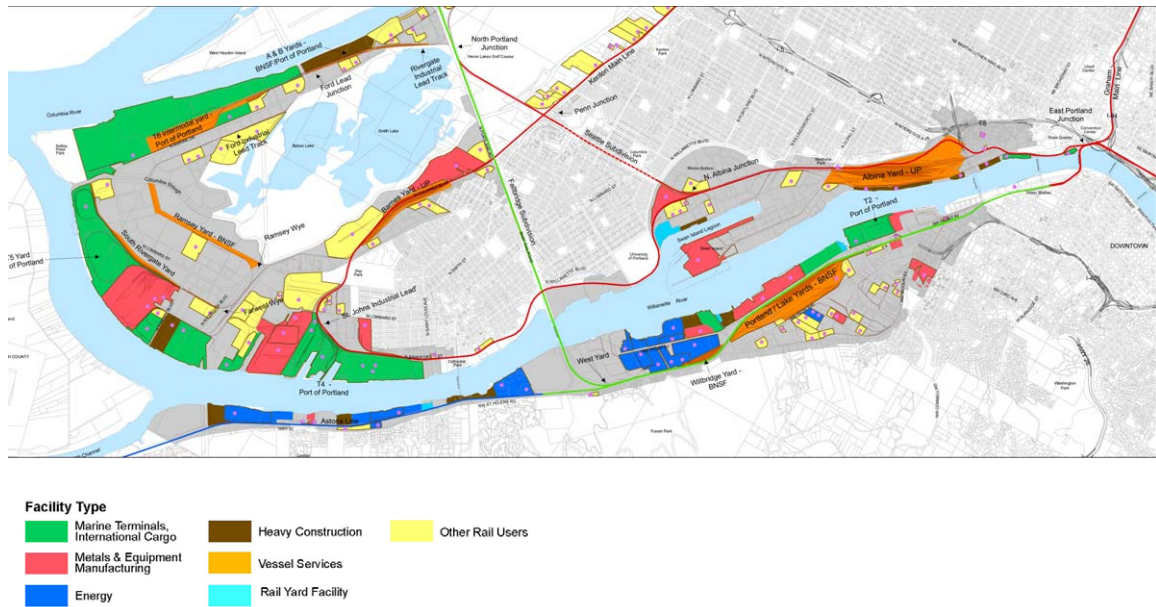
INTRODUCTION

The Working Harbor Reinvestment Strategy will be a 10-year program of coordinated public investments by the City of Portland, Portland Development Commission (PDC), and Port of Portland in the economic vitality of the harbor industrial districts. Oregon Department of Land Conservation and Development provided additional grant funding for the strategy. It is being prepared as an economic development component of the River Plan North Reach. The River Plan is a comprehensive plan for the land along the Willamette River in Portland.

The reinvestment strategy sets out to fuel private industrial investment and district competitiveness through public investments, primarily in infrastructure, developable land, and workforce. Which public investments will be the best catalysts for private reinvestment and economic development in the working harbor? Interviews were conducted with industry leaders to help answer that question for local government decision makers.

What is the working harbor?
 Geographically, it consists of the industrial districts adjacent to Portland's deepwater channel: Northwest, Swan Island / Lower Albina, and Rivergate. The seaport's multimodal infrastructure and facilities that rely on it make these districts unique in the state: the intersection of Oregon's primary marine, rail, road, and pipeline infrastructure and heavy industry clusters in marine and rail trade, energy, construction, and metals and equipment, (see Figure 1). Industry has also built up competitive advantages in the harbor's heavy industrial land use pattern, skilled labor pool, and fixed capital investments. Despite political boundaries, these economic functions and advantages also extend to the adjacent Port of Vancouver.

Figure 1. Working Harbor Clusters of Multimodal-Dependent Facilities



This summary of interview results is the first product of the reinvestment strategy. Project staff of the Planning Bureau, Port, and PDC conducted interviews with 25 businesses and four focus groups, approximately 60 people. The interviews were selected to reflect a cross section of industries in the harbor

districts: manufacturers, warehouse and distribution, marine terminals, the three railroads, the two ports (Portland and Vancouver), and property owners and their representatives. We asked specifically to meet with managers who make local investment decisions. The four focus groups discussions were with industrial developers, industrial real estate brokers, human resource managers/representatives, and industrial association representatives. We asked four basic questions, which varied slightly by the type of interviewee:

1. What are the main opportunities you see for reinvestment and expansion by your business within the Portland Harbor industrial districts over the next ten years?
2. What harbor area challenges or barriers are significant enough to prevent reinvestment or expansion or to consider relocation?
3. What are the primary advantages of the harbor area as an industrial location that should be reinforced?
4. Assume that local governments have a hypothetical budget of \$100 to spend on the following types of public investments in the harbor industrial districts over ten years: land development; transportation; utilities; workforce; others. If the priority is to encourage industrial retention, expansion, and development, how much should be spent on each type and why? What three specific projects from these categories do you think would be most effective catalysts for private industrial investment in these districts?

OVERVIEW AND CONCLUSIONS

The interviews captured a wealth of information and revealed a variety of viewpoints, including some conflicting conclusions. The results illustrate the range of ideas that are influencing private investment decisions. The conclusions that follow represent project staff interpretations of what we heard in the interviews and our attempt to distill down the main points. Each conclusion is followed by a few paraphrased examples of the comments we heard, shown in italics. The full text of the interview results is included in the appendices.

1. INDUSTRY IS EXPANDING AND REINVESTING IN THE HARBOR DISTRICTS.

Following the recent recession, businesses are making major investments in harbor sites and competitive strategies. Companies on 30 sites (nearly all river- or rail-dependent) have funded an estimated \$450 million in recent or current capital investments (2004-07) and are currently planning another \$70 million in capital projects that are not yet funded. Typical projects include new and upgraded buildings, equipment (e.g., cranes, metal shredder, conveyers), and on-site rail and dock improvements. This is an incomplete list, based on which companies we've talked to and which projects they were willing to talk to us about. It undercounts projects by smaller companies and more speculative projects that companies are not yet willing to discuss. Consistent with these estimates, county tax records indicate a \$218 million increase in assessed building and real improvements value in the harbor districts in 2005.



New construction in Rivergate.

A. The five largest multimodal clusters are expanding.

Businesses in each of the five largest multimodal industry clusters (those that rely on marine, rail or pipeline access)—the facilities that make up Portland's diverse seaport (see Figure 1)—are expanding.

International Marine Terminals

- *We completed a \$40 million expansion project in 2004, which included this building, and we are already looking at expanding the building and land area. (marine terminal)*
- *Our bulk terminals at T-4 and T-5 all have growth plans over the next 10 years. We are expanding our container terminal at T-6 and running out of auto storage space there. We are working to take advantage of market opportunities for new bulk fertilizer facilities at T-2.*

Railroads

- *Our annual volume growth over the past few years has been in the double digits. In the future, we expect that the growth rate will be about 3 percent for bulks but higher for merchandise. We hired about 100 employees last year, half to replace retiring or departing employees, half due to growth. (railroad)*
- *Columbia Grain is adding 3 new lines of rail trackage on their site and can now handle 30 percent more freight. We would like to expand their capacity to add 7 or 8 new lines. Glacier NW may need to tear down buildings to handle more rail cars. Canpotex is also expanding rail trackage on their site. A project at Toyota is planned to add 2,000 feet of new track. (railroad)*

What do we mean by industry expansion?

It is not necessarily job growth, vacant land development, or site redevelopment. When we heard from businesses about expansion, they generally referred to capital improvements to expand production or throughput. Expansion may generate the need for additional transportation capacity, utilities, land, and employees, but productivity improvements may also have the opposite effect of reducing the need for these inputs (doing more with less).

Energy

- *We currently have a 60 million gallon capacity for transportation fuels, and we foresee continuing expansion to handle a wider range of products. For a while we have been investing in old, unused tanks to bring them back into use. Now we have no more tanks that are convertible. (marine terminal)*

Metals and Equipment Manufacturing

- *This plant has grown 30 percent in the last 5 years. It's a good, viable plant and will stay competitive. (heavy manufacturer)*
- *We've just made major investments in our Rivergate facility: we've redeveloped part of the dock; rehabilitated the container crane; done maintenance dredging; and added new equipment. (heavy manufacturer)*

Heavy Construction

- *We are relocating from sites in Oregon City and Vancouver to Portland Harbor. We wanted to have both rail and water access close to [the construction activity in] Portland. (property owner/representative)*

B. New business models are emerging.

Manufacturing and distribution firms are adapting to stay competitive.

Manufacturing

- *We have a large knowledge base here, with a lot of intellectual property. In the future, we will be doing more intellectual functions here. The low-tech products will move offshore and the products that are rich in intellectual property—high tech, highly-engineered products—will stay here. (heavy manufacturer)*
- *We were close to closing in 2002, but we started to diversify and bought other companies. Now our full-time workforce is on the rise. We are trying to take advantage of this facility because if you tried to build a place like this from scratch, you just couldn't do it today. (heavy manufacturer)*
- *Our products aren't sold through other retailers. We only sell them on our website, through our catalog, and out of our two stores. As a niche business, we're not as sensitive to some of the industry's competitive pressures, and we're not pinching pennies at every turn. The reasons we make decisions don't apply to all businesses. (manufacturer)*

- *As the company grows, our office needs will grow. Portland is a logical place to add administrative support because it has historically been our headquarters. (heavy manufacturer)*

Distribution

- *We're a medium- to high-growth company in a low-growth market. Our plan is to grow 10 percent per year, which we've been doing. The increasing demand for our services will come from the population growth and the increasing diversity of product demand. (distribution facility)*
- *For the North American market we want to maintain a ratio of 65 percent domestic production to 35 percent imports. Our focus at this facility is strictly on imports. Adding post-production options at the import terminals is a growing trend. We currently employ 177 production associates and 23 salaried employees at this facility. (marine terminal)*

C. Most demand for new sites is not for multimodal facilities.

New industrial facilities are primarily warehouse and truck distribution space. Latent demand for close-in industrial service space is also large. While these segments of demand do not require multimodal freight access, recent demand for rail access is up.

Distribution

- *Distribution facilities are the primary type of development occurring in Rivergate because of the access to the freeway, rail, and harbor. We expect that to continue.*
- *We moved into our Rivergate distribution facility in 1994. At that time, the building was 150,000 square feet. A year later we built Phase 2, adding 150,000 square feet. We thought then that the 300,000 square foot facility would last us 10 years, but four years later we added another 300,000 square feet (Phase 3 in 1999). In 2004, we added another 250,000 square feet to this facility (Phase 4). (distribution facility)*

Industrial services and flex space

- *There is a need for buildings near downtown to accommodate smaller, service-oriented companies that need some, but not much, storage. No one has figured out how to meet that demand, and make it work financially, to build this type of building—small to medium sized buildings (10,000-20,000 square feet) that don't have loading docks for huge boxes or heavy industrial capabilities. The bulkier, older buildings don't work for these modern firms. (industrial developer)*

Demand for new multimodal sites is increasing, but proportionally low

- *Lately, requests for rail access have increased dramatically. Desire for rail access is tied to gas prices. There aren't that many that need water access—we have seen maybe one request a year—but we have had an economic downturn. (property owner/representative)*
- *Everyone is freeway access oriented (industrial broker).*

D. People here expect to be close-in.

Compared to other cities, lower cost suburban space is less desired in this region.

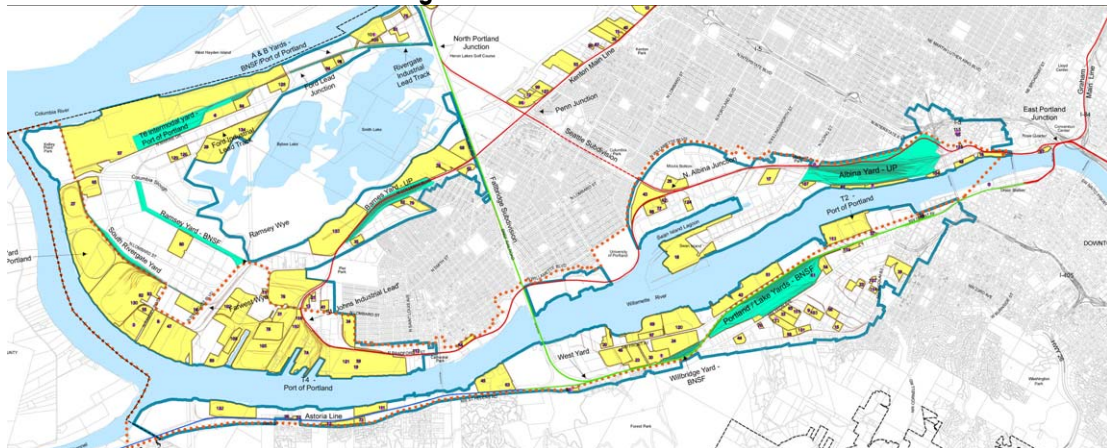
- *Chicago and Sacramento are going to have many more available sites than Portland, and they are less expensive. But we're not Chicago - there is a unique market here. People here expect to be close-in and don't want cheaper sites that are far away (industrial broker)*

- *The central location of the harbor and its proximity to the central business district are important attributes. There are serious congestion problems getting from Gresham to Hillsboro, so there is strong demand for a central location. (industrial developer)*
- *We used to hear about businesses that are moving outside of Portland because they are fed up with high taxes or timeline concerns. We don't hear about this anymore. (industrial broker)*

2. OVERCOMMITTED RAIL APPEARS TO BE THE AREA'S MOST PRESSING COMPETITIVE NEED.

Portland has advantageous rail access among West Coast cities, benefiting from long established rail networks and the Columbia River grade crossing through the Cascade Range to Portland Harbor. Rail lines run along the length of the harbor on both sides, allowing for seamless multimodal transfers. However, repeated interview comments about the growing gap between rail demand and the current capacity and service level suggest that rail improvements are the most pressing investment need to maintain the working harbor's competitiveness as a seaport and heavy industrial center. Also, the potential for regional solutions to rail infrastructure and service needs is hampered by the splintered, nationally oriented responsibility for the region's rail system, which is operated by two Class 1 railroads and one short line.

Figure 2. Rail Customers* in the Working Harbor



* Rail customers are shown as dots, and their sites in yellow.

A. Half of region's rail users are in harbor districts.

Industry in the region is challenged by not being close to large markets, but rail helps make up for it, linking Portland to the larger eastern domestic markets. About 110 rail customers, roughly half of those in the region, are located in the working harbor (see Figure 2). Most of Portland's marine cargo transfers to or from rail.

- *Our customer base isn't here. LA/Long Beach is there because of the population base. Portland relies on links to Chicago. (heavy manufacturer)*
- *We handle 14 percent of the U.S. market share of wheat exports at our Portland terminal. Two thirds of our product comes in on rail. (marine terminal)*

- *Rail, rail, rail. Rivergate is served by both Union Pacific and Burlington Northern, which gives us a huge advantage over others in the region. It's a unique treasure that we need to take care of. It was a big part of our decision to build in Rivergate. (distribution facility)*

B. Class 1 railroads are rationing limited rail capacity.

Increasing demand for congested lines and overcommitted yards are prompting Class 1 railroads to seek new business strategies that emphasize long-distance, high-volume, hook-and-haul operations over small rail customers. Still, local railroad representatives point out that Union Pacific remains primarily a “manifest” railroad of multiple-customer trains, and the local industrial complex continues to be one of the major regional business lines of Burlington Northern Santa Fe.

- *We are turning down business everyday. We are landlocked and have no room to expand. We can only grow now through operating efficiencies. So, we ask new or expanding customers if they have room at their facility to add capacity and expand rail infrastructure. We want to be able to drop their train on their site because Albina Yard does not have room to hold more cars. Albina Yard is designed to move cars through and is already operating beyond full capacity. Unfortunately, it takes a lot of land for a siding—about 7,500-8,000 feet of clear track on a site. (railroad)*
- *For new customers, the rail infrastructure requirements are tougher than five years ago. We are looking at existing customers to see which can add capacity. (railroad)*
- *Last month Union Pacific announced they were doubling their rates [for our business]. (heavy manufacturer)*
- *The shortlines have capabilities, but they are hamstrung by their leases. (heavy manufacturer)*

C. Railroads' capital needs exceed budgets.

Railroads cite significant capital needs to alleviate regional rail congestion—for yard space, expanded rail line capacity, and grade separation from the street system—needs that greatly exceed investment budgets.

- *Trackage in the region was built by predecessors of UP and BNSF. The geography of how things are laid out—chopped up—in Portland makes rail movement in the region very inefficient and should make transportation investments a priority. (railroad)*
- *UP is always on the ragged edge of having a service meltdown—from consolidation of old lines, decisions made elsewhere, and operating at capacity. They've had three meltdowns in the past six or seven years. What happens is gridlock and trains don't move. There aren't enough locomotives locally to fix the gridlock, so they need to pull them from other areas of the country.*
- *We have a capital budget of \$3 billion for the entire 35,000 mile rail system, so we have a lot of projects that we just can't afford to do. Just to maintain the rail, tie, ballast and bridge costs half of our capital budget. Our current capital projects in the Portland area include new rails and ties to maintain track structure, a UP/Port project to expand capacity at the Toyota site, and double tracking at the Hemlock Siding (185th). There are many other projects that we would like to do. (railroad)*
- *We sank \$2.4 billion into this railroad last year, \$1 billion just to keep the lights on. There's a limit to what we can spend on capital investments. When you run out of money, you draw the line. There are lots of worthy projects you can do, but money is the limiting factor. When we make decisions about capital projects, we model how we use the lines and how much delay can be reduced, to figure out the costs and benefits of each project. We participate enthusiastically in public/private projects, including the T-6 lead and Kalama. (railroad)*

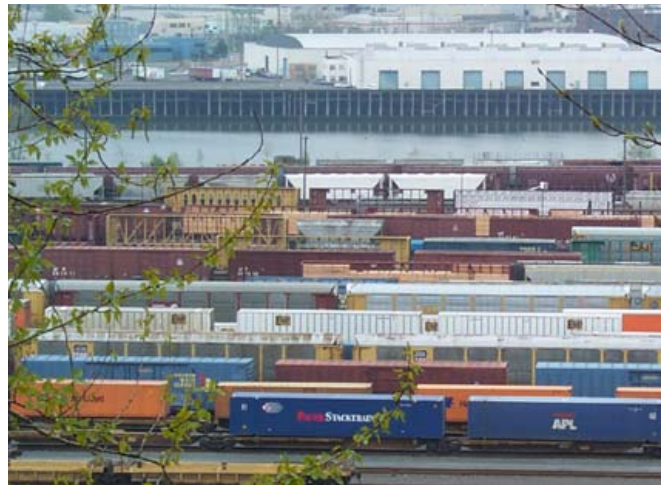
D. Rail capacity is limiting marine expansion.

Marine terminal representatives indicated that rail capacity is limiting their expansion more than channel or road capacity.

- *Our biggest business problem is inbound rail infrastructure. You could create new business for us overnight, and increase our capacity, if sound investments were made in rail infrastructure. ...We advocate full buildout – wherever you can put rail yards, put them. Once the space is gone, and there is no room for expansion of the trains, the opportunity is lost. (marine terminal)*
- *We arm-twisted Union Pacific into allowing us to also use Burlington Northern, so we can now use both, but Burlington Northern's service is limited. Seventy percent of the product goes out by rail from this facility. In 2004, we were shipping 50 rail cars a day. In April, we expect to be shipping 80 loaded rail cars per day for the Midwest. (marine terminal)*

E. Rail service to heavy industry is deficient and declining.

Emerging business strategies of the capacity-constrained Class 1 railroads are deemphasizing small shippers, who make up most of the 110 rail customers in the harbor districts. Several heavy industry representatives were highly critical of regional rail service. They cited needs for fewer delays and a service strategy for small shippers (e.g. third-party switching, reload facilities, favorable shortline leasing).



Union Pacific's Albina Yard in Lower Albina.

- *We have rail service, but it is poor. In the past and elsewhere, we've used rail, but it's untenable here and now. Any notion that you'll be able to easily incent cargo to move from one mode to another is bogus. We can't schedule production because the rail doesn't come on a regular basis. Trains can come in 3 days or 30 days. (heavy manufacturer)*
- *The delay of supplies coming in by rail can shut down our plant. It definitely affects our productivity. Our alternative is to use trucks, but it takes four trucks to equal one rail car. There is a big cost advantage to using rail. Sometimes the rail service is good, and sometimes it's worse. This has been going on for a long time. No one has any sway with the railroads. They're the only game in town. Our few rail cars are not a priority for them, and they don't really care about our business. I've seen the situation progressively decline in my time here. It's not easy to do the business they do, though. (manufacturing)*
- *Our biggest transportation issue is rail car availability. This is not an issue every month, but often. Rail access is in place, though we are putting in new rail lines, but it is service that is the issue. (heavy manufacturer)*

F. Dredging is also critical, but moving forward.

Columbia channel deepening is underway. A plan is being developed for Willamette maintenance dredging to work through contamination issues. Moorage dredging is needed soon at some sites.

- *Dredging at the mouth of the Columbia River is critical. Twenty years ago, the maximum load size for a ship was 52,000 tons. Now the maximum load size is 60,000-62,000 tons requiring 40 foot ship draft. Ships sailing out of Vancouver, B.C. now have a maximum load size of 75,000 tons and 43 foot draft. In order to be competitive, we need to be able to do the same. (marine terminal)*
- *The biggest infrastructure challenge we face is the draft alongside our dock. Today a lot of fuel is coming in by ship and more and more product will arrive via ship in the future. We can't handle the loaded ships, so we have been lightering the product to barges on the Columbia, which is a risky practice. Our dock was last dredged in the early 1990s. We will look at deepening our dock to 32 feet in the next 10 years. (marine terminal)*

3. ROAD CONGESTION IS WIDELY AFFECTING INDUSTRY.

Investments are needed on freeways and close-in roads to maintain freight mobility.

A. Congestion costs cut across industries.

Road congestion is a big cost for the distribution industry and many manufacturers. Companies are adjusting schedules, where feasible, to reduce these costs. Regional distributors pass on congestion costs to consumers; traded sectors are less able to do so. We can alternatively pay more for transportation infrastructure or for goods in the region.

- *Congestion is the top infrastructure issue and constraint. Mobility is important to all businesses. (property owner / representative)*
- *Congestion affects us dramatically. We start delivering at 3-4 am to avoid peak hour congestion. (distribution facility)*
- *Congestion is a big cost for us. The longer it takes per run, the fewer runs we can make. The average load has a return of \$200, so our volume of loads is high. The purchase price of a new truck is about \$250,000. The capital invested in our business is significant. It is difficult to get the customer to understand how congestion impacts our costs, so we have to factor congestion into our rates. We start our drivers at 4 or 5 a.m. every morning, with staggered shifts so that our trucks are running 24/7. Most of our deliveries are within 30 miles of our facility. We start them early to avoid the congestion. (distribution facility)*

B. Congestion costs drive where the distribution industry locates and expands.

Some interregional distribution centers are moving to smaller gateway cities like Portland, and some to exurban sites along interstates. Distribution facilities in the region value centrality. Companies sometimes move even within districts to avoid bottlenecks.

- *Before trucking deregulation, the major manufacturers had four West Coast hubs; afterwards, deregulation made trucking cheap and led to consolidation. Firms then could have one distribution center serving 11 western states. Today, people are dealing with high fuel prices, increasing*

transportation congestion, less availability of drivers, restricted hours of operations, etc, and they're saying that local distribution centers make sense again. (distribution facility)

- Big box retailers take a different view. They are moving towards big distribution centers on cheap land in rural locations on the interstate highways. (distribution facility)
- The reason we stay in Portland is that it is the least congested major port on the West Coast. We don't have to compete with containers. (marine terminal)
- You're not going to be able to site an industrial facility without reasonable interstate access. (distribution facility)
- For us, the advantage of this area is that the location and transportation access lower our freight costs. This area is near I-5 and the rail yards, which is important to us. We have 55 acres of land at 185th and Marine Drive, where we planned to expand earlier but decided against it because of the higher freight costs there. (distribution facility)
- One major reason we moved to NW was to avoid using the St. John's Bridge. (distribution facility)
- You can trace three great industrial districts in Portland back to specific transportation projects in the last 15 years: the extension of Airport Way; the overpasses in Rivergate; and Going Street access to Swan Island. (industrial developer)

C. Bottlenecks need attention: Start with I-5.

I-5 improvements are the most commonly cited investment priority.

- It would be great to wave a magic wand and fix things on I-5. This should be the priority project. (industrial broker)
- Lots of folks hate the big I-5 quagmire that results at the Delta Park and Columbia neckdown. Going from 3 lanes down to 2, then back up to 3 is a physical manifestation of the old bumper sticker "Welcome to Oregon. Please don't stay." (distribution facility)
- We have the same problems as everyone else in terms of congested roads: I-5, I-84, I-205, general central freeway loop delay. (distribution facility)

D. A few district bottlenecks were widely cited.

Street projects have been a major catalyst for development in the city's industrial districts. A few street bottlenecks in harbor districts were widely cited: trucks through St. Johns; constrained single access to Swan Island; and congested Yeon intersections. Various local street issues were also raised.

- There are community issues with freight movement through St. Johns. We don't want to go through the community, but there aren't other good routes. We send out about 50 trucks per day. (marine terminal)
- Our main concern is traffic flow on and off Swan Island. There is only one way on and off, and there are a lot of people going up and down the hill. I've seen [off-ramp] traffic backed up onto I-5 at peak times (7:30am). (distribution facility)
- Businesses on Swan Island are concerned about the Going Street overpass. PDOT is targeting it as an important seismic retrofit project. (industrial association)
- Getting in and out of Plant 3, where employees are trying to go South on Yeon, is a problem, so shift changes are difficult. (heavy manufacturer)
- I am concerned about the loss of arterials for freight—Naito Parkway, Fessenden, Lombard—the lanes are being restricted. (heavy manufacturer)

E. Transit improvements have had costs for freight mobility and limited benefits.

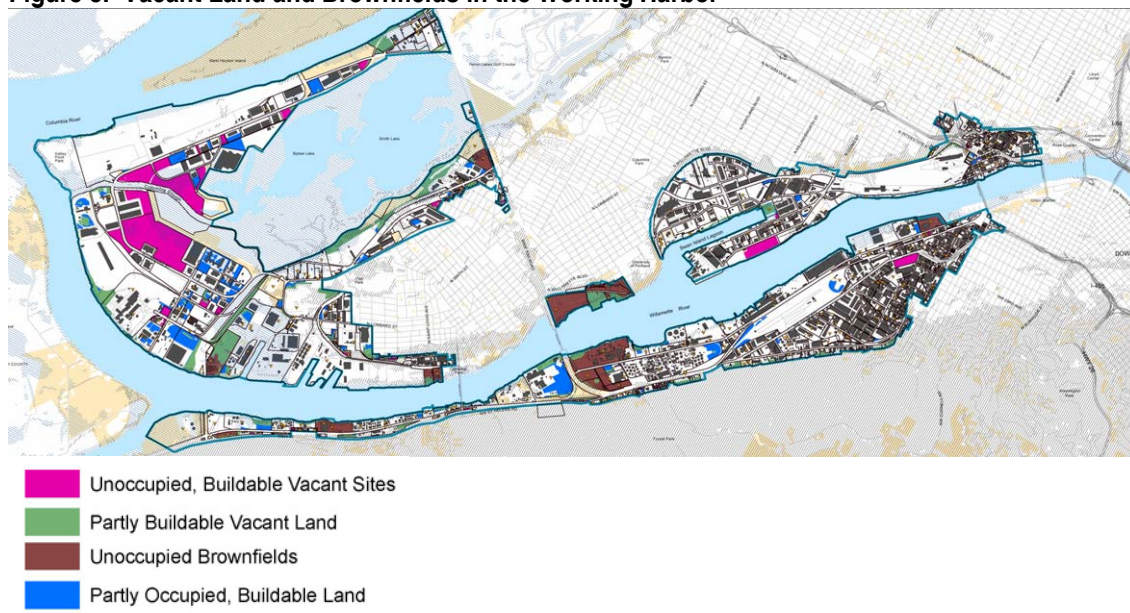
Transit affects industries differently. Transit access has improved and is important to large employers and some employees, but ridership is kept low by infrequent buses and 24-7 industry operations. MAX is seen to have reduced capacity on some freight routes.

- *Transit service and use has gotten much better. A number of employees use transit – many part-time folks use the bus regularly, and some office employees use it occasionally. (distribution facility)*
- *Swan Island and its businesses have encouraged mass transit, but we would be lucky if 5 percent of our employees used transit. (industrial association)*
- *Reactions vary about the benefit of the Interstate MAX. In Lower Albina, I haven't seen a noticeable increase in transit ridership since the MAX opened. The location of the tracks significantly decreased the capacity of Interstate Avenue for freight travel, which went from four lanes down to two. (industrial association)*
- *The introduction of the MAX line has caused significant traffic delays at the Going/Interstate intersection. When trying to get onto I-5 or turn left from Going onto Interstate to go north, you can be stuck there 2 or 3 cycles, sometimes more. (distribution facility)*

4. TIGHTENING HARBOR LAND SUPPLY IS LIMITING GROWTH OPTIONS

As the harbor districts approach build-out, the tightening land supply limits growth options and increases pressure to locate or expand elsewhere, develop constrained land, use land more efficiently, and protect against residential encroachment. Portland's *Industrial Districts Atlas 2004* cites a citywide industrial land absorption forecast of 1,900 gross acres from 2000 to 2025. To meet that demand, the constrained supply of vacant industrial land was estimated at 2,900 acres, out of which 920 acres is potential brownfield, 1,100 acres is partly buildable floodplain and habitat resources, and only 143 acres had no identified constraints.

Figure 3. Vacant Land and Brownfields in the Working Harbor



A. Large, development-ready sites are lacking.

Portland Harbor is nearly built out (see Figure 3), so new investment is coming mainly from on-site expansion and redevelopment. Three of the five development-ready vacant sites larger than 10 acres have pending developments or uses. The harbor does have room for further growth but at sites that need to be prepped for development, mainly a few large, unoccupied brownfields and West Hayden Island, which is being held by the Port of Portland for future annexation and harbor expansion. Additionally, the Port of Vancouver is currently preparing the large, adjacent Columbia Gateway and Rufener farm sites for marine terminal and industrial development.

- *Rivergate has only one more large parcel left. (port)*
- *Five years ago, there was no vacancy in the Northwest district. Now there is some vacancy, but not much. (industrial broker)*
- *Most of our clients don't want to lease, they want to buy, and they want land that has easy access to the freeway. Where is the land for them? (industrial broker)*
- *If 10-20 acres is needed, there are so few available sites that clients will wait longer [for sites that are not development-ready]. (industrial broker)*

B. Expansion decisions often come down to land availability.

Some growing businesses are struggling to expand on already built-out sites, acquiring multiple nearby sites, and considering relocation.

- *After we add the 21 new acres, we have nowhere to grow. There is no available vacant land nearby. We're a land hungry business, and we may eventually outgrow this location. After all, we have been seeing 8-10 percent growth annually. However, I don't think that's going to be a problem. One response is that we are moving our domestic product distribution to Seattle to allow more room for imports at our Portland site. (marine terminal)*
- *One of our constraints is the difference between the acreage we want versus what is available. There is not a lot of property left down here. We're landlocked. When do you say, "Let's give up and go elsewhere?" We're very close to that. That's why our expansion isn't for sure a "Go". (distribution facility)*
- *We store excess product on our site and we need more space. There is no vacant land nearby to buy. (distribution facility)*

C. Brownfields offer opportunities, but multiple needs.

Brownfields are the primary land development opportunity on the harbor (see Figure 3). However, viewpoints are mixed on subsidizing cleanup for economic development. Superfund liability for future in-water cleanup was identified as a major impediment to waterfront development by new owners. Risks and complexity also inhibit brownfield redevelopment generally. Permitting challenges associated with contamination are delaying in-water improvements. Public investment in economical sediment disposal could enable the Superfund project and in-water improvements to get done faster.

- *The challenge is to free up brownfield sites. Someone needs to acquire or condemn them, assemble the parcels, and clean them up. (industrial broker)*

- *There are private investors willing to clean up brownfields. The problem is that the owners are greedy and are asking too much money. It's a market issue, not a public investment issue. Public money should not be invested in brownfields. (industrial broker)*
- *The potential liability for river cleanup is a big deal. The only recourse for those people identified as having contributed to the river problems is to sue everyone else to try to spread out the burden. Any site with contamination is uncertain and opens you up to potential liability. Superfund is a huge cloud and there's no reason for developers to take on the risk. (industrial developer)*
- *We've seen deals terminated because people are scared [of Superfund liability] when sites have existing outfalls. (property owner/ representative)*
- *Superfund is complicated to explain and it's difficult for people to grasp the details, so they give up and decide to look elsewhere. The turn off is not just the liability, but the perception that goes along with the idea of "Superfund" – the sight, smells, and other negative images. On the other hand, when demand is great enough or there is a strategic reason for a user to locate on the harbor, the barriers of contamination will be overcome by users. (industrial developer)*
- *When we were searching for a building, we quickly learned that everything would hinge on environmental issues and finding someplace where I could protect myself from potential liability. For example, I had to sign a non-disclosure agreement to even come close to seeing what the conditions were at one site. It was a great building that didn't hold any risk for my employees, but I consulted the best lawyers in town and they said I couldn't necessarily protect myself from future liability. It was a very sobering experience – here we were trying to bring in all of these jobs, and it was so difficult to find a clean property. When this building came up and it didn't have any ground contamination, we jumped on it. There are so few clean properties close-in. (manufacturer)*
- *The Superfund site is a huge problem. One result is the inability to get permits to get work done on the water. We will want to expand our dock at some point, but it is looking like a 3-year process with no end in sight. (property owner/ representative)*
- *Upland disposal of dredge spoils can be very expensive--\$400 per cubic yard. Public investment to support upland disposal would be very helpful. A nearby disposal facility could make it more cost effective. (marine terminal)*
- *Getting the Superfund project done sooner would be helpful. It's been a long road already. We don't have any income coming in from the property, and Superfund is costing us \$500,000 a year. (property owner/representative)*



An unoccupied brownfield site in the Northwest Industrial District.

D. Businesses are using land more intensively.

Businesses are taking up a variety of strategies to do more on less land, including less inventory dwell time, higher racks in warehouses, taller tanks, possible parking structures, multiple employee shifts, and others.

- *We are working to use our land more efficiently—doing more business on less land. We have reduced the dwell time of vehicles, so that the average vehicle is now here for only 2.5 days. (marine terminal)*
- *Right now we are reconfiguring this building to have more processing capacity. At 806,000 square feet, the building footprint is now maxed out on the site. We need to increase our total output from the*

current rate of 200,000 units to 500,000 units. Our streamlining project is costing us about \$40 million. (distribution facility)

- Our warehouse on Swan Island has room to expand vertically with higher racks. There is no more buildable space, but we have a 40-foot ceiling. (distribution facility)
- To expand we would need to acquire more land or do as Chevron did a few years ago, replacing some of their tanks with taller ones. (marine terminal)
- We may have to build an employee parking structure because of land constraints. (distribution facility)
- Multi-shift operations also offer opportunities for job growth. Our Swan Island facility is a 24-7 operation. Rivergate shuts down on weekends but has 3 shifts per day. (distribution facility)
- Multi-story industrial facilities aren't feasible in the U.S. because trucks are 50 feet long. It is only possible in Japan, where land is \$100 per square foot and trucks are smaller. (industrial developer)

E. Industrial sanctuaries are a local strength, but perceived to be at risk.

Large industrial sanctuaries are an unusual competitive advantage in Portland. They are also seen as being at long-term risk from gentrification.

- This is the only plant the company has [of 15 in the U.S.] that is in a protected industrial area. Many of our other plants around the country have been encroached upon by residential development. They'll never be able to expand, and they have frequent neighborhood meetings to work out issues with the residents. A protected industrial sanctuary is the biggest thing we've got going for us here. (manufacturer)
- There is a trend of converting industrial land into condominium complexes. Every step in this direction decreases the opportunities for industry in the Portland/Vancouver area. Twenty years from now, areas like St. Helens and Scappoose will be attractive to industry because those areas can be built up without running into land use conflicts. (property owner/ representative)
- Virtually all of Oregon's energy comes through this area. This infrastructure needs to be protected. It was built here, for better or worse. The decisions were made a long time ago. It won't be built elsewhere. I mean, we can't even site a black box generator anymore. (heavy manufacturer)

F. Residential encroachment impacts industry.

- The area is fairly well-buffered from neighborhoods, which is perceived to be a good thing, although there is more sensitivity now. (developer)
- Since this is not a residential area and is free from housing congestion, it allows us to operate 24/7. (distribution facility)
- People are concerned about living near heavy industrial uses, and the noise and odors that result. Anywhere you go in the world there are environmental regulations. But residential encroachment means heightened scrutiny: people call DEQ and complain, so it increases regulatory costs. We're required to do better than compliance because of where we exist, even though our nearest townhouse neighbors don't complain. (heavy manufacturer)
- Do not build condos near our rail lines. We are just going to be running more and more trains on them, and residents will complain. And we are not going to allow any new at-grade crossings. Instead, we are pushing to close crossings. (railroad)
- Those houses out that window are new. They are right next to our facility and right on level with my yard lights. We operate here 20 hours a day, running a day and a night shift. Right now they aren't complaining, but the residents will forget who was here first eventually. (marine terminal)

5. REVIEWS ARE MIXED ON REGULATIONS, FEES, AND TRAILS.

Businesses voiced concerns, both positive and negative, about regulations, fees, and trails in the harbor districts.

A. Permitting is easier, still a barrier to investment.

Permitting has noticeably improved, but it is still being cited as a barrier to investment by some businesses, but constrained sites can take much longer to prepare.

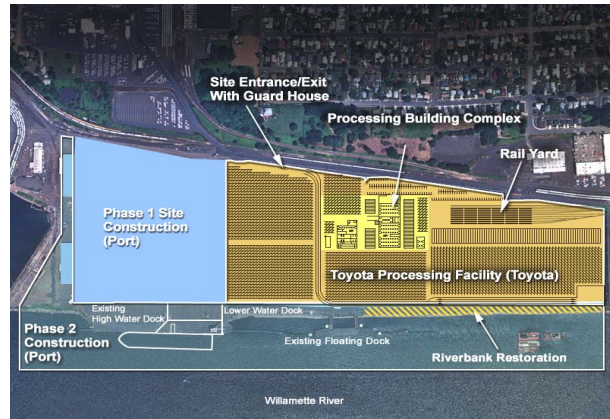
- *There are no noteworthy local regulatory issues that are barriers. The City has come a long way in helping us along the path. (industrial developer)*
- *Portland is no different than anywhere else when it comes to the time and red tape of development review and permitting. Is it good? No. However, since most of our clients are already from this area, they are accepting of the expense and the process. (industrial broker)*
- *We do the same permitting around the world, so we have a good benchmark of how long the permit process takes in different places. Five years ago, we moved a wall. It was a \$50,000 deal for which we needed a permit, and we got bounced from agency to agency. It took forever! It really shocked us. (heavy manufacturer)*
- *The City permit processing is tough, expensive and very demanding. When the \$50 million expansion we almost did was dropped, permitting was a big factor driving the bus. (marine terminal)*
- *When we did our dock work, we missed the first very short in-water work window, because the process was so delayed. (heavy manufacturer)*
- *In Kentucky, getting a permit was like night and day compared to Portland. We had the same engineers and the same builders, and they were on a tight timeline. They went down to the Building Department, and the government was more than helpful. If there was a red carpet, they would have rolled it out for us. It probably took an hour, and they said they could get us a permit by the end of the week. I asked about a review period and he said, "It's your liability to make sure it's built right." (distribution facility)*
- *Permitting is a challenge: cumbersome, expensive, set up to raise every possible impediment to expansion or siting a facility. The burden is on the business and you have to mitigate any impact. (industrial association)*

B. Restrictions that reduce developable land are especially burdensome here.

Land-intensive requirements for non-conforming landscaping, stormwater infiltration, balanced cut and fill, and setbacks are seen as burdensome, especially for facilities that need to be on the harbor and have no room to expand. However, voluntary guidelines have produced win-win results.

- *Land is at a premium so the 10 percent greenspace requirement is challenging. I like the look of the landscaping, but we're trying to utilize every bit of land that we have. We would rather be able to meet the requirement off-site—to build a park or something. (distribution facility)*
- *We take issue with the stormwater fees and the requirement for retention ponds on sites with limited area. We have to build retention ponds for everyone else's water while the land down near the river is at a premium. (heavy manufacturer)*

- *The balanced-cut-and-fill requirements on the mapped floodplain at this site are a huge impediment for development and for selling the property. Why should we have to create wetlands on valuable industrial land? (property owner/representative)*
- *Metro's Goal 5 is a frightening new development. Their Goal 5 map encompasses a lot of this area and is floating out there as another "cloud." (industrial developer)*
- *I think that our greenway improvements and process are a positive story. Toyota is trying to position itself to be a good citizen, so we were looking for something positive to do down here, and we weren't sure what would be the right thing. Former Mayor Katz wanted a restored riverbank and Commissioner Saltzman wanted to see a green roof on an industrial building. In the end everyone was happy and it was a win-win situation. The total cost was about \$2 million and we lost four acres of developable land. (marine terminal)*



Site plan for Toyota marine terminal expansion, completed in 2004.

C. Developers want help working through the uncertainties of constrained sites.

Development readiness of vacant sites is typically expected in 6-9 months.

- *I could build speculative developments on Highway 30, but I would need to spend less time figuring out how to make it work. PDC and DEQ should look into sites that are unavailable and spend some time figuring out how to make it easy for a developer to develop this land in a short time frame. They could get sites prepped and primed and deal with issues on the front end so that we could run with them. We know what we want to build now, but have no idea what the market will be like 2 years from now. We need to be able to work quickly. It shouldn't be that hard to work out these issues. (industrial developer)*
- *People typically won't wait longer than a year, but all sites have some constraints. Shoot for sites being shovel ready in 6-9 months. (industrial broker)*
- *Overcoming the uncertainties related to Superfund was a large hurdle in purchasing our site. We spent lots of time and energy doing our due diligence to understand the liability associated with it. ... A lot of legwork is required to figure out what can and can't be done at a site. (property owner/ representative)*

D. Stormwater fees are high.

Stormwater fees are cited as unusually high, perceived as a tax, and do not encourage good design.

- *We are battling wastewater and stormwater treatment issues—we are trying to find ways to conserve water and reduce costs. We even have an in-house Utilities Conservation Committee to work on it. We paid \$373,000 in sewer costs last year and \$290,000 in stormwater costs. We have to pay the stormwater management fee for impervious surface, and we can't do anything about it. It's like a tax because it has nothing to do with the amount of rain that falls and goes into the city system. That's a factor in attracting new business here to diversify our plant. We have to compete with other facilities to*

attract new business. Headquarters factors the costs in, and if the fees are too high, they will produce product on the East Coast and ship it to California rather than have us produce it. (manufacturer)

- *Our stormwater costs are extremely high. Some businesses are viewing these fees as a tax, because they are not tied to city services. Also, there's nothing you can do to eliminate or reduce the fee, such as by using pervious paving. (port)*
- *After all we did creating a 130-foot wide greenway with bioswales to filter runoff, we're still paying the same stormwater fee at our facility as the guy down the street who runs a pipe straight into the river. (marine terminal)*

E. Trails are employee amenity, heavy industrial liability.

Area trails are seen as an employee amenity by some businesses, and as a significant safety/security liability for heavy industry.

- *We do have the walking paths along the lakes. Our employees use them and enjoy them. Of course there are no sidewalks on Leadbetter. (distribution facility)*
- *There is very little recreation activity at the Swan Island parks after hours or on weekends. It might make sense to build a trail to improve access to these recreational areas and to the businesses. (industrial association)*
- *We are concerned about safety regarding trails through our facilities, because of the hazardous cargo that we handle. We love bike paths, but there is a place for them – not necessarily on industrial lands. It's dangerous to have people on our property – we've never allowed it. (marine terminal)*
- *Areas with heavy industrial activity should not be pressured to accommodate a walking trail. (industrial association)*

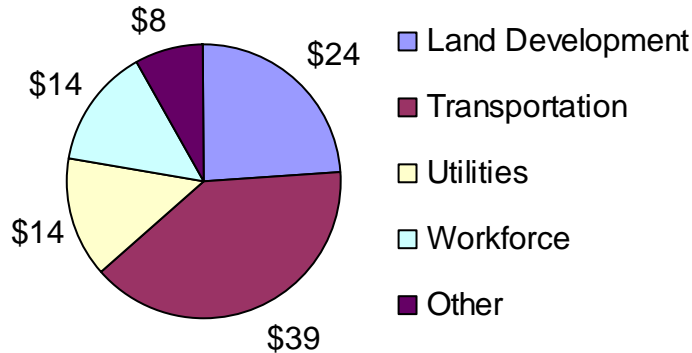
6. INDUSTRY'S PRIORITIES FOR PUBLIC INVESTMENTS HERE ARE IN TRANSPORTATION AND LAND.

Industry's priorities for public investments in these districts are in transportation and developable land, but as part of a broader strategy.

A. To benefit industry, spend about 39 percent of public investment on transportation and 24 percent on land supply.

Assuming a hypothetical budget of \$100 for local governments to spend on public investments in the harbor districts over ten years, we asked those interviewed to allocate it among five categories of investments, based on the goal of encouraging industrial retention, expansion, and development. Figure 4 shows, on average, how people responded.

Figure 4. Industry Priorities for Local Public Investments



		How would you spend \$100 of public funding				
		Land				
	Respondents	Development	Transportation	Utilities	Workforce	Other
Industrial Developers	4	44	38	15	4	1
Industrial Brokers	3	30	43	17	7	3
Industrial Associations	3	32	28	10	15	15
Property Owners	6	38	31	11	5	14
Marine Terminals & Ports	6	27	42	8	6	18
Railroads	4	24	65	4	1	6
Trucking & Warehousing	8	20	46	6	21	6
Manufacturing	14	11	30	27	28	4
Overall Average		24	39	14	14	8

B. Workforce and utilities are also important, especially for manufacturers.

The table in Figure 4 summarizes the range of responses, by the types of businesses or groups interviewed, to the question of priorities for public improvements. Manufacturers recommended spending 53 cents of the local public investment dollar on workforce and utilities, ranking them as higher priorities than any of the other business groups.

C. Hiring challenges are significant, but are already widely addressed.

Hiring low/mid-skilled industrial workers is a challenge for many growing firms and larger employers with retiring workers. Multiple public and private organizations are assisting businesses with hiring and training

challenges, including employment/training agencies, community colleges, schools, industry associations, immigrant organizations, and temporary services.

- *The people in between the unskilled workers and the college educated are a very small pool. It's hard to find those with a high school education and some technical skills. Getting people for creative jobs is not a challenge for us. Getting people for industrial jobs is the challenge. (human resources manager/representative)*
- *We're trying to hire right now and we're not getting applications. We wanted 300 applications and only got 200. Seventy five of those we invited didn't come to interviews. We pay \$20 per hour. (marine terminal)*
- *Workforce is a tough one. Getting qualified people here is hard. The workforce is aging and the schools aren't pumping workers out anymore. The kids have to figure out on their own that the field exists and get trained. There are temp agencies that specialize in welders or pipe fitters. Most of our workers are Asian. We are participating in Manufacturing 21, which is trying to site a new workforce training center. (heavy manufacturer)*
- *We usually use the International Refugee Center, which recruits and trains refugees and immigrants. We have a long history of using folks with limited English-speaking skills. Much of our original workforce was Vietnamese, Cambodian and Laotian, and now we have some second generation employees. These employees don't necessarily have low skills but they often have limited English. Our jobs don't require much communication. (manufacturer)*
- *We work a lot with the school system. The bulk of our part-time folks are recruited off of local college campuses. We have a school-to-work program for high school students—we even have a study room for them. We also have tuition reimbursement programs. (distribution facility)*
- *We have to train our workers ourselves anyway, so the workforce training programs don't help us. (railroad)*
- *Workforce is low on the list, not because it's unimportant, but because it has other sources of funding. There are lots of outside entities to help with this already. (property owner/representative)*
- *The education level of our shop and office workers is better in Portland than in many other places—in terms of basic math skills, for example. This is a good place to recruit people. Having a good quality of life helps too. (heavy manufacturer)*
- *We could use more amenities for employees in Rivergate. Things like daycare, restaurants, quick-stops, and better transit service. Daycare nearby would really help our workforce. (distribution facility)*

D. Need an overall seaport strategy.

Portland lacks a long-range competitive strategy as a mid-sized seaport.

- *One of my concerns is that there are lots of programs in place, many fingers in the pie, and no overriding strategy in place to pull it all together. So things are done piecemeal. (distribution facility)*
- *Portland is underutilized as a seaport. We have the transportation infrastructure, but it seems that population and market size are limiting. We should take some tips from Coors and Wendy's about how to thrive as the #3 player in the marketplace. That's our challenge. We need to refine and expand our market niche. (distribution facility)*
- *The Class I railroads don't want to be interrupted—they just want to hook and go. That's their business model. We need a different model for rail in this region. (heavy manufacturer)*
- *Some thought has to be put into a land bank for future river-dependent needs and expansion. (industrial association)*

E. Where will the money come from?

Where will the money come from for additional public investments?

- *The transportation needs far exceed what is budgeted. The system is not failing yet, but it will not support projected demands in the future. I don't want to see investment limited in the harbor area because of a constrained transportation system. (industrial association)*
- *Where do we find the money to do all this stuff without increasing taxes? (distribution facility)*
- *Would the freight community support tolls as a funding source for major improvements? There is some support for toll bridges, but the devil is in the details. What will it include? Freight is willing to pay its fair share in order to get through faster, but we don't want to pay for the commuters. (heavy manufacturer)*
- *Raising gas taxes is a sore issue because the trucking community has been split on it. Business isn't necessarily opposed to an increase. We need to get to the natural threshold levels. There are efforts to find alternative funding besides the gas tax. (heavy manufacturer)*

NEXT STEPS

Following these interviews, the next three phases of the Working Harbor Reinvestment Strategy will analyze and propose investments to respond to the priority issues identified by harbor area businesses.

Conditions, Opportunities and Constraints Analysis – Forecast harbor area growth. Assess infrastructure needs, focusing on district capacity, vacant site development needs, and catalyst projects. Analyze 10-year land absorption supply and development feasibility. Assess other business priorities for public investments.

Opportunity Sites Portfolio – In coordination with the integrated site design task of the River Plan, identify permissible prototype designs and review pathways and available assistance. Publish a harborwide portfolio of vacant and redevelopable sites.

Reinvestment Strategy – Develop a funding strategy, project selection criteria, and a 10-year capital improvements program for the harbor area. Recommend assistance resources to fill gaps. Recommend ongoing mechanisms to coordinate public investment planning that fosters economic development.

APPENDIX 1: INTERVIEW PARTICIPANTS

This appendix summarizes the range of interview and focus group participants.

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1. INTERVIEW PARTICIPANTS

The business descriptions in Section 1 relate how participants described the businesses in the interviews, including their operations in the harbor area, company history, number of employees, and similar information.

MARINE TERMINALS / PORTS

Columbia Grain

Columbia Grain is a grain exporter, handling mostly wheat through T-5 in Portland and 40 other grain elevator facilities in the western U.S. Our headquarters is in Portland. Columbia Grain handles 14 percent of the U.S. market share of wheat exports. The T-5 operation handled 3.5 million tons of grain last year, unloading 25,000 rail cars and 350 barges, and loading 120 ocean-going vessels. The business is somewhat seasonal with peak periods following August harvests and extending through March. Columbia Grain has 10 employees working at the Portland office and facility, plus 20 ILW dock workers.

KinderMorgan

Kinder Morgan Energy Partners, LLC, is a leading North American energy transportation and distribution company based in Houston, Texas. Kinder Morgan has approximately 40,000 miles of natural gas and petroleum transportation pipelines, 1.1 million natural gas distribution customers, and 150 terminals spanning the United States and beyond. In Portland, Kinder Morgan has dry bulk terminal, petroleum terminal, and pipeline operations. The company purchased their two Portland petroleum terminals as part of a stock purchase in 2001, buying out GATX Terminals. The larger terminal is located next to the Metro dump in Willbridge, and the smaller one is located north of Linnton. Kinder Morgan's terminals have approximately 30 percent of the total 210 million gallon capacity of the 9 terminals in the Willbridge energy cluster. Kinder Morgan also has a 114-mile pipeline that runs from Willbridge to Eugene, with 8 gathering lines from the terminals.

Port of Portland

The Port of Portland operates four marine terminals on Portland Harbor, leases other industrial land in the harbor districts, and implements dredging, rail, and road improvement projects in the harbor districts.

Port of Vancouver

The Port of Vancouver, USA has 600 acres of developed marine terminals and industrial property. We have a 3-member board of commissioners that are elected by the residents in our tax district, which consists of 300,000 people. All ports in Oregon, except Portland and Coos Bay, are also elected. Bulk products are the primary cargo type handled at the Port. Our main export is wheat. We have the largest wheat terminal on the Columbia River, and probably on the West Coast. We also have a large malting facility. Bulk mineral terminals here export copper concentrate and bentonite clay. Valero operates a liquid bulk terminal for petroleum imports. We handle a variety of break bulk cargo (products that don't go in containers) - steel, pulp, lumber, coils, pipe, etc. And Subaru operates a large auto import terminal. Combined with the Port of Portland, we are the largest auto importer on the West Coast. In addition to marine terminals, we also lease industrial space north of the railroad tracks, for example to Panasonic, Boise Cascade, and Glacier NW.

Panasonic here operates one of the last manufacturer plants for television sets in the U.S. The Port of Vancouver is located directly across the Columbia River from Portland Harbor

Toyota

Toyota operates an auto-import terminal on 102 acres at T-4. We service the Pacific Northwest and Midwest markets from this facility. We unload a vessel every 2-3 days with about 1,500 cars. We also install post-production options onto the cars at this facility, such as security systems, audio upgrades and drop hitches. We experiment with certain add-ons and accessories to customize a car and then, if it catches on, they'll take on the engineering at the plant. Accessorization accounts for 75 percent of our employees. We currently employ 177 production associates and 23 salaried employees. Additionally, we are the source of 25 fulltime longshore jobs.

R A I L R O A D S

Union Pacific

Union Pacific Railroad is the largest railroad in North America, with over 32,000 route miles covering 23 states across two-thirds of the United States. The railroad has almost 50,000 employees and an annual budget of \$3.3 billion. In Oregon, the railroad has over 1,000 route miles of track and over 1,800 employees. The Union Pacific operates a line from the east that follows the Columbia River as it enters Portland, as well as routes south into California, including one along I-5 that originates in Portland.

Burlington Northern Santa Fe

The Pacific Northwest—which includes Vancouver B.C., Seattle, Everett, Pasco, Spokane, and Portland—is the biggest division of our railroad, in large part because the ports are here. We have approximately 600 employees in Portland/Vancouver. Four significant components of our operations intersect here. (1) This area is an important industrial complex, including the ports and the interchange with the other railroads. (2) There are lines here that run north to British Columbia, south through the Willamette Valley, and east for our line haul operations. (3) We have a major intermodal presence. (4) And heavy bulk traffic coming by unit trains is exported from here – grain, potash, clay (going from Wyoming to India and China), and copper (from Utah to China).

We operate several yards in this area. Vancouver Yard is our biggest. Auto freight is handled at our yard at T-6 as well as in Vancouver. Hyundai and Honda are large customers. Our domestic Intermodal Hub Center is in NW Portland (west of Lake Yard). We also use intermodal facilities at T-6, which the Port operates. We run two intermodal trains (two inbound and two outbound) per day between Portland and Chicago. Our biggest intermodal customers are UPS and Hunt. We also have Portland Yard, which is the old Willbridge Yard and Lake Yard, which is jointly owned with Union Pacific. What we call Willbridge today is on the west side of Highway 30. We carry a lot of lumber products from transload activity and mostly from interchange traffic with the short lines, such as the Portland and Western line out to Astoria and the Puget Sound Pacific line to Centralia.

Portland and Western

Portland & Western Railroad (P&W) is a wholly owned subsidiary of Genesee & Wyoming Inc. P&W is a short line railroad that operates a 520-mile regional system serving 135 customers in Northwest Oregon. We are located in Salem. We are the retail arm of the railroad, and we provide flexible, responsive rail transportation service to the Portland metropolitan area, the Willamette Valley, coastal Toledo, and the Port

of Astoria. We take cars from small shippers, consolidate and sort them, then hand them over to Burlington Northern Santa Fe (BNSF) and Union Pacific (UP), who treat them as unit trains, not as small individual companies. About half of our line is leased from UP.

TRUCKING AND WAREHOUSING

Columbia Sportswear

Columbia Sportswear started in 1938. Today it is one of the world's largest outerwear brands and has other product lines in sportswear, footwear, and accessories. We have two U.S. distribution centers, this facility in Rivergate and one in Kentucky. We also have distribution centers in France, Canada, Korea and Japan. The rest of the world market is handled through external distribution networks. Our products are shipped via container from factories in about 40 different countries. Most of our product handled at this facility comes through the port in Seattle or sometimes through the Port of Portland. The product at the Kentucky facility comes through either the Seattle or Long Beach ports—which one might depend on whether mudslides wash out the rail lines in the Northwest, or if Long Beach unions are on strike. If we ship direct to the retailer, the containers are broken down in Long Beach and the cases are sent directly to our customers' distribution centers—instead of going through our facility here. Our big customers are the larger retailers, like REI, Kohl's, Cabela's and Gart. We ship cases, not pallets. We peak out at well over 500 permanent and temporary workers at this facility.

Harris Transportation

Harris is a bulk petroleum hauler – this is our only cargo. We get product from all the Portland terminals and sometimes the fuel terminal in Vancouver. Our customer base is fuel retailers (e.g., Shell, Albertsons, Safeway) and ultimately the general public. We don't need to sell our product, it's a commodity that everyone needs. We are the #1 carrier in the Pacific Northwest and serve the Seattle, Portland, and Washington areas. We also just opened an office in Phoenix. We are dependent on the refineries and the pipeline here, as well as the terminals in Washington. Harris has been in business since 1929. For many years we were also involved in the distribution of petroleum, but the transportation part of the business spun off in 1991, and is now Harris Transportation. In 1991, Harris Transportation only consisted of 4 trucks; we now have 95. We brand some of our tankers, so the Shell and Safeway tankers you see may be ours too. Harris Transportation employs 200 people company-wide at 8 terminals in Washington, Oregon and Arizona, including 85 in Portland. About 175 of the employees are drivers.

Oregon Transfer

Oregon Transfer is a regional grocery distribution business. We deliver to Seattle, Spokane, and sometimes Northern California. The company was founded in 1868 as Portland Hack & Dray Co. by some famous Portlanders, including Corbett, Failing and Ladd. It is one of the oldest firms in the state—there are only six or seven firms as old as we are. The Radio Cab building in NW Portland was our old barn where we kept horses and wagons. One of our old warehouses was at NW 12th and Glisan. In 1925, Marcile Cowlin purchased the company. She sat on the Board and was a very instrumental force behind company—a matriarch and spiritual leader. She just died two years ago at age 102. The stock is still held in her family. Today we have about 125 employees and a fleet of 20 power units. We have roughly a 500,000 sq. ft. warehouse facility in Rivergate, 150,000 sq. ft. at Swan Island, and 350,000 sq. ft. in Milwaukie. We had a building in Guilds Lake that we sold only a few years ago.

UPS

The UPS facility on Swan Island is the regional hub for 200 miles in each direction. Portland is the hub location for Oregon and Washington. We are also a consolidation point, meaning that partial loads in Seattle, for example, are consolidated here. We started with one building here in 1970 and now own four sites on Swan Island. The main building, called the “Hub,” is a sorting facility for packages. This is technically a small package facility (up to 150 pounds)--bigger packages are handled in the freight division. We deliver the whole gamut of freight—including things like refrigerated fruit. We say “No live animals” but we find them sometimes. Also, we work with the police because people sometimes try to send drugs. We have a large part-time workforce. We employ four shifts with 400 people each, 200 package drivers, 200 tractor-trailer drivers, plus operations and administrative staff. Our drivers go out and back 200 miles in a day. On longer hauls, drivers change every 200 miles. In the last few years we’ve started some long haul, mostly with our air product—it goes on the ground if it’s close enough.

MANUFACTURING

Heavy manufacturing

ESCO

Founded in 1913 in Portland, ESCO Corp. now has 35 plants and businesses around the world. The world headquarters remain in Portland. ESCO has 3,800 people worldwide. The Portland facility employs 800 to 900 people, half shop workers and half office workers. The company is privately held. ESCO primarily manufactures equipment for the mining, construction, and mineral processing industries. We also make jet turbines for the aerospace industry and engineered metals. ESCO’s plants span six continents. Virtually all of the company’s production is for export.

Owens Corning

Owens Corning makes roofing products. We sell to distributors, not to the public directly. We ship 100 tons a year from Portland to customers in places like Montana and Northern California. Our facility in Linnton manufactures pure (not sticky) asphalt products. At our Yeon Avenue facility, we take that asphalt and combine it with other materials to make roofing products. We operate 24 hours a day, 7 days a week. We employ 85 people at this facility (Yeon), and 15 more in Linnton. This facility was built in 1937, and we acquired it in 1977. Owens Corning has 15 roofing plants in the U.S. The only other one on the West Coast is in Los Angeles.

Oregon Steel

Oregon Steel produces plate and coil steel from semi-finished steel slabs. We are the only steel plate producer on the West Coast. We have five components to our operations in Rivergate. (1) We operate a rolling mill, which supplies steel plate and coil to our customers and our other operations. (2) We own a joint venture with Feralloy (“Oregon Feralloy Partners”) called the Cut-to-Length Facility. The Cut-to-Length Facility makes strip cut plate out of our coil. (3) Columbia Structural Tubing (CST), one of our subsidiaries, is located on Harborsgate Blvd. – they make tubing out of our coil. CST leases their manufacturing equipment, but they own the land and building. In contrast to pipe, which is built to specifications, tubing is stock-based. (4) Our new spiral pipe mill under construction will make large diameter pipe used in oil and gas pipelines. Bredero Shaw (a ShawCor Company), an unreated entity, will have a coating facility here to coat the pipe. This facility will house their equipment in our building on our land. (5) We also operate a heat

treating facility on Columbia Blvd. that tempers our plate product and produces abrasion resistant grades for our customers.

From the 1940s to the 1970s we were located at Front Avenue. We bought our 153-acre site in Rivergate from the Port of Portland in the 1960s, and the mill became operational there in the early 1970s. We revamped the current mill in the 1990s. We currently have 500 employees here in our Rivergate facilities. The pipe mill will add 100 people - we will have three crews and operate 24-7 here. In addition to our headquarters and base of operations in Portland, we have a pipe facility in Alberta, Canada and another mill in Pueblo, Colorado. We are a publicly-traded firm – “OS” on the New York Stock Exchange.

Schnitzer Steel

Schnitzer Steel is headquartered in Portland. It is 100 years old this year. It represents the classic success story: a local immigrant starting a business carrying scrap on his back, then buying a cart, and eventually growing into a global company. In Portland, we have 150 employees at the yard and another 60-65 people at our corporate office. Globally we have about 1,500 employees. Schnitzer has four business lines. 1) Scrap metal recycling. We have 50 facilities associated with six marine deep draft terminals on the East and West coasts of the U.S. working in the collection, processing, and recycling of scrap metal. There has been a slight tilt toward the export side over the last few years to Europe, Mexico, and Asia. We are one of the largest U.S. scrap exporters. There are approximately 200 large-scale shredders nationally, and 8 of those belong to Schnitzer. We also broker scrap out of Russia and the Ukraine. 2) Steel manufacturing. Our steel mill in McMinnville produces concrete reinforcing bar, wire rod, steel rod, pipe, etc. 3) Used auto parts, similar to U-Pull-Its. We have fifty stores all over the U.S., both self service and full service. It's a growing business, which not only stands on its own but also feeds the shredders. 4) Various other ventures, including rail pickup and abandonment.

Vigor Industrial / Cascade General

Vigor Industrial is a new company with diversifying business lines in ship repair, related heavy construction, industrial painting, and wastewater processing. Cascade General, which operated the ship repair facility on Swan Island since the 1970s, recently became part of Vigor, a parent firm that also operates ship repair facilities in Washington. Sixty percent of our ship repair work is now done at Port Angeles. Vigor owns the 60-acre Portland Shipyard site, which includes repair berths, dry docks, and 550,000 square feet of craft shops. We also do a lot of tenant services. Fabricators use our overhead cranes and large covered storage spaces. For example, Harris Thermals is building tanks on the site to store and transport Hanford wastes.

General manufacturing

Bay Valley Foods

Bay Valley is a new company. Until 1999 we were Steinfelds, which was then bought out by Dean Foods. Last June, Dean spun specialty foods off as separate firm called Treehouse Foods, and Bay Valley is a division of that. There are 11 Bay Valley plants around country, with our headquarters in Green Bay, Wisconsin. We have \$700 million in annual sales nationally. We are the largest maker of non-dairy creamers in the United States. We have six pickle plants. Steinfelds, Nalleys, and Farmans are the pickle brands made at our plant here in Portland. They are our most branded products. Mostly Bay Valley makes supermarket brands—our name is behind-the-scenes. We have 120 full time employees here, though our seasonal employment increases to 160 in the summer. During the 10 weeks of the cucumber harvest (mid July to mid September) we ramp up to 24-hour operations. Normally we just have one 10-hour shift.

Rejuvenation

Rejuvenation manufactures and sells period-style lighting and other hardware and household items. Many Portlanders know the retail end of our operations, but don't know what we really do. We are a light manufacturing business. Rejuvenation was started in 1977 as a store in North Portland at Skidmore and Mississippi. In 1980 we started building period-style lighting. In 1992 we bought the retail building on Grand Avenue and did manufacturing above the retail space. We bought this building on NW Nicolai in 1999 and moved our assembly, distribution, and office operations here. This is an 87,000 square foot building. We now have 250 employees, mostly in Portland, but about 20 people in Seattle.

PROPERTY OWNERS / REPRESENTATIVES

Advanced American Diving Service, Inc.

Advanced American Diving is listed as a property owner because they recently located onto a brownfield site on Portland Harbor and thus offer particular insight on brownfield redevelopment.

Advanced American Diving Service, Inc. has been in business for 22 years, headquartered in Oregon City since 1989. Fifteen years ago, they evolved into a heavy marine industrial general civil contractor, working on docks, dams, marinas, and other projects on or near the water. They do modifications of dams for fish passage for the Army Corps of Engineers, which is a big client. The COE has projects in the Columbia and Snake River systems. This company also worked on the East Bank Esplanade for the Portland Development Commission and City of Portland, handling outfalls, pipe crossings, and heavy civil construction on or near the water. They do a lot of work at the Port of Vancouver too.

OpCon

Since 1988 I've worked as a consulting engineer with a diverse group of businesses, not necessarily on all harbor or river-related projects. I now have a small industrial construction company, OpCon. My background is in industrial engineering and construction. I also worked at the Port of Vancouver for several years.

PDC Business Retention and Expansion Team

The Business Retention and Expansion Team works in the Economic Development Section of the Portland Development Commission. They meet regularly with businesses to assist on expansion, development, and retention issues. They also work as liaison's with target industries, including metals and transportation equipment manufacturing, distribution and logistics, and high tech manufacturing.

Time Oil

Time Oil owns a 50-acre vacant property on Portland Harbor. It is on Time Oil Road in Rivergate. Time Oil ended its operations there in September 2001. We also had another harbor property, the Linnton terminal, along the Olympic Pipeline, but that was sold to Shore Terminals in 1999.

INDUSTRIAL ASSOCIATIONS

Lower Albina Council (Glacier Northwest representative)

Glacier Northwest is a regional producer of cement, sand, gravel, rock, and building materials. Our cement importing and regional distribution facility is in Lower Albina, our sand yard is in Linnton, and our concrete batch plant and aggregate yard is in Guild's Lake. We need to be located on the harbor for ship, barge, rail, and truck access. A central location is also important to us for serving the regional construction market.

Northwest Industrial Neighborhood Association (Madden Fabrication representative)

Madden Fabricators is a metal fabrication shop in Guild's Lake. We are a job shop, so we produce diverse products according to a customer's request. For example, we repair parts for Gunderson booms and Corps of Engineers dredges. We supplied materials for the St. John's Bridge project. The Pearl District has been a boon for our business, supplying ornamental handrails and other features for new construction.

Swan Island Business Association (Freightliner representative)

Freightliner is the largest heavy-duty truck manufacturer in North America and a leading producer of medium-duty trucks and specialized commercial vehicles. Its North American headquarters, design facility, and a truck plant are located on Swan Island. We have chosen to be located in Swan Island because it is the best location for our employees.

INDUSTRIAL BROKERS

GVA Kidder Matthews

Norris, Beggs & Simpson

Shafer Realty

Capacity Commercial

INDUSTRIAL DEVELOPERS

ProLogis

Wells Development

Capstone Partners

Pac Trust

HUMAN RESOURCE MANAGERS / WORKFORCE DEVELOPMENT REPRESENTATIVES

Manufacturing 21 Coalition

Roadway Express, HR Manager

Oregon Employment Department

Worksystems, Inc.

Siltronic, HR Director

2. INTERVIEW QUESTIONS

This section specifies how the interviews questions varied slightly between groups, mainly in that question 1 on investment opportunities asked business representatives about expansion plans and property representatives about site development plans. Also, question 4 was posed differently to human resource managers/representatives, since they specifically represent workforce objectives and not the other categories.

Businesses

1. What are the main opportunities you see for reinvestment and expansion by your business within the Portland Harbor industrial districts over the next 10 years?
2. What harbor area challenges or barriers are significant enough to prevent reinvestment or expansion or to consider relocation? Please share specific experiences as well as perceptions of the harbor area.
3. What are the primary advantages of the harbor area as an industrial location that should be reinforced?
- 4a. Assume that local governments have a hypothetical budget of \$100 to spend on the following types of public investments in the harbor industrial districts over ten years. If the priority is to encourage industrial retention, expansion, and development, how much should be spent on each type and why?
 - \$ _____ land development (e.g., urban renewal, marine terminals,
 - \$ _____ brownfield cleanup/redevelopment);
 - \$ _____ transportation (e.g., streets, highways, railroad);
 - \$ _____ utilities (e.g., sewer, stormwater, water);
 - \$ _____ workforce (e.g., education, training);
 - \$ _____ others. Please specify _____.
- 4b. What three specific projects from these categories do you think would be most effective catalysts for private industrial investment in these districts?
5. Do you have other experiences or suggestions to add that could help set priorities for public investments or actions in the harbor area?

Property owners / developers / brokers

1. What are the main opportunities you see for development and redevelopment on your site and in the Portland Harbor industrial districts over the next ten years? For example, types of new facilities, building reuse, locations, new space to rent or sell, speculative or build-to-suit construction.

2. What harbor area challenges or barriers are significant enough to prevent development and redevelopment? Please share specific experiences as well as perceptions of the harbor area.
3. What are the primary advantages of the harbor area as an industrial location that should be reinforced?
- 4a. Assume that local governments have a hypothetical budget of \$100 to spend on the following types of public investments in the harbor industrial districts over ten years. If the priority is to encourage industrial retention, expansion, and development, how much should be spent on each type and why?
 - \$_____ land development (e.g., urban renewal, marine terminals,
 - \$_____ brownfield cleanup/redevelopment);
 - \$_____ transportation (e.g., streets, highways, railroad);
 - \$_____ utilities (e.g., sewer, stormwater, water);
 - \$_____ workforce (e.g., education, training);
 - \$_____ others. Please specify _____.
- 4b. What three specific projects from these categories do you think would be most effective catalysts for private industrial investment in these districts?
5. Do you have other experiences or suggestions to add that could help set priorities for public investments or actions in the harbor area?

Human resource managers / representatives

1. How much employment expansion and turnover do you expect in your business within the Portland Harbor industrial districts over the next 10 years? What types of positions will be most effected?
2. What types of hiring challenges for industry in the region and specifically inner Portland are significant enough to prevent expansion or prompt a business to consider relocation? Please share specific experiences as well as perceptions of the area labor market.
3. What are the primary advantages of the harbor area as an industrial workforce location that should be reinforced?
4. What new workforce development resources or related public investments in the harbor districts do you think are the highest priority to stimulate private industrial retention, reinvestment, and expansion?
5. Do you have other experiences or suggestions to add that could help set priorities for public investments or actions in the harbor area?

APPENDIX 2: INTERVIEW RESPONSES

This appendix is a comprehensive account of the responses we heard from each interview and focus group participant. The responses are grouped first by question and then by topic.

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QUESTION 1: OPPORTUNITIES FOR EXPANSION AND REINVESTMENT

What are the main opportunities you see for reinvestment and expansion by your business within the Portland Harbor industrial districts over the next 10 years?

HARBOR AREA GROWTH OUTLOOK

Predominant regional demand is for close-in land for expansion and relocation

Chicago and Sacramento are going to have many more available sites than Portland, and they are less expensive. But we're not Chicago - there is a unique market here. People here expect to be close-in and don't want cheaper sites that are far away. (industrial broker)

Ninety percent of the regional market for industrial land is for relocation and expansion. Most growth is coming from existing businesses, not new businesses. (industrial broker)

I've been involved in recruitment over the past few years. We didn't used to get a lot of different types of requests. In years past most of the new developments were distribution companies. Now, we get many different kinds of requests—the projects are much more diverse. We get lots of light industrial prospects. (property owner / representative)

Outlook by district

Lower Albina is built out. There is essentially no vacant land, only redevelopment opportunities. This is an advantageous location for river-dependent industries. We need to be located here for river access. Cargil, Dreyfus, K.F. Jacobson, and Ash Grove also take advantage of river access here. The river depth is good in our part of the harbor, and we have rail and are close to I-5 and I-84. All of these factors create a synergy for the district. (industrial association)

Swan Island has high levels of occupancy. There are approximately 200 businesses on the island. Most are not river-related, and growth has been primarily in companies that are not river-related, like UPS and Freightliner. Cascade General is a big player, though activity there has slowed down recently. They have diversified and are now doing much less river-related activity. For example, they are now cleaning tanker rail cars. UPS would like to continue growing on Swan Island—it is a good location for them—but they are challenged to find the room they need for expansion. We hear about demand for flex space and occasional stories about conversion of warehouse space in this area, but that has not been common. (industrial association)

Five years ago, there was no vacancy in the Northwest district. Now there is some vacancy, but not much. (industrial broker)

We see a lot of movement in terms of real estate within Guild's Lake. People are buying and selling and moving now. Things are picking up in the steel, construction and manufacturing industries. We see real estate signs pop up and go down frequently. (industrial association)

We have seen activity in Lower Guild's Lake recently because of building vacancy. (property owner / representative)

A galvanizing business recently left the Pearl and is now located near St. Helens and Vaughn, just inside the Guild's Lake area. A small sheet metal shop recently moved two blocks from Thurman to Vaughn to resolve parking and other location issues. I like to see companies staying in this area and moving into a bigger space within the district, rather than moving out of the area. (industrial association)

We used to hear about businesses that are moving outside of Portland because they are fed up with high taxes or timeline concerns. We don't hear this anymore. (industrial broker)

OUTLOOK BY SECTOR

Trucking and warehousing

Distribution facilities are the primary type of development occurring in Rivergate because of its access to the freeway, rail, and harbor. We expect that to continue. (marine terminal / port)

We moved into our Rivergate distribution facility in 1994. At that time, the building was 150,000 square feet. A year later we built Phase 2, adding 150,000 square feet. We thought then that the 300,000 square foot facility would last us 10 years, but four years later we added another 300,000 square feet (Phase 3 in 1999). In 2004, we added another 250,000 square feet to this facility (Phase 4). In 2005, we opened another distribution center in Kentucky. We moved some of our operations there. It is a different type of operation than here in Portland. (trucking / warehousing)

In 2004, we completed a new 500,000 sq. ft. facility in Rivergate. It has some excess capacity to grow into, which is nice. (trucking / warehousing)

We would like to substantially increase the capacity of our facility. We're currently conducting a feasibility study to see what can be done and how much it will cost. It's probably a 3-year project. We're trying to do it with the land we now have, but we may need more space for office, parking, etc. We just bought three buildings that make up the Swan Island Commerce Center. (trucking / warehousing)

We're a medium- to high-growth company in a low-growth market. Our plan is to grow 10 percent per year, which we've been doing. The increasing demand for our services will come from the population growth and the increasing diversity of product demand. We expect continued employee growth over the next 10 years. (trucking / warehousing)

From the 1920s to the 1960s, Oregon Transfer did everything having to do with transportation. In the late 1950s and 60s our firm was brought into the modern era. We began to focus on warehouse operations in the grocery products distribution business, which is where we still are today. Our warehouses are all food grade. The shift occurred with the grocery businesses migrating out of downtown in the 1960's, and since we were in the grocery business, we left too. (trucking / warehousing)

In the late 1980s and early 1990s, we began to lose business to the Bay Area as a result of trucking deregulation. Before deregulation, the major manufacturers had four west coast hubs; afterwards, deregulation made trucking cheap and led to consolidation. Firms then could have one distribution center serving 11 western states. People say you can cover entire United States with five warehouses – in the Northeast, Dallas, Atlanta, Chicago, and somewhere in California. This model worked well for a long time, but is now starting to change. Today, people are dealing with high fuel prices, increasing transportation

congestion, less availability of drivers, restricted hours of operations, etc, and they're saying that local distribution centers make sense again. You can't get products from San Francisco to Portland in a day anymore because of traffic. Firms are also moving out of San Francisco because of land prices, traffic, unions, etc. So we're talking to local firms again, and we're excited about that. (trucking / warehousing)

Big box retailers take a different view. They are moving towards big distribution centers on cheap land in rural locations on the Interstate highways. Wal-Mart's distribution facility in Hermiston is very functional, even though it's not near a population center. These firms don't need the city at all anymore. (trucking / warehousing)

For-hire distribution firms like us have room to expand. Here in Oregon we can take advantage of the state's looser weight and length laws on trucks. We can build bigger beverage loads on 53-foot long trucks and use fewer trucks. Oregon, Washington, Idaho, and Minnesota all have less strict weight and length laws. California's laws are very strict. (trucking / warehousing)

Last year our sportswear surpassed our outerwear sales, and it is now our biggest division. (trucking / warehousing)

Marine terminals

Bulk exports

Our bulk terminals at T-4 and T-5, which handle 8.5 million tons of cargo per year, all have growth plans over the next 10 years. Two of our bulk terminals need additional dock space to grow. We will also be expanding storage buildings there. We will be asking for a state goal exception to expand rail facilities at T-5. (marine terminal / port)

We are close to getting another tenant into the former Alcatel site at T-5, where an underwater cable manufacturer closed. The tenant expressed interest in using the dock, but it wasn't built for moving bulk material, so dock improvements may be needed. (marine terminal / port)

In terms of redevelopment, we want to get the vacant grain elevator at T-4 up and running. We are also buying (through condemnation) the former Marcom site south of T-4 to accommodate expansion of the Toyota auto facility. (marine terminal / port)

We are working to take advantage of opportunities for new fertilizer facilities that may trigger redevelopment. For example, we would like to be able to handle bulk fertilizer at T-2, so we are submitting plans to build dry, covered storage. (marine terminal / port)

Wheat in general is not a growth market. The region will export about 1 billion bushels of grain this year, which is the same as in the mid-1990s. However, our market share is growing. We have a pretty good business model and have made facility investments that competitors have not. Oregon farmers produce a lot of wheat and we handle 35-40 percent of it, as much as any of our competitors. (marine terminal / port)

We are considering \$5-30 million in investments at T-5 over the next 10 years, driven by bigger trains and the growth of our company's market share. We are looking at increasing our load-out speed and storage capacity. Ten years ago, the trains were only ½-mile long. Now, grain is delivered on mile-long unit trains with 110 cars each. There is a rapid turnover of inventory at the Portland facility. We have effective storage capacity of 75,000 tons and we export 3.5 million tons per year. We meet constantly to coordinate the train delivery schedule. If a train were to show up with the wrong kind of grain, we have no place to store it, and we would have to tell Burlington Northern that we can't take the train. I'm convinced we'll increase our storage capacity. (marine terminal / port)

Under the right circumstances we could significantly increase our capacity. We have some fairly sizeable projects we can do, which we have not done due to economic uncertainty. For example, eight years ago, we did a study on the possibility of a \$50 million expansion of our facility. This expansion was not done. (marine terminal / port)

Cargill would be a willing seller of the terminal they have downtown. The Dreyfus facility is antique—too small, slow, and does not have the ability to clean grain. Many vessel owners won't go to the Dreyfus facility. (marine terminal / port)

If the biggest grain company in the world can't make the vacant elevator at T-4 work, it is not likely that it would work for anyone else. (marine terminal / port)

Auto imports

We completed a \$40 million expansion project in 2004, which included this building, and we are already looking at expanding the building and land area. The facility was too small the day we opened it. It was built to handle 170,000 cars per year, but when we opened, we started at 220,000. We didn't forecast our growth rate correctly when we planned 7 years ago—we lost our lease on 40 acres of land in Long Beach, due to container expansion, which has driven the need for additional land here. (marine terminal / port)

We're now considering an additional \$12-15 million expansion. We recently expanded our 86-acre site, taking on a temporary, month-to-month lease on 16 acres adjacent to Lombard. We've striped that 16-acre lot, and we want it in our lease on a permanent basis. The former Marcom property is another possible expansion site. We're not counting on it, because we don't know when it will be available. We're interested in the 5 clean acres—they are in the right location for us. The ballpark figures for our expansion are \$7 million in land costs, \$12-15 million total. (marine terminal / port)

Our sales have increased every year since 1996 by an average 8-10 percent per year. Production grew by 10 ten percent in 2005 and we anticipate this continuing through 2008. Conservatively, the official numbers show us going flat in three years, but the trends have been steadily upward. We are currently receiving 12 ships per month, containing 1,200-1,600 cars per vessel, which averages out to 800 cars per day. This amount has increased significantly in the last year and will continue to increase. This year, we will process a ship every two days. In 2005 we moved 220,000 vehicles and we anticipate moving 250,000 this year and 270,000 in 2007. We intend to add at least 12 more production associates in March, and 6 or 8 more later this year. (marine terminal / port)

Toyota's model is for high-volume cars, like Corolla or Camry, to be built locally. For the North American market we want to maintain a ratio of 65 percent domestic production to 35 percent imports. But North American plants are running at 100 percent capacity, so we are currently at 60/40, and sometimes you see imported Corollas or Camrys. Also, pick-up trucks and the largest SUVs are only built in North America. Toyota has new plants in San Antonio, Texas and Ontario, California. We would like to hold the line at one million imports per year. Our focus at this facility is strictly on imports. Our other import terminals are in Long Beach, CA; Newark, NJ; and Jacksonville, FL. Adding post-production options at the import terminals is a growing trend. Scion lets people customize cars and we would like to expand this option to Toyota and Lexus. (marine terminal / port)

Containers

We are expanding our container terminal at T-6. We are also running out of auto storage space at T-6. We are going out to bid to pave another 40 acres there. We may need to change the tenant mix at T-6.

Vancouver is a natural place to move the autos. It's easier to move the autos than the containers. (marine terminal / port)

Port of Vancouver offers a release point for Portland, to some extent, as regional growth occurs. It makes sense for Portland to handle containers. On our side of the river the channel is not close to the shore, so we use have to use finger piers. This works well for autos and bulk conveyors—basically everything but containers and break bulk. So if container industry expansion leaves less room for autos in Portland, we'll provide a place for them, retaining jobs and businesses here in this region. Our two ports can and should be complementary and fit together well. In this way we will remain strong and viable as a region. (marine terminal / port)

I see growth in our community in a regional sense, because we have the rail and road crossroads, and a large workforce. Last year was the best we've ever had, and this year is going to be even better. Marine cargo will be increasing across Washington. Projections have Puget Sound container traffic doubling or even tripling in the coming years. (marine terminal / port)

The distribution centers in the suburbs are tied in to Portland's container operations. I pitch Portland's container operations all the time as a regional asset, but we're not as involved with distribution centers here. Seventy percent of our traffic is pass-through bulk cargo. So our roads aren't as clogged. We do a lot of marine and rail activity but don't rely on the roads as much for distribution. That could change in the future. Distribution uses may grow here. (marine terminal / port)

Railroads

Rail volume and employment growth

Are 3 percent growth projections for rail in the region realistic? No. Our annual volume rail traffic growth over the past few years has been in the double digits. In the future, we expect that the growth rate will be about 3 percent for bulks but higher for merchandise. (railroad)

We've been growing and hiring in every craft. We hired about 100 employees last year [in this district], half to replace retiring or departing employees, half due to growth. (railroad)

We can't play much of a role in long-haul moves, but have growth opportunity in taking advantage of short-haul business. From Eugene to Portland we've seen 8 percent growth this year. We've seen good growth in products not traditionally hauled by railroad. Our biggest increase recently has been in sawlogs from St. Helens headed to southern Oregon lumber mills along the I-5 corridor. These products used to only be shipped by trucks, but we are offering good rates. The old adage that rail is not able to compete in anything under 500-mile trips is changing. The short lines are able to do shorter trips, and the Class 1's are concentrating on even longer trips. (railroad)

Changing Class 1 rail business model

From our perspective, the main challenge is the limited capacity of Class 1 railroads and their shift in strategy to focus on revenue quality rather than getting new business or working with short lines. Over the last 10 years, we've seen a shift in the attitude and willingness of the Class 1 railroads to explore new opportunities, because they're at capacity. (railroad)

BNSF and UP are not looking for new business in the current economic market. In fact, they have been raising their rates to the point that it doesn't make economic sense for small companies to use them. The larger railroads don't want to deal with low-volume clients. A small company in Linnton is better off and has more opportunity for using rail services than a company at T-4 that has to deal directly with UP and BNSF.

We've had success in bulks because of the high volume. Bulk facilities can take a 110-car train, and they have room to store the train. They build their facilities to account for this type of space. We don't have space at our yards to store a 100-car train. Merchandise trains have to be smaller, so that we can sort the cars without having to build more track. The capacity issue is really big for us. It's important that we have room to put the trains when they're unloaded. We don't like to park trains on the main line because this causes all kinds of delays. The most crucial thing is to make sure the rail network around us stays fluid. We don't make money when traffic and equipment sits. For whoever gets business, capacity will help get cars there earlier. (railroad)

Manifest business is our priority. Burlington Northern Santa Fe is moving to mega centers. Sixty percent of their business is intermodal. They have a streamlined operation. Union Pacific, on the other hand, is a manifest railroad. We serve customers at both ends, and have more customers in general. This is expensive and there are more overhead costs. (railroad)

Rail investments

Our current capital projects in the Portland area include new rails and ties to maintain track structure, a UP/Port project to expand capacity at the Toyota site, and double tracking at the Hemlock Siding (185th). (railroad)

We are working to add capacity at Albina. Some trains go directly to the Portland Terminal Lake Yard. It is jointly owned by Burlington Northern Santa Fe and Union Pacific, building trains and doing work for both companies. (railroad)

Columbia Grain is adding 3 new lines of rail trackage on their site and can now handle 30 percent more freight. We would like to expand their capacity to add 7 or 8 new lines. Glacier NW may need to tear down buildings to handle more rail cars. Canpotex is also expanding rail trackage on their site. A project at Toyota is planned to add 2,000 feet of new track. (railroad)

The Washington Department of Transportation is funding the Vancouver Yard bypass, a new rail line around the yard. The project also includes a major street overpass. (marine terminal / port)

The Port is building a new rail line between the Rail Bridge and I-5 to access our terminals from the east. It will be routed around the Boise Cascade site, where mixed-use development is expected. The new line will eliminate many at-grade traffic crossings. (marine terminal / port)

Expanding markets for rail

Any company doing imports that needs rail access will also need water access. This is a strategic marketing opportunity for the harbor. Products like minerals, cement, tires and copper concentrate are a big import market now. Wind turbines need to be imported on ships. There is a big demand for expanding imports. (railroad)

Many cities don't have a good method for transporting waste and garbage. An intermodal facility would aid in the problem. Portland should look into that. (railroad)

We would like to gain access to more of UP and BNSF's lines to play a short-haul role. There are businesses that need short-haul accessibility that big railroads are walking away from, which strongly affects the economics of those companies. For example, the Cascade Steel Mill in McMinnville currently gets 30-60 carloads per month of scrap metal from Schnitzer near T-4. UP takes these scrap loads to the Brooklyn yard and we take it from there. We are under pressure to take over these loads because they are short haul

and UP doesn't want to participate. Cascade has trucks that they could use, but they want to retain rail use. We are working with UP to absorb their problems, such as not being able to get close enough to the terminal. We want to isolate UP from activity at T-4, and get greater access to these areas because our cost structure is very different than UP's, and we can do these short hauls much more cheaply. (railroad)

New barge or ocean transloading facilities to rail are being considered in St. Helens, and the Linnton property would be a great opportunity for similar development. A considerable amount of lumber, steel and paper products are transferred cross-dock between rail and barge. Mobil and BP get ethanol and other bulk stock petroleum products that could be received by rail. (railroad)

Manufacturing

Metals and equipment

We're building a pipe mill that will be operational in mid-2006. We exited the pipe business in Napa and are bringing it up here because shipping to Napa was expensive. With this new mill, we can make 80-foot lengths of pipe using a new technology that welds pieces together in a spiral rather than butting two adjacent pieces on end. The new mill uses Spiral Technologies equipment out of China. (manufacturing)

We're putting lots of money into Rivergate. We have \$1 billion in assets on our site, and the rolling mill may be an impetus for more investment. The mill has capacity to produce 1.2 million tons of steel per year. We will only produce about 850,000 tons this year, because the market isn't there for more. Pipeline projects have become our biggest customers. We already signed an order to make pipe for Kinder Morgan that will keep us busy to 2007. Orders for the fall amount to 800,000 tons of pipe, half of which will be produced here and half in Canada. Our customers are from all up and down the West Coast. The market for plate is different than pipe. Pipe we sell to end users but plate we sell to fabricators. The regional sheet-metal market is about 500,000 tons. And we're currently shipping steel for wind power generation tower construction to the upper Midwest. Making more towers for wind turbines locally would fit our work perfectly. That steel is an inch thick – that's a lot of steel! (manufacturing)

Building a new dock would be very beneficial to us. We have an old condemned dock that hasn't been used in 20 years. We have to import nearly a million tons of semi-finished steel per year. We have suppliers everywhere. We get slabs in now by ship at the Port of Portland docks or by rail. We would like to build a new cost-effective dock so that we can bring material straight into our site. The best dock for us would be a sheet piling dock, which I hear is bad for the fish. So the environmental concerns could make rebuilding the dock difficult. The existing dock is a finger pier and was never used for unloading unfinished steel. Each piece of unfinished steel can weigh 45 tons. (manufacturing)

If we can work out the economics, we may melt steel here again, which would bring 300 very high-paying jobs. We used to have 700 people here, but we shut down the melt shop in 2003. We had some tough years before 2004, so we lightened up and also lost some support staff. It would have cost more to upgrade the equipment in the melt shop and maintain it than to ship the slabs in. But we haven't ruled out the possibility of reopening the melt shop. It's something we plan to study over the next 2 years. The problem with restarting the melt shop is that electricity is now expensive in the Northwest. What happened to the cheap energy? I can't blame it on the salmon. (manufacturing)

We are looking to expand in places where there are opportunities to increase capacity for specific products. We're close to capacity here. We may need more land and employees. Our operation on Yeon, Plant 3, makes construction equipment—items such as buckets that dig dirt. This plant has grown 30 percent in the last 5 years. It's a good, viable plant and will stay competitive. Our production there is up 3-fold over 10 years ago. We are currently running 2 shifts, 3 sometimes, 24 hours a day, 6 days a week. It's possible

that we could expand this operation soon, maybe here in Portland, but it depends. In our company, economics drives the choices between manufacturing locations. (manufacturing)

We have a steel mill here and we intend to make it successful, which is why we keep modernizing our facilities. We'd like this mill to produce more. But we've put major investments elsewhere like Oakland, Tacoma, Atlanta, Rhode Island, etc. (manufacturing)

We've just made major investments in our Rivergate facility: we've redeveloped part of the dock; rehabilitated the container crane; done maintenance dredging; and added new equipment. We're always investing elsewhere as well. (manufacturing)

We just invested \$12-15 million in a new "mega shredder" that can process more scrap faster, which reduces our cost per ton. We also have mega shredders in Oakland, Tacoma, and Boston. The new shredder will double our capacity at this site, as long as we can get enough scrap. Transportation access is especially important for us in Portland, because this is a scrap deficient area. Currently we have to bring scrap in from elsewhere to feed the steel mill here. Scrap comes in via truck or barge, from Portland and all over the state, Montana, Idaho, eastern Washington, etc. We barge in scrap from Pasco. Most of our shredders have been or will be rebuilt to be bigger and more efficient. We compete for scrap metal. We want to move material through faster and use less space (our new shredder has about the same footprint as our current one). The mega shredder is also very energy efficient, which means we will spend less on power costs. With these savings, we can afford to pay more for the scrap. The higher price that we pay will allow us to attract scrap from a wider area. (manufacturing)

Cascade General was the original contractor working at the Portland Shipyard in the 1970s. When the Port decided to privatize the shipyard in the early 1990s, we negotiated to buy the site from the Port. At that time, the ship repair market was strong and Cascade General was doing well. Then the recession hit and there was a down cycle in ship repair. A lot of that work went overseas. Most of our private business went away, and the ship repair workload flipped to 75 percent government/military and 25 percent private. Overnight, our firm went from being a \$120 million company down to \$40 million, and employment went from about 1,000 down to 200. Then our partner, Cammell Laird, went bankrupt in 2001, and to avoid foreclosure on the property, we had to sell Dry Dock 4 to the Grand Bahama Shipyard, which put us out of debt. We were close to closing in 2002, but we started to diversify and bought other companies. Now our full-time workforce is on the rise. Our temporary workforce goes up and down with project activity—we're a job shop. We have only 75 employees now but will be increasing to 300 soon. Only 15 acres of our 60-acre site is currently being used for ship repair. (manufacturing)

One of the fields we have diversified into is processing wastewater to remove and sell industrial oils. This operation results in ten stable jobs and will net \$1 million in profit this year. We receive oily water by rail, about 25 cars per month. We treat it here and discharge the leftover water into the sanitary sewer. We have two facilities in California collecting wastewater and sending it north via rail to us. In California the wastewater is required to be treated as hazardous waste, so it is more expensive to process there than other places. To tap the Seattle market, we are also siting a collection facility for oily wastewater in Everett, WA, from where it will be sent by rail down to us for processing. Truck transportation between Seattle and Portland would make the operation too expensive, but rail will help keep us competitive. (manufacturing)

We're also looking into building barges here. The Midwest used to be cheaper than us and we couldn't compete much in the barge-building field, but now there is a tremendous opportunity because of Hurricanes Katrina and Rita. There is an aging inland barge fleet, and there are only two barge builders in the area, both of which are at capacity. Much of this is dependent on rail, because we need to bring in lots of raw materials via rail. (manufacturing)

We have a Connect Oregon proposal to decouple our dry dock from the pier, which will allow us to launch large objects onto barges. For example, Oregon Iron Works in Clackamas won a \$10 million contract to make a caisson for the Puget Sound Naval Shipyard. We will launch it for them from our floating dry dock. This is a niche we can fill. Our facility can handle large, long, or heavy items that need to be put together in one place and transported by barge to another place, things like dam gates and weirs or bridge girders—long steel structures that are too big for truck or rail. There is no other facility in the region where you can fabricate these large things on site and then roll them onto a barge and launch them. Plus, we are ideally suited for this type of work given the cluster of metals fabricators and transportation and manufacturing industries in Portland. (manufacturing)

Right now the sediment trans-load opportunity isn't economically feasible because of our rail access. Our 80# rail is in bad shape, and if we wanted to start moving heavy axle railcars on our track, it would need upgrades. We have a Connect Oregon proposal to upgrade our rail to 120#, extending to Albina Yard. We plan to do the improvements in stages. It's important to bring the track up if we want to grow. (manufacturing)

Portland isn't a hotbed for ship repair work. It never has been and never will be. But at some point in the economy, you have to build something. We have talked to the wind turbine guys and the biodiesel guys. We've talked to a lot of people with business ideas for parts of this site. For every 50 people you talk to with an idea, maybe one has really thought it through and has a decent business plan. You waste a lot of time with half-baked, undercapitalized ideas that will never get off the ground. Our conclusion is that we will have to home-grow it. (manufacturing)

Schnitzer is planning to convert its Columbia Business Park in Vancouver, along the Columbia River, into a retail and condominium complex. The business park is currently the home of the two largest sheet fabricators in this area, Thompson Metal Fabricators and Oregon Iron Works. Thompson and Oregon Iron Works will need to relocate. It would be great for us if they could find a site here. But they may end up relocating to Seattle if there are no industrial sites available in the Portland/Vancouver area. If the material ends up coming out of Seattle, it would really hurt us. (property owner / representative)

The company is owned by a family that lives here. We have historical roots and a lot of sunk costs in Portland from the investments we have already made here. Those are the main reasons we are in Portland today. That said, we get increasing pressure to be competitive in a global economy. So we are constantly evaluating. (manufacturing)

We have a large knowledge base here, with a lot of intellectual property (not patents). We also have unusual manufacturing advantages in Portland. In the future, we will be doing more intellectual functions here. The low tech products will move offshore and the products that are rich in intellectual property—high tech, highly-engineered products—will stay here. (manufacturing)

We are a Portland-based firm. We have ties here and we have made a decision to stay here. (manufacturing)

Other manufacturing

There has been demand for land by distribution-oriented companies for several years. In the last six months, we're also seeing requests for manufacturing sites. Manufacturing is coming back, even heavy manufacturing. We need to have available sites. (industrial broker)

We've grown every year that we've been in business. We are growing at approximately 15 percent per year. Portland is our main manufacturing and distribution location. Our original store is on Grand Avenue

and we have a Seattle store. We are hoping to open a store in the Bay Area soon, and we'd like to eventually have a couple stores in California. I still own the company, so we are not turning into Pottery Barn. (manufacturing)

With the growth we expect, we may see more trucks on the roads, but our product bulk and truck volume is really small. Our operation is all about the value added. We could go from a couple containers a month to about four or five, but that's not a big deal to worry about. I'd be more concerned with the number of our employees. It would be possible that we'll double the number of employees at this site, which could add to problems with congestion and parking. (manufacturing)

Our store is a retail store, but it's destination retail, so people put up with more difficulty to get there and find parking. Our products aren't sold through other retailers. We only sell them on our website, through our catalog, and out of our two stores. As a niche business, we're not as sensitive to some of the industry's competitive pressures, and we're not pinching pennies at every turn. The reasons we make decisions don't apply to all businesses. The lesson is, if you can't compete on these efficiencies, you've got to focus on niche firms like us that are taking advantage of the local creative class and quality of life advantages. (manufacturing)

We've invested a lot in this space and in our manufacturing process. This building should be sufficient to accommodate continued growth for quite some time. Right now it's underutilized. It's hard to imagine outgrowing this building in the next ten years, but you never know. At that point, it is difficult to say if we would eventually expand into a single larger facility. If the company gets that big, distribution becomes an issue, and it would start to make sense to expand in middle America. (manufacturing)

We've had a difficult time keeping suppliers for the glassware, as one after another keeps disappearing. Companies that make the old-fashioned glass are now going out of business, including the French glass company that we used forever. Now we don't know where we will get that glass from. Most of our plating is done at Eastside Plating in Southeast Portland. Ninety-five percent of the parts we use are manufactured specifically for us, and engineered here.

Four years ago, Dean Foods made investments here. They bought Nalleys pickles in Tacoma and brought the pickle business down here. They also expanded the pickle-curing tank yard by 500 tanks. In 2003, we moved into a new 250,000 square foot partially refrigerated distribution center. (manufacturing)

Bay Valley and Treehouse are looking to grow, mainly by acquisitions of other small specialized food companies. Currently our plant is not fully utilized for nine months of the year. If other firms are acquired, we could work on other products during those nine months. (manufacturing)

There is only one old dilapidated flour mill in Portland. I foresee that sometime in the next 10 years, someone will build a flour mill here in Portland, and it would be great if they could build it on our property. Though if I were a flour miller, I would find my own 120 acres, not necessarily on the river. I have already talked to a few millers about this. Over the next 10-20 years, flour millers need to find sites where they can use these mile-long "shuttle" trains because the railroads are trying to force all businesses to use the long trains. (marine terminal / port)

We don't expect any significant capacity and employment growth at the Portland plants. We will be expanding somewhere on the West Coast, but Portland isn't a good area to do it. The last time we increased our capacity at this facility was in 1998. However, we will be investing in facility improvements here to be better and faster. We increase the productivity of our production line every year. Our high tech workers today were using duct tape and hammers 15 years ago. Technology has changed incredibly and

has become a very important part of our production. We haven't laid off any employees in 11 years, and I don't think we'll have a lay-off again in the foreseeable future. (manufacturing)

Energy

An ultra low sulfur diesel fuel is coming into the marketplace and will change the way fuels are managed. We will have to be very careful not to contaminate it, so we will need additional capacity in order to keep the low sulfur fuel separate. We are looking to spend \$600,000 at Willbridge for a system to handle the non-usable product ("trans") when two fuels are mixed going through the pipeline. We will have to upgrade our facilities to handle the new fuel, and change the way we transport the fuel. We will need permits to do those upgrades. (marine terminal / port)

We just spent \$2.8 million replacing our dock lines under Front Avenue. This expenditure did not expand our capacity at all, but was done as a preventive measure, to ensure the integrity of the system. Also, only our company and Chevron have installed fuel vapor recovery systems on our docks. We probably need \$1 million in upgrades to our truck racks, but that is not in our budget. Also, at Willbridge we need to replace the old rail tracks with higher gauge tracks that are bigger and heavier. In all aspects, there is a need for renewal as well as expansion. (marine terminal / port)

Nobody knows at this time what the impact of the new low sulfur diesel fuel will be. The required changes will be major, because of the need to keep the fuel uncontaminated. The fuel companies, like Kinder Morgan, may need to eventually increase their storage capacity. (trucking / warehousing)

The fuel industry overbuilt oil tanks in the Northwest District in the 1950s and 1960s, so there is still overcapacity there now. However, more large-scale energy storage will be needed somewhere in the next 10 years. Alternative fuels like methanol gas could become a big energy source in the near future. It would be nice if Portland could be the distribution hub, although the fuel industry doesn't employ a lot of people. We should work to gain the image of the up and coming "energy capital of the Northwest." One way we can help create that image is to smooth out and speed up our permitting process for any energy companies that need to knock down old tanks and build new ones. (property owner / representative)

Paramount recently bought the Chevron asphalt facility and is moving to corner the market in this region. The company is planning a rail project at the facility, which is the only oil refinery in Oregon. Paramount's competition is in Vancouver, a company that has been criticized for spilling fuel. (property owner / representative)

Biofuels is a growing field. We have received a lot of inquiries about industrial development in that field. (marine terminal / port)

There is also an opportunity for us to move into a particular new petroleum product market that we are exploring. We want to handle it in Linnton, possibly by expanding southward onto the steel properties. The lack of water depth near our docks in Linnton is a constraint. The water depth has pushed at least one company that we know of to look at Vancouver. (marine terminal / port)

Consolidation by petroleum companies has not been a problem for us. We've had relationships with Kinder Morgan, Shell, and several other companies for a long time. We don't know what Valero Energy's plans are. (trucking / warehousing)

Heavy construction

In-water work

Fish passage work has been low for the past four years. Uncertainty about the removal of dams and then the war in Iraq has slowed down that work. There is a big backlog of fish passage work that will come back soon. In the meantime, handling dredge materials is a market opportunity for us. (property owner / representative)

You will need truck, rail and water access to deal with the waste from the dredging. (railroad)

The harbor cleanup could be a market opportunity for us. We are interested in trans-loading sediments from barge to rail. We have an agreement with a landfill operator that they'll de-water the sediment, we'll treat the wastewater, and then the sediment will be shipped via rail or barge to the landfill. (manufacturing)

Any construction on or near the water is good for our company. We did a little work on the CSO project for approximately \$500,000. We are currently building an international dock for Schnitzer Steel, a \$7 million project. (property owner / representative)

We would also like to relocate our dredge facility to the waterfront. (marine terminal / port)

LAND NEEDS AND INVESTMENTS

Ports preparing vacant land for development

We plan to develop about 500 acres of marine and industrial land at the Columbia Gateway site. The NEPA process is just beginning on this project. With site construction expected to begin in 2008, the land will be ready for use in 4 to 5 years. The Shoreline Management Act requires that the first 200 feet from the river be water-dependent and that the next 1,000 feet be water-related. Our deepwater channel ends at the railroad bridge. East of the bridge it is only 30 feet deep. (marine terminal / port)

The Port has also purchased the Rufener farm site, an adjacent property to the north. We will be developing the site from late next year to 2008 as a light industrial area. About 60 acres of the approximately 250-acre site currently has light industrial zoning. We don't yet have specific tenants lined up for the site. We would prefer manufacturing over warehousing there. (marine terminal / port)

We keep and lease out all of our property, unlike Portland which sells some property to companies and uses the profits to finance other projects. However, we foresee developing more aggressive growth plans in the future, and selling some property may make more sense to help finance those plans. (marine terminal / port)

A 113-acre vacant parcel is available near T-6. We would like the user to support the T-6 container business but it doesn't have to. We relaxed the standards recently, so it could be a manufacturer. The remaining vacant parcels are small (2-4 acres). Swan Island has the North Channel site between the shipyard and Freightliner, but we're in final negotiations with a tenant for that property so it's not available. Many sites have extra land that may look available, but it's not. (marine terminal / port)

We will be renegotiating our lease with the Port of Portland during 2006. That lease will expire in 2014. We need every inch of land we have now and would like to acquire more. We've discussed leasing the land south of us currently leased by STC Cable, but for our use the price would be too steep. We could

potentially put a flour mill on that land, connected to our other facilities. We also need more trackage internally. (marine terminal / port)

There are still opportunities to build in Rivergate. I refer firms there because it is easier to serve an industrial park than to send a local train to one individual site. (railroad)

Using brownfields and constrained sites

Our biggest opportunity for harbor area growth is from new development on brownfield sites, such as the former Linnton Plywood site in Linnton. This site has good land with water and rail access—it just needs to be cleaned up. (railroad)

Oregon Transfer just built a 400,000 square foot facility on a brownfield site close to I-5. And they're prudent. They wouldn't do it if it didn't work. That is a significant investment for a local business – a positive sign. (industrial broker)

We are relocating from sites in Oregon City and Vancouver to Portland Harbor. Finding a place that met our needs took several years. We purchased 7.5 acres directly under the St. John's Bridge. The new facility has a total of 40,000 square feet, of which 11,000 square feet are used as office space. (property owner / representative)

We were formerly located near St. Johns Towing, but we moved to our current site in April 2000, because we needed to be closer to the terminals, as well as I-5 and I-405. Our site was a design challenge. It is on a slope and it was very expensive to move the dirt and put in retaining walls. There are also underground springs, and we had to make sure they could continue to flow without obstructions. We purchased the property ahead of time and sat on it for a few years before building. We have room in the building for expansion, but we don't have enough room to park our trucks on the site. (trucking / warehousing)

If you don't plan to develop the vacant floodplain on your site, would you consider allowing it to be used in a mitigation bank? To meet balanced cut and fill requirements, other industries that wanted to fill floodplain could pay you for excavation at the floodplain on your site. We would certainly consider any economic proposal that is made to us. (property owner / representative)

We've had interest from top industrial developers, but right now we have no economic incentive to sell the site because of the cleanup and balanced-cut-and-fill issues and other development constraints. Biofuels or other fuels may be feasible at the site, although the tank farm would need to be rebuilt. We've also had interest by recyclers and numerous other firms, including some interested in using the site for other types of storage, such as cars, barges, or containers. (property owner / representative)

The eastern 20 acres of the property has a letter of "No Further Action Required" from the Oregon Department of Environmental Quality, and we are working to develop a cleanup plan for the balance of the property. Our hands are tied in terms of moving forward with redevelopment because short-term leases are challenging due to the cost of tenant improvements, and the tank farm no longer has permits to operate. Demolition is slated for 2007, but we may postpone it. (property owner / representative)

Our intention is to keep the property as one unit rather than divide it at the current time, but the company wants to retain the flexibility to subdivide and sell in the future. Currently, we don't want to jeopardize our ability to redevelop the rest of the property by doing something sooner on part of it. We've heard that the City may not allow subdivision of 50-acre parcels, but this site is already made up of several legal parcels. (property owner / representative)

Recently, the firms that have been relocating are also reinvesting – rehabilitating facilities or making investments in utilities. (property owner / representative)

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Using land more efficiently

We are working to use our land more efficiently—doing more business on less land. We have a very low inventory. We have reduced the dwell time of vehicles, so that the average vehicle is now here for only 2.5 days. All cars here are already sold to dealers. Cars are assigned when they arrive, and then they go. We turn over our inventory from production to delivery in 30 days. (marine terminal / port)

Right now we are reconfiguring this building to have more processing capacity. At 806,000 square feet, the building footprint is now maxed out on the site. We need to increase our total output from the current rate of 200,000 units to 500,000 units. Our streamlining project is costing us about \$40 million. This is a huge investment in terms of equipment and systems, and it is also a big risk. We are designing and building at the same time, and we should be live for January 2007. I could never conscientiously say that we want to continue expanding here, since most of our market is elsewhere, but we want to streamline our operation in Portland to be more efficient. We want to find a balance of capital vs. labor costs. We are a highly automated industry, where only about 70 percent of every item shipped is individually touched and wrapped. (trucking / warehousing)

I think there are opportunities for more jobs in these districts, because—depending on the type of industry—you can put a lot of people in buildings. Distribution is generally low job density—one or two employees per 10,000 square feet—but we are doing some value-added business which is much more labor intensive than traditional distribution. Multi-shift operations also offer opportunities for job growth. Our Swan Island facility is a 24-7 operation. Rivergate shuts down on weekends but has 3 shifts per day. (trucking / warehousing)

Our warehouse on Swan Island has room to expand vertically with higher racks. There is no more buildable space, but we have a 40-foot ceiling. We would need special equipment and we would have to add racking, but it would be cheaper than acquiring more land. (trucking / warehousing)

We currently have a 60 million gallon capacity for transportation fuels (gasoline, diesel, and aviation fuels). We foresee continuing expansion to handle a wider range of products. When we bought this operation, we purchased old tanks from Shell. For a while we have been investing in conversion of old, unused tanks to bring them back into use. Converting a tank may cost about \$1 million for a 50,000 barrel tank, while building a new tank costs \$2.5 to \$3 million. Now we have no more tanks that are convertible. And we have almost no room left to expand—just a small area along the riverfront on the other side of Front Avenue. To expand we would need to acquire more land or do as Chevron did a few years ago, replacing some of their tanks with taller ones. (marine terminal / port)

We may have to build an employee parking structure because of land constraints. Would a shared parking structure be feasible, given that Freightliner is also considering a structure on Swan Island? We haven't thought about it. We wouldn't necessarily be opposed to sharing a structure, but it would have to meet our needs. We would have to work out the issues of who owns it, who polices it, etc. The structure would have to be enormous in size. We are looking at two decks with 1,000 spots each. A four-story shared garage may be hard to build on fill. (trucking / warehousing)

We've looked into a parking structure. It wouldn't reduce flow much, but it would be very expensive to build, \$40-50 million. The land here is on fill, so we would have to go deep with piles to put a lot of weight on it. It may make sense sometime in the future, given that we are landlocked. In Newark, they did a serious study and found that it still makes sense to go find land. It hasn't crossed that line yet in terms of land prices where it makes sense to deck. Maybe in Long Beach it might make sense. (marine terminal / port)

The bulk facilities on the harbor are hemmed in and can't expand, so they are making investments to be more efficient with the land they already have. (industrial broker)

We have a co-tenancy agreement with Lampros Steel for warehouse space near Time Oil Road. Columbia Structural Tubing bought the property. The site also has some additional land, not just the warehouse, so there is landbanking going on too. (manufacturing)

Multi-story industrial facilities aren't feasible in the U.S. because trucks are 50 feet long. It is only possible in Japan, where land is \$100/square foot and trucks are smaller. (industrial developer)

Latent flex space demand

The classic definition of "industrial" might need to be updated to include more office space, because the designers of products are here, but the products might really be manufactured in China. Flex space is the answer. Flex space has better parking ratios and commands higher rental/lease fees – \$1.00/sf for flex space vs. \$.35/sf for warehouse space. Flex space is highly desired in close-in locations. (industrial developer)

To construct an office park with flex space would take ideally 20 acres, but 5 acres would work. We would put in double the parking for flex space versus heavy industrial. Another factor to think about is the surrounding environment. You don't want to build next to a dirty, noisy or stinky industrial area. (industrial developer)

There is demand for speculative development, but it tends to be a more flexible or institutional product. (industrial developer)

While many firms find that the older vacant buildings in the Northwest District don't fit their needs, others make it work. A rebar company leases two thirds of a structure in Northwest and the other third is leased to an artist who does large metal sculptures. But the building owners took four years to be willing to allow that creative solution. A few years ago, it was difficult to get landlords to invest in these types of solutions, but that is changing now. (property owner / representative)

Two large warehouses in Lower Albina are proposed to be converted into smaller flex spaces. Some firms aren't looking at the aspects of the space available, but are looking at the character and locational advantages, like the closeness to light rail transit and downtown. (property owner / representative)

Portland is a smaller tenant market. There are lots of companies that do things like food delivery or paper distributing. For example, Link Logistics is a company that does night shipping for Starbucks using small vans. These smaller, service-oriented companies need highly functional, small to medium sized buildings (10,000-20,000 square feet) with some storage. (industrial developer)

For example, a particular document-shredding operation wants to service a wider area. The harbor would be a perfect location for them, but there are few buildings that meet their needs. They have serious problems getting to the Gresham area. Locating their business in Northwest Portland or Swan Island is more central and gives easier access to Hillsboro and the western side of the region. Locations east of the

railroad in Rivergate put a business too far east, and there are mostly distribution firms out there. (industrial developer)

There is a gallery owner in NW Portland that wanted to buy a building to warehouse their product and support their shipping needs for products ordered off the internet. This was a case of a retailer needing an industrial building. The closest location they found was in Milwaukie, which was too far. (industrial developer)

The individual needs of firms are getting more unique. For example, one firm needed 36 feet of clear height and lots of power. There was only one building in the whole region that worked for them, because nearly all the buildings were only 27 feet high, which was the old clear height. They're looking to shear off the top of a building to increase its height so they can fit their equipment in. (property owner / representative)

Companies are getting more and more specialized in terms of their building needs. It used to be that you could build a big building and divide it up. Not anymore. There is a significant trend toward companies wanting their own site. A few years ago, everyone wanted to lease, now everyone wants to buy. (property owner / representative)

Headquarters office space needs

Our current facility is close to capacity, especially the offices. We own about 25 acres in Portland, not all of it contiguous, near Yeon from 24th-26th and Vaughn to Nicolai. We also lease 2 or 3 warehouses to store patterns for tooling. Where will we locate our support services—including engineering support, finance, legal, human resources—in the future when we need to expand? An early vision was to add a third floor to this building, but the settling of the building made the construction unfeasible. We are now leasing office space off of 26th Street and recently moved our HR staff there. (manufacturing)

As the company grows, our office needs will grow. Portland is a logical place to add administrative support because it has historically been our headquarters. Most of our expansion around the world has been organic growth and not acquisitions. (manufacturing)

We may look to consolidate our support services, because the headquarters doesn't necessarily need to be near our manufacturing facilities. We could build something new. However, having our engineers near the manufacturing has important synergistic effects. Our engineers do tests, experiments and field trials with products at the shop. If our engineering staff wasn't near the shop, we could lose quite a bit. (manufacturing)

TRANSPORTATION DEMAND

Freeway access

Everyone is freeway access oriented. (industrial broker)

Harbor access

Does the supply of multi-modal sites on the harbor exceed demand? That's hard to answer, because there are not very many clients that need multimodal access. We'd like to see more multimodal users, but they're not out there. (industrial broker)

The dock is a good asset, since it would be hard to get a new one approved, and many potential new owners may need a dock. While docks are expensive to maintain for future use, our dock is in excellent shape. (property owner / representative)

We were surprised when Advanced American Diving Service wanted the brownfield site they are moving to [taking advantage of river access]. (industrial broker)

We export pickles via Terminal 6 to Korea, Canada, etc. We also receive supplies from overseas. (manufacturing)

There are always dock issues since dock space is so limited along the river. Leasing dock space for vessel storage is a source of extra income for some land owners. (industrial association)

Rail access

Lately, requests for rail access have increased dramatically. Desire for rail access is tied to gas prices. There aren't that many that need water access—we have seen maybe one request a year—but we have had an economic downturn. (property owner / representative)

We can't think of many firms in this area that have required rail transportation – only lumber and paper companies. Maybe one firm a year has required water transportation. These are owner-user situations. (industrial developer)

Heavy manufacturers often don't need multimodal access. There are many sites that the railroads won't serve, and most clients just give up on rail. Only a few industries need water access, such as the bulk terminals and lumber reload. (industrial broker)

WORKFORCE DEMAND

Hiring needs

Asking about growth is an appropriate question, but hiring in the harbor area is more about the need to replace an aging workforce than business growth. The workforce at many companies is shrinking as output grows, due to productivity gains from new machinery and processes that make companies stronger. In a competitive market, modest growth is often cancelled out by gains in productivity. So the bigger issue is aging workforce. (human resources manager / representative)

We had 1,600 employees in 2000. By the end of 2005, we produced more product with less than 1,000 employees. (human resources manager / representative)

We have been around 20 years, and our senior employees are starting to retire at a rate of 3 to 4 percent each year. It has been difficult to replace the aging workforce with new workers. We're also anticipating substantial growth. (human resources manager / representative)

It depends on what type of industry it is. Some industries need highly educated, creative types while others need truck drivers and dock loaders. Some are growing faster than others. We need to talk to the range of firms about their specific needs. (human resources manager / representative)

Work Systems, Inc. has launched a comprehensive regional workforce audit. We're looking at current and projected labor pools and the training pipeline. We are focused on finding answers to the first two questions you've asked. (human resources manager / representative)

These are mature conversations on workforce that many of us around the table have been discussing for a while. We're delighted to see the City and Port engaged in these conversations. (human resources manager / representative)

Expanding temporary workforce

Many firms are using temporary staffing services now during their upswings. (human resources manager / representative)

Since September we've hired 100 employees, all temporary positions. Even temporary engineers and supervisors. But mostly production workers. In the four months since then we've had about 45 percent attrition among those workers, many of them leaving because they want permanent work. We hired to hedge against another layoff, but also for other reasons. Even with the high rate of unemployment, we're having trouble getting enough workers. Many people want to work for us and then find out they don't like the work. (human resources manager / representative)

We supply all of our new employees from a temp pool. They work their way up through the ranks, and about 10 to 15 percent move into permanent jobs. (human resources manager / representative)

Temporary agencies today are competing for workers by providing them with benefits. (human resources manager / representative)

Temporary workers are often better prepared to make long-term commitments, because they've had a chance to try other jobs and make sure this is a good fit before choosing. Many job seekers don't know what they want to do. (human resources manager / representative)

We've seen an increase in the last 3 to 5 years in staffing programs that place engineers in temporary positions. Lots of times they don't want to be permanent. They may like the freedom to move around, work with several firms, or work according to their personal schedule. Having temporary engineers is a big new thing. (human resources manager / representative)

The way that companies use temporary employees has evolved. Twenty five years ago if workers survived training, they would be hired. Now, we retain a certain percentage of our workforce as long-term flex staff (LTFS). They are eligible immediately for benefits through their temp agencies, so they have less urgency to convert to permanent work. It's also partly a commitment to the long-term workforce. (human resources manager / representative)

Reliance on immigrant labor pool

About 35 to 40 percent of our workforce speaks English as a second language, mostly Asian. It has been that way since day 1. Certain types of industry tend to attract certain ethnicities. A lot of workers encourage their friends to apply at the same firm. But you can also find people speaking 20 different languages on one shop floor. (human resources manager / representative)

The workforce in our shop is very diverse. A large portion of the employees speak English as a second language, or not at all. We teach English classes and are heavily involved in Workforce 21 and other blue collar labor force training. (manufacturing)

We usually use the International Refugee Center, which recruits and trains refugees and immigrants. We have a long history of hiring people with limited English-speaking skills. Much of our original workforce was Vietnamese, Cambodian and Laotian, and now we have some second generation employees. These employees don't necessarily have low skills but they often have limited English. Our jobs don't require much communication. We get a very diverse group of people, from highly educated Kurd engineers to people out of villages in the Sudan. At least fourteen languages from all over the world are spoken here. We used to teach English as a Second Language in-house, but now we contract it out. (manufacturing)

Is there any local or state program that works to reduce barriers to hiring foreign workers? No. Immigration and work visas are federally regulated. (human resources manager / representative)

Increasing demand for special skills and education

We want to hire skilled, higher educated people because we're reducing costs by decreasing management, and we're asking people to do more in their jobs. Even dock workers. (human resources manager / representative)

We are participating in Manufacturing 21, which is trying to site a new workforce training center. We would like it to be on Swan Island, but it will probably be in Clackamas near Oregon Iron Works. (manufacturing)

We have our own driving school because the skills we need are so specific. Truck driving changed in late 80's. Like many companies, we require our drivers to use computers in their trucks to manage customer information. (human resources manager / representative)

Drivers need to have experience to be hired here. We don't hire right out of driving schools because the drivers need experience. The job requires more than just driving – they need to use technology, too. Drivers need to not only have a commercial driving license, but be technologically proficient and trained in hazmat requirements. We've started doing in-house training on hazmat. Homeland Security requirements also affect our hiring abilities. A criminal background check is required on all employees, and there is often a waiting period to get a new hire cleared. (trucking / warehousing)

The availability of trained drivers is critical to our business. (trucking / warehousing)

QUESTION 2: CHALLENGES TO EXPANSION AND DEVELOPMENT

What harbor area challenges or barriers are significant enough to prevent reinvestment or expansion or to consider relocation? Please share specific experiences as well as perceptions of the harbor area.

GENERAL

Portland is a high cost location

The bigger challenge for us is maintaining a successful business model. My least expensive employee costs me \$25,000 per year. I compete with China, where employees cost \$1,000 per year. People wonder why they can buy products like ours at Home Depot for a quarter of the cost. We don't want to go off to China – we'd rather not be in business than do that. If we're not in business in ten years, it will be due to those issues, not because of location. This has been a great location for us. (manufacturing)

Other places, such as Mississippi, have much lower costs. We have moved production between plants based on competitiveness. Portland is a nice place, but being here is based on costs and advantages. The cost of labor, electricity, and natural gas are important. (manufacturing)

As we become more international, capital-efficient growth is more and more important to us. Building on a greenfield in the United States costs 25 percent more than it does in China, so building on a greenfield here just isn't capital-efficient. (manufacturing)

Big industrial users can get space 30 percent cheaper in other parts of the country. Quality of life in Portland evens out the playing field some, but Portland needs to be better and faster. (industrial developer)

The cost of property and the cost of rehabilitation and improvements on property are too high. Lease rates are already high and then improvements cost so much that it gets too expensive. For example, the new stuff in Rivergate is too expensive, but the old stuff is too expensive for what it is, especially when you factor in the cost of rehabilitation. (property owner / representative)

Our raw material unit costs are higher here than anywhere else in the country, because all of the raw materials need to be brought in. (manufacturing)

Small regional market

Our company is currently migrating toward a geographic market focus, putting facilities where the demand for the end product is. Traditionally, each plant in the company made a specific and different product and made it for the world market. A disadvantage of our facility here in the Northwest is that it's not near the end markets for our products. (manufacturing)

Portland is underutilized as a seaport. We have the transportation infrastructure, but it seems that population and market size are limiting. We should take some tips from Coors and Wendy's about how to thrive as the #3 player in the marketplace. That's our challenge. We need to refine and expand our market niche. Are we going to be the speediest or the most efficient? We need to pick an advantage and exploit it. (trucking / warehousing)

There's business here and there are economic opportunities – but it's not the growth market. There's little unique here. Our customer base isn't here. LA/Long Beach is there because of the population base. Portland relies on links to Chicago. All cities talk about their quality of life. You shouldn't necessarily push people to look at alternatives, because you might not like what they decide. They'll never look back. (manufacturing)

There's a tremendous imbalance of West Coast freight going north vs. south, resulting in empty backhauls. It's much cheaper to ship south than north and it is very competitive to get those hauls. (trucking / warehousing)

The bigger problem is the lack of backhaul opportunities. They run empty coming north, so we aren't competitive. We could go deeper into California if they had something to carry north. (manufacturing)

TRANSPORTATION CONSTRAINTS

Road congestion and deficiencies

Congestion impacts

Congestion is the top infrastructure issue and constraint. Mobility is important to all businesses. Some metals companies are of the mindset that they would move if it were more cost-effective. (property owner / representative)

Congestion is a big cost for us. The longer it takes per run, the fewer runs we can make. The average load has a return of \$200, so our volume of loads is high. The purchase price of a new truck is about \$250,000. The capital invested in our business is significant. It is difficult to get the customer to understand how congestion impacts our costs, so we have to factor congestion into our rates. We start our drivers at 4 or 5 a.m. every morning, with staggered shifts so that our trucks are running 24/7. Most of our deliveries are within 30 miles of our facility. We start them early to avoid the congestion. In other urban areas, where congestion is worse, drivers must start even earlier. In Seattle, our drivers start at 1 a.m. with a similar schedule of staggered shifts. (trucking / warehousing)

Congestion affects us dramatically. We start delivering at 3-4 am to avoid peak hour congestion. Unfortunately the receiving community may not be available 24 hours a day. They expect deliveries during the peak, which we would like to avoid. So we need to find a solution to that mismatch. (trucking / warehousing)

Anything that reduces and constricts the movement of products coming in impacts us. We have to be able to move our trucks. Trucking problems create supply shortages. (trucking / warehousing)

Accessibility and congestion are critical issues to us, as a business and from a workforce standpoint. So the transportation infrastructure – roads, sidewalks, etc. – is important. (human resources manager / representative)

Transportation infrastructure and congestion is a big deal. If we don't have to worry about congestion, we can put more dollars toward training and other things. (human resources manager / representative)

I-5 and other freeway congestion

We have the same problems as everyone else in terms of congested roads: I-5, I-84, I-205, general central freeway loop delay. Thank God we don't go downtown much and we don't have to use I-405. (trucking / warehousing)

Road congestion is a significant issue, particularly the I-5 bottleneck. (marine terminal / port)

There is only one I-5 bridge into Portland, which results in congestion. (marine terminal / port)

The I-5 bridge is a bottleneck. We incur significant costs from delay there. We truck a lot of freight to Washington. (trucking / warehousing)

Heading east on the Banfield from I-5 is also a big bottleneck. There is a jet that leaves the Portland airport at 6:55 pm that we have to make from our facility in Tualatin. We leave at 5:20 pm and sometimes still miss the jet. (trucking / warehousing)

The traffic sucks, particularly on I-5. We lost an opportunity for tenants to come here—they backed out because of I-5. When your trucks need to go back and forth over the bridge, there's too much congestion. Thirty percent of our workforce lives in Clark County, and the commutes are almost an hour each way. There should be a water taxi over to Vancouver. We've thought about doing that. It would be faster than I-5 during rush hour. (manufacturing)

Highway 26 needs fixing. (manufacturing)

Truck conflicts through St. Johns

I'm dependent on the St. Johns Bridge, and it's a bottleneck. It would be nice to have another bridge across the Willamette so that we could draw on the workforce across the river. Steinfelds used to have a sauerkraut plant in Scappoose. It was the only one west of the Rockies. Since it shut down we've lost a lot of workforce. I wonder if people just don't want to do the commute—to drive the 45 minutes. (manufacturing)

There are community issues with freight movement through St. Johns. Truck access out of here to the south and west is difficult. Ideally we wouldn't have to go east for 30 minutes to go south via I-5. It would be nice to hook right into Highway 30 somehow. We don't want to go through the community, but there aren't other good routes. We send out about 50 trucks per day. About twenty of those trucks are headed to the nine Portland Metro Toyota dealers. We just started a truck car-carrying business at this facility, Toyota Transports, which delivers to dealerships in the South and the West. We also work with another trucking company that hauls for Honda and Hyundai as well. (marine terminal / port)

We're on a peninsula here and the only way in and out is the St. Johns Bridge. There's a huge conflict between trucks and bikes and residents in that area. They put in all this multifamily housing at the base of the bridge, and now they want to get trucks off the bridge! The ink is not even dry on the St. Johns Truck Strategy and they already want to change it. Truckers have come to terms with changes in the St. Johns truck strategy. The City is infilling more housing at the edges. There needs to be a better way to broadcast the story to policy makers. There is a group advocating for a study to put a bridge across at T-4. We'd reinforce that because there's a huge connection between the two sides of the river. Also, commuters from Vancouver to Washington County are trying to find routes. (manufacturing)

The big hang up for truck movement in the harbor is the St. John's Bridge. Traffic backs up there and it's very dangerous. (industrial broker)

Street deficiencies in the Northwest Industrial District

Traffic is a big deal, especially truck traffic in and out of the industrial area. Getting in and out of Plant 3, where employees are trying to go South on Yeon, is a problem, so shift changes are difficult.
(manufacturing)

Condominiums being built on NW Front Avenue (Naito Parkway) will cause a traffic bottleneck. The buildings are planned to be 8 stories high, but there is talk of increasing the height to 22 stories. The resulting number of residents and vehicles will impact the industrial district in terms of access for employees and transporting products. Front Avenue currently functions as a freight route, whether it is designated that way or not. (industrial association)

The freight community is worried they'll lose Front Avenue as a North/South corridor and that they'll lose access to I-405 North or South. That type of thing happened with the Interstate Light Rail, so the freight community is scared it will happen elsewhere. For logistics, having a variety of options is important.
(property owner / representative)

We need accessibility in this area to get our product in and out, so freight and specifically truck mobility is key for us. We don't load directly from the harbor, but we're linked to the terminals that rely on pipeline and tanker loading. Getting our trucks around is an ongoing problem for us. Getting to and from the Willbridge loading racks is difficult, but so is going just about everywhere else. We can't send our trucks down Balboa – it isn't allowed. (trucking / warehousing)

When we get busy, traffic backs up at the 61st Avenue crossing in front of the truck rack onto Front Avenue. Widening of the street may be needed. This is a dangerous spot because of some motorists that come barreling through along Front Avenue. (marine terminal / port)

We need to recognize Naito Parkway as a freight route. (industrial association)

We work around the road system. It could be better, but it's acceptable for now. Except that the entrance road to our Linnton facility needs a traffic signal. Waiting to get in and out of the facility hinders our productivity. St. Helens Road is an accident waiting to happen, especially on a sunny, summer day. We heard it would take either \$300,000 or a few fatalities before a traffic signal would be installed.
(manufacturing)

Traffic on Nicolai is manageable. There's a lot of blue collar commuter traffic in the afternoons.
(manufacturing)

The maintenance of streets in the area is good. However, street connectivity is an ongoing problem, especially in Northwest. (industrial developer)

The general road conditions on Front Avenue and in Guild's Lake are pretty bad, with many potholes.
(property owner / representative)

We like being on the frontage road (off of NW Yeon) - it's convenient. (manufacturing)

Street deficiencies in the Swan Island Industrial District

Our main concern is traffic flow on and off Swan Island. There is only one way on and off, and there are a lot of people going up and down the hill. Traveling uphill the traffic congestion is an inconvenience and a cost. Going downhill, it's also a safety issue. I've seen traffic backed up onto I-5 at peak times (7:30am).

The introduction of the MAX line has caused significant traffic delays at the Going/Interstate intersection. When trying to get onto I-5 or turn left from Going onto Interstate to go north, you can be stuck there 2 or 3 cycles, sometimes more. We are a big part of the congestion. Between UPS and Freightliner we have a lot of folks coming and going. If we have a shift change at the same time it's total gridlock. We try to coordinate so that doesn't happen. It's also sometimes tough to make turns due to the traffic flow on and off the island. Is the Going Street Bridge wide enough? A fourth lane onto Greeley may help, but I haven't seen an issue there. (trucking / warehousing)

There is only one way on and off Swan Island. It gets choked up every day. (trucking / warehousing)

It's hard to get on and off Swan Island during shift changes, and that impacts when we ask our workers to be there. If it takes them an extra 45 minutes to get to work, it's a morale issue, and that's when they may go take a lower paying job that is easier to get to. (human resources manager / representative)

Yes, there are advantages to being located in the Harbor, but traffic congestion and the ability to move trucks is a big hindrance to reinvestment, especially around the Going/Greeley interchange. (property owner / representative)

Businesses on Swan Island are concerned about the Going Street overpass. PDOT is targeting it as an important seismic retrofit project. The railroad wants a clear span, which could be very expensive. The businesses are trying to figure out what to do. (industrial association)

Secondary access to Swan Island is a very important issue for businesses. (industrial association)

This little road carries a lot of traffic. When Freightliner comes off shift, it can be like the Indy 500 at the end of Basin Avenue. Drivers at times have come out three wide on this little two-lane road. It's a real safety problem--people have died! The police won't even come down here at 7am or 3pm. (trucking / warehousing)

Street deficiencies in Rivergate

In Rivergate, there aren't outstanding infrastructure issues—the Port of Portland takes care of it. The Columbia Corridor is in pretty good shape, too. (industrial broker)

Time Oil Road is a private road, and we and the adjacent property owners have to maintain it through an agreement. Although the maintenance and easement agreements are clear, it would be great if it could be a public street, because others use it. We wanted to dedicate it to the City, but the City has been unwilling to take it because it doesn't meet the City's standards. The City doesn't want to maintain it even though the road is in good shape. It was recently improved as the detour route for the Lombard overcrossing project. (property owner / representative)

Road design deficiencies for trucks mobility

No more tunnels! All hazmat trucks are restricted from going through tunnels, including the Sunset tunnel. If any new tunnels are built, it would be a huge problem for us, especially any tunnels on I-5. (trucking / warehousing)

We don't have any employees that bike to work. Bike lanes reduce truck mobility. Bike paths are a safety and security concern. There are trails in Forest Park for bike riders. (trucking / warehousing)

We don't have many problems with turning radii because we use short trailers which track well. Folks who use long trailers have more problems with turning radii. Trouble spots include Lombard turning south onto Interstate and Interstate onto I-5. (trucking / warehousing)

I am concerned about the loss of arterials for freight—Naito Parkway, Fessenden, Lombard—the lanes are being restricted. The freeways are congested because the arterials are being necked down and closed to trucks. (manufacturing)

Our major markets were along the I-5 corridor, but that is changing because of hypermarkets, such as Albertsons and Safeway. Now we are in neighborhoods a lot more. Consequently, mobility of our trucks through neighborhood streets has become very important. We use trucks with trailers to improve the turning radius to get through the streets. The public may not want to see a lot of trucks on the road and have trucks affecting their traffic flow, but they want our product to be available. Keeping roads clear, paved, and wide enough for our trucks to get in and out is what we need. (trucking / warehousing)

Truck weight restrictions aren't too much of a problem here. (manufacturing)

Freight-only lanes are worth looking at, but is it realistic to get capacity added just for trucks? I don't see it, although freight wouldn't be opposed. But we would want to ensure that they don't go the next step to saying, "Now you can't go anywhere else." (manufacturing)

At-grade rail crossings cause traffic backups

I hear a lot about Front Avenue. The railroad crossings cause traffic back-ups. I waited half an hour last week. (property owner / representative)

Something should be done about the at-grade rail crossings at Thurman and under the Steel Bridge. (manufacturing)

At-grade rail crossings on Columbia are a problem. Columbia Boulevard is adequate now but will be a problem with more growth in the future. (marine terminal / port)

Also, we have difficulties with at-grade rail delays. At our Rivergate facility we can get stopped two times by the same train. (trucking / warehousing)

When the train goes through and we get stuck, we have to go around on Time Oil Road. (manufacturing)

We use rail to some extent. We don't have a rail siding on our property, but we do business with the railroad through the Port. We have problems with the rail spur near our property. They use it at 6 am when people are coming to work, which causes delays. (manufacturing)

We use both BNSF and Portland & Western and have some congestion at their at-grade street crossings. (marine terminal / port)

Access to and from our facilities within T-4 is a problem. This is a Port issue, not a City issue. We're blocked in here all the time because of potash and soda ash trains. (marine terminal / port)

Railroad capacity and service

Regional rail system congestion

Union Pacific sometimes gets totally paralyzed and can't move. A great portion of the railroad tracks through the Gorge and the region are only single tracks, which really slows things down. (marine terminal / port)

UP is always on the ragged edge of having a service meltdown—from consolidation of old lines, decisions made elsewhere, and operating at capacity. They've had three meltdowns in the past six or seven years. What happens is gridlock, and trains don't move. There aren't enough locomotives locally to fix the gridlock, so they need to pull them from other areas of the country. UP congestion in Houston hurt us for 6 months last year and cost us millions of dollars – it's the network effect, and everyone is affected.

Trackage in the region was built by predecessors of UP and BNSF. It is now operated for their use except where they allow short lines access to it. The geography of how things are laid out—chopped up—in Portland makes rail movement in the region very inefficient and should make transportation investments a priority. (railroad)

Class 1 railroads are at capacity, rationing services

We are turning down business everyday. We are landlocked and have no room to expand. We can only grow now through operating efficiencies. So, we ask new or expanding customers if they have room at their facility to add capacity and expand rail infrastructure. We want to be able to drop their train on their site because Albina Yard does not have room to hold more cars. Albina Yard is designed to move cars through and is already operating beyond full capacity. Burlington Northern Santa Fe is at capacity too. (railroad)

For new customers, the rail infrastructure requirements are tougher than five years ago. We are looking at existing customers to see which can add capacity. We have similar concerns as Union Pacific, but it's not quite as bad. We just have to make sure we have capacity in the last mile when we look at new customers. Example: Gunderson uses the track across the street from them in Lake Yard to store their cars, but we would like to use that track ourselves. (railroad)

Last month Union Pacific announced they were doubling their rates. (manufacturing)

The shortlines have capabilities, but they are hamstrung by their leases. Pacific & Western railroad abandoned their Rex Hill line, so now the McMinnville trains have to go all the way down to Albany to get here. (manufacturing)

Increasing site needs for rail access

Unfortunately, it takes a lot of land for a siding—about 7,500-8,000 feet of clear track on a site. Some sidings are now 9,000 feet long. Grain and soda ash trains are now at least 100 cars long. Canpotex trains are 125 cars. (railroad)

Building loop tracks for mile-long unit trains is great. The less switching we have to do, the better. But we need a 120-acre site to do a loop track. We do not want to exceed 7.5 degrees curvature. (railroad)

If we could get industry away from our main lines to some extent, so we could get trains off and service them all day long, that would be great. We service Columbia Business Park (Schnitzer property in Vancouver), though it's a private switching operation. It is a very challenging place for us to service, since they're right off our main line. (railroad)

Rail availability is limiting marine expansion

Our biggest business problem is inbound rail infrastructure. You could create new business for us overnight, and increase our capacity, if sound investments were made in rail infrastructure. We are working with the Port of Portland and the railroad to improve these problems, but running a railroad is a tough business. Getting product shipped to our facility is a bigger problem than the demand for the grain. If we can't get the product here, it doesn't matter what the Chinese importers do. (marine terminal / port)

It's important for the railroads to deliver the right cars from the various shipping areas at the right time. We handle many different types of wheat. Soft wheat in the Pacific Northwest is different than the hard wheat from Montana and North Dakota. Due to infrastructure issues, the trains are not as flexible as the ships, and the trains sometimes determine our vessel rotation. The ships wait in Astoria and we call them in when we are ready. (marine terminal / port)

Union Pacific provides our rail service. We arm-twisted Union Pacific into allowing us to also use Burlington Northern, so we can now use both, but Burlington Northern's service is limited. Seventy percent of the product goes out by rail from this facility. When we first moved into this building in 2004, we were shipping 50 rail cars a day. In April, we expect to be shipping 80 loaded rail cars per day for the Midwest. (marine terminal / port)

Rail is a huge issue. Now that the channel will be deepened, road and rail are significant concerns on both sides of the river. As freight increases, our rail traffic from Tacoma will increase, and rail connections are more and more important. Steven's Pass, the primary double stacking line to Tacoma, is expected to reach capacity in 2011-12. River traffic here will increase because of that. That's why we're looking for better ways to get rail into the Port of Vancouver. (marine terminal / port)

Declining rail service to heavy industry

We have rail service, but it is poor. In the past and elsewhere, we've used rail, but it's untenable here and now. Any notion that you'll be able to easily incent cargo to move from one mode to another is bogus. We can't schedule production because the rail doesn't come on a regular basis. Trains can come in 3 days or 30 days. (manufacturing)

The Class I railroads don't want to be interrupted—they just want to hook and go. Plus, industrial unit trains used to be 50-100 cars; now they're looking at 200-300 cars. That's their business model. We need a different model for rail in this region. (manufacturing)

The delay of supplies coming in by rail can shut down our plant. It definitely affects our productivity. Our alternative is to use trucks, but it takes four trucks to equal one rail car. There is a big cost advantage to using rail. Sometimes the rail service is good, and sometimes it's worse. This has been going on for a long time. No one has any sway with the railroads. They're the only game in town. Our few rail cars are not a priority for them, and they don't really care about our business. I've seen the situation progressively decline in my time here. It's not easy to do the business they do, though. (manufacturing)

Rail access to our site is good, but we have problems with the railroads. It does not take long to get the rail cargo within twenty miles of here, but then the rail cars sit in Vancouver or Willbridge for a week due to back-ups, and we get charged for the cars just sitting there. When the rail cars are stalled, the only way to get our product here sooner is to get trucks up here from California to pick it up. Recently, we did forty truckloads in a week because the rail was held up. We average about three rail car switches a day. Mostly we work with Burlington Northern, but we also work with Union Pacific. (manufacturing)

Our biggest transportation issue is rail car availability. This is not an issue every month, but often. Rail access is in place, though we are putting in new rail lines, but it is service that is the issue. There was a rail

employee shortage a few years ago, and we spent a lot of time managing the rail service to make sure we could get it and when. Rail car availability continues to be a problem. (manufacturing)

It's really hard to work with the railroad and cobble rail service together. The Port spots cars for us twice a week and we go get them. We bought a machine to pull them into our yard. Class I operators – unless they're pulling 50-car trains to the middle of the country – they don't want anything to do with you. We're lucky we got them to do what they're doing now. But if we can give them 100 cars per week, it may make sense to them. We have been talking to a short line operator to get rail cars in and out of our facility, building trains to transfer to UP at Albina Yard. Potentially, the Port could contract with the short line operator for us. Our product isn't time-sensitive, so we can use rail. (manufacturing)

We don't send our product by ship, we use mostly trucks and some rail. In fact, we're moving more to trucks over rail, purely because of economics. If the economics shift, we could use rail more. A lot of our supplies come in from the Midwest. (manufacturing)

We're a huge rail user. The great majority of stuff in our warehouse comes by boxcar—they come directly to us. Our facility in North Rivergate gets 15 cars a day from Burlington Northern. It's difficult because they want all unit trains. If we could get more switches per day, we could increase our capacity. Third party switching could help us tremendously. At-grade rail delay is another problem. (trucking / warehousing)

We get rail, water and air packages. We are a time-sensitive customer, and the railroads are inundated with freight that is not time sensitive, so it's a challenge to make sure our stuff gets through on time. We are a huge rail user, though we're moving more and more to truck because the train is less reliable. We need to be able to remain competitive, and competition for rail service is affecting our business operations. This facility is not directly rail-served—only a few of our facilities around the country are. We drive to the rail yards to pick up our packages. We get 40-45,000 packages daily from Burlington Northern, the equivalent of 20-21 truckloads. The Union Pacific train from Los Angeles comes into Brooklyn Yard everyday with about 50,000 packages (26-30 truckloads). (trucking / warehousing)

Limited rail budget in Portland region for capacity expansion

We sunk \$2.4 billion into this railroad last year, \$1 billion just to keep the lights on. There's a limit to what we can spend on capital investments. When you run out of money, you draw the line. There are lots of worthy projects you can do, but money is the limiting factor. When we make decisions about capital projects, we model how we use the lines and how much delay can be reduced, to figure out the costs and benefits of each project. We participate enthusiastically in public/private projects, including the T-6 lead and Kalama. (railroad)

Union Pacific is double-tracking where we can across the country, such as from L.A. to El Paso at a cost of \$3 million per mile for 500 miles. We have a capital budget of \$3 billion for the entire 35,000 mile rail system, so we have a lot of projects that we just can't afford to do. Just to maintain the rail, tie, ballast and bridge costs half of our capital budget. (railroad)

Rail infrastructure deficiencies

There are many other projects that we would like to do:

- We would like to extend grade separations and double-track the entire Kenton Line and Barnes yard. The Kenton Line, from Troutdale to Portland, is very important to the health of Portland and is a critical rail corridor.

- There is currently a single track on the I-5 line at the Columbia Boulevard crossing. This needs to be expanded to a double track to alleviate the bottleneck.
- We need to add a turn line at I-84 for trains from Brooklyn Yard heading out east. Those trains currently have to go all the way into Albina Yard, and we would like to be able to just turn the corner. There is a warehouse right there that was built right before we merged with Southern Pacific.
- We have talked about building bypass lines around the yards to keep through-freight out of the yards. We would like to run trains all the way through Portland without having to bring trains into our yards. (railroad)

We could serve Swan Island better if we could move the intermodal facility out of the Albina Yard, tear down the freight house, and redesign the yard. We want to move the reload facilities from the freight house to the side of the hill where the intermodal is now located. Then the intermodal facility could be relocated to the Brooklyn Yard, or perhaps Troutdale. Wherever the intermodal facility is located, more trucks will go there and could overload the street system in that area, so you need to plan it well. (railroad)

The tracks on Swan Island are in bad shape. There is little capacity to hold cars on-site down there or room to add new tracks. And Going Street Bridge is a dangerous bottleneck. (railroad)

We currently have to slow down our trains when we get onto Burlington Northern's main line because we have to wait to be dispatched. (railroad)

We have problems on Front Avenue over the Steel Bridge because it has a 6 mph speed limit. The Steel Bridge is owned by UP. No new bridge would be built with a 6 mph design. We own other railroad bridges and they are all 35 mph. (railroad)

Rail infrastructure and ownership in this area is complicated. Some tracks are owned by Union Pacific, some by the Port or Burlington Northern, some are on City right-of-way. For example, where the tracks south of this site run on Bradford Street, the infrastructure is old and the responsibility for improvements is confusing, so no one does it. (marine terminal / port)

We can't comment yet on bi-directional running in the Gorge. We don't know enough about it. (railroad)

Underused rail spurs expensive to maintain

The South Guilds Lake spurs, such as near Portland Brewing (NW 31st and Industrial) and south of Nicolai (east of I-405), were built many years ago for small customers who have no room to expand. Most of the businesses aren't rail customers anymore, and most of the sidings are dead. We service a few small industrial customers, but the amount of maintenance the tracks require is significant. And that area is not really industrial anymore. Unlike T-6, this area was at its industrial peak 50 years ago. It's got one foot in the doorway to change, to redeveloping into something new. (railroad)

There's only a little activity on the rail spur near us – maybe a tanker once a week – and it makes maintaining the streets a big headache. Union Pacific and the City go back and forth over who should be responsible. The usage is so low that it's not worth the maintenance headaches. The tracks should be taken out of the streets. (manufacturing)

At-grade crossings impede rail mobility

We are trying to get a Columbia Boulevard overcrossing structure built at the Penn Junction crossing. All of our trains from the north (Seattle) and half the trains from The Dalles go across that one track. At Cully, we want to close the road crossing, but it is the only way wide loads can cross the tracks. An overpass built

there would help immensely. Grade separation at 11th Avenue is also being planned. An overcrossing has just been constructed at Lombard, which allowed us to add 3 new lines there. (railroad)

We are always concerned with at-grade crossings for safety and fluidity. Between Lincoln and 39th Street, for example. Since we built the new Lombard overpass, Leadbetter is less of a problem. However, where we cross Marine Drive, we're going to have more trains go over that, not fewer. That's 10 to 12 minutes of blockage every time. (railroad)

There are 68 at-grade rail crossings on Swan Island. It would be better if the crossings could be closed and a frontage road built. (railroad)

Shared-use agreements to improve service must make economic sense

Independent and neutral parties conducting third-party switching on the tracks can improve efficiency through bottleneck areas. The Port has entered into negotiations with another operator to do third-party switching in Rivergate. Third-party switching does work, but only if both railroads enter into it with the goal of maximizing efficiency. A good example of successful third-party switching cooperation is the Powder River Basin coalfields. (railroad)

Third-party rail could be helpful, but it would need to make economic sense. We are not sold on it yet. They would need to have the capacity to build trains and to handle unit trains. (railroad)

The concept of converting the Union Pacific and Burlington Northern lines along the Columbia Gorge into a shared one-way couplet would be difficult because of the loss of control over our destiny. The railroads already work together a lot. (railroad)

Rail-residential conflicts

Lack of forethought by building housing next to rail lines is of grave concern to us. It will limit our capacity to operate. I was out of the country from 1993 to 2000 and, when I returned, was struck by the amount of industrial land that had been converted to residential or commercial land. A lot of this former industrial land either had been served by rail or could potentially have been served by rail shippers. (railroad)

Boise Cascade just put out an RFP for development of a large site east of the Port between downtown and the waterfront. We think it will be mixed-use development. The City will be very interested and focused on what will be done with this site. Keeping a viable rail connection through that area is critical to us. The City would like to eliminate the berm carrying the east-west line and push the rail as far north as possible, but it can't go much further north due to engineering. They're also starting to understand the importance of this line and are now on board with getting to a workable rail design. We'd like to create a whistle-free zone, since we know this line will go through an area that will eventually be mixed use. There is also growing acceptance that nearby businesses and residents will have to live with the rail, and we will have to create sound barriers to minimize the noise. (marine terminal / port)

Federal Railroad Commission now requires engineers to blow whistle for a minimum of 15 seconds at crossings. We now get a lot of whistle complaints. It's hard to come up with regulations for a quiet zone. We get a lot of complaints here in Vancouver. (railroad)

The trains have to sound their whistle whenever they cross a road. Twenty hours a day they blow their whistles. When we build trains, the train goes back and forth and back and forth across the road. One train switch starts at 10 pm. We are working with the Port to establish a Quiet Zone but it will take a substantial capital investment, given that it is a Union Pacific mainline. Quiet Zones are complicated and require

physical barriers across the line. Is it something we can live with? I think so. Still, a Quiet Zone will only stop the whistles, not the switching noise from building trains. And the line is underused right now. Train traffic on it will only increase as time goes on and capacity issues worsen. (marine terminal / port)

We haven't had huge rail crossing issues along our lines, not like the problems UP has in Albina, or that BN has in Vancouver. Industrial operations are more forgiving than residential neighbors. (railroad)

There is talk about a "quiet zone" in St. Johns. We testified a year ago about growth on the St. John line, advising not to build condos near our lines. We are just going to be running more and more trains on them, and residents will complain. We are not going to allow any new at-grade crossings. Instead, we are pushing to close crossings. (railroad)

Harbor depth

Channel dredging

Dredging at the mouth and channel of the Columbia River is critical. Ships are getting bigger and they need to be able to get to and from our facilities. Twenty years ago, the maximum load size for a ship was 52,000 tons. Now the maximum load size is 60,000-62,000 tons requiring 40 foot draft. Ships sailing out of Vancouver, B.C. now have a maximum load size of 75,000 tons and 43 foot draft. In order to be competitive, we also need to be able to load 75,000 tons per ship. In the feed grain industry, Tacoma and Seattle load bigger shipments than Kalama, which is a big economic advantage. (marine terminal / port)

Channel deepening is a huge plus for attracting larger importers. Portland's greatest asset is that we're a gateway city, like Long Beach, Tacoma, and Seattle. But we haven't realized our potential due to restrictions. (trucking / warehousing)

You need to get the river dredged. We ship a lot of containers out of Portland. Mostly, they go through the Port, because it wouldn't pay for us to do it ourselves anymore. (manufacturing)

We maintain our slip, but maintenance dredging of the Willamette itself is a topic of discussion among folks doing business on the river. Shoaling in a variety of places could cause problems. (manufacturing)

We were really low on fuel in mid-December because ships could not cross the Columbia bar at the mouth of the river. (marine terminal / port)

Moorage dredging

The biggest infrastructure challenge we face is the draft alongside our dock. Our dock was last dredged in the early 1990s. In comparison, Chevron does maintenance dredging every other year. At a 0 river gauge, we have 27.5 feet at our Linnton dock (that's what we publish), but we can't guarantee that depth year-round. Thirty-two feet is a viable depth for us. We will look at deepening our dock to 32 feet in the next 10 years. (marine terminal / port)

Lack of reliable river depth has caused problems for us with regard to moving into the new markets. In contrast, Vancouver's harbor is 40 feet deep. I don't see us relocating, but I can see that, if people are going to put money down, they may want to locate in Vancouver. We are handling 40 percent of the volume inbound by marine. We handle marine products outbound over our dock, as well, which is unusual. (marine terminal / port)

There have been lots of press releases recently about the depth of the draft at the Port of Portland. People say that the Port of Vancouver is deeper, and is stealing away business from Portland. The Port of

Vancouver recently attracted a jet fuel project for the City of Portland and Klamath Air Base. They move a couple hundred gallons per month. A shipment of 100,000 barrels of caustic soda was also given to Vancouver. Although Vancouver only has a very small liquid dock, they have no problem with draft and move a lot of liquid through there. Both of these projects could have gone to Portland. Companies that have shallow docks, such as Kinder Morgan, are at a disadvantage because oceangoing vessels need a depth of 32 feet. The Willbridge facility has a 32 foot deep access. (property owner / representative)

Transit improvements, limitations, and costs

Swan Island and its businesses have encouraged mass transit, but we would be lucky if 5 percent of our employees used transit. We would like to follow Nike's lead; they've been very successful in inspiring transit use by employees. Swan Island has an active Transportation Management Association, and Lenny Anderson works hard to ensure the transit services to Swan Island are reasonable. Bus line #85 has increased its schedule and now that line services Swan Island all day, not just during commute hours. However, we are not a transit hub, so MAX users have to transfer at the Rose Quarter to get to Swan Island. And there is no bus service from Swan Island to Clark County because C-Tran stopped running. (industrial association)

We face major transit challenges in getting our employees here by public transit. We worked with Tri-Met to improve the frequency of buses and coordinate bus timing with shift changes, but all plant shifts start at different times. TriMet will only add buses if you can guarantee riders, and no one wanted to take on the liability for a shuttle bus. Maybe distribution firms need to band together to create a group to deal with this issue. If we could at least get a bus during the peak summer season, it would be helpful in our hiring efforts. (human resources manager / representative)

Lots of industrial workers don't come to work at the same time every day. Truckers don't know what their schedule will be until 2 hours before they have to be there, so it is hard for them to use mass transit. (industrial association)

On Swan Island, there has been an increase in employee mass transit ridership since the Interstate MAX opened. (industrial association)

Reactions vary about the benefit of the Interstate MAX. In Lower Albina, I haven't seen a noticeable increase in transit ridership since the MAX opened. I think the tracks should have been built on the hill on Vancouver Street or Williams, where the people are. The location of the tracks significantly decreased the capacity of Interstate Avenue for freight travel, which went from four lanes down to two. (industrial association)

There are no bus stops in this area. The closest bus, #17 that goes up NW 21st Avenue to St. Helens Road, stops too far away for our employees to ride. Getting Tri-Met buses to this area would help us get our employees here. (trucking / warehousing)

Transit service and use has gotten much better. A number of employees use transit – many part-time folks use the bus regularly, and some office employees use it occasionally. We work with Tri-met to try to get better service, but the nature of our business is such that it's not conducive to transit use. Our drivers are done when the truck is empty, which is a different time every day. The bus comes only every half hour. We have begun a shuttle bus for shift changes, which is helping. Running a private shuttle is our last resort because of the expense and issues related to insurance. (trucking / warehousing)

Our employees get free transit passes, and the bus drops them off right out front. But it is still difficult for people to take transit with the shift changes. (manufacturing)

Parking is a bit of a headache, but we do have some parking. We underwrite parking, transit passes and carpooling for employees to try to mitigate the impact on street parking. (manufacturing)

Transportation for workers is tough. It's hard to get people here [Rivergate], and then it's hard for them to get home. We lobbied TriMet and were able to get bus service out here on Saturdays but the ridership wasn't there. (manufacturing)

TIGHTENING LAND SUPPLY

I have four main impediments of concern: 1) land use conflicts; 2) how to pay for maintaining transportation infrastructure; 3) Superfund uncertainty – it's hard to reinvest when you don't know what will happen; 4) marketability of construction sites. (industrial association)

Lack of land is limiting growth

Few sites available for new development

Rivergate has only one more large parcel left. (marine terminal / port)

There isn't much available industrial land in the harbor area; we're landlocked. I'm concerned about that. There's only so much industrial land left. (trucking / warehousing)

Most of our clients don't want to lease, they want to buy, and they want land that has easy access to the freeway. Where is the land for them? The Schnitzer property has some available land, but other vacant sites, like Time Oil's 50-acre site, aren't deliverable. (industrial broker)

Our inventory of available properties is so low right now. Sometimes I look at properties that are for sale and there's only one or two out there. To be useful, sites need to be available and ready. If sites aren't ready to go, that property falls off the list. (property owner / representative)

It would be very helpful if we had a greater pool of properties to offer these firms. It's hard to find land that meets clients' needs. Larger parcels particularly. If a firm needs more than five acres, it's extremely hard to find a site. The majority of industrial inquiries are for land parcels that are larger than what we have. If the list of available properties were larger and more diverse, more new development would be able to occur. Projects that are staying in the region are going outside of Portland to places like Canby. (property owner / representative)

We would like to sell or lease some of our extra land, but we don't even know if someone could build on it due to brownfield concerns. (human resources manager / representative)

Lack of land is limiting business expansion

After we add the 21 new acres, we have nowhere to grow. There is no available vacant land nearby. We're a land hungry business, and we may eventually outgrow this location. After all, we have been seeing 8-10 percent growth annually. However, I don't think that's going to be a problem. One response is that we are moving our domestic product distribution to Seattle to allow more room for imports at our Portland site. (marine terminal / port)

If we were to do it all over again, we wouldn't put all of our facilities here. There's no land to expand onto in Rivergate, and it's a problem. We started in the 1970s and we were the only ones here then. Plus, as

Portland grows, transportation problems may get worse to the point that being here doesn't make sense. (manufacturing)

One of our constraints is the difference between the acreage we want versus what is available. There is not a lot of property left down here. We're landlocked. The Navy is on the other side of us, and we tried to buy some of their land, but the price was too high. There is also uncertainty about environmental contamination on some of the nearby properties we are interested in acquiring. When do you say, "Let's give up and go elsewhere?" We're very close to that. That's why our expansion isn't for sure a "Go". But even if we did move our operations to the land we have at 185th and Marine Drive, this facility on Swan Island wouldn't close. It would just be a smaller operation. (trucking / warehousing)

The major constraint is that there's no land out there. We have run out of space at our Rivergate facility. And what land is available is very, very expensive. Everyone says industrial land is most expensive here in Portland. The Port sells land for top dollar. One of our biggest issues now is lack of space to store our slabs. (manufacturing)

We ship product out from Linnton because our warehouse is there. At this facility we're constrained by acreage. We have to shuttle products from here to there constantly, 24 hours a day. (manufacturing)

This has been a great building and location for us. The building is structurally sound, and we didn't have problems rehabbing it when we bought it. It used to be a bag factory – they made potato and onion bags. But we did have a tough time finding a building large enough. Once we determined that we needed more than 60,000 square feet, it forced us to look outside of the Central Eastside. There were so few options that we almost said maybe we should go out to Tualatin. But we're here because we want to be in Portland – even though we paid more for being here. We wanted to stay in the city and remain close to our customers and employees. (manufacturing)

Most industrial land demand is for development-ready sites

Is a 6-month delivery time to make a site ready for development quick enough? It depends on the user. If 10-20 acres is needed, there are so few available sites that clients will wait longer. (industrial broker)

People typically won't wait longer than a year, but all sites have some constraints. Shoot for sites being shovel ready in 6-9 months. Also, certainty is important. You need to be able to work with the jurisdiction and know that it will keep its promises and nothing unexpected will crop up. (industrial broker)

A shovel-ready program can cut 6-12 months off the development process, and would not be a big deal to set up. We're currently working on a couple shovel-ready sites going to multiple owners. (industrial broker)

At the very least, cleanup needs to be able to happen within an acceptable time frame. (industrial broker)

Brownfield and Superfund constraints

Limited demand for harbor area's predominant supply of brownfield sites

Most prospective buyers don't want to deal with contamination. People pass up those sites to go further out. Cleanup is expensive. It may add another few dollars per square foot on top of land costs. Plus, cleanup takes time, 2-3 years sometimes. (industrial broker)

When we were searching for a building, we quickly learned that everything would hinge on environmental issues and finding someplace where I could protect myself from potential liability. For example, I had to sign a non-disclosure agreement to even come close to seeing what the conditions were at one site. There was

solvent contamination and, although it was obvious the contamination had originated from adjoining properties, there was no way to prove that in court. It was a great building that didn't hold any risk for my employees, but I consulted the best lawyers in town and they said I couldn't necessarily protect myself from future liability. It was a very sobering experience – here we were trying to bring in all of these jobs, and it was so difficult to find a clean property. When this building came up and it didn't have any ground contamination, we jumped on it. There are so few clean properties close-in. Even after all that, we found some contamination here last year. (manufacturing)

Brownfield sites are opportunities, not just constraints, but many companies don't see it that way. Many people walk away quickly when the brownfield issue comes up. One metal anodizing company has a policy not to touch a brownfield, but in the harbor all of the big sites are brownfields. Smaller companies don't seem to be as deterred by smaller brownfields. (property owner / representative)

A potential client wanted to use the former Time Oil property for biodiesel. Only half the site has received a "No Further Action" notice from DEQ and that half is in the floodplain, where development is restricted by balanced cut and fill requirements. So the client is looking across the river instead. (railroad)

Future liability for in-water Superfund cleanup is a development barrier

In 10 years, everybody within ¼- to ½-mile from the river may be sued to pay for the river cleanup, and will have to defend themselves in court. I tried to get a "get out of court free" prospective purchaser agreement for sediment liability, but they are not available, so I gave up. (industrial developer)

The potential liability for river cleanup is a big deal. It's too risky to know that you may have to spend hundreds of thousands of dollars defending yourself. The only recourse for those people identified as having contributed to the river problems is to sue everyone else to try to spread out the burden. Any site with contamination is uncertain and opens you up to potential liability. Superfund is a huge cloud and there's no reason for developers to take on the risk. The City could be very effective if it could work with the EPA to help defend property owners from suits. (industrial developer)

Superfund is complicated to explain and it's difficult for people to grasp the details, so they give up and decide to look elsewhere. The turn off is not just the liability, but the perception that goes along with the idea of "Superfund" – the sight, smells, and other negative images. (industrial developer)

On the other hand, when demand is great enough or there is a strategic reason for a user to locate on the harbor, the barriers of contamination will be overcome by users. For example, there was a situation in Tacoma next to Cargill. A property owner was working with the Department of Ecology to clean up the site. They had ten offers from tenants who needed to be there. Users that need a particular site will overcome contamination and liability concerns, but developers won't. (industrial developer)

While many companies may be okay looking at a brownfield, when you add in the Superfund uncertainty, it's too much. Superfund is a scary word. (property owner / representative)

The uncertainty and liability issues surrounding Superfund and brownfields are a big concern. We've seen deals terminated because people are scared when sites have existing outfalls. Maybe there could be some kind of insurance that's subsidized by the City so people are assured they won't have to pay for stuff they didn't do or spend legal fees and/or time proving they didn't do something. This represented a huge time and money cost for considering acquisition of the Marcom site. (marine terminal / port)

Other Superfund project challenges

We are a member of the Lower Willamette Group. It has been challenging for the industrial owners to find a balance with the Environmental Protection Agency (EPA) on issues such as cleaning up the river to drinking water standards. Also, EPA keeps changing its mind, such that the 2008 schedule for completion of the Record of Decision could go to 2009 or 2010. And remediation could take another ten years after that. (property owner / representative)

Since so much of the Port's money is tied up in Superfund cleanup, the Port has limited borrowing capacity. This impacts the investments we can make. We can't fund big investments on our own, like \$60 million for a grain terminal. We need to find partners or find other ways to fund big projects. We're spending \$3 million on rail investments. (marine terminal / port)

The Superfund site is a huge problem. One result is the inability to get permits to get work done on the water. We will want to expand our dock at some point, but it is looking like a 3-year process with no end in sight. It's something that we should be able to get through in a year. Superfund is a boon for attorneys and environmental consultants. (property owner / representative)

Superfund is a constraint because of the dredging questions related to it. It's possible that Superfund will expedite some of the permitting for dredging to deal with a "hot spot." (marine terminal / port)

Superfund is a double-edged sword – both a market opportunity and an impediment. Our liability is pretty limited, but property tax assessment decreases mean that there is no money in the urban renewal area to help us out. (manufacturing)

Other brownfield redevelopment challenges

Overcoming the uncertainties related to Superfund was a large hurdle in purchasing our site. We spent lots of time and energy doing our due diligence to understand the liability associated with it. DEQ declared it an Orphan Site, and because no one was representing the property, there was no one to clean it up. Although the site was lily-white clean, really, the cost was high because no one was managing the site. We worked out a Prospective Purchaser Agreement and Settlement Agreement with the owner, which is bankrupt. DEQ gets a settlement out of the sale of the property to us because of the uncollectible bills incurred by the assessment and cleanup. (property owner / representative)

Environmental concerns would be a challenge if we wanted to do redevelopment soon. We see the upland and waterfront parts of the property as separate cleanup sites. On the upland portion, we've done a good job characterizing the property. A risk assessment and feasibility study are underway and expected to be finished by the end of the year. On the waterfront portion, we are currently doing a source control investigation and feasibility study. Beach wells are showing that nothing is leaving the site and getting to the river. We're running a hydrogeologic model to look at tidal influences. Even if we had a tenant ready, that wouldn't make the process go any faster. Also, it is hard to enter into a purchasing agreement with property if there are remediation issues. It helps to have a good assessment and plan in place. (property owner / representative)

Looking at a particular vacant site on the harbor, people are interested in purchasing it, but the owner has unrealistic expectations that a buyer will take the brownfield liability away from them. (industrial broker)

New owners coming in are now responsible for clean up of their site. Only some firms can afford the expense of this clean up, and it is not always clear what the new owners have to do to get the site ready to build on. For example, Chevron and Conoco are both installing screens in the water to help in their clean

up, but this is a costly project and most companies can't afford the expense. If the public wants the river protected and to make sites ready for redevelopment, maybe public funds could be used to help pay for clean up. (property owner / representative)

Other site constraints

Environmental constraints

Going out Highway 30, it has become popular to build sites along the hillside, but you need relatively flat land to do it. We've had one site on a shallow slope of the hillside for five years, but we can't get rid of it at the \$4 per square foot price the seller is asking. It will cost \$2 per square foot to dig out the slope. If we dropped the price to \$2 per square foot, someone might be willing to pay to expand the flat area. (industrial broker)

The Schnitzer Steel land is great at this time, but is 3 feet below floodplain level and will be underwater someday, so people won't go there. Other sites down near the river also face this issue. (industrial developer)

Plus, you can't build tall buildings because you have to drive the pilings all the way to China! But we have already invested in the mill, so we are staying. (manufacturing)

Older, less efficient building and sites

Portland has a lot of bulkier, older buildings in the harbor, but modern, service-oriented firms don't need gigantic spaces, loading docks, or heavy industrial capabilities. The existing buildings that we have zoned for heavy industry exceed demand, and the existing building stock is not easy to rehab into more useful service-oriented configurations, like flex space. (industrial developer)

The lower Guild's Lake area was built for 28-foot trucks. Trucks are bigger now. Looking at a particular 15,000 square foot, dysfunctional building, if it were torn down, a larger parcel of land would be needed for staging in the yard area. (industrial broker)

We talked 20 years ago about creating superblocks in the Central Eastside. We created Produce Row, which was a success, and those buildings have never been vacant since. The parcels we currently have aren't big enough – a quarter block is much too small for an industrial user. In the Central Eastside, it's better to convert these old 3-story buildings that have no parking or loading capabilities, to other uses. They should not be zoned IG1. (industrial broker)

I've been touring all the vacant buildings in the Northwest District on a quarterly basis. Prospective tenants say this district is such a good location but the old industrial buildings don't work because of the improvements that need to be made. We hear that all the time. If the firm is leasing, it doesn't make sense to invest a lot in renovating the building. (property owner / representative)

Recently, a Los Angeles firm was considering a Northwest District location, but it didn't work for them – the ceilings were too low and they needed 40,000 square feet with loading docks. There are so many antique properties in the Northwest District. Often the ceiling heights aren't high enough. For many firms, the best place they can find without having to make a serious investment is in Gresham or another suburb. (property owner / representative)

Challenges of flex space development on small sites

No one has figured out how to meet demand for flex-space and smaller service-oriented buildings in this area, because making it work financially is difficult. Doing little one-offs isn't efficient. The challenge for developers is to find land available that is ready for building on, without all of the environmental problems and the uncertainty that accompanies the brownfields. When the brain damage is high, it's just as easy to build 150,000 square feet as it is to build 15,000 square feet. (industrial developer)

Risk of industrial land conversion

Industrial rezoning pressure

There is a trend of converting industrial land into condominium complexes. Every step in this direction decreases the opportunities for industry in the Portland/Vancouver area. Twenty years from now, areas like St. Helens and Scappoose will be attractive to industry because those areas can be built up without running into land use conflicts. The City, PDC and the Port should institute a plan for no net loss of industrial lands in the area. (property owner / representative)

The possibility of conversion of industrial areas to commercial and residential uses is a barrier to reinvestment. (industrial association)

We want positive support from the City that the leadership stands up and affirms that having industry here is a good thing. No one pays their hourly employees more than we do. And we have a big regional impact – lots of other firms are here because we are here. (manufacturing)

Apparently there is a purchaser in the wings for the Columbia Business Center. We don't know who it is. This site is approximately 240 acres and is zoned for heavy industry. The City wants to see the waterfront there developed as mixed use. (marine terminal / port)

I'd like to see the Linnton area maintained as industrial and expanded. The energy cluster will need more capacity if we're going to start handling greener fuels, which need to be kept separate. The viability of the industrial area is jeopardized by land use conflicts and safety and security issues. Other uses near hazardous cargo will create pressure to convert later. The railroad is also a driver of industry, and the existence of this key piece of infrastructure in this area is a good reason to keep residences away from our facilities. (marine terminal / port)

The issue of industrial vs. commercial uses in this area needs to be resolved. The Linnton neighborhood is proposing rezoning for housing in this area. It would be a tragedy if this land was converted to housing or commercial since land with these characteristics is so scarce. (railroad)

This is an industrial sanctuary, but there is concern that another Pearl District could be built here. This impedes industrial investment because firms don't want to be next to a condo project. Many businesses feel constant pressure and uncertainty about the future of the harbor area, so they need to be able to trust that the City will not to rezone the land for something else. (human resources manager / representative)

The inner NW industrial area needs to remain an industrial area, not paved over. However, some of it should be leveled and redone, to use the sites more efficiently. Portland Meadows is a good place for industrial development. The PGE property in Harborton is really nice, with beautiful tanks and rails. (property owner / representative)

Companies on the harbor are changing. The smaller oil and gas companies have gone by the wayside. Marcom shipyard is gone now. Coppers Industries was dependent on the aluminum industry and is now gone. The area near that site is prime for redevelopment. (property owner / representative)

Central City expansion

We wonder what would happen if ESCO went to all offices at their facility. We don't have noxious fumes, so maybe it would be okay, but we'll have to worry about parking then. And, if the zoning changed and taxes went up, that might force us out. Foundries in urban areas are a thing of the past, generally, so how long will ESCO be there? Where do you draw the line? ESCO buffers us from economic development pressure right now. If they left and we became the edge of the industrial area, it could drive up property values. (manufacturing)

The market along Vaughn at the edge of the industrial district is more dynamic. Owners in that area see the property value advantages of that location for them. Flex space is being suggested as the right buffer along Vaughn. (industrial association)

Industrial companies in the Northwest District (south of Vaughn) are being pushed out by commercial and residential encroachment. What used to be an industrial sanctuary now has residential development. If a business there wants to expand their facility, it impacts the residents. An example is the post office trucks in the Pearl District. They were there when the residents moved in, but now the residents are complaining. (industrial association)

A machine shop operator in the Northwest District is getting pressure to move, but he owns the building and his land is now worth a lot more. It's his retirement fund—he can turn it into condos. Yes, business owners want the industrial sanctuary to protect their business, but down the road, it's nice for property owners to get better prices for the land than industrial zoning gets. (industrial association)

There were neighborhood struggles with the Northwest District Association (NWDA) and community members who were concerned about air pollution. (property owner / representative)

Some Lower Albina property owners express that they don't expect they will still be there 10-15 years from now. Folks don't feel forced out, but they see the writing on the wall because of the light rail stop and the activity on Russell. We hear the same thing from companies on the border of Vaughn, near the Pearl District. But the mindset in Lower Albina is much different than that in Guild's Lake. (property owner / representative)

Some industrial firms that own property east of Interstate in Lower Albina are okay with the direction the district is going because they can make a killing on their property. A chemical business wants to move over by KinderMorgan. They don't mind getting out. Their property will be a brownfield. However, some true industrial firms are scared to invest because, "This looks more like SoHo than an industrial area." There are concerns that new uses will hinder the 24-hour operating ability of the industries and undermine the viability of the area for industrial uses. There is even uncertainty about signing leases west of the Albina overcrossing. (property owner / representative)

Long-term costs of conversion

We need to not turn our backs on manufacturing. It's an important part of the economy. We need to restore and redevelop sites that are unused. When firms leave, a site shouldn't necessarily become a Starbucks. It's important to maintain an industrial sanctuary in the harbor. The investments are made there and there are tremendous spin-offs. In Oregon, there's nowhere else for industry to go, due to LCDC rules, and

because we need multimodal opportunities—barge, rail, and truck. We need places for heavy manufacturers—those that are “dirty, dangerous, or difficult”. We also need more area for warehousing. We need to maintain a mix of different industry types. And we need space for all of them. (manufacturing)

When there is a supply problem, it definitely affects us. We’ve had terrible supply problems at certain times. Sometimes the problems result from delays further north along the pipeline. Sometimes the increasing diversity of products can cause a shortage, since each type of fuel needs separate storage and there is a lack of storage capacity and very little space for expansion. Having more product coming in would be great for us, but I don’t think there are investments the City could make to improve supply. It’s important to leave vacant industrial land available for future industrial expansion, because eventually the fuel terminals will need more capacity. One land improvement that would be helpful is cleaning up the brownfields. (trucking / warehousing)

If the workforce here concludes that there is no support for the working harbor, they will move as a block elsewhere – Linnton will be a signal to them. (manufacturing)

The McCormick & Baxter Superfund site isn’t fully cleaned up. That site should stay industrial. (manufacturing)

Residential encroachment

Community issues are big for us, particularly as the area intensifies. We’re across the river from 300 residents. Their complaints include noise, light, glare, perceptions of dust and other nuisance issues, both adjacent or across the river. It’s mostly complaints from residences, not office uses, but we may eventually have issues with Adidas. (marine terminal / port)

Those houses out that window are new. They are right next to our facility and right on level with my yard lights. We operate here 20 hours a day, running a day and a night shift. Right now they aren’t complaining, but the residents will forget who was here first eventually. We’re also seeing residential growth right across the river in Linnton. (marine terminal / port)

The costs of environmental compliance for us are even higher because we are so close to the Pearl District. People are concerned about living near heavy industrial uses, and the noise and odors that result. Anywhere you go in the world there are environmental regulations. But residential encroachment means heightened scrutiny: people call DEQ and complain, so it increases regulatory costs. We’re required to do better than compliance because of where we exist, even though our nearest townhouse neighbors don’t complain. (manufacturing)

No one wants us here, the neighbors that is. Only the City wants us here. And neighborhood conflicts are only going to get worse. If we started a melt shop again, the neighbors will say, “What’s that sound? You mean there’s a steel mill over there?” (manufacturing)

We sometimes hear about residential conflicts with industry. Residents of Portland have a strong voice in this city. Proximity to a neighborhood is a deterrent for many businesses. Some industrial users are concerned about being targeted. This is a big issue and the more crowded it gets, the more it becomes an issue. (industrial broker)

On Swan Island, we get some pressure from the neighbors up on the bluff because of transportation and environmental issues, but all in all, the district is very compatible with the nearby residences. We have been working to provide better access to the river for pedestrians and bike riders. (industrial association)

I don't hear anything about bad smells or headaches from smells, being in an industrial area. I smell the coffee roaster sometimes, which is not pleasant. (manufacturing)

There is a disconnect in the public mind. They expect fresh fruits and vegetables at the store, but they do not understand that trucks are necessary to get the produce to the store. (industrial association)

I also see conflict here between heavy industry and folks that want to hike, fish, and boat. (manufacturing)

It hurts our business when residential uses are sited near our land. For example, in St. Johns the new residents are complaining about the trains, especially the night whistles. Meanwhile, the City asks industry to run more freight at night to reduce congestion. (manufacturing)

The changing neighborhood dynamics are a big problem. Firms want to expand and they either can't afford to in this location, there is no room for expansion on their current site, or their lease came due and the rates have increased. A lot of our business retention work is not in rebuilding or expanding businesses on their current sites, but getting them relocated somewhere else in Portland – not outside the area. (property owner / representative)

As I look at Portland, gentrification is a bigger factor there in comparison with Vancouver. Reclamation of T-1 in the Pearl District was a big thing. There is a natural buffer here between residential and industrial areas, so traffic and noise are not a big issue like in Portland. The industrial areas are not threatened by residential encroachment because they are at different ends of the city. That could change in the future. Most other West Coast ports have land use conflicts because water attracts people. Luckily, we have maintained a buffer. Condos and cranes are closer in Vancouver BC and Seattle. (marine terminal / port)

WORKFORCE CONSTRAINTS

Hiring challenges

Limited industrial labor pool

We're trying to hire right now and we're not getting applications. We wanted 300 applications and only got 200. Seventy five of those we invited didn't come to interviews. We pay \$20 per hour. We need people who can read and write English. We do have a high standard in terms of work ethic and reasoning ability. We have a lot of workers from Southeast Asian countries, but we haven't been able to tap into the Hispanic workforce significantly. We recently advertised in a Hispanic newspaper, but we only got three Hispanic applicants. We used to hire through OED (Oregon Employment Department), but now that we are a government contractor, we are guided by federal regulations and hoops. (marine terminal / port)

Workforce is a tough one. Getting qualified people here is hard. The workforce is aging and the schools aren't pumping workers out anymore. The kids have to figure out on their own that the field exists and get trained. (manufacturing)

The people in between the unskilled workers and the college educated are a very small pool. It's hard to find those with a high school education and some technical skills. Getting people for creative jobs is not a challenge for us. Getting people for industrial jobs is the challenge. (human resources manager / representative)

We have a skills divide. Hiring from the middle ground labor pool, workers with a high school education and some technical skills, is a struggle. (human resources manager / representative)

Getting good craftspeople is hard everywhere. We're starting to focus on kids at the high school level to get them interested early. We also have trouble finding folks that want to work in an industrial environment. And no one wants to work swing shifts or graveyard shifts. (manufacturing)

Hiring skilled labor is always a problem, particularly in manufacturing. We do our own training because it's such a unique field—there are not any places around town training people to make steel castings. We have very low turnover, but have done a lot of new hiring. We have a lot of employees that are near retirement, and we need to be prepared to backfill those losses. The whole metals industry has the same problem, including Freightliner and Gunderson. (manufacturing)

Firms even have trouble hiring for union jobs. (human resources manager / representative)

High school students see their options as either going to college or working in a Wal-Mart or McDonalds. No one gives voice to doing the kind of work we're talking about in manufacturing. (human resources manager / representative)

Kids need to be alerted to their full range of options, so they can get on track to get trained early on. (human resources manager / representative)

High school guidance and career counselors could play that role, and turn kids toward these types of jobs. Mentoring programs would be helpful. (human resources manager / representative)

One company recently hired workers from Louisiana out of a union hall, because they couldn't find enough trained welders locally. They paid for their relocation and housing expenses. Another company is rationing their product, because they can't find enough suitable workers. They would like to hire 40 people immediately and can't find them. (human resources manager / representative)

Our work is cyclical so good folks can go wherever they want. We import labor from the Gulf (welders) and Puget Sound. There are lots of people in the Gulf that go from job to job to job, so when we need people, we import them. They're good and cheaper than people here, but they are not a long-term solution. There are temp agencies that specialize in welders or pipe fitters. Most of our workers are Asian. (manufacturing)

There is competition for workers between the construction industry and manufacturing. These workers have gotten used to the ups and down of these markets, but some will also chase an extra nickel an hour. (human resources manager / representative)

It is also getting harder to retain drivers in the metro area because they have other options, such as seasonal construction jobs in the summer that pay a higher wage. (trucking / warehousing)

I know of a particular company that located in Wood Village because that's where most of their employees are. (industrial broker)

Drivers here typically start as part timers and then go full time. Under our contract with the Teamsters, we can hire three part timers for every full-time person we hire off the street. Part timers get full benefits as drivers. The average wage for part timers is \$9 per hour plus benefits. Full timers get \$23-\$24 per hour and benefits. For the past few years we have had challenges getting all the people we need. (trucking / warehousing)

Challenge of shift work and on-call hours

I don't think it's about pay—hours are a bigger issue. Local driving jobs are prime jobs, and we pay very well. (human resources manager / representative)

Our hiring problems are more about work environment issues. Some people hate 12-hour shifts, and they have family or child care issues with working the long shifts. (human resources manager / representative)

Sometimes people will trade a good, high-paying job for a lower paying job with better hours or days of the week. Some of our employees are on call, 24 hours a day, and they get called in the middle of the night, and on weekends. It's a lifestyle issue. They'll walk away for better hours. (human resources manager / representative)

Many companies run a 24/7 operation and require drivers to either do shift work or be available on call. (human resources manager / representative)

Improve “image” of industrial jobs and the harbor

The perception among younger people is that blue collar jobs aren't good, but that perception is not accurate. Our average shop wage is over \$40,000 with full benefits, tuition reimbursement, etc. We offer good family wage jobs. (manufacturing)

It is becoming harder to recruit in the trades. There is a need to improve the image and awareness of industrial jobs in the labor pool. These are high-wage, high-benefit, home-owning jobs that don't require a college education. Our society seems to discourage young people away from blue collar jobs, but we need these kinds of jobs. There is value to the community in preserving and expanding these jobs. We also need to value and encourage businesses that pay more than minimum wage. (industrial association)

The public perception of being a trucker isn't a healthy one, the driver pool is shrinking and creates a difficult situation for us as the workforce ages. Trucking is a good family-wage job. The average wage for our drivers is \$17.50 per hour – about \$56-60,000 per year. Add another \$4,000 per year for benefits, and they make a very good wage. Many of our drivers work 10-hour days, 5 days a week, totaling 50 hours a week. The hauls are mostly local, so the drivers can go home after their shift. We used to be a seasonal operation, and we need to change the perception to reflect that we are a reliable, year-round operation and that we offer a good, permanent salary. (trucking / warehousing)

An obvious action would be to change the image of the harbor a bit. The public's impression of the harbor is often “dirty, dangerous, and dead”. Drive down St. Helens Road and that's what you see. The harbor is an important area for Portland – it's where rail, harbor, roads, and the pipeline all meet. It's the only place in this region where that happens. So, let's celebrate that unique meeting of infrastructure. Let's create a new, innovative image. Downtown has banners and silly stuff to create identity - that could happen in the harbor. These aren't just “family wage” jobs, they're “home-owning” jobs, “tax paying” jobs, “school supporting” jobs! (human resources manager / representative)

Educating the media would be time well spent. For example, a recent article in the newspaper talked about a possible ship-building operation and said the river is polluted. We all know the river bottom is polluted, not the water, but the image this statement conveys is that you shouldn't go near the water or you'll get sick. We need to change that image. (human resources manager / representative)

We need to market the industrial areas, because lots of people think they are rust buckets, when in truth they are viable and active areas. Education and marketing are key. Other than harbor employees or

nearby residents, people driving through the NW industrial area are there on weekends when it looks empty and vacant. This gives the impression that it is underused, that we are not an effective and valuable resource to the community. (industrial association)

I'm always amazed how people say "there's no industrial land left." I drive through the industrial areas and there is a ton of vacant land. Granted, much of it is on brownfield sites, and we need new resources to get them occupied. The amount of "For Lease" signs has also increased dramatically. The signs make it look like everyone's leaving, like the harbor is dead. (human resources manager / representative)

I'm a big proponent of eco-industrial development. We need a pilot "green" project to show what exciting things can happen and to show how the harbor can change. (human resources manager / representative)

Use of employment referral programs

We used to recruit job applicants through the state employment department until we learned that they were sending out the least qualified applicants for us to interview. They felt that their job was to get the most difficult people employed. They changed that policy, but we were victims in the past, so we wrote them off and never returned. (manufacturing)

Availability of workforce is a problem. We participated in a job fair last year with other metals companies—the Metals Expo. Our jobs are high family wage jobs with all the health and other benefits. This is our corporate headquarters so when our firm increases globally it increases employment here. (manufacturing)

We are just starting to tap into programs and initiatives to build our workforce. Many other companies in the Harbor have similar concerns. It would be great if we could band together and create a concerted effort on workforce issues. Our company's focus in 2006 is increasing our workforce. You can have the greatest streets, the greatest harbor, and all that, and I hope we do, but we also need to have the people to work here. (trucking / warehousing)

T r a i n i n g n e e d s

Job readiness

We have trouble filling positions that pay really well. Lots of folks have issues why they are not hireable – criminal convictions or a drug problem – there is a huge methamphetamine problem in the workforce. Many do not have communication, customer service, or computer skills. (human resources manager / representative)

Hiring truck drivers is a huge challenge. They can make very good pay, but finding someone who doesn't have DUIs or a whole list of tickets on their license is difficult. We get a lot of applicants with commercial driver's licenses that still don't qualify because they have liabilities on their licenses. (human resources manager / representative)

English-as-a-second-language training

A lot of firms require applicants to have higher education and the ability to speak English. (human resources manager / representative)

Although a high percentage of federal grants go to providing ESL [English as a second language] training, not all ESL programs are useful on the job. We need shop-floor language programs. They often need to be customized. (human resources manager / representative)

Vocational skills training

Many employers have on-the-job training because they can't find people with the skills they need. (human resources manager / representative)

The new workforce coming in often doesn't meet industry criteria. For example, a civil engineer from Germany, who had worked there for years, needed to go back to school here to meet employer requirements. (human resources manager / representative)

Labor costs

Our biggest cost is steel. The second is labor. (manufacturing)

We hire seasonal workers at the state minimum wage. That is \$2.00 an hour more than our sister plants in Wisconsin. Portland is just perceived to be a high cost place to do business. (manufacturing)

The cost of worker's comp coverage used to be high in Oregon and now it's not. We're competitive with California now. (human resources manager / representative)

UTILITY COSTS

Power costs

Utility costs are a big deal to us. We are not competitive with Kalama and other areas due to our high utility costs. We are served by Portland General Electric. (marine terminal / port)

We use a lot of gas and electricity. We just added a second air furnace at Plant 3. The supply of electrical and natural gas is okay—it is always available—but the costs are high. Sewer costs are getting pretty high, now, too, and are beginning to factor into the equation. (manufacturing)

Energy costs are a big deal for us. We were PGE's largest user when our melt shop was running. If the melt shop were reopened, it wouldn't necessarily have to go in Portland. It could go in Columbia County if electricity were significantly cheaper. (manufacturing)

Kentucky electric rates are lower. (trucking / warehousing)

Stormwater and sewer fees

High storm water fees are a huge issue, but they're also bad everywhere in this area. (industrial broker)

Our stormwater costs are extremely high. On a property near T-4, the stormwater charge was \$20,000, based on the amount of impervious surface on the site, even though they're not discharging into the city storm drainage system. Some businesses are viewing these fees as a tax, because they are not tied to city services. Also, there's nothing you can do to eliminate or reduce the fee, such as by using pervious paving. (marine terminal / port)

People don't have to locate in Portland and high costs make us less competitive. The stormwater fee is so high that for cars at the auto terminals, if a car sits there for three days, we can actually trace back the price increase that is attributable to the fees. It is a measurable cost per car. Some businesses are saying they can't afford to operate here because of the stormwater fees. (marine terminal / port)

Stormwater fees are much higher here, but there are firms that self-select out of this area because of high costs they perceive. Our region is not cost-competitive with the rest of the country – we've got to accept that. But we also have to compensate by becoming faster at developing areas to accommodate businesses. Portland is not cost-competitive for stormwater, but other things make up for it. (industrial developer)

Sewer and water bills are killing us. We are only able to stay competitive because our volumes are so big and we have economies of scale. We don't even turn on our treatment plant until we have half a million gallons built up. (manufacturing)

Every day that we have to pay the fees hurts us. Fees here are the second highest in the nation, second only to Seattle. That's a factor in attracting new business here to diversify our plant. We have to compete with other facilities to attract new business. Headquarters factors the costs in, and if the fees are too high, they will produce product on the East Coast and ship it to California rather than have us produce it. (manufacturing)

After all we did creating a 130-foot wide greenway with bioswales to filter runoff, we're still paying the same stormwater fee at our facility as the guy down the street who runs a pipe straight into the river. (marine terminal / port)

We take issue with the stormwater fees and the requirement for retention ponds on sites with limited area. We have to build retention ponds for everyone else's water while the land down near the river is at a premium. We also have to pay the stormwater fees even though we're not using the City's system. (manufacturing)

We are battling wastewater and stormwater treatment issues—we are trying to find ways to conserve water and reduce costs. We even have an in-house Utilities Conservation Committee to work on it. Last year we spent almost \$1.5 million for utilities. We paid \$373,000 in sewer costs last year and \$290,000 in stormwater costs. We pay high rates for stormwater because we have a lot of paved surface, and then we pay surcharges for wastewater due to high TSF and BOD. This plant has done a lot to reduce BOD. (manufacturing)

More than half of the stormwater is handled on site. Part of it goes into the sewer. The part that falls on the tanks is assumed to be polluted and must be treated first. We have to pay the stormwater management fee for impervious surface, and we can't do anything about it. It's like a tax because it has nothing to do with the amount of rain that falls and goes into the city system. Dennis is working with the stormwater folks at the Bureau of Environmental Services. They say they have a discount program and we want to know how to take advantage of it. But because it's a new program it's confusing, and we're getting different stories from different folks. (manufacturing)

System development charges are a concern around the city. Stormwater discharge fees we hear about, too. (property owner / representative)

Telecommunications

Many of our tenants say that the limitations on telecommunications infrastructure in Rivergate are a problem. (marine terminal / port)

REGULATIONS AND PERMITTING

General permitting

Permitting frustration discourages investment

The City permit processing is tough, expensive and very demanding. When the \$50 million expansion we almost did was dropped, permitting was a big factor driving the bus. (marine terminal / port)

Permitting is a challenge: cumbersome, expensive, set up to raise every possible impediment to expansion or siting a facility. The burden is on the business and you have to mitigate any impact. Some of that is inherent to the fact that it is a public process. (industrial association)

We have over 200 facilities around the world, and we've found Portland to be the worst place for permitting. The environmental end is fairly easy, but the permitting through the City of Portland is terrible. We lose out to other plants within our own corporation because of the permitting process. By the time we can get a permit here, the opportunity is lost. (manufacturing)

We do the same permitting around the world, so we have a good benchmark of how long the permit process takes in different places. Five years ago, we moved a wall. It was a \$50,000 deal for which we needed a permit, and we got bounced from agency to agency. It took forever! It really shocked us. That was back when you were hearing this kind of story in the paper all the time. It's important that these processes be made more seamless. (manufacturing)

We are considering a building upgrade to bump out that wall about 8 feet and re-do the façade, which would cost \$500,000. We would also like to add plantings to reuse our runoff rather than have it go into the sewer. We still have to figure out how to do that within the regulations of the City. At this point we see permitting as likely to prevent us from doing this upgrade. (manufacturing)

Permitting difficulty depends on the project. BES can be a wild card. (industrial broker)

The Fire Bureau needs more sensitivity to the "different animals in the room." (industrial developer)

The last time we needed a permit was to install tanks and equipment in 1998. We were required to get about 60 signatures from the heads of different departments. We spent \$10,000 to hire someone to expedite the process. He said he could do it in six weeks. He did it in ten weeks. But it still beats the average time of six months! (manufacturing)

I hear about permitting challenges. Our expansion would require a full year of permitting. That's significant. (trucking / warehousing)

Public entities can provide more certainty for the private sector. Try to eliminate ambiguity and talk more between bureaus. On a ceiling tile project, a permit was issued and then the inspector wasn't sure that it met seismic requirements, so the project was held up for three weeks. We've heard over and over that permitting is getting streamlined, but it doesn't really seem to be getting better. (industrial broker)

I interviewed the Toyota developers, who do construction all over the country (Texas, Indiana, etc.), after their experience here. The City of Portland is far and away much more involved in the nitty gritty of every element of design and building review than anywhere else they have worked. They substantially underestimated costs by a couple hundred percentage points because design and building review was such a substantial cost. There's nowhere to go to get everything you need, to get definitive answers. Though they were very stoic about it, we had to intervene on their behalf several times with several different

bureaus. They actually reduced their own quality control people because they had so many people from the City inspecting every detail. In comparison, there are practically nonexistent reviews in some other locations. What I came away with is that at every step of the development process, Portland is over-involved in their business. It hasn't been a barrier to reinvestment, but the City is perceived as looking over a person's shoulder. There needs to be a different approach to development services, because this is part of the message that gets out about Portland being unfriendly to business. For example, their occupancy permit was held up because they didn't have a 6-foot snow load on their lights. It was lots of little things like that, but consistent over the 2-year project. And word about things like this gets out. How Portland comes across is not inviting or necessarily helpful. Maybe there could be a liaison, someone you can call to get the answers you need, to nudge the process along. (marine terminal / port)

The regulatory process for the Columbia Gateway property is another challenge. The National Environmental Policy Act (NEPA) process is complicated, but we work well with all agencies. I think the state agencies will follow the federal lead. At the local level, there is a city regulation called the Critical Habitat Ordinance that we will have to comply with. In addition, we need a Comprehensive Plan revision and a sub-area plan. (marine terminal / port)

Local permitting is improving and not harder than other cities

There are no noteworthy local regulatory issues that are barriers. The City has come a long way in helping us along the path. However, it is harder to get financing and permitting with speculative users. (industrial developer)

We have not noticed any big difference in permitting between Oregon City, Portland and Vancouver. We have never built anything in Vancouver prior to this, but the permitting may be easier there. We have been fortunate in the Portland area – what we want to do is allowed in the zone and we have no nearby neighbors. (property owner / representative)

Portland is no different than anywhere else when it comes to the time and red tape of development review and permitting. Is it good? No. However, since most of our clients are already from this area, they are accepting of the expense and the process. (industrial broker)

When we expanded, the overall cooperation from the City was good. Charles Auch did what he could to help. There was frustration on both sides, but that's natural with a project like this. One issue, though, is that the requirements for industrial facilities are "one size fits all". For example, we had to add bike racks, but almost no one rides a bike at our facility. We put them in, and they're empty. One size fits all isn't always the best approach. (manufacturing)

Working with the DEQ representatives on the Atofina site went surprisingly well. Because the site was complex, I think we got their best and brightest. (industrial developer)

Our construction manager said Portland had one of the easiest and most reasonable permitting and inspection processes in the country. He ran into one problem with skylights, something about weight bearing loads. But in general, he was very happy with the process. (marine terminal / port)

You always face problems with the City when building something, but permitting for our new building went fairly smoothly. Although it was a painful process, we only had to do it once. (trucking / warehousing)

When inter-bureau streamlining of permitting is working, the City also needs to publicize it. (industrial broker)

Greenway code

Greenway permitting

Waterfront permitting is our #1 issue. It represents a huge cost in terms of time and uncertainty. Plans to deepen the berth at one terminal were delayed for a year because we couldn't get the permits for deepening an existing berth. Our in-water work window was taken away. (marine terminal / port)

When we did our dock work, we missed the first very short in-water work window, because the process was so delayed. Portland has so many regulations, overlays, greenway setbacks, etc. We're required to plant trees where the crane needs to swing. On our dock-rebuild, the City staff person keeps suggesting that we remove the riprap and plant trees, which means there is lack of understanding on how you keep a stream bank together at a facility like this. We'll get there but it's adding cost. (manufacturing)

We did okay on the Greenway review. It took a lot of work, but there were no major surprises. (property owner / representative)

We've been asking for a rewrite of the Greenway standards for years and years, and years. The idea that you can balance all five of the ideas incorporated in River Renaissance is just false. The Portland Working Harbor is special and requires special dispensation. We need to educate permitters, have a "Working Harbor 101" class for them. (manufacturing)

There are big greenway hurdles. Back in 1998/99, I handled permits for Chevron, Cosco, and GATX for their joint projects. The permitting process was frustrating because the greenway standards are so high. The definition of what is river-dependent vs. non river-dependent seems entirely arbitrary. The process has gotten better recently. (property owner / representative)

Greenway permit processing did cause some delay of an environmental upgrade to replace two shared pipelines. The tree requirements also add extraneous costs, and the trees have now been eaten by beavers. (marine terminal / port)

Trail Access

It concerns us that trails may be required in this heavy industrial area. If you make it friendly to pedestrians, then it isn't friendly to industrial redevelopment anymore. (property owner / representative)

Areas with heavy industrial activity should not be pressured to accommodate a walking trail. We have serious safety and security concerns about using the Tillamook Overcrossing for a trail because Lower Albina is an active industrial area with rail traffic. The "concrete road" next to Albina Yard is not wide enough to accommodate trail access. (industrial association)

Is a public recreational area compatible with active industrial uses? There is very little recreation activity at the Swan Island parks after hours or on weekends. The Bureau of Parks & Recreation is looking for areas to build soccer fields and has explored a vacant site on the island. It might make sense to build a trail to improve access to these recreational areas and to the businesses. Waud Bluff Trail has been used informally forever. (industrial association)

Northwest Portland has similar trail conflict issues. Front Avenue is narrow and it would be difficult to fit a path or trail alongside, especially in front of Gunderson, where there are many rail crossings. (industrial association)

We are concerned about safety regarding trails through our facilities, because of the hazardous cargo that we handle. There needs to be a separation of uses due to safety and security. We love bike paths, but there is a place for them – not necessarily on industrial lands. It's dangerous to have people on our property – we've never allowed it. (marine terminal / port)

River-dependent use restriction

I'm marketing some vacant land on the Schnitzer property. It's useful heavy industrial land with rail access, but zoning requires that it be water-related. Not every company wants water access. Is it possible to get a variance for a non-water-related use? If you can't get a variance to free up the land, the property would have to go through a partition, which takes time and most clients don't have the stomach for it. One biofuel company likes the site but doesn't have the money. Another investor from San Bernardino is interested in mini-storage with boat access. Of my clients, 30 percent may want water access and the other 70 percent want heavy industrial sites with rail access. There are several properties with this water-related restriction - Time Oil, Atofina, etc. All of those sites also have some semblance of brownfield issues. (industrial broker)

The real river-related users are the bigger users. What about applying the river-related restriction to large sites only? The 5-7 acre sites are less apt for river-related use. (industrial broker)

Swan Island's greenway exemption is sunsetting. That's a cost they'll have to bear. (marine terminal / port)

Other regulatory challenges

Land-intensive requirements (e.g., landscaping, floodplain) are burdensome where land is scarce

Land is at a premium so the 10 percent greenspace requirement is challenging. I like the look of the landscaping, but we're trying to utilize every bit of land that we have. We would rather be able to meet the requirement off site—to build a park or something. (trucking / warehousing)

I've also heard grumbling about landscaping and trail requirements. The requirement for 15 percent landscaping in the IG zone is a barrier to development. One potential customer found land out on Airport Way, but the trail requirement made it unworkable and killed the deal. (property owner / representative)

The balanced-cut-and-fill requirements on the mapped floodplain at this site are a huge impediment for development and for selling the property. Offers received have been based on net developable land, which is a big question mark with balanced cut and fill. Why should we have to create wetlands on valuable industrial land? The floodplain level has changed with flooding in the last ten years. We believe that we should be allowed to import clean fill. (property owner / representative)

We've looked at putting another facility in Linnton, but it is located below the floodplain and would require 18 inches of fill before we could build on it. It's easier to make the investment somewhere else to avoid the permitting headaches. (manufacturing)

I think that our greenway improvements and process are a positive story. Toyota is proud of the work we did, going above and beyond the normal greenway requirements. It was an interesting process. Toyota is trying to position itself to be a good citizen, so we were looking for something positive to do down here, and we weren't sure what would be the right thing. Former Mayor Katz wanted a restored riverbank and Commissioner Saltzman wanted to see a green roof on an industrial building. We felt putting a green roof in the middle of 90 acres of asphalt would be cynical, so instead we designed the building to get LEED Gold certification. The roof is white to reduce the heat island effect. We use gray water to flush toilets. We created a 130-foot wide greenway setback for 1,600 feet along the riverbank. We also did extensive riverbank treatment that filters out stormwater into bioswales before it reaches the river. The Port did most

of the work. In the end everyone was happy and it was a win-win situation. We recently got a Salmon-Safe acknowledgement for our work. The total cost was about \$2 million and we lost four acres of developable land. (marine terminal / port)

The new regulations, like landscaping or environmental, are a burden for the industrial user. (property owner / representative)

There is more non-conforming development on these sites than conforming. It would take millions of dollars to make the development conforming. Requiring landscaping to mitigate non-conforming development is a fire issue near the tank farms, and it takes up valuable land that is already built out or needed for expansion. Instead, the City could help the property owners to clean up and beautify their sites, for example by painting tanks. (property owner / representative)

Aggressive new regulations

Metro's Goal 5 is a frightening new development. Their Goal 5 map encompasses a lot of this area and is floating out there as another "cloud." (industrial developer)

It is hard to rehabilitate the older buildings when there are so many new regulations (i.e., ADA accommodations, landscaping, etc.). Conforming with the new regulations is difficult and expensive. (industrial developer)

Interfacing with bureaucracy in terms of obtaining permits is an issue. It has percolated to the top of the public agenda, but we don't know that the process has improved. BES is talking about incorporating groundwater into the permitting process more, which could slow everything down. (industrial association)

We would like to build a trestle, but it is complicated because it will require in-water work and approval from the Corps of Engineers and the National Marine Fisheries Service. It will be more complicated if the Lamprey Eel is listed quickly as a protected species. (marine terminal / port)

Regulations don't really affect us much except for the new hours of service regulations, which are keeping drivers off the road. That hurts us. It means we need more drivers and more trucks. (trucking / warehousing)

Security requirements are way overblown. It costs a lot of money and requires special permits to put up the barbed wire fences, but it's not making the facilities any safer. Someone could still blow the plants up. The Coast Guard security money is being spent, but it feels like we are forced to provide security that does not do any good. (property owner / representative)

We have a facility plan that has been approved by Homeland Security. We just got approved for \$300,000 in matching funds from Homeland Security, but we have already spent more than that. The funds go towards security cameras, gates, razor wire, 24-7 security for the rack, and guards at the Wilbridge and Linnton facilities. All of our attempts to change the traffic flow at our truck rack to reduce traffic backups and improve safety have run up against security issues. (marine terminal / port)

Expensive environmental requirements

The cost of environmental permits and compliance with the Oregon Department of Environmental Quality (DEQ) is a concern. We sank \$1 million into environmental compliance at Plant 3 a few years ago, while the pollution tax credit program was up and running. We have good working relationships with the folks at DEQ and we want to comply, but compliance is expensive. (manufacturing)

The Department of Environmental Quality now requires vapor-recovery system controls on barge loading facilities. It's a huge expense and removes only a very small amount of pollution. Shell was going to do a \$1 million vapor recovery system in 2001, but did not do it because of the expense and the time involved with the permitting process. GATX has put in the system, though. (property owner / representative)

We have worked with turtle habitat issues. The Port put in a \$500,000 turtle tunnel. Also, setback and mitigation requirements are challenging for redevelopment. Potential setbacks due to salmon may also be an issue. (property owner / representative)

OTHER BUSINESS CLIMATE ISSUES

Mixed perceptions on business friendliness in Portland

Schnitzer Investment Company (distinct from Schnitzer Steel) is selling parcels at the international terminals site. The property has appreciated in value and they're selling land. They can make more money elsewhere, and they're sick of dealing with the City. Schnitzer Investment is significantly disinvesting in Oregon – it's a business climate-driven decision. (manufacturing)

I'm stunned that, when you go elsewhere, how much more they want you. You can tell just by looking at their websites. It's so much easier for private capital to flow to these other cities, such as Cincinnati, Toronto, Philadelphia, etc. These cities are killing themselves to get you to come to them. It is stunning how much several cities show that they want you as a new business. (industrial developer)

A good example of this is Memphis. Just try it sometime. Jump on Google and go to Memphis' Chamber of Commerce website. They give you the "Top Ten Reasons You Want to Come to Memphis". Then go to Portland's Chamber site. You have to break your back to figure out why Portland would want you. That's just reality. Now, you don't have to look like Memphis, and I don't want to be Memphis, but you also don't want an atmosphere where Columbia Sportswear moves to Hillsboro. (industrial developer)

There has always been a lot of mythology that Portland is anti-business. We've never felt that way – except when we were trying to get through a building permit. Some businesses are highly regulated. I meet with businesses that do deal with a lot of regulations and red tape, but we haven't experienced that. We don't run into bureaucrats trying to make our lives difficult. We also approach it differently. For example, we set high standards for ourselves on environmental issues. We're conscious of being part of the community so we get more support than hassles. Consequently, we spend very little time dealing with regulations. We're not even categorized as a waste generator. (manufacturing)

A metals company on Columbia Boulevard is moving their inbound shipping to the Port of Stockton. They first went to Vancouver, but that didn't work out so they negotiated with Stockton. They didn't even try Portland. This could have been a big gain for Portland because they bring in tons of pipe by both rail and ship. (property owner / representative)

Our problem is that we haven't been able to advertise ourselves enough in the past few years. We'd like to participate in the Working Waterfront Coalition and the Portland Business Alliance, but we're running very lean. Our staff is completely overworked and has no time to do the schmoozing. (manufacturing)

We haven't done our job of integrating into the political machine of local government. For a long time our work was generated in Washington, D.C., so we spent time lobbying national senators for Pentagon work. We haven't been putting in the time lobbying at the local level. For example, the ship-breaking proposal that made recent news: If we had done our work right, the first call the Oregon Employment and Community

Development Department would have made is to us. We could have done the work for them and brought them here. We've already got an agreement with one of their competitors in Texas to take that type of work, but it hasn't been financially feasible to bring it here because of the distance. We, as a firm, need to better plug ourselves into the local community, so we're not overlooked for these types of opportunities. (manufacturing)

Taxes

There is a negative connotation of Portland, a general perception that Portland is not business friendly. The extra tax in Multnomah County doesn't help. (property owner / representative)

Housing costs in the Portland area are not a problem. Oregon's state income tax, however, is a big deterrent to firms moving here. (industrial broker)

Another mythology in Portland is about the high tax burden. I'm not saying it's easy, but it would be nice to look at the big picture and know the actual landscape of fees and taxes, rather than just hearing the different sides. Every person has their point of view and can point to some facts to support it. In looking at taxes, fees and regulations, it's hard to say that it's more expensive to be here than in the suburbs or Arizona or anywhere else. It varies by business, but it is good for us as a company to be here. (manufacturing)

Some construction companies are talking about moving to Vancouver because of tax issues. (industrial association)

Property taxes are just nominal for us. But more big tax rates would be a major discouragement for our company. (marine terminal / port)

Oregon and Washington are very different in terms of doing business, both in fuel and road taxes, and truck drivers' licenses. But it's just part of doing business. Offering tax breaks for companies wanting to locate here could draw business. (trucking / warehousing)

Economic development incentives

There's not much money for incentives to entice people to invest in Portland. Enterprise zones and other tax deferrals are great, but they're not money today, they're money down the road. Other states have much bigger funding pools. (marine terminal / port)

We have had a good experience with the Business Energy Tax Credits program, because we can invest in the right technology and then sell the tax credits to a firm that can use them. The credits provide us with an incentive to invest in good technology. Other programs, like DEQ's stormwater program, are not set up to allow us to sell tax credits so public agencies can't use the program. This doesn't make sense, as half the waterfront is publicly owned. (marine terminal / port)

Property owners should have an incentive to get their properties shovel-ready. (marine terminal / port)

Mayor Potter visited Toyota and asked what the City did for Toyota, and Toyota said they got good ideas from the City. From their perspective, it was all requests, no incentives or help. Mayor Katz wanted a 200-foot greenway; Commissioner Saltzman wanted a green roof on an industrial building. Toyota used water from the roof to flush toilets and got LEED Gold certification. But when there are requests, there should be incentives. Maybe we could fund permit assistance using TIF or something. It's not always like that. The Canadians were pleasantly surprised that they don't have to have City Council hearing on their expansion

plans like they do in West Vancouver. But they may have a different experience when they try to build a dock. (marine terminal / port)

Money is a challenge. The dry dock conversion is \$1.5 million, which is a lot of money when you're only making that much a year. We've got to spend \$1.5 million to get a \$200,000 project that will lead to future projects. This way we'll build capacity and expertise. The rail project is \$700,000. We will pursue Enterprise Zone money on that too. This stuff is so speculative that it's hard to find lenders. (manufacturing)

Regarding the Enterprise Zone program, the application process itself works well. But the first time, we needed a map change to get into the enterprise zone, which was hard. We had to testify before City Council. It was a political process, with a 3:2 vote for us. (manufacturing)

Port of Portland relations with business

Some companies will not work on Port of Portland sites because dealing with the longshoremen is too much hassle, and becomes very expensive. This provides an opportunity for us to get greater use out of our dock. Large companies, such as Oregon Steel, don't have a choice; but smaller companies, like Harmer Steel in Linnton, use smaller facilities such as our dock. (property owner / representative)

The Port had proposed sites available for lease or rent, but the charge was more than we wanted to spend, and we wouldn't build equity with a lease. Therefore we were less interested in this arrangement. (property owner / representative)

I've talked to several firms that don't want to deal with the Port. They don't want to look in Rivergate at all. They say there are too many restrictions, that the parcels are too big, and that the Port is only interested in working with larger operations. (property owner / representative)

The Port had proposed sites available for lease or rent, but the charge was more than we wanted to spend, and we wouldn't build equity with a lease. Therefore we were less interested in this arrangement. (property owner / representative)

Perhaps the Port could be more nimble in leasing its sites. It could offer sites for rental on a limited basis, such as 6 months, for a cheaper price. It's better to get someone in there for a short time than to have sites sitting vacant. We get frequent requests for companies to come in and handle dredge materials and spoils, and would like to be able to offer sites to them at a certain price. (property owner / representative)

There are not many opportunities for firms like us to participate in most of the commodities that come into the Port of Portland. The Port's forte has always been bulk commodities, and there isn't much we can do for grain or potash, or even automobiles. (trucking / warehousing)

The Port shouldn't do things that compete directly with, and hurt, private facilities. We need to do things that support the region. (manufacturing)

Some issues we had with the Port were personality driven. Sometimes people don't mesh well. They worked through it. (marine terminal / port)

QUESTION 3: HARBOR ADVANTAGES

What are the primary advantages of the harbor area as an industrial location that should be reinforced?

TRANSPORTATION INFRASTRUCTURE

Multimodal access and West Coast trade gateway

The harbor is Oregon's gateway to the world.

We wanted to have both rail access and dock facilities close to the marine construction activity in Portland. (property owner / representative)

You've got it all here—rail, water, and road access, built out. I would like to see more container import business here in Portland. (property owner / representative)

There is great transportation access in this area with dock and rail. Although we do not have an active spur on our property, there was at one time. And the City is making major investments in the area, with projects like the Lombard overcrossing. (property owner / representative)

Rail access, water access, close-in jobs, road infrastructure, quality of life, knowledgeable city staff. (marine terminal / port)

The harbor is where the infrastructure is: docks, railroad, roads, the petroleum pipeline. (industrial association)

All transportation modes come together here. (marine terminal / port)

Convergence is the key advantage of the harbor area. The four transportation facilities—marine, rail, truck, and pipeline—all come together here, which is very important. Having all four here is essential. Time Oil was not on the pipeline, which is why it closed. (marine terminal / port)

Having a concentration of multimodal activity in the harbor means that we can be very efficient. Access to the water is a great advantage. We've started to get more involved in rail/water transfers, mostly to barges, and would like to get involved in transfers in the harbor. We see this as a prime opportunity for, if not us, someone else. (railroad)

Connectivity to roads, rail and water in this area is a big advantage. (railroad)

Class 1 rail access to inland U.S.

Rail, rail, rail. Rivergate is served by both Union Pacific and Burlington Northern, which gives us a huge advantage over others in the region. It's a unique treasure that we need to take care of. It was a big part of our decision to build in Rivergate. (trucking / warehousing)

Two thirds of our product comes in on rail and most of the rest by barge. Although truck access has vastly improved over the last 20 years, it is a minor portion of our business today. The only grain that come to us

by truck are from the Willamette Valley, and that grain market is only 10 percent of what it was 25 years ago. (marine terminal / port)

Rail is pretty good here, probably a wash with Seattle, because of intermodal rail improvements in Seattle. A strong container business generally means better rail service because the railroad makes a higher profit on containers than cars. (marine terminal / port)

The balance between the east and west movement of auto-carrying rail cars is out of whack everywhere. Here it probably works better than anywhere else in the country. (marine terminal / port)

Less congested West Coast seaport

The reason we stay in Portland is that it is the least congested major port on the west coast. We don't have to compete with containers. Portland's recent inability to attract the container business has been good for the car business. At other ports, they net a higher value per acre so they steal land from us. For us the cost per acre at Portland is much less than it would be at Long Beach or Newark. (marine terminal / port)

Portland has a less congested seaport than other West Coast cities. (trucking / warehousing)

River access

The river is critical to our economy. It's the reason Portland is even a city. Look how many cities are located on rivers. Historically, water has been and still is the cheapest form of transportation—one barge is equivalent to 100 trucks. For a lot of materials, you have to cross the ocean and get them by ship. Every time you transfer the material to a different mode, it adds costs. (industrial association)

We want to be near a port on the Columbia system, though not necessarily this port. It's good for us to be close to the docks when our vessels come through. Being close minimizes shipping costs. It would be nice to have our own dock, but there's a dock \$3.00/ton of steel away. (manufacturing)

Advanced American Construction recently moved to the harbor from Oregon City. They are a good example of a firm for whom the harbor location in Portland has a lot of advantages because they do heavy construction and in-water work. A couple years ago they toured the Linnton Plywood site because of its harbor location. (property owner / representative)

Some NINA members say the river is dead, but I disagree. A lot of my business comes from the river. (industrial association)

Freeway access

Everyone says they need access to I-5, even though that's where the congestion is. Access to I-205 and Airport Way is secondary. Access to I-84 is important to some firms. (property owner / representative)

The I-5 corridor is an important part of the industrial future for this region. (marine terminal / port)

Proximity to I-5 is one of the most important reasons why the Harbor is desirable. Proximity to the airport is also important for some. (industrial developer)

Three words: trucks, trucks, trucks! How do I get materials in and products out? Ever since the beginning of time, industry has located next to transportation hubs, so truck movement and flow is most important. (industrial broker)

INDUSTRY AGGLOMERATION

Industry clusters

Having a cluster of energy facilities here brings efficiencies for everyone, because we can trade fuels and share facilities. (marine terminal / port)

Proximity to the petroleum terminals and pipeline are extremely important to our company. (trucking / warehousing)

We get scrap from the metals manufacturers, so things that benefit them benefit us. (manufacturing)

Portland Harbor has a focus on bulk commodities, which benefits the wider region. We don't employ a lot of people here directly, but indirectly we create a lot of jobs. Our firm's annual revenues are close to \$1 billion, and our headquarters are right here in Portland. (marine terminal / port)

Our materials come from all over, but we also have some synergy in this area. We get lime from Ash Grove Cement, and sand for back dusting comes in by rail from Riddle, Oregon. (manufacturing)

At this location we're close to our cucumber crop, which is just four hours away at Skagit Valley in Washington. We also get some cucumbers from Sauvie Island, and some from out near Canby. (manufacturing)

I am part of the Working Waterfront Coalition and have attended about half of their meetings. It is a worthwhile group and I plan to continue being a part of it. (property owner / representative)

Large, diverse concentration of industry's customers and suppliers

There is a more diverse mixture of businesses in these areas versus suburban locations. There are also more complementary services (i.e., telecommunications, fiber optics, temporary employment agencies). (industrial developer)

The harbor is close to the markets that industry serves. (industrial association)

The core of our business is in the city because we serve old houses, so we didn't want to be located in the suburbs or in an industrial park. (manufacturing)

Firms also want to locate here because the market is bigger in the Portland area. They don't want to deal with crossing the river on the Interstate by locating in Vancouver, so they would rather pay the extra fees and deal with the congestion here. One firm had a better, cheaper site in Vancouver, but they moved to Portland because of the convenience of not having to move product over the bridge. (property owner / representative)

Railroads are like other infrastructure: concentrated density increases our efficiency. Using a local switching crew is more efficient than bringing in a crew from McMinnville. Getting more manufacturers into the Linnton area would be good for us and more cost effective for their business as well. Our Astoria district provides most of our business. The densest concentration of our customers is within the first five miles along Portland Harbor, including companies such as Trumble Asphalt, Mobile, British Petroleum (BP), and Harmer Steel. Morse Brothers there is developing a concrete plant and is considering rail. We've also had

some market shrinkage in this area since we took over the line in the 1990's from closure of the Linnton Plywood Mill. (railroad)

It is easier to support a centralized cluster of firms as long as they have the capacity. (railroad)

Rare location for heavy industry

Virtually all of Oregon's energy comes through this area. This infrastructure needs to be protected. It was built here, for better or worse. The decisions were made a long time ago. It won't be built elsewhere. I mean, we can't even site a black box generator anymore. (manufacturing)

There are not many places to do heavy materials handling; this area is precious. Look around the entire Metro area – there's not much land left. (railroad)

We are trying to take advantage of this facility because if you tried to build a place like this from scratch, you just couldn't do it today. Has this facility been used to its fullest extent? No way. The harbor in general is not being fully utilized from an industrial standpoint. But the thing is that you've got to find a business that is sustainable. (manufacturing)

Does it make sense for the harbor to remain primarily heavy industrial? Yes, except for Lower Albina. It is ill-equipped for continued heavy industrial use. If heavy industrial firms are investing in the harbor, then it clearly shows that there's a need. (property owner / representative)

Roots in Portland

The only reason we're here in Portland is our history here. We've been here a long time. It's inertia. But we also have a sense of commitment here and a desire to see it grow. I think that was what the fight over the Hollywood Fred Meyer store was about: this idea that "not in our hometown should we be denied having a modern store." (manufacturing)

We wouldn't want to move anywhere else. We've been here since the 1930s and we want to stay because of the investment we already have here. (manufacturing)

LOCATION

Central location in region

The central location of the harbor and its proximity to the central business district are important attributes. There are serious congestion problems getting from Gresham to Hillsboro, so there is strong demand for a central location. (industrial developer)

Location is important. Getting workforce to outlying areas is more of a challenge. (human resources manager / representative)

We have no use for being on the riverfront, it's just coincidental. For us, the advantage of this area is that the location and transportation access lower our freight costs. This area is near I-5 and the rail yards, which is important to us. We have 55 acres of land at 185th and Marine Drive, where we planned to expand earlier but decided against because of the higher freight costs there. Most of our packages are headed north-south rather than east-west. Even if we moved more functions to the 185th location, this facility on

Swan Island couldn't close. An airport location might be a toss-up with Swan Island for transportation costs, but land costs are higher there. (trucking / warehousing)

We need to reinforce the great location of the harbor. We are so central to the ability of keeping freight moving through the region. The diversity of transportation makes this area. (industrial broker)

Many of the firms that are moving into Portland's industrial areas are coming from other locations with more congestion problems and commercial and residential gentrification. They are growing their operations and they want to stay in Portland, because their customers are here and Portland has workforce advantages. The Harbor is a central area that allows a firm to draw on the region's workforce. So firms look around and realize that leaving Portland for the suburbs doesn't make sense logistically. A good example is a company currently moving from Mississippi Avenue to Lombard Place, so they don't have to worry about losing their workforce to a long commute. (property owner / representative)

The harbor is in the hub of the metro area. It's centrally located and it's close to our workforce. Twenty to thirty percent of Freightliner's employees live in northeast Portland. Many of Madden Fabrication's employees come from northeast Portland as well. (industrial association)

Harbor districts

The industrial land here is a unique and finite resource, like a wilderness area. Many companies are river-related, and many that aren't are here to be close to key firms that are river-related. Much of the land is already constrained by environmental issues, size, and proximity to transportation. If we give the industrially-zoned land up now for trails and recreational facilities, it will be impossible to convert it back to industrial land in the future. Twenty years down the road we may need that land. I don't understand why open space on the harbor in Guild's Lake is being considered. (industrial association)

Fifty years ago, there were many timber and aluminum facilities on the harbor. Over time, these industries have declined and have been replaced by others. We still have the metals industry. Today, new industries are wanting to locate in Lower Albina for the same reasons: the area is a nexus for the regional and the national transportation system. This setting would be difficult, or impossible, to recreate somewhere else. (industrial association)

The whole Rivergate area is a prime industrial location that is close-in and accessible. (property owner / representative)

We don't have trouble with trucking around here [Rivergate]. It's pretty isolated, so it doesn't have as much traffic as other places. (manufacturing)

Vancouver's advantage is the availability of more industrial land. Columbia Gateway is the largest contiguous heavy industrial site available in the metro area. The Ridgefield Corridor in northern Clark County is also a significant opportunity for industrial development. There is agricultural land in mid-county as well that could be good industrial land in the future. (marine terminal / port)

Our cars don't get anything on them that harms them while they are sitting in our lots here. Because we are so far inland, they don't get covered in "stack ash" from ships. We don't have to wash our cars here like we do in other places. (marine terminal / port)

The topography is flat. (property owner / representative)

WORKFORCE

Advantageous labor pool

We have a large and sufficiently mature workforce. (marine terminal / port)

The education level of our shop and office workers is better in Portland than in many other places—in terms of basic math skills, for example. We hire many of our engineers from Oregon State University, University of Portland, University of Oregon, etc. This is a good place to recruit people. Having a good quality of life helps too. (manufacturing)

We do have ample workforce to draw on here in a populous area. It's way better than being stuck out in the middle of nowhere, where it's tough to find people. It's hard all over the country to get people trained and retain them. We haven't had problems getting seasonal workers. (manufacturing)

Most of our workforce lives in the central core of Portland, so that was another factor in our decision to locate here. It's easier from this location to recruit and retain assembly workers. We compete with high tech firms in Hillsboro for our two labor pools, assembly and customer service workers, and we have the edge because of our location. Except it was harder to compete during the tech boom, because those companies were offering stock options to people just to answer the phones! But, in general, our location gives us a competitive advantage. We're closer to affordable housing – although it has gotten less affordable in the last few years – and we're better served by public transit. We offer good benefits, but unskilled workers come in at approximately \$10 per hour, so the commute cost factors in. There is a bus stop nearby. (manufacturing)

We haven't had a problem finding people. Folks here like having their afternoons free. Also union members seem to expect to go to work at crazy hours. (manufacturing)

Quality of life attracts workers

The quality of life in Portland makes up for some of the barriers. (industrial developer)

You can go anywhere in this country and, typically, see emptied out downtowns, neighborhoods that lack vibrancy, and miles of homogenized commercial strips. I recently drove nine miles through a city in Idaho before I saw one business that could be independently owned. I think Portlanders forget how cool it is that we have these quirky, independent businesses and restaurants and neighborhoods of old houses. My daughter is in school at Sarah Lawrence and all her friends are moving to Portland. Not as a third choice after San Francisco and Seattle, either. I may be the last to realize what the young creatives know. Gritty industrial areas are part of what is wonderful here. Preserve the riverfront. Building a Home Depot at the end of the Burnside Bridge represents the worst instincts. What makes Portland cool is that it's different, unique, independent and quirky. We have to realize what advantages we have and not throw them out. The mass is never going to be there for certain kinds of things. (manufacturing)

The river is a unique amenity – something we should take advantage of more. (human resources manager / representative)

You can't beat the climate. We don't have any snow removal costs. We have good neighbors. (manufacturing)

Good location to attract executives

Another factor is that executives live in the West Hills and they want to be close to their facilities, so a northwest location is ideal for executives. Those making the location decisions are often willing to pay a little more to be located closer into downtown Portland. (industrial developer)

It is easy to recruit management in Portland, due to relatively affordable housing in the area and a fairly easy commute. The commute time to work and the airport in Portland is the best of any major city on the west coast (a 45-minute commute is rare here, but is common in other cities). However, there are firms that aren't even looking at Portland or Seattle because of housing costs, even though Portland's costs are still better than Seattle, San Francisco or Los Angeles. I hear about managers' housing choices way more than employees'. Some managers say that if there is a problem with employees finding affordable housing, they will just hire other workers. (industrial developer)

You find out where the president of a company lives, and that is where you should start looking at sites. (industrial broker)

INDUSTRIAL SANCTUARIES

Commitment to industrial land base

The fact that we've committed this area for industrial use is a powerful message and selling point. (property owner / representative)

Portland has done a pretty good job of protecting places like this. In lots of cities, these places are in the middle of nowhere or have been converted to other uses. (manufacturing)

The industrial sanctuary is very important to us. Land use conflicts to our south cause some problems for us. Encroachment is a threat. If the sanctuary erodes, that would seriously affect our business. (manufacturing)

One strength of Portland's land use policy has been its commitment to the industrial sanctuary idea. And we've held onto it until very recently. That sanctuary policy served us well and helped our manufacturing in comparison to other communities. (manufacturing)

If we can continue to preserve industrial land, we'll have a competitive advantage for the future. It's very important to hold onto our industrial land because who knows what opportunities will be out there in 10-15 years. Maybe the City should also be considering new sanctuary areas for industrial growth off I-5. (manufacturing)

Separation from housing

This is the only plant we have [of 15 in the U.S.] that is in a protected industrial area. Many of our other plants around the country have been encroached upon by residential development. They'll never be able to expand, and they have frequent neighborhood meetings to work out issues with the residents. A protected industrial sanctuary is the biggest thing we've got going for us here. We make noise, we're a brownfield, we're an industrial facility – luckily, we're in the midst of other industrial users that don't care. (manufacturing)

The area is fairly well-buffered from neighborhoods, which is perceived to be a good thing, although there is more sensitivity now. (industrial developer)

Since this is not a residential area and is free from housing congestion, it allows us to operate 24/7. This is critical to our business. In order to deal with the congestion on the roads, we need to have the ability to work "off" hours. We need to keep this area non-residential. Spend the time to get input from everyone on what makes the harbor a workable place, and develop a consensus on what it takes to make an area work for industry. This area is our strength. (trucking / warehousing)

Some room to grow in Portland

We've got to look at some of these contaminated sites, particularly the super sites. The Atochem site is a fantastic location. Brownfields and Superfund sites have lots of potential, but no one wants to touch them because of the liability issues. (railroad)

Another advantage at Portland is that it has some extra capacity that other cities don't have. It is a shame about the longshoremen and the underuse of T-2. It is a beautiful facility. (railroad)

QUESTION 4: PRIORITIES FOR PUBLIC INVESTMENT

A. TYPES OF INVESTMENTS

Assume that local governments have a hypothetical budget of \$100 to spend on the following types of public investments in the harbor industrial districts over ten years. If the priority is to encourage industrial retention, expansion, and development, how much should be spent on each type and why?

\$ _____ land development (e.g., urban renewal, marine terminals, brownfield cleanup/redevelopment);

\$ _____ transportation (e.g., streets, highways, railroad);

\$ _____ utilities (e.g., sewer, stormwater, water);

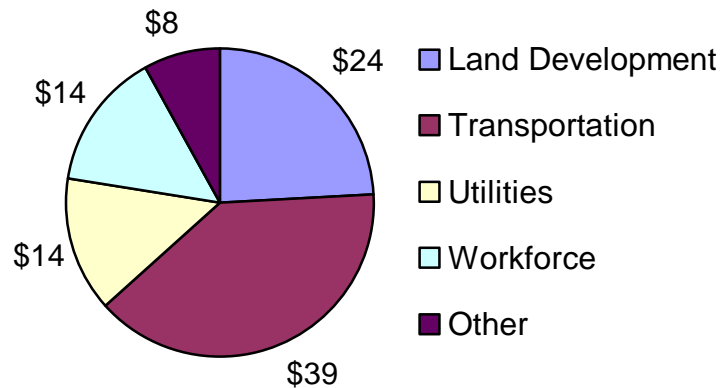
\$ _____ workforce (e.g., education, training);

\$ _____ others. Please specify _____.

The average results by type of interviewee are as follows:

	Respondents	How would you spend \$100 of public funding				
		Land Development	Transportation	Utilities	Workforce	Other
Industrial Developers	4	44	38	15	4	1
Industrial Brokers	3	30	43	17	7	3
Industrial Associations	3	32	28	10	15	15
Property Owners	6	38	31	11	5	14
Marine Terminals & Ports	6	27	42	8	6	18
Railroads	4	24	65	4	1	6
Trucking & Warehousing	8	20	46	6	21	6
Manufacturing	14	11	30	27	28	4
Overall Average		24	39	14	14	8

Interviews with some businesses included two to five managers responsible for different aspects of the business, some of which responded to question #4 differently. Since each respondent represents different expertise, the averages calculated above give equal weight to each respondent, whether in the same business or a different business. If the averages were calculated differently, counting only one averaged response for each business, the total results would have varied only slightly, as follows: land development, 27; transportation, 40; utilities 11; workforce, 13; other, 8. The range of "other" responses are included below.



Preface comments

How will comments be interpreted and used?

My numbers on priorities mainly allocate the level of effort, not necessarily the level of public funding. (industrial broker)

I am critical of the City's "if money is no object..." way of determining priorities. We need to know what the full amount is to make choices – money is an object. (industrial association)

What good will come out of this exercise? What will the city do with these numbers? (industrial association)

Plan strategically for harborwide needs

One of my concerns is that there are lots of programs in place, many fingers in the pie, and no overriding strategy in place to pull it all together. So things are done piecemeal. (trucking / warehousing)

It is forward-looking for the City to attempt to balance industrial needs with the rest of the demands on the river (trails, boat launches). Let's not forget that industry is important to the overall functioning of our society. (marine terminal / port)

Why \$41 of \$100 should be spent on transportation

Need robust transportation system

Transportation is critical for businesses, for the Port. A robust transportation system keeps our region competitive. Plus, congestion is a very high cost to businesses, so an efficient transportation system is attractive. Also, transportation is one of the major roles of the public sector. Who is going to invest in someone else's road? Wetland mitigation could be handled regionally. (marine terminal / port)

We need to creatively build on the infrastructure we already have. Transportation is the biggest complaint I hear about. (property owner / representative)

Street infrastructure is a tremendously important piece of the puzzle. The rail infrastructure is what it is. If you can't move goods around, then there are no jobs and you don't need workers. (marine terminal / port)

My top pick is highways and railroads. We've got to do something about getting over these bridges. Even in terms of the trucking industry, we have to look at the bridges to allow them to get from Washington to Oregon and back. Rail can't help trucks if the trucks can't move. (railroad)

I'm on the freight committee and this is the first time the City has given a hoot about freight movement. We're finally getting to talk about curb radii, lane widths, etc. Usually it's just about curb extensions and bike lanes. (trucking / warehousing)

Land development and transportation are both priorities to us. Which is more important? – it's the chicken and the egg problem. Congestion is a big problem for the economic viability of this region. (railroad)

Transportation infrastructure must come first because it does not do any good to have land ready if the transportation infrastructure is not there. (railroad)

You've heard me talk about transportation already. (marine terminal / port)

The public sector should do things the private sector can't. We can't build roads. (industrial developer)

Transportation funding gap

The transportation needs far exceed what is budgeted. The system is not failing yet, but it will not support projected demands in the future. I don't want to see investment limited in the harbor area because of a constrained transportation system. (industrial association)

Where do we find the money to do all this stuff without increasing taxes? (trucking / warehousing)

Would the freight community support tolls as a funding source for major improvements? There is some support for toll bridges, but the devil is in the details. What will it include? Just I-5 or also I-205? Some Vancouver commuters think they should get a deduction on their taxes if they have to pay a toll. Freight is willing to pay its fair share in order to get through faster, but we don't want to pay for the commuters. I don't necessarily agree with tolling the I-5/I-405 loop. I've heard of tolls being proposed there to meet social engineering goals, acting as a stick to incent people to take other modes of transportation. (manufacturing)

Would the freight community support higher gas taxes, possibly indexed to inflation, to pay for more road improvements? Raising gas taxes is a sore issue because the trucking community has been split on it. Business isn't necessarily opposed to an increase. We need to get to the natural threshold levels. There are efforts to find alternative funding besides the gas tax. Also, we don't want to give free rides to hybrids or others. Washington has creatively applied the gas tax to particular projects. (manufacturing)

We have to keep freight moving somehow. But how do we find the money to maintain the transportation infrastructure? (industrial association)

Funding is a big deal. It will be a challenge to get funding for huge, long-term infrastructure improvements. It is unclear what we will contribute and what the State of Washington and the customers will be able to contribute. The gas tax is limited to highways. However, the state's nickel tax from a few years ago is funding the Vancouver Yard Bypass. (marine terminal / port)

The Port tries to be self-sustaining—our customers like that. We get some property tax funding. We've received some federal funds for developing the Columbia Gateway and Rufener sites, but may need to look at general obligation bonds for additional funding. (marine terminal / port)

Rail

The ability to get product to our doors is essential, so investment in the rail infrastructure is most important to our company. We advocate full buildout – wherever you can put rail yards, put them. Once the space is gone, and there is no room for expansion of the trains, the opportunity is lost. Trains are not getting smaller. In fact, Union Pacific is already adding trackage for 150-car trains. (marine terminal / port)

Rail infrastructure needs work. The state of the rail system impacts the whole state. (marine terminal / port)

Rail needs to be on the list of priorities. There is a huge freight bottleneck in this region, both east-west and north-south. We don't know what public investment should be made in this direction, but we need to make a public effort to look at the problem, elevate the conversation, and provide leadership. (industrial association)

Rail - We currently do not use rail as a transportation option. Due to the limited number of rail users on this side of the river (Linnton area), it is not cost effective. Rail access is not useful if it is just as expensive as trucking. (property owner / representative)

Rail is a big issue. We need to make rail access easier. In some of our negotiations with firms looking for sites, if we could have gotten rail access on the parcel, we would have had takers. (property owner / representative)

Figuring out the railroad mess is important. (trucking / warehousing)

Rail needs do not appear to be a big problem on Swan Island. We only see a half-dozen rail cars 3-4 times a week dropped off for Cascade General. Freightliner sees about the same amount of rail activity. Freightliner also has a relationship with UP to pick up several dozen containers daily at Albina yard. (industrial association)

General rail efficiencies would help. Efficiencies are needed in more than a big project. We don't know the specifics of what they need to do. In Willbridge they drop off rail cars that sit there through the weekend, since there are no weekend crews anymore. There are four switches between Eugene and Portland, each switch requiring its own crew. (manufacturing)

Rail problems aren't unique to the Portland. (manufacturing)

You didn't bring any locomotives with you, did you? (railroad)

Competitive channel depth

How should we, particularly the Port, position Portland to handle post-Panamax ships? We need to anticipate what it will take to keep Portland competitive as a seaport in the global market. Should we continue to be a niche port or something bigger? (industrial association)

Making sure the harbor can compete is critical to our business. (marine terminal / port)

Regional highway system outside the harbor

Freight access to the southern part of the region and the Sunset Corridor also need to be considered. The Sellwood Bridge issue is a challenge. (industrial association)

Street projects can be economic catalysts

You can trace three great industrial districts in Portland back to transportation projects in the last 15 years: the extension of Airport Way; the overpasses in Rivergate; and Going Street access to Swan Island. (industrial developer)

Streets

Truck access in Rivergate is good, especially with recent improvements to the bridge. We haven't had issues with getting through St. Johns. (manufacturing)

Roads - We have no concerns in this area. Highway 30 is adequate for our needs. If we were a production facility, however, it would be difficult because street access into the site is not very good. (property owner / representative)

Why \$24 of \$100 should be spent on land development

Land is key

Land is key. You need to have available land. (manufacturing)

If you want to grow an industrial base, you need to have land. It could be old industrial land that redevelops. Unfortunately, a lot of industrial land is also converting to residential. (marine terminal / port)

We originally wanted to put all the money into transportation, but decided to put \$20 into land development. If we take care of land development and transportation, the other pieces will come with it. (railroad)

Invest in brownfield cleanup

My allocation to land development is meant mainly for brownfield and Superfund. (marine terminal / port)

The challenge is to free up brownfield sites. Someone needs to acquire or condemn them, assemble the parcels, and clean them up. (industrial broker)

Transportation and brownfields are the two biggest issues to address. (industrial broker)

Land development is so important for brownfield redevelopment. (railroad)

I think we need to invest now in environmental cleanup to ensure land for future business and societal opportunities for the next generation. (industrial association)

This money should go towards cleanup of contaminated sites. (trucking / warehousing)

I like idea of expanding industrial land availability by cleaning up brownfields, even though they would not be available to us because of food grade issues. (trucking / warehousing)

The only land development I would want to put money towards is figuring out what to do with our landfill in Willbridge. It's a closed landfill that we may want to consider for development sometime. (manufacturing)

Now that we have a building where we don't have worries about brownfields, I can say this, to put the money in transportation and workforce. If I put my civic hat on – yes, brownfields are also a big deal. (manufacturing)

Don't subsidize brownfield cleanup

I see land development as being self-regulated by the private sector, driven by high demand. The businesses already here have what they need in terms of land. It is not necessary for government to get involved in brownfield cleanup. Cleanup costs should be incorporated into the price of the land. (industrial association)

There are private investors willing to clean up brownfields. The problem is that the owners are greedy and are asking too much money. It's a market issue, not a public investment issue. Public money should not be invested in brownfields. Owners often want full price for the land when it will take another \$2 or more per square foot to make the property work. The owners need to wake up or decide to leave the property to their heirs. (industrial broker)

The public sector can't and probably shouldn't have a major role in brownfield redevelopment on private sites. (manufacturing)

Harbor Superfund project

There's no quick fix that you can do on the Superfund project. (industrial broker)

As for Superfund, the City is asleep at the wheel and needs to realize that they are a polluter, too. They will have to pay a lot—just look around the country. (manufacturing)

Urban renewal

NOT urban renewal. (manufacturing)

Cross out urban renewal. Invest in port terminals. (railroad)

I don't think urban renewal is a tool that works in industrial areas by definition, because it depends on raising property values to generate tax increment funding. So I'm putting the bulk of the money into transportation. (manufacturing)

Land development is a priority. It's important because it gives us a bigger pool of sites to draw from. I vote for using more urban renewal money on industrial development. We are doing that in the Willamette Industrial Urban Renewal Area. (property owner / representative)

Vacant land development

New developments at Rufener and Columbia Gateway are important land development opportunities. (marine terminal / port)

T-4 redevelopment

The Port could give Union Pacific Terminal 4 for their intermodal. But if I were an investor, I wouldn't do that. Instead I would find 200 acres somewhere, probably in Washington (maybe Longview), and spend \$50 million to do it right. (marine terminal / port)

Land bank

Some thought has to be put into a land bank for future river-dependent needs and expansion. (industrial association)

Why \$13 of \$100 should be spent on utilities

Utilities in good shape

The utility services in the Portland area are affordable, reliable, and of excellent quality. (industrial association)

Utilities here are well established. (marine terminal / port)

Don't know utility needs

I don't know what kind of utility upgrades we might need. I'm running in the dark there. (industrial association)

I don't know what utility upgrades are needed, but we should put money in reserve for replacement projects. (industrial association)

I don't know if this is a barrier or not. I don't have a lot of visibility on it, but I am sure there's some need out there. (railroad)

What about the solid waste situation in Portland? Where does it go? Does our landfill have adequate capacity for growth? You should think about that because down the road it could be an important issue for recruiting industries. (manufacturing)

Sewer and stormwater

We had an existing stormwater outfall at our site that is big enough for our needs. If we hadn't, this would have been a huge investment for no payoff. (property owner / representative)

Sewer and stormwater utilities here need attention. (trucking / warehousing)

I'd spend my utilities money on projects to deal with stormwater runoff. (manufacturing)

CSO really scares me – it's a bottomless pit. (manufacturing)

The Big Pipe will come down this street and we're worried about how that will affect traffic. We'll be under construction at the same time. It will be a huge mess. (trucking / warehousing)

Utilities are such a high cost to us. We heard the City was thinking of spreading out the BOD surcharge among more users. Currently, restaurants are not billed. Only the top 80 users are monitored and billed, and the other users don't pay. (manufacturing)

In the Fall the leaves from street trees plug the gutters and the streets flood. What a mess! (trucking / warehousing)

Energy

Water and energy are important commodities. (manufacturing)

Telecommunications

We are getting a high speed internet system in the near future, with a T1 line. (property owner / representative)

Two of our buildings communicate via antenna. The other two buildings don't have that capability, but we wish they did. We would like ethernet because we have a lot of data we need to send back and forth. (trucking / warehousing)

Telephone service is not very good; we have chronic problems with service. (manufacturing)

Utilities are part of land development

Utilities go along with the new developments at Columbia Gateway and Rufener. (marine terminal / port)

Why \$13 of \$100 should be spent on workforce

Workforce is high and increasing priority

Everything starts with workforce. If we don't have the workforce, we won't be successful. If the workforce isn't there, no one will invest in a location. (manufacturing)

I think that workforce is the most important issue. We've spent a lot of money on workforce training: we work with all the local workforce training programs, we've used some state grants, and we even have an apprenticeship program through PCC. Our plant's technology has gone from 40 years old to state-of-the-art. It's hard to find people with the skills to keep those processes running. It's very technical now. The wage range at our plant is \$14-27 per hour. (manufacturing)

Several of us here went through this list and these numbers reflect our group results. Some of us would have spent \$50 on workforce since it is such a huge issue. (trucking / warehousing)

Given that the issues are less about infrastructure and more about the high number of employees, I would probably divide the money between transportation and workforce. (manufacturing)

Education is important. (trucking / warehousing)

Workforce is important but other resources are already addressing it

Workforce is low on the list, not because it's unimportant, but because it has other sources of funding. There are lots of outside entities to help with this already. However, this is a priority for some employers. I don't want to downplay the workforce. If other resources dry up, like federal programs and the local community colleges, then the workforce will need more money. (property owner / representative)

Having a well-trained labor force is important, and getting enough truck drivers and rail employees have been issues recently. However, I'm not sure I see more workforce investment being as critical. We've been very involved in workforce development. Our community college has been a leader. I think our region has a sufficient workforce available. There are shortages of workers at times, but I think we will be okay. (marine terminal / port)

We should put a little bit into workforce, but I think the workforce development programs are too administration-heavy and that the industry needs should be provided by the private sector. (manufacturing)

Workforce is important, but I can't visualize what the City would do about it. (manufacturing)

The education system and workforce training programs are not a problem. The local community colleges are doing a good job. (industrial association)

Workforce is not an issue for us. (manufacturing)

Mixed importance of training among industries

We have to train our workers ourselves anyway, so the workforce training programs don't help us. (railroad)

We are not seeing a problem in workforce training. We get low skilled people and train them ourselves on the job. There is no generic program that teaches the skills we need, because the skills are so specialized. (railroad)

I don't feel that industrial labor, like material handlers, equipment operators, and forklift drivers, needs to be that highly skilled. (property owner / representative)

The importance of workforce depends on the employee base and skill level of the company. (industrial broker)

We need our seasonal workforce to be technologically competent, but they don't need to have much education. They just need to be able to follow instructions, get around equipment safely, etc. Language is a challenge to some extent. We work with the State and Work Systems, Inc., as well as other employment agencies. (manufacturing)

We work a lot with the school system. The bulk of our part-time folks are recruited off of local college campuses. We have had students in zoology and botany that ended up staying after they graduate. We have a school-to-work program for high school students—we even have a study room for them. We also have tuition reimbursement programs. At other locations, we have programs for people on welfare. (trucking / warehousing)

Languages are a big issue for us. We have trouble hiring and most applicants only speak English as a second language. (trucking / warehousing)

Education is a regional economic priority because of high tech

Education is an economic development priority in the region for a different reason than workforce access. It is because high tech and R&D industries flourish near universities. (industrial broker)

Education and training systems have deficiencies

I see money being invested into workforce training and community colleges, but those programs are not meeting the needs of employers. Larger employers do their own training programs, and smaller companies cannot afford to train their employees. (industrial association)

Are there still any trade programs offered in the high schools for students that can't afford, or just aren't going on to, additional schooling? The Metals Industry Consortium is working to implement training programs in schools to build a future workforce. (industrial association)

Need a different model. (manufacturing)

We would like to see more students who are choosing a vocational track coming out of high school with a strong foundation in the basics of math and English. (manufacturing)

Provide workforce amenities and needs

We could use more amenities for employees in Rivergate. Things like daycare, restaurants, quick-stops, and better transit service. Daycare nearby would really help our workforce. If you want to draw people out there, you gotta have daycare. We could also use some blue collar (affordable, family style, fast food) restaurants here so that employees don't have to go all the way to Delta Park and back on lunch break. (trucking / warehousing)

Amenities for workers should include mass transit. We have mass transit but the bus schedule is bad. There is no bus service on the weekends at all. A lot of temporary employees use the bus. (trucking / warehousing)

We've heard from the Port that it's not their vision to provide amenities in Rivergate. The Port has not paid attention to the humanistic side of things. Though we do have the walking paths along the lakes. Our employees use them and enjoy them. Of course there are no sidewalks on Leadbetter. (trucking / warehousing)

Affordable housing is another big issue. As we move into the future with a lot of energy issues, we should be encouraging shorter commutes. When I hire someone, if they live in Beaver Creek, I know the commute will be so miserable they won't be working for me in a year. (manufacturing)

Why \$9 of \$100 should be spent on other priorities

Business assistance and incentives

There needs to be an incentive, a return on their investment, for companies to want to move into specific areas of Portland. There should also be specific reasons for directing companies to certain areas, not citywide money available for firms to come here. (industrial broker)

Looking at the URA, some areas there are still the most expensive location alternatives, and incentives are minor in comparison. Incentives are rarely a driver. (industrial broker)

I think incentives make sense help to create jobs.

Building Airport Way made sense to create an opportunity for new business. (industrial broker)

I really question the use of limited public funds for incentives. Money should go into infrastructure first. Using public dollars to relocate a hospital across the road into Portland doesn't make sense. (industrial broker)

Coordination among ports/cities

This is one region. We are very supportive of regional coordination, and we need to continue a good working relationship with Portland. The idea of merging the Port of Vancouver with the Port of Portland has been brought up, mostly from Portland. Vancouver is not as optimistic about the possibility, partly from concerns that we will be swallowed up. We would also have to resolve the problems of different tax systems, labor unions, etc. In the last few years, we have been working together on a lot of projects, and

we've come a long way. It doesn't make sense for us to compete with each other. Regardless of whether we merge or not, we should work together. (marine terminal / port)

Coordination among cities. (industrial association)

Are you talking to the Port of Vancouver? You should pool your resources and coordinate investments with them. (trucking / warehousing)

Does the City of Portland interact with other city governments, such as Seattle or San Francisco? It's an opportunity. (industrial broker)

Safety

We've had three major floods. A 9.0 earthquake is expected sometime in the future. Hazmat and fire safety are also concerns in the industrial areas. We need to put some money into emergency preparation and protection from disasters. (industrial association)

Flood control is a big issue. Also, insurance rates. (trucking / warehousing)

Target industries

Portland used to be more of a world class heavy industrial area. There aren't any big machine shops here anymore. It would be great to try to get more manufacturing in Portland again, such as high quality machine shops and high tech, though I don't have much confidence that it's going to happen. We could target firms like Tube Turns and Northwest Pipe that bring in product and add value. They are making something, not just holding or storing something. (property owner / representative)

If we have money to spend, what can we do to add value for a couple of our key sectors? For example, could we become the west coast hub for electronics recycling? Or, there has been a lot of news recently about ship breaking, asking could you do it here? They could be asking about ship breaking, "Can we do it right?" This would be a good opportunity for Portland if we want to create something unique. Figure out what others are not doing. Portland needs to find its niche. (manufacturing)

B. TOP PRIORITY PROJECTS

What three specific projects from these categories do you think would be most effective catalysts for private industrial investment in these districts?

Freeway and street transportation

I-5 projects

The I-5 bridge and rail issues immediately come to mind. Transportation is critical. (marine terminal / port)

It would be great to wave a magic wand and fix things on I-5. This should be the priority project. (industrial broker)

The money for transportation should be heavily weighted to roads, including the I-5 bridge and Delta Park. This I-5 thing is killing us. (trucking / warehousing)

A big issue is the I-5 / I-84 interchange. Also, we need to build another bridge across the Columbia to Vancouver. (industrial association)

Spending \$6 billion on an I-5 tunnel in the Central Eastside would be frivolous. We could get so much more out of our money if it was spent on other things. (industrial association)

A new I-5 bridge would be nice. Sometimes our cucumbers from Washington are held up, which is a problem because cucumbers are fresh produce. If they bake in the sun for two hours longer, it makes a difference in terms of the quality. We want our customers to be able to enjoy a good, crisp pickle. (manufacturing)

The biggest project is I-5 and the bridge congestion solutions. (property owner / representative)

I-5 is a bottleneck. It affects commuters and businesses. (marine terminal / port)

I-5 is a bottleneck in the Metro area. The I-5 bridge needs to be fixed. (marine terminal / port)

You've got to talk about the I-5 bridge project and the I-5 corridor widening project. Also, the I-5/I-84 interchange is the most congested interchange in the state. Distribution centers need good freeway access. You're not going to be able to site an industrial facility without reasonable interstate access. (trucking / warehousing)

The I-5/I-84 interchange is a specific problem. (trucking / warehousing)

I-5 at Delta Park and bridge. (trucking / warehousing)

I-5 northbound and bridge. (trucking / warehousing)

The I-5/I-84 interchange is terribly congested, and it's not even on the docket to be improved. (manufacturing)

Freight corridor designation and truck design improvements

Creating designated freight corridors in these areas would be a huge selling point. Truck design improvements in the industrial districts are also important. A project with impact to freight and transportation would be seen as a big win for the freight community, and would show our commitment to heavy industry. (property owner / representative)

Transit improvements

Decrease single-occupancy vehicle use. Expand the bicycle and transit systems to increase freight capacity. (trucking / warehousing)

St. Johns truck improvements or a new bridge

The St. John's Bridge is a problem. I'd love to see a new bridge. A Westside bypass bridge is really needed; one should have been built 20 years ago. (property owner / representative)

Some roads, particularly the St. Johns Bridge, are a barrier to redevelopment along the harbor. The best solution would be St. Johns street improvements to get to the bridge or even a whole new bridge from Rivergate to the Northwest Portland area. It is surprising how many folks use this route. It is hard to move freight across the bridge and make all the turns through St. Johns. (industrial developer)

We need a bypass around St. Johns, so that we can head south. Perhaps another bridge would be best, so trucks don't clobber St. Johns. (marine terminal / port)

We need to find an alternative route from the north to the harbor. The St. Johns Bridge is a problem. One major reason we moved here was to avoid using the St. John's Bridge. Now we can use I-405 instead. (trucking / warehousing)

Leadbetter overcrossing / extension

Extending Leadbetter would be a good project. The fact that there is only one route for ingress and egress is a major concern. (trucking / warehousing)

Another important project is the at-grade rail crossing at Leadbetter. (trucking / warehousing)

Directional signage to large warehouse/distribution facilities in Rivergate

Putting up directional signage would be a great project. Invariably we get drivers that haven't been here before and it's so complicated to get here. It takes us forever to explain to trucks how to get here. Since the Port won't allow us to put a sign on Marine Drive, the trucks go right by. (trucking / warehousing)

Yeon Avenue and Guild's Lake access to I-405

Faster and easier access to I-405 from Guild's Lake is very important. This would really benefit the region. (industrial developer)

Perhaps we should limit access to St. Helens and Yeon. We need to manage the access on St. Helens Road by configuring driveways to keep the traffic flowing quickly. ODOT owns the highway, so that is not a formula for a quick solution. (industrial developer)

Front Avenue and Highway 30

Front Avenue (Naito Parkway) and Highway 30 both need to be improved.

Naito Parkway. (marine terminal / port)

Naito Parkway should be a marquee show road for Portland but currently it's extremely potholed and in very bad shape. (marine terminal / port)

Traffic lights to frontage roads in Linnton

A traffic light is needed in Linnton. I don't like having trucks lined up and down the road in front of other businesses. (manufacturing)

Swan Island access to I-5

Getting to and from Swan Island is difficult due to congestion.

Intersection of Interstate and Going. (trucking / warehousing)

Going Street bridge. (trucking / warehousing)

The Going Street bridge / secondary access to Swan Island is a high priority. It's scary that there's only one way in and out of there. (trucking / warehousing)

Secondary access to Swan Island (trucking / warehousing)

Basin Avenue congestion (trucking / warehousing)

Columbia Boulevard

Upgrade Columbia Boulevard through Rivergate to I-5. (marine terminal / port)

Also, there is congestion on I-5 south of Marine Drive. The improvements to the Columbia Boulevard interchange have had positive results. (industrial developer)

Burgard-Lombard improvements

Burgard Bridge is weight-limited. (trucking / warehousing)

Driveway intersection improvements and signalization at T-4/Schnitzer site. (manufacturing)

URA funding on facility-specific infrastructure (trucking / warehousing)

Facility infrastructure improvements are needed. Through URAs, enterprise zones, etc., give me money for facilities-specific projects so that I can get creative. (manufacturing)

Rail transportation

Rail service improvement

Improve railroad service. (manufacturing)

We would like to see improvements in the rail service. But what? How? What can we do to get Union Pacific and Burlington Northern to get their act together? Railroads are making record profits despite being poorly organized. So what will incent the railroads to make changes if they can profit without doing anything? The government has a few points of leverage with the railroads, including Connect Oregon, the tracks that are on City right-of-way, and the permitting process. (manufacturing)

We need a better strategy for rail. We need real service. (manufacturing)

Rationalize and expand UP yard space

Moving our intermodal yard is our first priority, and it would spark harbor business. But where should we move it? Putting it at Brooklyn Yard would not improve our intermodal capacity very much, and we need to think about future growth and expansion. We also need additional contiguous acres as a buffer just to keep nearby development away so that we do not get "squeezed." We say now that we need 200 acres for an intermodal facility, but in order to allow for growth to continue to occur, 200 acres may only be half of what we will need in the future. Also, we are getting larger ships into Portland already, so we need to take that into account. (railroad)

The Reynolds site in Troutdale is 800 acres. It is the perfect location, because it has rail and water access and we could get enough land. We would like to zone 100 acres of it for intermodal, but Troutdale does not

want the facility there. The trucking companies will not be happy if we move the intermodal facility because many are on Swan Island and they do not want to go on big roads to get to us. (railroad)

Much of our congestion in Portland is because UP still hasn't rationalized the conflict between their intermodal and manifest facilities. It would help us immensely if UP could deal with, and resolve, this issue. About 20 percent of the time when we show up at the Brooklyn yard with a train, there is no room and we are told to go home, which destroys our efficiency and undermines our cost basis. It's important to us for UP to consolidate all manifest switching traffic to one yard to improve velocity. One option would be to get the intermodal facility out of Albina and move all of their manifest traffic from Brooklyn. (railroad)

Kenton line double-tracking

Many projects can be done to this entire line. As mentioned earlier, this is a critical rail line to the health of Portland. We would like to double-track the entire length. Overcrossings would add capacity. Ten years from now, if there is any growth and expansion in the harbor, this line must be improved. (railroad)

Eastward Turn at I-84

A new rail line is needed for trains coming from Brooklyn to turn eastward at I-84. (railroad)

Vancouver Yard bypass

For rail, our priority is the Vancouver Yard bypass. Developing Ramsey Yard and double tracking on the Slough Bridge Lead in Rivergate are also important for us. The Steel Bridge could be improved from the current 6 mph limit to 30-35 mph. (railroad)

One priority for the next 10 years is construction of the Vancouver Yard bypass. This is an important thing for both Union Pacific and BNSF to ease congestion. We are currently revisiting the design, trying to get additional capacity with two new lines going around the yard. (railroad)

Ramsey and South Rivergate Yards

Ramsey Yard is planned but not up and running yet. It will be a great facility for us. If we could interchange with Union Pacific at Ramsey Yard instead of on the main line, we could save dwell time on cars by a day on each end. Right now we bring trains from Canada in three days and give them to Union Pacific at Rivergate and they wait a half day or longer to deliver them. So getting Ramsey up and running is very important. We have a lot of old interchange agreements, and often they don't make sense in terms of efficiency. It is how it is because it is how it was. For example, 90 percent of the traffic that we interchange at Barnes goes to Rivergate anyway. We talked to Union Pacific about just interchanging at Rivergate, but there's no space to switch in Rivergate. Again, Ramsey Yard would be a good solution. (railroad)

We need some additional track capacity in key places. We are working cooperatively with the Port to develop the infrastructure to handle increasing bulk traffic. For example, double tracking on the Slough Bridge Lead, near South Rivergate and T5, is important. When we pull the train out of Columbia Grain, they have to inspect it, and we can't bring another train in while it's waiting. Any grain that we can't store in Portland, we stage in, or between here and Pasco, which is 24 hours away. We'd like to double track the Slough bridge lead to avoid this 24-hour gap between when they call for it and when they get it. (railroad)

This yard [South Rivergate] needs to be expanded to 7 or 8 tracks. (railroad)

Grade separation in a new way, like Alameda Corridor

We should look into grade separation in a different way. It makes sense to me to separate commercial rail and truck traffic like in the Alameda Corridor. (railroad)

Protecting and preserving rail capacity is huge. Addressing rail conflicts with roads and pedestrians to allow rail to move through Portland. Grade separation is a big concern. We just built a \$20 million rail crossing on Lombard in Rivergate. The biggest issue in St. John's is unprotected rail crossings with the main line through areas with recreational green space and residential housing proposed. (marine terminal / port)

Relocate underused spur lines

We should cluster industry in certain areas, creating relocation opportunities for heavy industry. We should also choose areas for building housing – let housing go where the market demand is, but relocate the industry to the Port or somewhere else. On the west side we've got a few customers that don't appear likely to have much of a rail future. Relocation of tracks from these areas would help us. Property values will create change, like has happened in the NW 12th Street area where there are a lot of legacy buildings. (railroad)

Rehabilitation of the Astoria Line

We are starting to apply for federal and state funding, perhaps funding from Connect Oregon or federal earmarks, to rehabilitate the Astoria line starting at Mile 10. Strategically, the Astoria Line is one of the most important secondary links in Oregon. It connects to water, rail, and industrial land. As Portland expands, the land along the Astoria line is being sought by commercial companies. The condition of our current tracks is relatively good. (railroad)

Third-party rail switching

A third party rail switching operator could help with service but I'm not sure it would help with the pricing. (property owner / representative)

We are served by Burlington Northern but switched by Union Pacific. We do not receive good service from Union Pacific since we are not a direct customer. Burlington Northern doesn't pay enough to make Union Pacific give us good service. Third-party switching would be great. It would be helpful if the City could assist in moving this project along. (marine terminal / port)

I'd love to see third party switching put in Rivergate. We were successful at getting third party switching here in Milwaukie, and it has helped immensely. (trucking / warehousing)

Third-party trackage and switching (manufacturing)

Public / private funding partnerships for rail improvements

A public/private deal, like the one cut between the Port and Bechtel to build the red line light rail from Gateway to the airport, was wonderful and ought to be done more often. The perception is that this project was done in the blink of an eye. The Port has land in Rivergate and should do other public/private rail partnerships. (industrial broker)

Rail-truck transload facility (manufacturing)

There is an opportunity to create intermodal facility here, using models such as "team track," "reload," or "pay as you go." They are becoming more prevalent. It is expensive for a business to put a spur on their property, and the railroads don't want to deal with small rail users. Creating a slick intermodal facility would

be financially feasible and would be great. Two sites where it could work are the Time Oil or Rivergate sites. Smaller facilities could even work on 4-5 acre sites serving a group of users that only need a few cars a month. They're out there, and they are currently driving across town to get rail service. (industrial broker)

Swan Island rail

The Port should spend money on rail. There is no rail on Swan Island. I can't imagine folks wanting waterfront property that's not rail-served. (manufacturing)

Marine transportation

Columbia River channel deepening

We still need to finish deepening the channel. The primary beneficiary of that work is Terminal 6 at the Port of Portland. (marine terminal / port)

Maintenance dredging

Today a lot of fuel is coming in by ship and more and more product will arrive via ship in the future. We can't handle the ships, so thus far we have been lightering the product to barges on the Columbia, which is a risky practice. The day a hose breaks on that lightering operation, the operation will not be sustainable. Also, the lightering process adds costs. It's critical that we be able to handle the ships. It would be great if we could get 38-40 feet at our moorage, but realistically, it will be difficult enough to get 32 feet. Other companies may be interested in expanding in Linnton if the draft were deeper. Our firm needs more shoreline capacity, in addition to a deeper draft. (marine terminal / port)

Upland disposal of dredge spoils can be very expensive--\$400 per cubic yard. Public investment to support upland disposal would be very helpful. A nearby disposal facility could make it more cost effective. (marine terminal / port)

Maintenance dredging is a barrier, and the City will have a role down the road in terms of the navigation channel and berths, because the City must at least protect its own facilities, such as fire boat stations and the sea wall. I see the City getting more involved, raising questions and concerns and then more. (marine terminal / port)

Help us Build a New Dock

The biggest benefit to us would be to show us how to build a new dock. If we're not going to reopen the melt shop, we'll be importing a million tons of steel here forever. We would like to pursue help from PDC on this issue. The dock would need to be 500 feet long and extend 50 feet out into the water as a sheet pile dock. I've heard it's bad for fish because there's no shade for them, but we could make shade for fish elsewhere on our property. (manufacturing)

Developable land

Clarify and limit Superfund liability

Some kind of Superfund liability protection for in-water cleanup. People are getting letters from EPA saying they have to hire an attorney to defend themselves. (marine terminal / port)

River cleanup liability is a political issue. The congressional delegation could work to exempt new owners from in-water Superfund liability. (industrial developer)

If we can occupy the vacant industrial land that has been rehabilitated, that would really help. We could work with DEQ and EPA on the Superfund issue – that will go on for years and it creates such uncertainty. If the City could help add pressure to that situation, it would be helpful. (human resources manager / representative)

Removing the environmental uncertainty would help the area immensely. We need to eliminate that cloud. (industrial developer)

Get Superfund project done sooner

Getting the Superfund project done sooner would be helpful. It's been a long road already. We don't have any income coming in from the property, and Superfund is costing us \$500,000 a year. (property owner / representative)

The biggest difference would be movement on the Superfund issue. Building confidence that this will be resolved--action taken and the clean-up done--would make a huge difference. So far, there is a lot of talk and not a lot of action. A sound plan needs to be put in place, something that would not be overturned in court. The cloud of uncertainty needs to be removed that is keeping clean-up work from getting done. (property owner / representative)

The biggest difference would be movement on the Superfund issue. (property owner / representative)

Brownfield cleanup streamlining

Streamlining the approval process for our remediation plans would help us remove the above ground tanks, and make this property available for redevelopment sooner. (property owner / representative)

A showcase brownfield cleanup project

We need a catalyst showcase example of brownfield cleanup to help encourage more of it. Redevelopment of the Atofina site would be great. For firms that want to relocate, it's better to have a good inventory to show them. (property owner / representative)

Site certification or site assistance program

I could build speculative developments on Highway 30, but I would need to spend less time figuring out how to make it work. PDC and DEQ should look into sites that are unavailable and spend some time figuring out how to make it easy for a developer to develop this land in a short time frame. They could get sites prepped and primed and deal with issues on the front end so that we could run with them. We know what we want to build now, but have no idea what the market will be like 2 years from now. We need to be able to work quickly. It shouldn't be that hard to work out these issues. (industrial developer)

Government has the political power to pull together all the regulations and red tape and put all these piecemeal issues together and work them out to make a site ready to develop. A certified site status program could take the uncertainty out of it. It would be great if I could deliver warehouses in a short amount of time, by having the sites prepped and primed. This does not take as much public money, but it does take 75 percent of the effort. You have to be fast to develop today. If you can't deliver product when they want it, they will look elsewhere. If a building is unavailable for 18 months, they will look elsewhere. (industrial developer)

Streamlining the development process can be even more useful with 3-acre sites than big sites. The smaller the site, the faster you have to be able to develop. Users think ahead in proportion to their size requirements. One rule of thumb was that the size of the site divided by 1000 is the number of weeks a firm thinks ahead. That is probably divided in half nowadays. A 50,000 square foot user used to think ahead a year, but now that is probably reduced to six months. (industrial developer)

A lot of legwork is required to figure out what can and can't be done at a site. A central clearinghouse of information would be very helpful, so you could find out what properties are available, how big they are, how much they cost, etc. (property owner / representative)

We expect some degree of regulating, but businesses want certainty, want to know what they can and can't do and want to be able to get from A to B quickly and easily. Sometimes regulations are identical in two cities, but the interpretation is different. It would be great to have a timeline and have the government help you through the process to make it easier. (manufacturing)

Certified site program like done on state level. (marine terminal / port)

City involvement in the development process. (marine terminal / port)

Land Assembly

A 3-acre site is economically feasible, but there are headaches that would need to be resolved. A 4- to 8-acre site for construction of a 40,000-79,000 square foot facility would be ideal. Be a safety net for the private sector. Nobody wants to assemble lots and work through the Superfund regulations. (industrial developer)

Land assembly in Northwest would help properties to redevelop. The buildings don't have to be that big. (industrial developer)

Industrial reuse of former Linnton Plywood site

New industrial development in Linnton / NW (marine terminal / port)

We would like to see business development in the Linnton area - companies that would use rail shipping services. Industrial redevelopment of the various brownfield sites on the west side of the harbor, perhaps with warehouse/distribution facilities, would also be a benefit. (railroad)

Eliminate balanced cut and fill requirements. (property owner / representative)

W o r k f o r c e

Manufacturing 21 Center for Manufacturing and Infrastructure Engineering

Manufacturing 21 Coalition is working to develop the "Center for Manufacturing and Infrastructure Engineering," a facility for workforce training, R&D, and other support services for the metals industry and other manufacturers in the region. They have not yet committed to a site and there are competitors across the region. (human resources manager / representative)

The City and PDC should make sure the manufacturing center wins the land they want. If not, the center will go someplace else. You should try to get it here. (human resources manager / representative)

Build the workforce training center that Manufacturing 21 is pushing. (manufacturing)

Cross-industry training

We could move generic industrial training programs from the PCC Rock Creek Campus to the industrial area, so that firms like Gunderson and ESCO could more take advantage of it. I believe in cross-industry focus for any training program for long-term success. (human resources manager / representative)

We need to get all employers to identify what the cross-industry skills are and bring in PCC to provide training. Convening a group to facilitate this discussion would be a good use of public funds. (human resources manager / representative)

Manufacturing 21 is facing the problem of how to get related groups to work together on many of the same issues that each is now facing separately. There are lots of local and regional discussions already going on, and they're very similar. We need to bring those discussions together and convert them into something more cohesive. We want to do a summit in the Fall of 2006 to develop a cohesive manufacturing agenda that can be taken to the 2007 legislative session. We need a simple, short list of action items. The harbor should be part of that discussion. (human resources manager / representative)

There has to be a way to do crossover training. The problem is that the training programs are splintered. (human resources manager / representative)

A cross-industry training program can help build people's real skills related to our business, like how to drive a forklift. In recent years, a similar program was started but then mothballed. (human resources manager / representative)

In order to encourage building local skills specific to our business, we need to have a robust business. (human resources manager / representative)

High school vocation and training

We need a first class training center for high school kids. Do they have an official apprentice program for these kids in high school?

Reach grades 4-8

We have to fund programs in the public schools for the 4th through 8th grades, before kids enter high school. That's where they learn the possibilities for careers. We need to get the industries out talking to career counselors in schools. Some of that infrastructure is in place in the Business Education Compact, but not all schools are signed up. (human resources manager / representative)

Day care

Could companies band together and create a daycare center? We provide a large daycare benefit that employees don't use because they can't find good daycare nearby. Putting a daycare center in the industrial area may be a problem, but we need to at least provide it nearby. (human resources manager / representative)

Amenities for workers (trucking / warehousing)

Utilities

Utility discount program

Consider some type of investment in utilities through a Systems Development Charge discount program, maybe to apply in the industrial districts citywide. (property owner / representative)

Utilities are very important, especially for food-related companies. I think we should subsidize system development charges as an incentive to development. (property owner / representative)

CSO project

Combined sewer overflow. (trucking / warehousing)

The City signed up for this huge project and needs to pay for it. (marine terminal / port)

Other project priorities

Reroute trail around industry

Reroute greenway trail around industrial sites. (property owner / representative)

Eliminating the requirement for a path on industrial locations is a good idea. We want to do the right thing environmentally and we all like to use trails, but there is a better place for them. (property owner / representative)

New flour mill. (marine terminal / port)

Emergency preparation

Getting out of this area during an emergency is a risk. We worry about fire and landslides here. (trucking / warehousing)

QUESTION 5: ADDITIONAL COMMENTS AND SUGGESTIONS

Do you have other experiences or suggestions to add that could help set priorities for public investments or actions in the harbor area?

The few responses to this question were incorporated into those of the other questions. In most cases, responses to question #5 at the end of the interviews expanded on previous comments or added afterthoughts that related specifically to previous questions.

PORTLAND HARBOR



INDUSTRIAL LANDS STUDY



Part One: Inventories, Trends and Geographic Context

February 2003

Prepared by:

Portland Bureau of Planning



City of Portland
Bureau of Planning

Portland Development
Commission

Port of Portland

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Bureau of Planning offers accommodation to persons with
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accommodation.**

**Portland Harbor Industrial Lands Study
Part One: Inventories, Trends and Geographic Context**

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Wayne Cozad (Cube Management), Swan Island Business Association
Debbie Deetz Silva (Oregon Steel Mills), Columbia Corridor Association
Rob DeGraff, Portland Business Alliance
Ann Gardner (Schnitzer Investment Group), Northwest Industrial Neighborhood Association
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Howard Werth (Gunderson), Northwest Industrial Neighborhood Association

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EXECUTIVE SUMMARY

The Portland Harbor Industrial Lands Study assesses the future land needs of industries in the harbor area, focusing on river-dependent, freight-related, and other concentrated industries there. A secondary purpose is to generally describe the structure, dynamics, and outlook of the urban industrial districts along the harbor. The study will be used as background research for area planning efforts related to land use, economic development, infrastructure, and the natural environment. The City of Portland Bureau of Planning partnered with the Port of Portland and Portland Development Commission in drafting, funding, and overseeing the study.

The study was done in two parts. The Bureau of Planning prepared Part One, which is an inventory of harbor area industries, a review of industrial trends, and analysis of the harbor area's economic role in the region. E.D. Hovee & Company prepared Part Two in association with Parsons Brinkerhoff and The JD White Company. Their work draws from 80 interviews with industry leaders to understand the decisions being made in firms that drive industrial development. Part Two analyzes how harbor area industries are changing, their future land and location needs, and the industrial development constraints of harbor area sites, concluding with follow-up policy questions.

A. INVENTORY OF HARBOR AREA INDUSTRIES

The harbor study area consists of the industrial districts downstream of the Steel Bridge—Guild's Lake, Linnton, Lower Albina, Swan Island, St. Johns, and most of Rivergate. This study area covers 5,532 acres of land in taxlots, about one third of the city's industrial land supply.

Employment

Approximately 940 private businesses employed 39,200 workers in the area in 2000. Approximately half of that employment was in the manufacturing sector and one-third in distribution (transportation and wholesale trade). A diverse mix of industrial businesses occupies the harbor area, reflecting its age and competitive advantages as an industrial area. Much of the area has been in industrial use for nearly a century.

Clusters of particular industries in a district are an indication of its competitive advantage for those industries. Metals and equipment manufacturing is the harbor area's largest industry cluster, accounting for 104 businesses and 14,700 jobs in 2000. These industries have become highly interdependent, forming a large portion of each other's suppliers, subcontractors, and customers. Larger harbor area firms in these industries include Freightliner, Gunderson, Cascade General, ESCO, and Oregon Steel.

Distribution (transportation and wholesale trade) is the second largest industry cluster in the harbor area, consisting of 375 businesses and 12,700 jobs. The distribution industries that have high concentrations of employment in the harbor area are water, air, and truck transportation and wholesale trade of alcoholic beverages, metals, furniture, chemicals, and petroleum products.

Land use

The primary development feature of the harbor area is that it is Oregon's freight transportation hub, connecting the seaport with the Columbia and Snake Rivers barge routes, two interstate highways, and two transcontinental railroads. Freight-related (transportation and wholesale) firms and infrastructure span the entire length of the harbor and the width of the adjacent industrial districts. Rail lines run the length of the harbor on both sides, and the Albina and Lake rail yards are situated within a few hundred feet of the river. There is no similar place in Oregon with this confluence of significant intermodal transportation facilities—nor is there expectation of a similar hub developing elsewhere in the state in the foreseeable future.

Much of the harbor riverfront is lined with river-dependent industrial uses, which is partly the result of zoning regulations that reserve those properties for such use. River-dependent uses include marine terminals, vessel-related industries, and manufacturers that need to locate adjacent to the river for transportation access. River-dependent uses cover an estimated 72 percent (1,704 acres) of the occupied riverfront (between the river and nearest street or railroad right-of-way) in the study area.

Maps 2 through 5 depict the development pattern of area industries. Most industries are dispersed throughout the harbor area, but some are concentrated in particular locations. The petroleum terminals are grouped on the west side of the river in the Linnton and Guild's Lake areas, where most of the gasoline and diesel used in Oregon is received via tankers and the Olympic pipeline. Automobile import terminals (i.e. Honda, Hyundai, and Toyota) are situated in Rivergate and St. Johns, near Ford and GM's upland distribution facilities. Most of the harbor area's industrial machinery firms, metal fabricators, and printing and publishing firms are tightly clustered in the southern Guild's Lake and Lower Albina areas.

Industrial sites in the harbor area vary widely in size. The median size of industrial sites is 2.2 acres, although the larger industrial sites bring the average size up to 8.0 acres. Utilities, primary metals, manufacturing, and water transportation uses occupy sites that average 20 acres or larger. Average employment density is 8.1 jobs per acre. Manufacturing has the highest employment density at 12.4 jobs per acre; and utilities have the lowest at 0.5 per acre.

Based on Metro's regional inventory of vacant industrial land dated July 2000, 735 acres were vacant (undeveloped) in the study area, which is 13 percent of the total 5,532 acres of land in taxlots. Metro classified 543 acres (10 percent of the total land in taxlots) in Tiers A and B, indicating unconstrained and less constrained sites. Over half of the vacant land in the harbor area is located in Rivergate, and the Port of Portland is the largest owner of those sites.

B. INDUSTRY TRENDS

Regional Employment Trends

Industrial employment in the metro area (Multnomah, Washington, Clackamas, Columbia, and Yamhill Counties) grew by 37 percent between 1980 and 2000, compared to 12 percent growth nationwide. Metro area industries added 77,200 net new jobs during that period. Of those new jobs, 46 percent were in transportation and wholesale trade, 26 percent in electronics manufacturing, and 28 percent in construction.

While manufacturing employment in the U.S. declined by 9 percent between 1980 and 2000, it increased by 18 percent in the Portland metro area. The metro area share of national manufacturing employment grew by 31 percent during those decades. Electronics was the metro area's driving growth industry in the manufacturing sector, adding 20,100 net new jobs between 1980 and 2000. Combined employment in the other manufacturing industries declined slightly, less than 1 percent, compared to a 10 percent decline nationally. The printing and publishing, rubber and plastics, and transportation equipment manufacturing industries each added more than 2,000 jobs in the metro area, while substantial employment reductions occurred in lumber, paper, apparel, textiles, and instruments manufacturing.

Multnomah County is the metro area's primary location of industrial jobs, but its share of the metro area's industrial employment reduced from 59 percent in 1980 to 48 percent in 2000. At least three reasons for the county's declining share are apparent: being more built out than its suburban neighbors; having a different mix of expanding and contracting industries (e.g., electronics employment is concentrated in Washington County); and substantial relocation in some industries (e.g., wholesale of durable goods) to other counties.

U.S. maritime employment has declined over the last two decades, as U.S. maritime operations have become less labor intensive and offshore competition has grown. Between 1980 and 1999, U.S. waterborne cargo tonnage increased by 0.9 percent per year, but national employment in marine cargo handling declined by 1.8 percent per year. Between 1980 and 1999, the U.S. lost half of its shipbuilding and repair jobs.

Employment forecasts by Metro and the Oregon Office of Economic Analysis predict continuing industrial job growth following the current recession. Metro's 2030 regional forecast completed last March predicts 0.8 percent average annual growth in manufacturing jobs, 1.5 percent in transportation and utilities, and 1.6 percent in wholesale trade—each far outpacing national forecasts. The regional forecast for the metals and equipment industries is mixed, with anticipated employment gains in industrial machinery exceeding modest reductions in transportation equipment and metals.

Land Use Trends

Many U.S. cities have lost much of their central city industrial land to other uses, as development pressure has led to conversion of industrial land to residential and commercial uses that command higher market land values. To date, this has not occurred extensively within the City of Portland. Most of Portland's industrial land is protected by industrial sanctuary zoning, limiting the encroachment of non-industrial uses. Portland has approximately 18,800 acres of industrially zoned land. Since 1991, the City has converted approximately 2.5 percent (474 acres) of its industrial land to other zones and has established environmental protection zoning on another 3 percent (570 acres).

The proportion of land in industrial and river-dependent uses has been relatively stable or growing along most of the harbor between 1960 and 1997, as revealed by periodic land use inventories conducted by the Port of Portland. There are two exceptions, where land has converted from industrial to other uses: the River District (west side of the river between the Broadway and Fremont Bridges) and North Beach (east side between St. John's Bridge and

University of Portland. Both areas were primarily in marine industrial use in 1960, and both are transitioning into parts of the expanding urban mixed-use centers nearby (Central City and St. Johns town center).

On average, 21 acres per year of new marine cargo and marine industrial development occurred along the harbor between 1960 and 1997. Much of that development occurred on about 2,700 acres of land acquired around 1960 by the Port of Portland in Rivergate and on vacant land in the Swan Island area. Of the 232 acres that were vacant in 1990 and occupied by 1997, 105 acres were developed as marine cargo uses, 43 acres as marine industrial, and 20 acres as marine infrastructure. Marine cargo developments since 1990 have included the Portland Bulk Terminal at Terminal 5 (T-5), the chassis yard and intermodal yard expansion at T-6, and the Ash Grove plant near the Albina rail yard.

The *Regional Industrial Lands Study* forecasts 6,310 acres of net industrial land absorption (demand) in the Portland-Vancouver area from 2000 to 2020. In Multnomah County, the study forecasts 813 acres of industrial land absorption over the 20-year period and found a vacant land supply of 2,572 acres, including 442 acres in Tier A and 1,960 acres in Tier B (less constrained sites for new development).

The Rivergate area is well situated to receive a significant portion of Portland's maritime industrial growth, having the advantages of large sites, vacant land, convenient rail access, and few Superfund sites. However, the freight distribution complex is not necessarily moving northward. Transportation and wholesale firms remain more densely concentrated in the upper harbor area (Guild's Lake, Swan Island, and Lower Albina).

Cargo and Freight Trends

Between 1960 and 2000, marine cargo tonnage handled at Portland Harbor increased by 253 percent, primarily driven by growth in exports. The average annual growth rate over the 40-year period and in the 1990s was 2.3 percent. Among West Coast ports, Portland has multiple cargo niches in dry bulk exports (primarily wheat), auto imports, regional container service, and petroleum from the Puget Sound. Between 1985 and 2000, Portland captured an increased share of West Coast marine cargo in dry bulks, autos, and breakbulks. Portland, Seattle, and Tacoma had declining shares of West Coast container cargo between 1985 and 2000, as an increasing share has concentrated at the Los Angeles and Long Beach harbors.

DRI-WEFA predicts average annual growth of total marine cargo to be handled at the Lower Columbia River ports between 2000 and 2030 at -0.4 to +0.8 percent (0.2 percent midpoint) without channel deepening. With the proposed Columbia River channel deepening to 43 feet, the forecast range is 0.0 to 1.3 percent (0.7 percent midpoint). DRI-WEFA is projecting an increase across all cargo types, except liquid bulk, which declined after 2000 as the Olympic pipeline has come back into full use following repairs.

Rail is the primary mode of transportation for ocean bound cargo, handling 51 percent of all tonnage in the metro area. Another 26 percent is hauled by barge and 22 percent by truck. Rail tonnage has increased by 1.8 percent per year over the last ten years. Preliminary forecasts being prepared as part of the I-5 Trade Corridor study anticipate rail tonnage to increase at an even

greater 3.0 to 3.5 percent annualized rate over the next ten years. Significant increases are expected for auto, grain, and bulk unit trains.

C. REGIONAL ROLE OF HARBOR AREA

Industrial Location Factors

Four primary functions of the harbor area are identified as factors that influence which industries locate there: multi-modal distribution infrastructure, industry clusters, heavy industrial character, and central urban location.

Freight transportation investment is a significant industrial location advantage for the harbor area in at least two respects: as a freight hub location for distribution industries and as a marine and rail access location for manufacturers that require those facilities. As shown in Map 8, the harbor area and Columbia Corridor are the center of the region's freight distribution facilities and industrial activity that requires rail or maritime access. Portland is well positioned by its location and intermodal infrastructure for continued growth as a West Coast distribution hub.

Among the mix of industries in the harbor area, the metals and equipment industries (primary metals, fabricated metal products, industrial machinery, electronics equipment, and transportation equipment) appear to be the most affected by inter-firm linkages as a location factor. In 1998, 57 percent of the production inputs of the metals and equipment industries nationally were provided by other firms within that industry group. The significant trade volume between these industries is consistent with their geographic concentration in the harbor area. The presence of more than 200 metals and equipment firms (manufacturing and wholesale) there, their skilled labor pool, established networks of suppliers and customers, specialized infrastructure, and other inter-firm relationships are potentially significant location factors for the cluster's continued growth.

Another apparent location factor is that the harbor area is the region's largest heavy industrial district. Conceptually, heavy industrial areas provide locations for industries with objectionable impacts and appearance, separated from other urban areas. Examples in the harbor area of what are traditionally perceived as heavy industries include steel mills, heavy equipment manufacturing, petroleum bulk storage, chemicals manufacturing and distribution, utility yards, rail yards, and marine terminals. Most of the land in Portland with heavy industrial zoning is in the harbor area, and nearly all of the rest is adjacent in the Columbia Corridor west of I-5. A fourth factor that influences the mix of industries in the harbor area is its central urban location. The harbor area offers large employers central access to the metro area's skilled labor markets and is an advantage for distributors with nearby or regional delivery locations.

Relation to Other Regional Seaports

Portland is a major West Coast seaport, the fourth largest in total marine cargo tonnage in 2000 with 34.3 million short tons, as reported by the U.S. Army Corps of Engineers. In comparison, total marine cargo tonnage was 24.1 million in Seattle, 22.3 million in Tacoma, and 12.2 million in Oakland. Of the 34.3 million tons of waterborne cargo handled at Portland Harbor in 2000, 18 million tons (52 percent) was international cargo, 7.1 million tons (21 percent) was coastwise

cargo (primarily petroleum from Puget Sound refineries), and 9.3 million tons (27 percent) was internal cargo carried by barge.

Portland terminals handled 66 percent of the total marine cargo tonnage of the Columbia River deepwater seaports in 2000. By comparison, Vancouver (Washington) handled 15 percent; Kalama, 11 percent; Longview, 8 percent; and Astoria, less than 1 percent. Portland Harbor currently competes with the other Columbia River seaports primarily for dry bulk and breakbulk cargo. Virtually all of the Columbia River container and petroleum cargo and 86 percent of the automobile cargo were handled in Portland in 2000.

Among the vacant industrial sites currently marketed by the port authorities at the Lower Columbia River seaports, the only 100 acre and larger sites currently available are one in Kalama and two in Longview. Based on research conducted for the Port of Portland, the land area needs for new marine terminals reflecting current and projected technology are 115-125 acre sites for grain and dry bulk terminals, to accommodate a rail loop, and 50-100 acre sites for auto and container terminals, to provide adequate yard storage area. Land requirements for river-dependent manufacturing, warehouse, and industrial service facilities are more varied. There are also many existing river-dependent industrial sites on Portland Harbor in the 5-50 acre range.

The Port of Portland's *Marine Terminals Master Plan* process underway has proposed alternatives to accommodate new grain, dry bulk, auto, and container facilities through redevelopment, consolidation, or relocation of facilities within the existing terminal sites. The Port of Portland also owns and is reserving West Hayden Island for future marine terminal development, which includes about 550 acres of potential development area. In addition, the Port of Vancouver has recently prepared an environmental impact statement for a subarea plan to develop Columbia Gateway, which is proposed to include 152-504 acres for water-dependent industry in addition to other proposed industrial land.

Regional Economic Role of Harbor Area

The harbor area is a regional job engine. For each of the 34,300 industrial jobs there in 2000, an average 1.9 additional jobs was supported in the six-county metro area by the purchases of harbor area firms and employees. Accounting for these multiplier effects, the total employment in the metro area supported by harbor area industries is an estimated 99,800 jobs. That is approximately one in eight regional jobs. The total annual payroll of those metro area jobs is \$3.5 billion. These estimates are based on regional multipliers calculated by the U.S. Bureau of Economic Analysis in the Regional Input-Output Modeling System (RIMSII). The multiplier effects of industrial sectors are generally higher than other sectors because of above-average industrial wages and levels of trade with other regional firms.

Among the multiplier effects of harbor area industries, Portland's maritime activity by itself generated 21,000 jobs and \$970 million of resultant employee earnings in 2000, as calculated by Martin Associates in 2001. The multiplier effects of Portland's maritime activity span the Pacific Northwest states.

In addition to job and income creation, the study area also has the specialized function of being Oregon's primary port and distribution hub. The presence of this hub within the region provides

more convenient transportation access to the region's producers and consumers and saves on transportation costs. For example, HDR Engineering in 2000 calculated that shippers in the Pacific Northwest saved \$67.9 million per year in transportation costs as a result of Portland's container terminal at T-6.

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INTRODUCTION

Portland Harbor is a major West Coast port, the fourth largest in overall tonnage in 2000. Along with the adjacent Columbia Corridor, the harbor area is Oregon's distribution hub for marine, rail, truck, and air cargo. A diverse mix of manufacturing industries along the harbor also anchors a hefty segment of the regional economy. Overall, harbor area firms generated one out of eight jobs in the Portland-Vancouver region in 2000, taking into account the multiplier effects of purchases by harbor area firms and employees.

Many existing studies and data sources, to which this report is indebted, provide a substantial base of information and insight on particular aspects of the working harbor. This study builds on that work as a focused industrial analysis of the harbor area. The primary purpose of the study is to assess the future demand and supply of industrial land in the harbor area, focusing on river-dependent, freight-related, and other concentrated industries in the area. In doing so, a secondary purpose is to describe the structure, dynamics, and outlook of these urban industrial districts.

The City of Portland Bureau of Planning partnered with the Port of Portland and Portland Development Commission in drafting, funding, and overseeing the study. The River Economic Advisory Group, a business and industry stakeholder group, was also instrumental in identifying the need for such research and reviewing the project work plan and draft products.

The study is intended to provide background research for various planning efforts in the harbor area. It will help the City formulate policy revisions and action strategies in current and future river planning efforts related to land use, watershed health, industrial development, recreation, and the Portland Harbor Superfund project. The study will inform the Portland Development Commission's industrial development efforts in the area. And the Port of Portland will use study results in considering strategic decisions on land use, development, and marine facilities planning.

Study Approach

The study consists of two parts that differ by method and tasks. Part One, of which this report is the product, is primarily a statistical analysis of available data and a synthesis of relevant secondary sources. The first chapter is an inventory of harbor area industries in terms of employment and land use. Chapter 2 reviews local and regional trends and forecasts on employment, freight volume, and industrial land uses pertinent to the harbor area. And Chapter 3 provides a contextual description of the factors that attract industry to the harbor area, its relation to other regional seaports, and its economic contribution to the regional economy.

E.D. Hovee & Company prepared Part Two of the study in association with Parsons Brinkerhoff and the JD White Company. Their analysis is based on 80 interviews with industry leaders and experts and other supportive research. That analysis includes a more in-depth description of industry dynamics and location factors, an assessment of future demand for industrial land in the area, a sensitivity analysis of issues that could affect that demand, a rating of industrial site quality in the area, and a framework of resulting policy questions.

Study Area

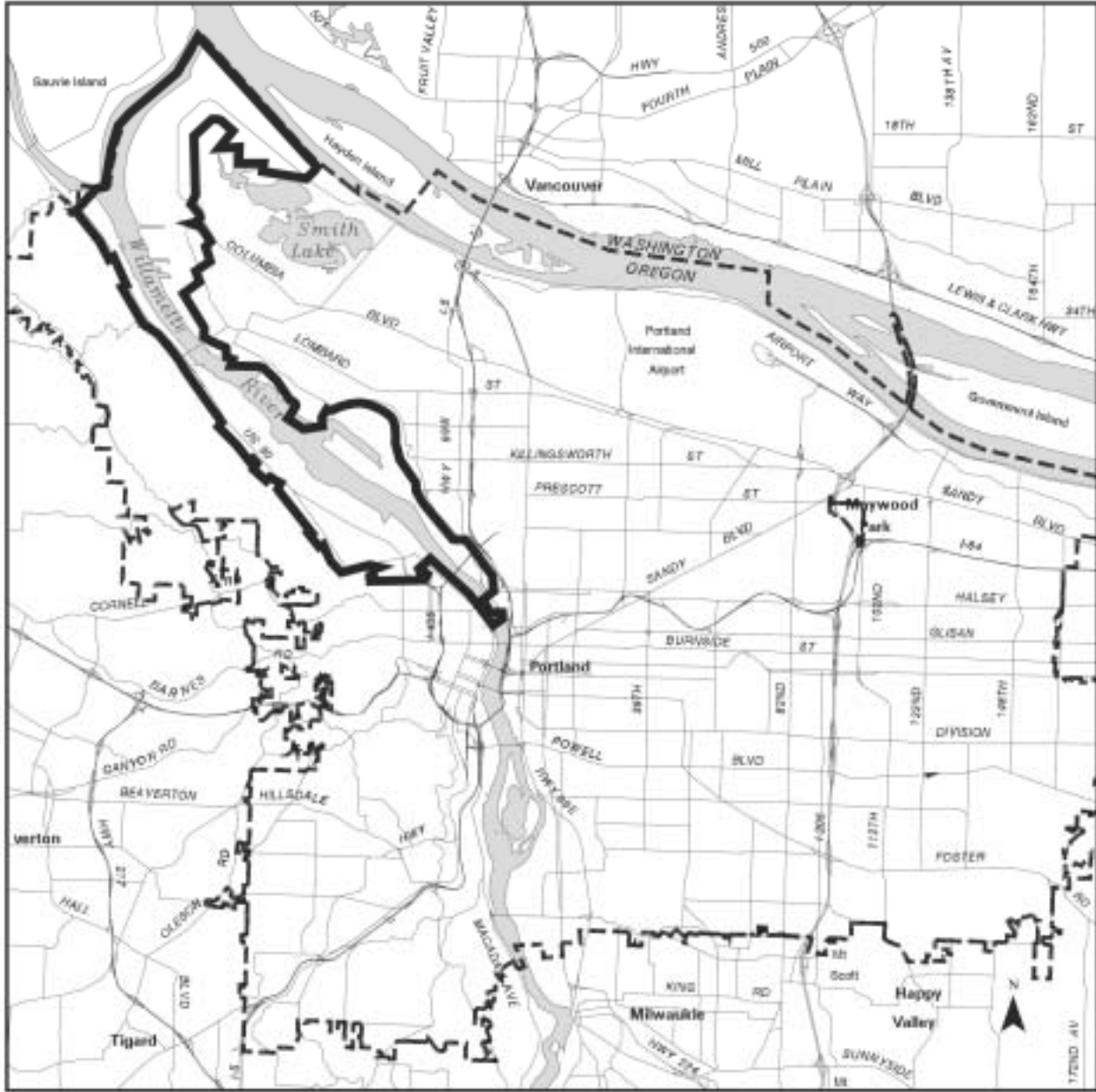
The study area consists of the industrial districts along Portland Harbor, including Guilds Lake, Linnton, Lower Albina, Swan Island, St. Johns, and Rivergate. This area is depicted in Map 1. The terms harbor area and study area are used interchangeably throughout this report.

The study area boundary is based primarily on two geographic features: the harbor shipping channel and the entire existing industrial districts adjacent to the channel. The main reason for focus on the harbor area is to assess the land needs of river-dependent industries—that is, the marine terminals, vessel-related industries, and manufacturers that need to locate adjacent to the river for transportation access. The deep draft channel spans most of the Willamette River in Portland, generally downstream from the Broadway Bridge, and along the Columbia River adjacent to Port of Portland Terminal 6. The reasons for including the entire adjacent industrial districts are to examine the inter dynamics and competing land needs of other industries in these larger districts.

The study area consists more specifically of the industrial and employment zones mapped in the *Portland Zoning Code* along the harbor, with some exceptions to better reflect actual conditions at specific sites. The southern portion of the study area is extended beyond the Broadway Bridge to the Steel Bridge on the eastside, to include the Louis Dreyfus grain terminal, a major river-dependent use. Some large institutional uses are excluded from the study area: the University of Portland and the Multnomah County Detention Facility sites. Additionally, some Metro Title 3 designated wetland areas owned by the Port of Portland, along the Columbia Slough, are excluded. The study area includes all parcels within the *Portland Zoning Code*'s “River Industrial” (i overlay) zone, which is intended to encourage and promote the development of river-dependent and river-related industries.

On Format

Much of the information in this report is presented in detailed tables, to give readers the option to concentrate on information of individual interest. The typical format consists of tables, notes on methodology, and a series of observations drawn from the data. Summary observations are highlighted in text boxes, followed by related information and discussion.



Map 1: Portland Harbor Study Area

 Study Area Boundary

Scale: 1" = 2.5 Miles

City of Portland Bureau of Planning
Geographic Information System
2002



1. INVENTORIES

A. INDUSTRIES BY EMPLOYMENT

Sectoral Mix

Table 1 presents estimates of the number of private business establishments and their employment by economic sector in the study area, followed by comparison figures for Multnomah County and the metropolitan area. The employment data cited in this report refers to average annual “covered employment,” estimated by the Oregon Employment Department or U.S. Bureau of Labor Statistics. Compared to other employment data, its advantage for this study is that it is available annually for small geographic areas such as the harbor area. Covered employment data is based on Unemployment Insurance tax reports submitted quarterly by employers. Information for some industries is suppressed for confidentiality purposes.¹ Unless noted otherwise, the employment data cited for the Portland Metropolitan Statistical Area (PMSA) is from the Oregon Employment Department, and it applies to the Oregon portion of the PMSA only (Clackamas, Columbia, Multnomah, Washington, and Yamhill Counties), excluding Clark County, Washington.

Table 1. Employment and Establishments by Sector in Study Area, 2000

Industry	Establish- ments in Study Area	Average Annual Covered Employment in Study Area	Study Area Share of County Employment	Study Area Share of PMSA*	Sectoral Share of Total Employment in		
					Study Area	County	PMSA*
Agriculture	**	**			1%		2%
Mining	**	**			0%		0%
Construction	63	2,081	10%	5%	5%	5%	5%
Manufacturing	222	19,391	37%	15%	49%	11%	15%
Transportation	123	6,460	27%	19%	16%	5%	4%
Communications & Utilities	5	71	1%	1%	0%	2%	2%
Wholesale Trade	252	6,269	19%	10%	16%	7%	7%
Retail Trade	69	1,481	2%	1%	4%	16%	17%
Finance, Insur. & Real Estate	42	865	3%	2%	2%	7%	6%
Services	155	2,559	2%	1%	7%	31%	28%
Government	**	**				14%	12%
Nonclassified, Other	5	15	7%	3%	0%	0%	0%
Total***	936	39,192	9%	5%	100%	100%	100%

* Portland Metropolitan Statistical Area (PMSA) data includes Oregon share only.

** Data suppressed.

*** Study area total does not include agriculture, mining, and government.

Sources: Bureau of Planning calculations from Oregon Employment Department data.

¹ Information is suppressed in cases where the information represents less than three establishments or one establishment accounts for 80% or more of the summary level employment in that segment.



An estimated 936 private business establishments in the harbor area employed 39,192 workers in 2000.

Approximately one in eleven jobs in Multnomah County were located in the study area in 2000. Nearly half of the study area employment was in the manufacturing sector, and approximately one third in the distribution sectors of transportation and wholesale trade. Since industrial and employment zoning in the area limit commercial development, retail and services represent a relatively minor portion (12 percent) of study area employment.

A significant cluster of public sector facilities also exists in the harbor area, on which data is suppressed in Tables 1 and 2 because one organization accounts for more than 80 percent of the area's government employment. Among the public employers with harbor facilities that require river access for transportation are the Port of Portland, U.S. Naval Reserve, U.S. Coast Guard, U.S. Army Corps of Engineers, Multnomah County Sheriff, and Portland Fire Bureau.

Concentrated Industries

Industrial geographers have found that industries do not emerge and grow ubiquitously. Particular industries tend to be concentrated in particular regions and districts, where they benefit from proximity to markets, access to increasingly productive inputs, networks of subcontractors and suppliers, and other location advantages. As a result, regions and districts have varying mixes of industries and specializations. At the same time, industries are not fixed in place. They move in response to competition, business cycles, and product and process innovation. This chapter and the next provide a recent snapshot of the concentrated industries in the Portland Harbor area and a summary of trends that describe how and to what extent they are changing.

Industry concentration is explored in this report through employment location quotients, a statistical tool commonly used for such analysis. A location quotient measures an industry's concentration in a particular location relative to its larger context, typically a district to a region or a region to a nation. High or low location quotients reflect significant geographic specialization or underrepresentation. Employment location quotients are calculated as the industry's share of the total employment in the subset area divided by its share of total employment in the larger area. If the industry's employment share in the two geographic areas is equal, the location quotient is 1; if more concentrated in the subset area, it is more than 1; if less concentrated, less than 1.

Table 2 presents information on the employment, number of business establishments, and location quotients of industries in the harbor area at the two-digit SIC level and wholesale trade segments at the three-digit level.² The table focuses on the industrial sectors of construction, manufacturing, transportation, communication and utilities, and wholesale trade. No service sector industries (retail, finance, insurance, real estate, services, and government) at the two-digit

² The Standard Industrial Classification (SIC) Manual of the U.S. Office of Management and Budget classifies industries by a 4-digit numerical system. Each digit relates to a level of detail. For example, SIC 3731 applies to Shipbuilding and Repair, SIC 373 to Ship and Boat Building and Repair, and SIC 37 to Transportation Equipment Manufacturing. SIC 2 and 3 include all manufacturing industries.

Table 2. Business Establishments, Employment, and Location Quotients in the Study Area, 2000

SIC	Industry (concentrated industries in bold text)	Establishments	Average Annual Covered Employment	Study Area Share of PMSA* Employment	Location Quotient:	
					Study Area to PMSA*	PMSA* to Nation
	Construction	63	2,081	5%	0.99	1.02
15	General building contractors	15	430	4%	0.86	1.10
16	Heavy construction	3	231	6%	1.31	0.54
17	Special trades	45	1,420	5%	1.00	1.11
	Manufacturing	222	19,391	15%	3.27	1.06
20	Food & kindred products	17	1,241	16%	3.40	0.72
22-3	Apparel & textile products	5	68	3%	0.62	0.31
24	Lumber & wood products	6	208	3%	0.61	1.38
25	Furniture & fixtures	7	221	9%	1.94	0.68
26	Paper & allied products	9	318	11%	2.28	0.70
27	Printing & publishing	26	1,111	11%	2.32	1.03
28	Chemicals & allied products	18	511	31%	6.63	0.25
29	Petroleum & related products	3	188	63%	13.58	0.36
30	Rubber & plastic products	5	103	2%	0.46	0.74
31	Leather & leather products	0	0	0%	0.00	0.59
32	Stone, clay, glass, & concrete	12	309	10%	2.07	0.86
33	Primary metal industries	12	3,016	40%	8.77	1.63
34	Fabricated metal products	31	930	9%	1.92	1.03
35	Industrial machinery & equipment	32	829	6%	1.30	1.00
36	Electronic & other electric equipment	11	2,094	8%	1.63	2.49
37	Transportation equipment	18	7,811	64%	13.96	0.99
38	Instruments & related products	0	0	0%	0.00	1.53
39	Misc. manufacturing industries	10	433	18%	3.87	0.95
	Transportation	123	6,460	19%	4.04	1.17
41	Local & interurban transit	***	***			0.67
42	Trucking & warehousing	77	2,672	17%	3.76	1.28
44	Water transportation	18	1,209	54%	11.78	1.69
45	Transportation by air	***	***			1.20
47	Transportation services	16	156	4%	0.90	1.18
48-9	Communication & utilities	5	71	1%	0.11	0.77
	Wholesale	252	6,269	10%	2.15	1.38
50	Wholesale durable goods	175	3,310	9%	1.98	1.32
501	Motor vehicles, parts & supplies	19	607	12%	2.88	1.33
502	Furniture & home furnishings	13	270	21%	5.20	0.98
503	Lumber & construction materials	14	274	7%	1.67	1.87
504	Professional & commercial equipment	5	17	0%	0.05	1.18
505	Metals & minerals, exc. petroleum**	18	589	30%	12.20	0.99
506	Electrical goods**	11	210	3%	1.28	0.92
507	Hardware, plumbing & heating equip.	16	290	10%	2.39	1.25
508	Machinery, equipment & supplies	61	774	9%	2.21	1.37
509	Misc. durable goods	18	279	12%	2.86	0.95

Table 2. continued

SIC	Industry (concentrated industries in bold text)	Establish- ments	Average Annual Covered Employment	Study Area Share of PMSA*	Location Quotient:	
					Study Area to PMSA*	PMSA* to Nation
51	Wholesale nondurable goods	77	2,959	11%	2.58	1.46
511	Paper & paper products	9	319	12%	2.96	1.31
512	Drugs, proprietaries & sundries**	***	***			0.67
513	Apparel, piece goods & notions**	***	***			2.52
514	Groceries & related products**	11	298	2%	0.88	1.20
516	Chemicals & allied products	16	252	23%	5.53	0.93
517	Petroleum & petroleum products**	8	375	16%	6.73	1.22
518	Beer, wine, distilled alcoholic bvg.s.**	10	784	32%	12.96	1.22
519	Misc. nondurable goods	19	211	5%	1.29	0.99
Combined Industrial Sectors		665	34,272	12%	2.60	1.10
Total of all industries		936	39,192	5%		

* Portland Metropolitan Statistical Area (PMSA) data includes Oregon share only for industries at the 2-digit SIC level and the entire PMSA (including Clark County, Washington) for industries at the 3-digit level.

** Employment share and location quotient calculations use statewide data for this industry, because PMSA data is suppressed.

*** Data suppressed.

Sources: Bureau of Planning calculations from Oregon Employment Department and U.S. Bureau of Labor Statistics data.

SIC level had a location quotient above 1.0 in the study area relative to the metropolitan area, and most were less than 0.5.

Selecting a location quotient threshold to identify concentrated industries in a district is a matter of assumption. Since the study area was selected specifically as an industrial area, its location quotients for the industrial sectors in general are skewed upward. Since the study area location quotient for the combined industrial sectors was 2.56 in 2000, we use a location quotient of 3.0 or higher to indicate concentration in the harbor area, and those industries are identified by bold lettering in Table 2.

Table 3 lists the largest employers and their approximate employment (e.g., 100-249 or 250-499 employees) within the industrial sectors in the study area. InfoUSA, a data compilation firm, developed the information on firms and employment used in Table 3, drawing from business telephone directories and periodic surveys. The published date of the information is second quarter 2002. Classification of industries by SIC code is imprecise, and the InfoUSA and Oregon Employment Department data sources conflict in how they classify some harbor area firms.

Table 3. Largest Employers in Industrial Sectors in Study Area, 2002

SIC	Industry	Largest Employers (no. employees)
Construction		
17	Special Trades	Streimer Sheet Metal (100-249), McDowell Welding & Pipefit (100-249)
Manufacturing		
20	Food & kindred products	Steinfelds (100-249), Gran Pac Foods (100-249), Widmer Brothers Brewing (100-249)
24	Lumber & wood products	Weyerhaeuser Co. (50-99), Medallion Industries (50-99)
25	Furniture & fixtures	Sealy Mattress (100-249)
26	Paper & allied products	Boise Cascade Trucking (100-249), Smurfit-Stone Container (100-249), Rose City Printing & Packaging (50-99)
27	Printing & publishing	Graphic Arts Center (250-499), Journal Graphics Inc. (100-249), Color Technology (100-249)
28	Chemicals & allied products	Mt. Hood Chemical Co. (50-99), Rodda Paint (50-99)
29	Petroleum & related products	Owens Corning (50-99), GS Roofing (50-99), Lakeside Industries (50-99)
30	Rubber & plastics	Griffith Rubber Mills (100-249)
32	Stone, clay, glass, & concrete products	Glacier NW Inc. (50-99), C H Murphy/Clark-Ullman (50-99), Ash Grove Cement (20-49)
33	Primary metal industries	Esco Corp. (500-999), Oregon Steel Mills Inc. (500-999), Consolidated Metco (250-499)
34	Fabricated metal products	Crown Cork & Seal (100-249), Tube Forgings of America (100-249), Western Wire Works (100-249)
35	Industrial machinery	Sulzer (250-499), Western Group (100-250), Armstrong Mfg. Co. (50-99)
36	Electronic equipment	Wacker Siltronic (>1000), Phoenix Gold International (100-249)
37	Transportation equipment	Freightliner (>1000), Gunderson (>1000), Cascade General (500-999)
39	Misc. manufacturing	Columbia Manufacturing (>1,000), Purdy Corp. (250-499)
Transportation		
42	Trucking & warehousing	Roadway Express (250-499), Active USA (100-249), FTL Trucking (100-249)
44	Water transportation	Pacific Maritime Association (500-999), Brix Maritime (100-249), Shaver Transportation (50-99)
45	Transportation by air	(cannot verify largest employers)
47	Transportation Services	Menlo Logistics (100-249), Northwest Container Services (50-99), Oregon Transfer Co. (50-99)
Wholesale		
501	Motor vehicles & parts	Toyota Vehicle Processors (100-249), DSU-Peterbilt & GMC (100-249)
502	Furniture & home furnishings	Boise Cascade Office Products (100-249), First Inc. (50-99)
503	Lumber & construction materials	Western Pacific Bldg Materials (100-249), Medallion Industries Inc. (50-99), Jasco Supply (50-99)
504	Professional equipment	Christenson Electric (100-249), BSB Inc. (100-249)
505	Metals & minerals	American Steel (100-249), Reyerson Tull (50-99)
506	Electrical goods	Pacific Detroit Diesel Allison Co. (100-249), Rejuvenation Inc. (100-249)
507	Hardware & plumbing	General Tool & Supply Co. (50-99)
508	Machinery, equipment & supplies	Cummins Northwest (50-99), Helser Services (50-99), West Coast Wire Rope (50-99)
509	Misc. durable goods	Schnitzer Steel (250-499), Container Recovery Inc (100-249), Emerson Hardwood Co. (50-99)

Table 3. continued

SIC	Industry	Largest Employers (no. employees)
511	Paper & paper products	Boise Cascade Office Products (100-249), West Coast Paper Co. (50-99), Office Depot Business Svcs. Div. (50-99)
513	Apparel, piece goods & notions	Columbia Sportswear Co. (250-499), Layton Home Fashions (250-499), E E Schenck Co. (50-99)
514	Groceries & related products	Graziano Fresh Cut Produce (250-499), Golden State Foods (50-99), Delphina's Bakery (50-99)
515	Farm product materials	Cargill Inc. (10-19), Columbia Grain Inc. (10-19)
516	Chemical products	VanWaters & Rogers (50-99), Tarr Inc. (50-99)
517	Petroleum & petroleum products	Northwest Pump & Equipment Co. (100-249), Carson Oil (100-249), Fuelman (50-99)
518	Beer, wine & distilled alcoholic beverages	Mt. Hood Beverage Co. (250-499), Columbia Distributing (250-499), Henny-Hinsdale Inc. (250-499)

Sources: InfoUSA and OLMIS Employer Database (Second Quarter 2002), modified by Bureau of Planning from phone contacts.



The harbor is a diverse industrial location. Nearly all of the manufacturing, transportation and wholesale industries at the two-digit SIC level have a substantial presence in the study area.

Much of the area has been in industrial use for nearly a century, and its diversity reflects both its age and viability as an industrial area.



The harbor area is a regional center of the transportation equipment, primary metals, petroleum products, and water transportation industries.

Measurements of concentration in the harbor area are high in these industries:

- transportation equipment manufacturing – the study area contains 64 percent of the PMSA employment in this industry and has a location quotient of 13.96;
- petroleum products manufacturing – 63 percent of PMSA employment, 13.58 location quotient;
- water transportation – 54 percent of PMSA employment, 11.78 location quotient; and
- primary metals manufacturing – 40 percent of PMSA employment, 8.77 location quotient.

Water transportation and primary metals manufacturing are also regional economic specializations, having high location quotients for the PMSA in relation to the nation. Conditions in the study area are thus important to the regional performance of those industries. In contrast, regional industrial specializations that are underrepresented in the study area include wood products manufacturing and instruments manufacturing.



The cluster of metals and equipment industries in the harbor area encompassed 213 business establishments and 16,860 jobs in 2000, which is 43 percent of total private employment in the area.

Metals and equipment manufacturers (primary metals, fabricated metal products, industrial machinery, transportation equipment, and electronics equipment) employed 14,680 manufacturing workers in 2000, representing 76.5 percent of the manufacturing employment in the study area. The related firms in the motor vehicles, metals, electrical goods, and machinery segments of wholesale trade employ another 2,180 workers. The focal industries of this cluster are transportation equipment and primary metals manufacturing, which are the most highly concentrated in the harbor area and together provide over 10,000 harbor area jobs.

We refer to the metals and equipment industries together, as a cluster, because of the significant potential for supplier, subcontractor, and customer relationships among them, commonly called “linkages.” As discussed further in Chapter 3, much or most of the intermediate inputs of this group of industries comes from within the group, which has the effect of creating interdependencies and blurring the boundaries between these industries.



The distribution industries (transportation and wholesale) form another significant industry cluster in the harbor area, accounting for 375 business establishments and 12,729 jobs in 2000.

The study area contains 19 percent of the PMSA’s transportation employment and 10 percent of its wholesale employment. Water transportation is the most concentrated (location quotient of 11.78) of the distribution industries in the harbor area. Most of this industry’s employment consists of Local 8 members in the International Longshoreman’s and Warehouseman’s Union under contract with the Pacific Maritime Association, and their workplaces span various marine terminals in the harbor area. Trucking and air transportation (courier services) are also concentrated industries in the study area and provide most of the study area employment in the transportation sector. The Union Pacific and Burlington Northern Santa Fe Railroads have rail yards in the study area, but railroad employment is not included in ‘covered employment’ data. Wholesale industry segments in commodities that are manufactured in the study area tend to be more concentrated there, including alcoholic beverages (12.74 location quotient), metals (11.99), petroleum products (6.62), chemicals (5.44), and furniture (5.12).

River-Dependent Industries

Table 4 addresses land uses in the riverfront portion of the study area, which is defined in this table as the area between the river and the nearest parallel street or railroad right-of-way. The table shows, by district, the acreage of land that is in river-dependent use, in other uses, and vacant in 2000. Bureau of Planning staff interpreted which sites are in river-dependent use, based on the zoning definition discussed below. The source of the vacancy information is Metro, the methodology of which is described at the end of this chapter. The river-dependent and vacant sites are depicted in Maps 3 and 6 below.

Table 4. Harbor Riverfront in River-Dependent Use, Other Uses, and Vacant, 2000

District	Total Study Area Acreage	Riverfront Acreage*	Uses of Riverfront Area*					Vacant Land** Acreage	Vacancy Rate
			River-Dependent Uses**		Other Uses		Percent of Total		
			Occupied Acreage	Percent of Total Occupied Acreage	Percent of Lineal River Frontage	Occupied Acreage	Percent of Total Occupied Acreage		
Linnton	279	193	107	65%	59%	58	35%	28	14%
Guild's Lake	1,686	464	259	64%	65%	146	36%	59	13%
Rivergate	1,988	1,059	759	83%	64%	159	17%	141	13%
St. Johns	1,043	684	436	70%	54%	186	30%	62	9%
Swan Island	744	243	117	52%	61%	106	48%	20	8%
Lower Albina	383	34	26	77%	70%	8	23%	0	0%
Study Area	6,123	2,677	1,704	72%	62%	662	28%	310	12%

* Riverfront portion of study area from the river to the nearest parallel street or railroad right-of-way.

** Percent of riverfront land shown on Map 6 Vacant Land Supply in all tiers.

*** Marine terminals and other primary uses that require river access for waterborne transportation, as shown on Map 3 Freight-Related Industries.

Source: Bureau of Planning calculations from Maps 3 and 6. Vacant lands information from Metro.



The “River Industrial” (i overlay) zone in the *Portland Zoning Code* reinforces Portland’s maritime functions by essentially reserving nearly all of the harbor riverfront land for new and expanding river-dependent or river-related uses.

This zone specifically implements Objective 5 in Portland’s *Willamette Greenway Plan*, which is, “To maintain the economic viability of Portland’s maritime shipping facilities, based on the overall economic importance of deep-channel shipping to Portland’s and Oregon’s economy.” The River Industrial overlay requires that new land uses be river-dependent or river-related, unless it is found through a land use review process that the site is unsuitable for such uses.

The zone is also premised on the limited supply of land suitable for maritime functions. The working harbor is a unique part of Portland’s industrial landscape. It has developed (along with the Columbia Corridor) as Oregon’s freight transportation hub, connecting the seaport with regional rail, barge, and highway networks. Chapter 3 includes maps of regional freight transportation infrastructure and discussion of their importance as an industrial location factor.

The terms “river-dependent” and “river-related” have specific meanings in the *Portland Zoning Code*, where they are defined as follows.³ These definitions are based on those of water-dependent and water-related in Oregon’s Statewide Planning Goals.

³ When the terms river-dependent and river-related apply to land use requirements, as included in the River Industrial overlay zone (Section 33.440.100.B.2, *Portland Zoning Code*), they focus on “primary” uses, in contrast to greenway setback requirements (Section 33.440.210) that are concerned with development (e.g., buildings) and accessory uses. A primary use is the activity or combination of activities of chief importance on the site, while an accessory use is a subordinate part of a primary

River-Dependent. A use which can be carried out only on, in, or adjacent to a river because it requires access to the river for waterborne transportation or recreation. River-dependent also includes development, which by its nature, can be built only on, in, or over a river. Bridges supported by piers or pillars, as opposed to fill, are river-dependent development.

River-Related. A use or development which is not directly dependent upon access to a water body but which provides goods or services that are directly associated with river-dependent land or waterway use or development, and which, if not located adjacent to water, would result in a public loss of quality in the goods or services offered. Residences (including houseboats), parking areas, spoil and dump sites, roads and highways, restaurants, businesses, factories, and recreational vehicle parks are not generally considered dependent or related to water. Recreational trails and viewpoints adjacent to the river are river-related development. Bridge exit and entrance ramps supported by piers or pillars, as opposed to fill, are river-related development.

To characterize which of the existing uses in the study area are river-dependent, we propose the following categories and corresponding examples of uses that require river access for waterborne transportation.⁴

- *Marine cargo terminals*, in which commodities are loaded to or unloaded from ships and stored on land for eventual distribution in a relatively unaltered state. Examples in the study area include the Port of Portland marine terminals (among SIC code 9621), various petroleum bulk terminals and associated tank farms (among SIC 5171), and private grain terminals (among SIC 5149 and 5153).
- *Marine- or vessel-related services.* Among the variety of examples in the study area are marine cargo handling and services (among SIC 4491 and 4499), towing and barge services (among SIC 4424, 4449, and 4492), dredging related services (among SIC 9512 and 9621), and naval and coast guard services (among SIC 9621).
- *Marine-dependent manufacturers*, which depend on marine loading facilities for transport of raw materials or finished products. Examples in the study area include firms that manufacture ships or barges (SIC 3731), steel (among SIC 33), chemicals (among SIC 28), asphalt products (among SIC 295), and concrete (among SIC 32).

The term river-related is more narrowly defined for primary uses than river-dependent, and, upon preliminary review, none of the industrial uses in the study area appears to meet it. As an alternative, the term freight-related is explored in this report to acknowledge and investigate the location advantages of the harbor area (not necessarily the riverfront) for transportation and wholesale industries. Harbor functions require a network of waterborne, rail and truck transportation systems. Firms involved with freight distribution have varying needs to locate adjacent to or near that infrastructure. For example, the Albina and Lake rail yards provide

use and clearly incidental to a primary use. For example, a marine terminal is a river-dependent primary use. On that marine terminal site, a dock and loading crane are river-dependent accessory uses, but an office and employee parking lot are not.

⁴ These categories closely mirror those used by the Port of Portland in the *1997 Portland Harbor Land Use Inventory* to identify “marine-related uses,” which, as defined in that inventory, also depend upon access to the river.

important rail capacity in the study area, not adjacent to the river but within a few hundred feet. We loosely characterize freight-related industries as the entire transportation and wholesale sectors, which generally require convenient access to the freight transportation system. A survey of these firms could also be used to define a narrower group of freight-system dependent industries that would be likely to close down without adjacent or nearby access to the transportation infrastructure network along the harbor.

⇒ Currently, 1,704 acres of riverfront land (72 percent of the occupied riverfront land area) are in river-dependent use.

The parcels in river-dependent use are depicted on Map 3. Again, the riverfront area is defined here as the properties between the river and the nearest street or railroad right-of-way, which covers 2,677 acres in the study area. Property acreage is measured to a waterline location, so the submerged portions of some riverfront parcels are excluded from this acreage calculation. The waterline location is near the ordinary low water level, although the specific elevation is not confirmed. In Part 2 of the study, E.D. Hovee and Co. analyzes a larger riverfront area of 3,133 acres, which includes some vacant and marine cargo facilities on the landward side of the nearest street or railroad right-of-way, such as the GATX, Chevron, and Tosco facilities on Front Ave.

⇒ The riverbank in the harbor area covers roughly 200 acres of land, which is 7 percent of the riverfront land area. The 25-foot greenway setback area applies to another 81 acres (3 percent of the riverfront land area).

An accurate calculation of the riverbank area would require surveying the top of bank and ordinary low water level for the study area, which has not been done. As an alternative, the bank area is estimated using the following assumptions. The length of the riverfront in the study area is measured at 26.73 miles, using GIS mapping tools. The average bank height is approximated as 24 feet, which is the difference between the 100-year flood elevation (28 feet) and ordinary low water (4 feet) for most of the harbor area. Average bank slope is estimated to be 2.5H:1V, which is depicted in the *Willamette Riverbank Design Notebook* as typical of a traditional riprap bank. The harbor riverbanks also include a combination of river beach, natural bank, bioengineered bank, seawall, structures, and unclassified fill, some of which are more steep, and others less steep, than riprap. Using these assumptions, average bank width is estimated at 60 feet. The *Portland Zoning Code* allows river-dependent and river-related development within the bank and setback areas, as determined through a land use review process.

⇒ Martin Associates (2001) estimated that 7,189 jobs are directly dependent on cargo moving over the private and public port facilities at Portland Harbor, although many of the employers are not actually located along the harbor.

That employment estimate is distributed among industries as follows:

- Maritime services (e.g., terminal employees, ILWU, towing, pilots, agents, surveyors/chandlers, forwarders, warehouse, container repair, government, marine construction, barge environmental services)—2,870 jobs
- Port of Portland (maritime and dredging operations)—166 jobs
- Associated rail and truck transportation—1,763 jobs
- Banking, insurance, law—50 jobs
- Shippers/consignees (i.e., manufacturer who would likely shut down operations if marine terminals were not available)—2,340 jobs.

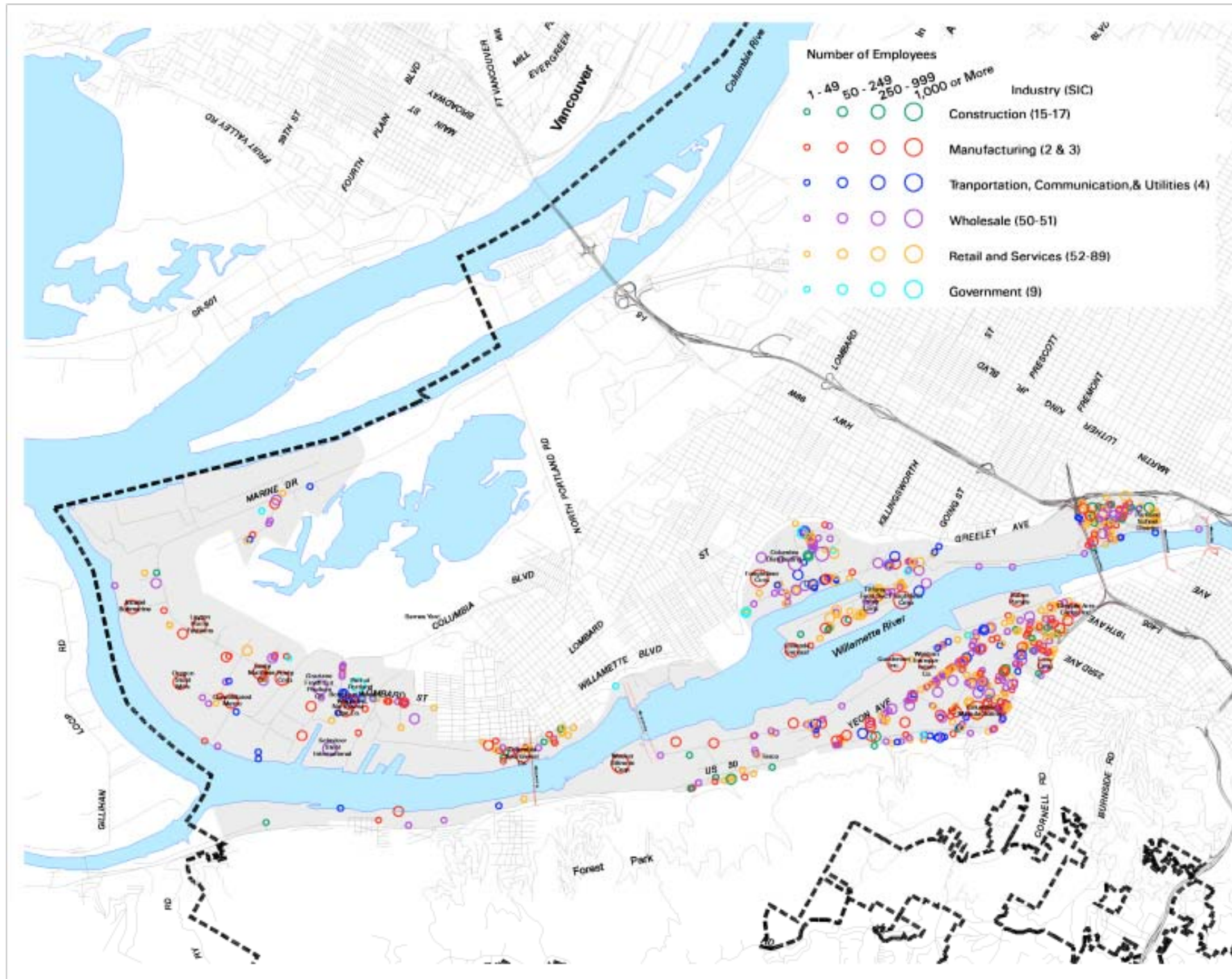
B. LAND USES

Firm Locations and Industry Clusters

Maps 2 through 5 depict the current distribution of firms in the study area by location, industry, and size. Firm size is shown as employment ranges at the site, such as 1-49 or 50-249 employees. InfoUSA developed the information in these maps on firms and employment from business telephone directories and periodic surveys.⁵

- Map 2 presents the overall land use pattern of the area, showing all firms in the study area by sector—construction, manufacturing, transportation, communication and utilities, wholesale, retail and services, and government.
- Map 3 combines many aspects of the freight distribution complex along the harbor: the firms in the transportation and wholesale sectors; the properties used as marine cargo terminals; the portion of the riverfront in river-dependent industrial use; the railroads and rail yards; and the major and minor truck routes.
- Map 4 depicts the firms in the metals and equipment industries cluster in the harbor area, including both manufacturing and wholesale firms.
- Map 5 shows the firms in various other, more concentrated industries (location quotients above 1.5) in the study area, primarily in the nondurable goods sector. These include food products, furniture, paper, printing and publishing, chemicals, petroleum products, glass and concrete products, and miscellaneous manufactured goods.

⁵ Map 3 also includes freight system information from other sources. The Bureau of Planning mapped the river-dependent uses and marine cargo terminals, originally published in *Portland's Willamette River Atlas* (August 2001). Truck route information is from the Transportation Element of Portland's *Comprehensive Plan*, and railroad information is from the *Regional Transportation Plan* (Metro, 2000).



City of Portland
Bureau of Planning

October 10, 2002

Map 2: All Industries

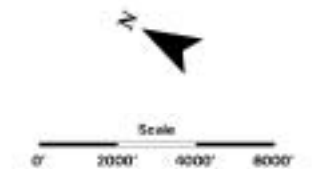
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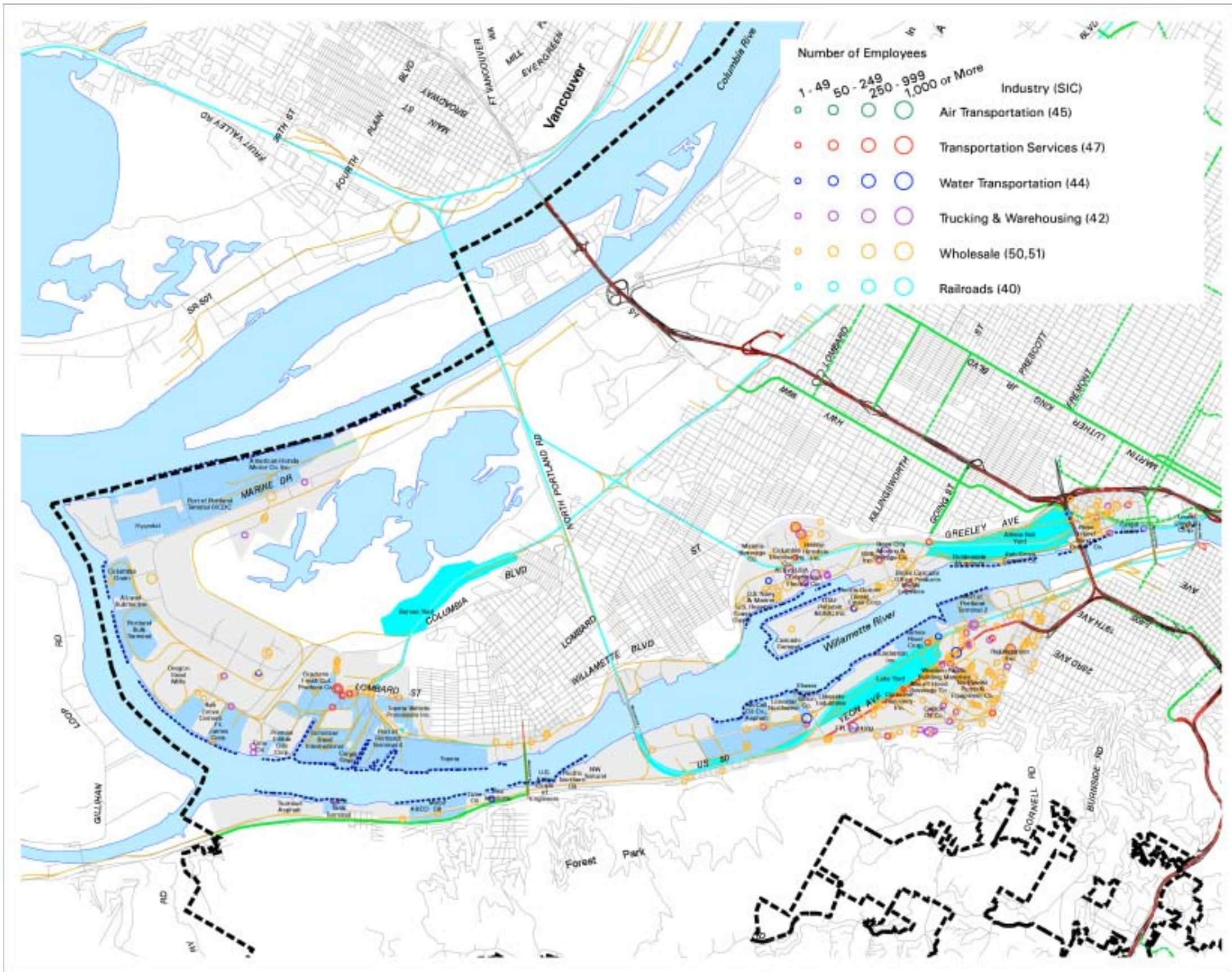
Employment Data:
Developed by InfoUSA, a data compilation firm, as provided in the ESRI Business Analyst Extension. Data from second quarter 2002. Positional accuracy not verified.

Street Cornerlines:
U.S. Census Bureau TIGER data, registered to Esri's street cornerline to Metro. Updated by Metro through Jan, 1999.

Business names are shown for establishments with 250 or more employees.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.





City of Portland
Bureau of Planning

January 02, 2003

Map 3: Distribution Industries

- River-Dependent Use
- Regional Truck Route
- Major Truck Street
- Minor Truck Street
- Major Rail System
- Branch Rail Line
- Study Area
- Marine Cargo

INFORMATION SOURCES:

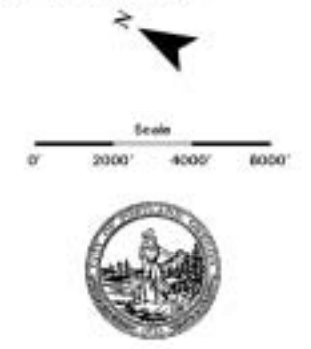
Employment Data:
Developed by InfoUSA, a data compilation firm, as provided in the ESRI Business Analyst Extension. Data from second quarter 2002. Positional accuracy not verified.

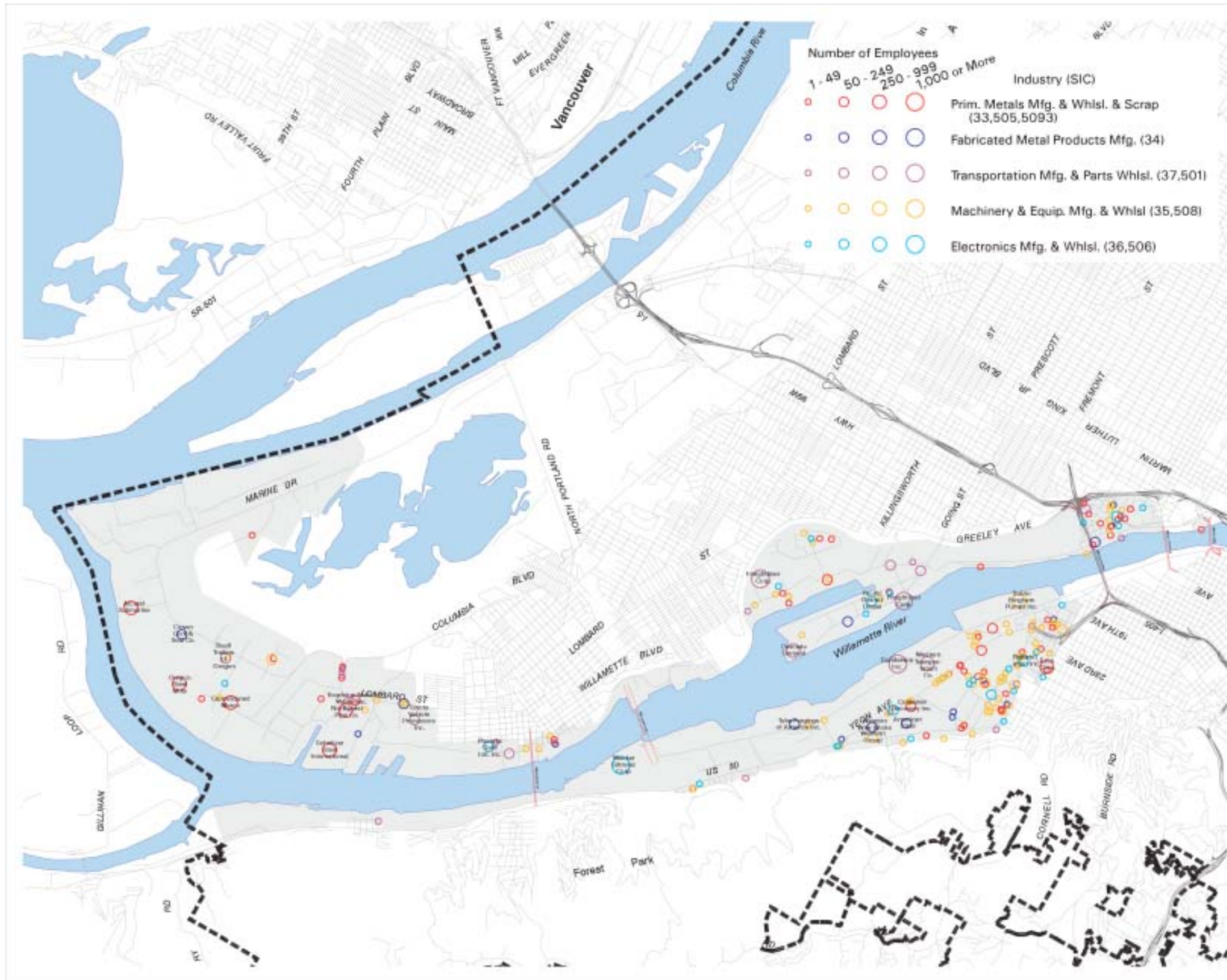
Street Centerlines:
U.S. Census Bureau TIGER data, registered to latitude under contract to Metro. Updated by Metro through Jan. 1999.

Freight Network:
Truck Routes:
Developed by Portland Department of Transportation for Transportation Element of the City's Comprehensive Plan. Updated Dec. 2000.
Railroads:
Developed by Metro for the Regional Transportation Plan (Dec. 1999).

Business names are shown for transportation and wholesale establishments with 100 or more employees and selected river-dependent uses.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.





City of Portland
Bureau of Planning

October 10, 2002

Map 4: Metals and Equipment Industries

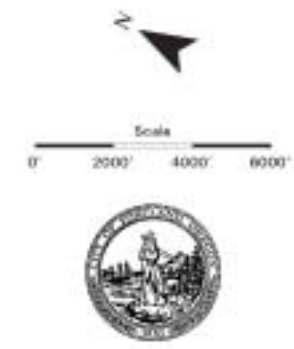
INFORMATION SOURCES:

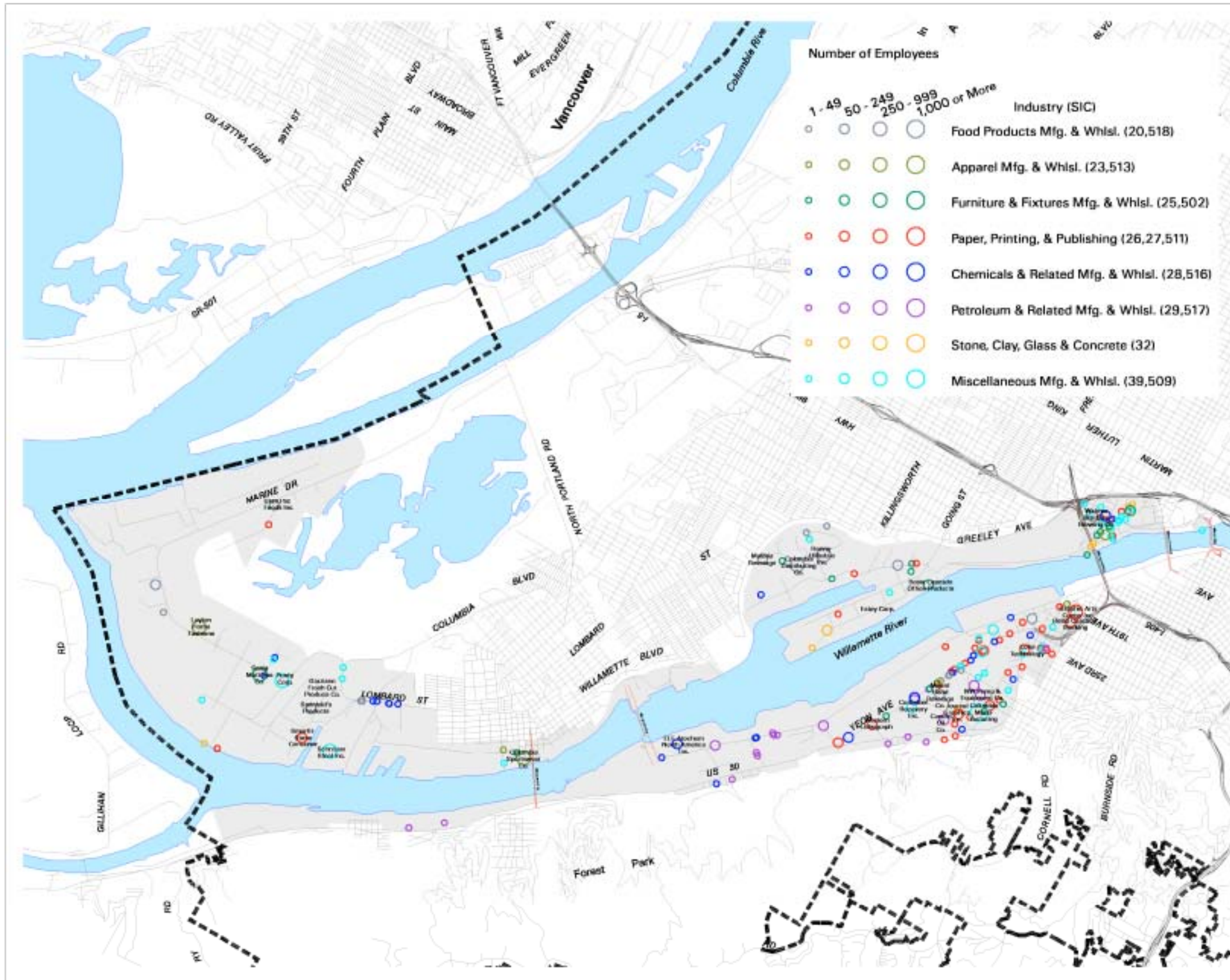
Employment Data:
Developed by InfoUSA, a data compilation firm, as provided in the ESRI Business Analyst Extension. Data from second quarter 2002. Positional accuracy not verified.

Street Centerlines:
U.S. Census Bureau TIGER data, registered to latitude under contract to Metro. Updated by Metro through Jan., 1999.

Business names are shown for establishments with 100 or more employees in these industries.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.





City of Portland
Bureau of Planning

October 10, 2002

Map 5: Other Concentrated Industries

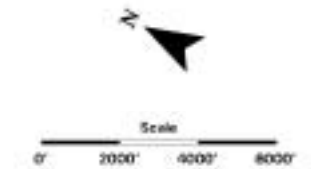
INFORMATION SOURCES:

Employment Data:
Developed by InfoUSA, a data compilation firm, as provided in the ESRI Business Analyst Extension. Data from second quarter 2002. Positional accuracy not verified.

Street Centerline:
U.S. Census Bureau TIGER data, registered to taxlot order contract to Metro. Updated by Metro through Jan, 1999.

Business names are shown for establishments with 100 or more employees in these industries.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.





Freight-related firms and infrastructure span the entire length of the harbor and the width of the adjacent industrial districts.

The harbor appears not so much to be a linear feature along the riverfront as a freight distribution complex that spans the wider industrial districts adjacent to the harbor. Marine cargo terminals and other river-dependent industries extend the river's length from the grain terminals and concrete industries in Lower Albina to the container and auto facilities at Port of Portland Terminal 6. Railroads also run the length of the harbor on both sides. Union Pacific and Burlington Northern Santa Fe each have rail yards within a few hundred feet of the harbor. Wholesale and transportation firms are much more densely concentrated in the Guild's Lake, Swan Island, and Lower Albina areas than in the northerly Rivergate, St. Johns, and Linnton areas.



Among the distribution industries, the petroleum and automobile terminals are the most tightly clustered geographically.

Several petroleum bulk terminals—GATX (Shell), ARCO, Mobile, Tosco, Pacific Northern, Unocal, Chevron, and McCall Oil—are concentrated on the west side of the river in the Linnton and Guild's Lake areas. This area serves as Oregon's petroleum distribution hub, receiving gasoline, diesel, fuel oil, and other petroleum products via tanker vessels and the Olympic pipeline, which extends through Linnton from the Puget Sound.

The Honda, Hyundai, and Toyota marine terminals in the Rivergate and St. Johns areas are situated nearly adjacent to the Ford and General Motors land-side distribution facilities. Trains that bring Ford, GM, and Honda automobiles from the Midwest to North Portland for regional distribution by truck make return trips to the inland U.S. loaded with Honda, Hyundai, Subaru (Vancouver marine terminal), and Toyota automobiles.



Much of the employment in the harbor area's transportation equipment and primary metals industries is within large employers located on large sites, many along the riverfront.

Examples of large, transportation equipment firms:

- Freightliner, truck manufacturing, more than 1,000 employees
- Cascade General, ship repair, more than 1,000 employees
- Gunderson, rail car and barge manufacturing, more than 1,000 employees
- Western Transportation, ship repair, 250-499 employees
- Boydston Metal Works, 250-499 employees
- Toyota Vehicle Processors, automobile detailing, 100-249 employees

Examples of large, primary metals firms:

- Esco, steel mill, 500-999 employees
- Oregon Steel Mills, 500-999 employees

- Consolidated Metco, aluminum foundry, 250-499 employees
- Northwest Pipe, pipe manufacturer, 250-499 employees
- Schnitzer Steel, steel recycling and distribution, 250-499 employees
- Alcatel Submarine, cable manufacturing, 250-499 employees (closed in 2001)

The riverfront facilities cited above (Cascade General, Gunderson, Toyota, Oregon Steel, Schnitzer, and Alcatel) are all river-dependent uses.



Among the metals and equipment industries, the most tightly clustered are the 56 industrial machinery (manufacturing and wholesale) establishments and 17 fabricated metal products establishments in the southern Guild's Lake and Lower Albina areas.

Potentially related to their geographic concentration, these two industries have much smaller average firm size than the other metals and equipment industries. The printing, publishing, and paper industries (manufacturing and wholesale) are also clustered in the southern Guild's Lake and Lower Albina areas (35 establishments), close to the Central City.

Land Area

Table 5 shows the size (average and median) of properties and employees per acre of industries in the harbor area. The Bureau of Planning calculated this information from Metro's RLISLite taxlot data and Oregon Employment Department data on firm addresses and employment. The adjacent parcels under single ownership were grouped together as single sites. The land area of some sites is double counted—if the site was occupied by more than one firm in more than one industry, the acreage of the entire site was applied to each industry. A rough indication of the extent of double-counting can be gleaned from the difference in the number of sites and establishments within each industry shown in Table 5—that difference approximates the number of businesses on multiple-business sites. Additionally, the Oregon Employment Department data does not include site and employment information for the following very large sites: the Port of Portland's public terminal facilities (approximately 125 acres at the Terminal 6 container facility and 49 acres at Terminal 2); Union Pacific Railroad's Albina Yard (approximately 185 acres), or Burlington Northern Santa Fe Railroad's Lake Yard (approximately 150 acres).



The median size of sites occupied by firms in the industrial sectors is 2.2 acres, and the average size is 8.0 acres.

The size of properties in the harbor area varies widely. Industries with average site size larger than twenty acres include utilities, primary metals manufacturing, and water transportation. Among the industrial sectors, manufacturing has the highest employment density with 12.4 employees per acre, and utilities the least with 0.5 employees per acre.

Table 5. Land Area of Industries in Study Area, 2000

SIC	Industry	Total Acreage*	Establishments	Average Site Size	Median Site Size	Employees per Acre	
Construction		451	43	63	10.5	1.9	4.6
15	General building contractors	19	11	15	1.8	1.2	22.3
16	Heavy construction	54	3	3	18.0	9.4	4.3
17	Special trades	378	29	45	13.0	2.1	3.8
Manufacturing		1,562	194	222	8.1	1.9	12.4
20	Food & kindred products	185	11	17	16.8	7.4	6.7
22-23	Apparel & textile products	13	5	5	3.3	0.2	5.2
24	Lumber & wood products	40	6	6	6.7	1.3	5.2
25	Furniture & fixtures	8	6	7	1.4	0.6	26.7
26	Paper & allied products	56	7	9	8.0	6.5	5.7
27	Printing & publishing	60	18	26	3.3	2.3	18.5
28	Chemicals & allied products	128	17	18	7.5	2.3	4.0
29	Petroleum & related products	13	3	3	4.3	3.5	14.7
30	Rubber & plastic products	8	5	5	1.7	1.7	12.4
32	Stone, clay, glass & concrete	48	10	12	4.8	2.0	6.4
33	Primary metals industries	307	12	12	25.6	9.8	9.8
34	Fabricated metal products	102	28	31	3.6	0.9	9.1
35	Industrial machinery & equipment	244	32	32	7.6	0.9	3.4
36	Electronic & electric equipment	115	10	11	11.5	1.3	18.3
37	Transportation equipment	214	14	18	15.3	6.6	36.5
39	Misc. manufacturing industries	21	10	10	2.1	0.7	20.5
Transportation		895	92	123	9.7	4.4	7.2
41	Local & interurban transit	**	**	**	**	**	**
42	Trucking & warehousing	486	59	77	8.2	4.7	5.5
44	Water transportation	280	14	18	20.0	5.4	4.3
45	Transportation by air	**	**	**	**	**	**
47	Transportation services	106	14	16	7.6	5.4	1.5
Communication and Utilities		137	4	5	34.2	16.1	0.5
Wholesale		1,163	194	252	6.0	2.2	5.4
50	Wholesale durable goods	750	136	175	5.5	2.2	4.4
501	Motor vehicles, parts & supplies	127	15	19	8.5	3.5	4.8
502	Furniture & home furnishings	65	13	13	5.0	3.5	4.2
503	Lumber & construction materials	18	7	14	2.6	1.8	15.3
505	Metals & minerals, except petroleum	226	15	18	15.1	4.2	2.6
506	Electrical goods	41	11	11	3.8	2.1	5.1
507	Hardware, plumbing & heating equipment	47	14	16	3.4	1.8	6.1
508	Machinery, equipment, & supplies	146	46	61	3.2	1.6	5.3
509	Misc. durable goods	79	15	18	9.9	3.5	3.5
51	Wholesale nondurable goods	413	58	77	7.1	2.5	7.2
511	Paper & paper products	141	9	9	15.7	2.1	2.3
514	Groceries & related products	41	10	11	4.1	3.4	7.3
516	Chemicals & allied products	40	13	16	3.1	2.2	6.3
517	Petroleum & petroleum products	39	7	8	5.6	2.3	9.6
518	Beer, wine, & distilled alcoholic beverages	58	6	10	9.7	7.2	13.4
519	Misc. nondurable goods	77	8	19	9.6	4.8	2.7
Combined Industrial Sectors		4,208	527	665	8.0	2.2	8.1

* At sites occupied by firms in more than one industry, the site's acreage was applied to each industry.
Sources: Bureau of Planning calculations from Oregon Employment Department and RLISLite taxlot data.

Vacant Lands

Table 6 describes, and Map 6 depicts, the study area’s portion of Metro’s inventory of the vacant land supply in July 2000. Otak developed this information for Metro, as an update of the inventory presented in the *Regional Industrial Lands Study* (Otak, et al., 1999). The vacant land identified is defined by particular study assumptions. Vacancy is determined by the lack of site improvements valued at more than \$1,000 on county assessor tax records. Industrial land is determined by an industrial designation in the local comprehensive plan. Entire parcels, as well as vacant portions of occupied parcels, are included. Lands with slopes exceeding 10 percent, Title 3 wetlands, and 100-year floodplains are excluded. Vacant lands are sorted into four tiers that correspond to different types of development constraints for reuse, as explained below.

Table 6. Vacant Industrial Lands in the Study Area, 2000

District	Vacant Industrial Acreage						Total	Vacancy Rate
	Total Acreage	Tier A	Tier B	Tier C, Infill	Tier C, Overvalued	Tier D		
Linnton	279	2.1	19.6	3.1	11.0	2.7	39	13.8%
Guild's Lake	1,686	1.2	97.7	23.2	14.5	13.4	150	8.9%
Rivergate	1,988	26.2	323.5	2.0	17.3	12.1	381	19.2%
St. Johns	1,043	3.7	66.3	11.8	24.8	7.2	114	10.9%
Swan Island	744	0.0	26.1	3.0	18.2	0.1	47	6.4%
Lower Albina	383	0.0	0.0	1.7	0.0	2.6	4	1.1%
Study Area	6,123	33	533	45	86	38	735	12.0%
City of Portland	18,809	229	1,338	177	162	158	2,063	11.0%

Tier A – no identified constraints; taxlots > 1 acre.

Tier B – constrained by "landbanked" corporate ownership, access, unstable soils; taxlots > 2 acres.

Tier C, infill - taxlots < 1 acre.

Tier C, overvalued - value > \$5.50 / sq. ft.; taxlots < 1 acre.

Tier D – redevelopable, but constrained by buildings, brownfields, existing uses; floor area ratio < 10%.

Sources: 2000 vacant land inventory developed by Metro using July 2000 aerial photography.

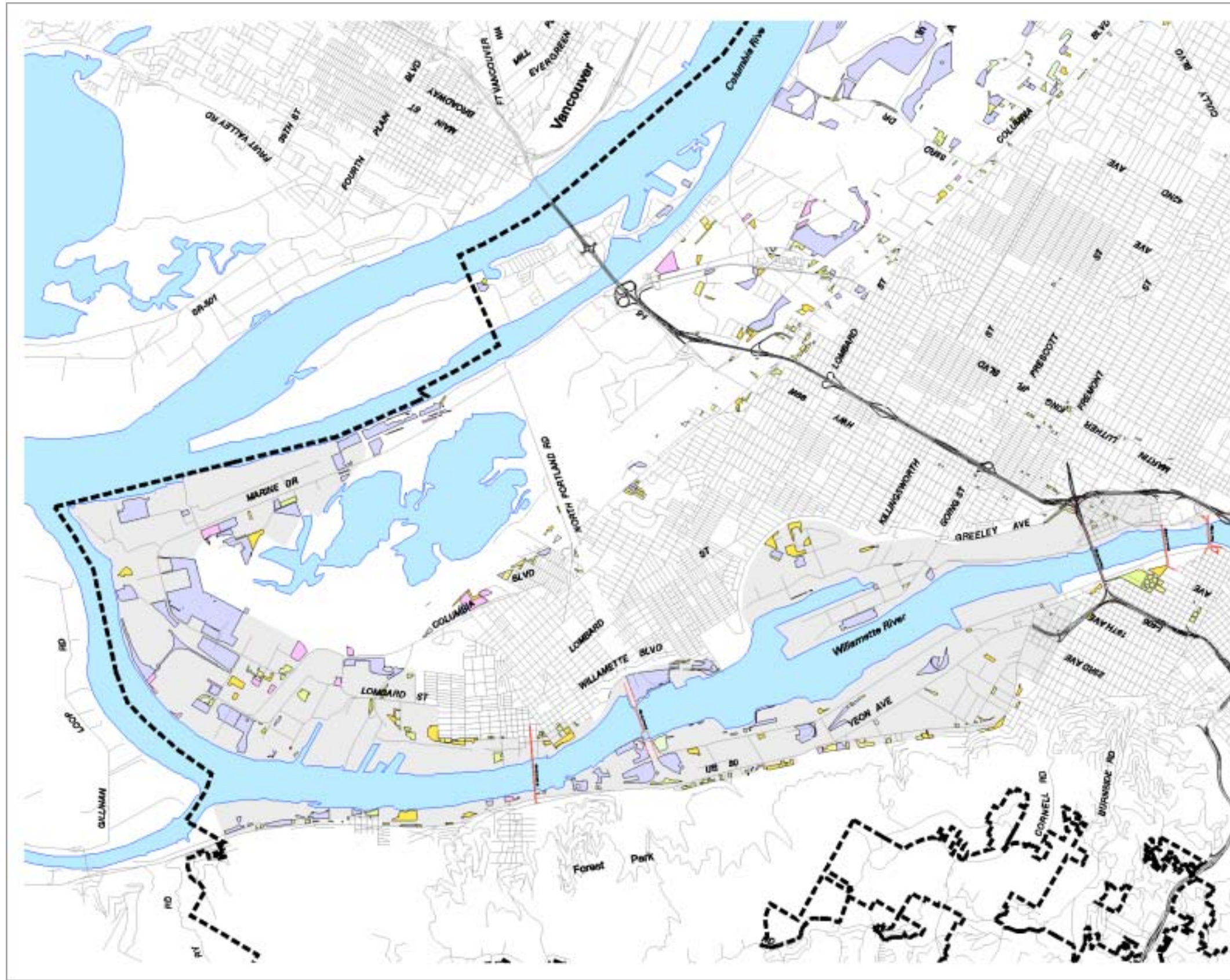


Metro found that 735 acres of land within the study area were vacant (unimproved) in July 2000, which is 13.3 percent of the total land in taxlots (5,532 acres). The less constrained vacant sites (Tiers A& B in the Metro inventory) totaled 566 acres, 10.2 percent of the land in taxlots.

Over half of the vacant land identified in the study area was in the Rivergate district. In addition, the Port of Portland owns approximately 750 acres of undeveloped land on West Hayden Island across from Terminal 6. That property is being held in reserve for potential future marine terminal development, although it has not been annexed or zoned for industrial use.

Nearly three fourths of the vacant land identified in the study area was classified as Tier B, which is constrained by ownership (e.g., “landbanked” for future expansion), access limitations, or unstable soils. Much of that land is in Tier B because it is owned by the Port of Portland (the largest landowner in the study area) and is available for lease only or for marine-related use only. Those parcels are not necessarily less ready for immediate development than Tier A. Vacant portions of sites that could be used for future expansion are also included in this tier, such as on the Wacker Siltronic and NW Natural properties.

Some notable changes have occurred in the vacant land supply since 2000. The Atofina (59 acres), Time Oil (approximately 20 occupied acres), and Alcatel (15 acres) sites, each located adjacent to the river, have been vacated.



City of Portland
Bureau of Planning

July 25, 2002

Vacant Land Supply, 2000

Tiers

- A - Unconstrained
Taxlot > 1 acre
- B - Constrained by "landbanked" corporate ownership access or unstable soils
Taxlot > 2 acres
- C - Infill
Taxlot < 1 acre
- C - Over Valued
Taxlot < 1 acre and value > \$5.50/sq.ft.
- D - Redevelopable but constrained by buildings, brownfields, or existing uses.
Taxlot < \$3.00/sq.ft. and FAR < 10%
- D3+ - Taxlot Value > \$3.00/sq.ft. and < \$5.50/sq.ft.


INFORMATION SOURCES:

Street Centerlines:
U.S. Census Bureau TIGER data, registered to taxlots under contract to Metro. Updated by Metro through Jan., 1999.

Industrial Vacant Lands:
2000 Vacant Land Inventory developed by Metro using July 2000 aerial photography. Title 3 protected land, publicly owned land, platted lots smaller than 3/8 acre, church and fraternal organization owned land, land with major utility easements, and parks and open space removed.

All data compiled from source materials at different scales. For more detail, please refer to the source materials of City of Portland, Bureau of Planning.

N
Scale
0' 2000' 4000' 8000'



2. TRENDS

A. EMPLOYMENT TRENDS

Industrial Sectors

The mix of industries and their location in the Portland metropolitan area changed markedly in the 1980s and 1990s. These decades were also a business-cycle period, as the recession of the early 1980s led to substantial growth through the 1990s and back into recession in 2001. Tables 7 and 8 provide an overview of these changes, using employment as an indicator.

Table 7 presents employment trends in the industrial sectors (construction, manufacturing, transportation, communication and utilities, and wholesale trade) during the 1980-2000 period in Multnomah County and the PMSA (Oregon portion).⁶ Trend data is not shown for the study area specifically, because covered employment data in smaller geographic areas was less accurate before the early 1990s.⁷

Table 8 is an accompanying “shift-share” analysis, showing how the PMSA share of national employment in the industrial sectors has shifted over the 1980-2000 period. Shift-share analysis is a tool used to compare the performance of an industry in one geographic area relative to another over time. Comparing Tables 7 and 8 also shows whether each industry’s regional growth or decline is part of a national trend.



During the 1980s and 1990s, the metropolitan area’s top job-growth industries in the industrial sectors were electronics manufacturing, the construction trades, air transportation, and wholesale trade.

Net new industrial employment of the top job-growth industries in the PMSA during the 1980-2000 period was as follows:

- electronic equipment manufacturing—20,137 new jobs in PMSA, 14 percent of those jobs in Multnomah County;
- special trades construction—16,610 new PMSA jobs, 46 percent in Multnomah County;
- nondurable wholesale trade—12,667 new PMSA jobs, 24 percent in Multnomah County;
- air transportation—9,036 new PMSA jobs, 86 percent in Multnomah County; and
- durable wholesale trade—5,846 new PMSA jobs, including an employment loss in Multnomah County.

⁶ The average annual growth rate of each industry over the 20-year period is calculated as the slope of an exponential regression curve plotted with 1980, 1985, 1990, 1995, and 2000 data. This statistical tool considers incremental changes over the 20-year period to estimate the rate of growth, instead of just using the starting and ending data.

⁷ Reporting changes were made in the 1980s and 1990s to more accurately link employment to actual workplace addresses in firms with more than one location, making 10-20 year trend analysis less reliable in smaller geographic areas within the county.

**Table 7. Employment Trends
of Industrial Sectors in Multnomah County and PMSA, 1980-2000**

SIC	Industry	Area*	Covered Employment					1980-00 change	Annual Growth Trend**
			1980	1985	1990	1995	2000		
	Construction	County	13,203	9,612	15,527	17,621	21,855	8,652	3.3%
		PMSA	23,420	17,500	29,614	36,821	45,338	21,918	4.2%
15	General contractors	County	3,499	2,171	3,554	3,443	4,911	1,412	2.3%
		PMSA	6,264	4,152	7,199	8,203	10,820	4,556	3.6%
16	Heavy construction	County	1,708	1,637	1,809	1,533	1,370	-338	-1.0%
		PMSA	3,076	2,840	3,238	3,843	3,827	751	1.5%
17	Special trades	County	7,996	5,804	10,164	12,645	15,574	7,578	4.3%
		PMSA	14,080	10,508	19,176	24,775	30,690	16,610	5.0%
	Manufacturing	County	52,804	43,424	50,176	50,334	51,732	-1,072	0.2%
		PMSA	108,320	95,584	107,006	115,870	128,275	19,955	1.1%
20	Food products	County	5,033	4,856	5,159	5,289	4,518	-515	-0.3%
		PMSA	7,817	7,730	8,445	8,681	7,909	92	0.3%
22	Textile mill products	County	1,460	1,349	1,380	1,332	746	-714	-2.7%
		PMSA	1,460	1,349	1,380	1,361	746	-714	-2.6%
23	Apparel & textiles	County	1,946	1,568	1,458	1,292	961	-985	-3.2%
		PMSA	2,544	1,933	1,994	1,904	1,623	-921	-1.8%
24	Lumber & wood	County	3,324	2,514	2,248	1,760	1,818	-1,506	-3.1%
		PMSA	10,338	8,990	8,658	7,294	7,435	-2,903	-1.7%
25	Furniture & fixtures	County	779	740	1,136	1,311	1,376	597	3.5%
		PMSA	1,662	1,721	1,985	2,327	2,467	805	2.2%
26	Paper products	County	2,162	1,828	1,768	1,611	1,211	-951	-2.5%
		PMSA	4,974	4,078	4,150	4,158	3,017	-1,957	-1.9%
27	Printing & publishing	County	4,034	4,582	5,503	6,603	6,798	2,764	2.9%
		PMSA	5,572	6,550	8,084	9,562	10,390	4,818	3.3%
28	Chemical products	County	1,550	1,178	944	1,119	971	-579	-2.0%
		PMSA	1,683	1,454	1,204	1,722	1,671	-12	0.3%
29	Petroleum products	County	418	231	496	331	300	-118	-0.6%
		PMSA	418	231	496	331	300	-118	-0.6%
30	Rubber & plastics	County	1,098	899	1,266	1,230	982	-116	0.2%
		PMSA	1,778	2,144	3,273	4,769	4,879	3,101	5.8%
31	Leather products	County	72	130	157	108	248	176	4.7%
		PMSA	72	184	198	314	271	199	6.6%
32	Stone, glass & concrete	County	1,672	1,026	1,430	1,275	1,398	-274	-0.3%
		PMSA	2,501	1,655	2,418	2,573	3,238	737	1.9%
33	Primary metals	County	6,124	5,343	7,181	5,756	5,683	-441	-0.1%
		PMSA	6,908	6,057	7,776	6,466	7,453	545	0.4%
34	Fabricated metal prod.	County	5,180	4,079	3,117	3,939	4,300	-880	-0.8%
		PMSA	9,886	7,920	8,279	9,395	10,480	594	0.6%
35	Industrial machinery	County	6,760	3,607	4,610	4,629	3,696	-3,064	-1.9%
		PMSA	12,051	10,223	12,143	14,643	13,784	1,733	1.3%
36	Electronic equipment	County	1,938	2,185	2,141	2,294	4,784	2,846	3.8%
		PMSA	7,779	9,313	12,089	18,613	27,916	20,137	6.7%
37	Transport. equipment	County	8,029	6,143	8,455	8,709	10,213	2,184	1.7%
		PMSA	9,209	6,974	9,980	10,260	12,126	2,917	1.9%

Table 7. continued

SIC	Industry	Area*	Covered Employment					1980-00 change	Annual Growth Trend**
			1980	1985	1990	1995	2000		
38	Instruments	County	345	316	632	424	613	268	2.9%
		PMSA	19,049	14,066	10,433	7,762	8,419	-10,630	-4.4%
39	Misc. manufacturing	County	881	848	1,097	1,321	1,115	234	1.8%
		PMSA	1,292	1,650	2,662	2,544	2,423	1,131	3.4%
Transportation		County	14,724	15,324	18,897	22,473	23,787	9,063	2.7%
		PMSA	17,382	19,094	25,028	30,256	34,639	17,257	3.7%
41	Transit	County	1,535	1,524	1,556	1,713	1,451	-84	0.0%
		PMSA	1,835	1,889	2,254	2,518	2,912	1,077	2.5%
42	Trucking & warehousing	County	8,493	8,952	10,411	12,209	9,253	760	1.0%
		PMSA	10,560	11,529	14,463	17,242	15,389	4,829	2.3%
44	Water transportation	County	1,619	1,110	1,121	1,413	1,462	-157	0.1%
		PMSA	1,696	1,194	1,224	1,513	2,223	527	1.6%
45	Air transportation	County	1,300	1,753	3,727	4,842	9,040	7,740	10.3%
		PMSA	1,311	1,969	4,095	5,379	10,347	9,036	10.8%
47	Transportation services	County	1,777	1,985	2,082	2,296	2,581	804	1.8%
		PMSA	1,980	2,513	2,992	3,604	3,768	1,788	3.3%
Communication & Utilities		County	11,954	10,525	9,086	9,576	9,881	-2,073	-0.9%
		PMSA	14,492	13,029	12,817	12,544	14,014	-478	-0.2%
48	Communication	County	7,645	6,040	5,353	5,592	5,343	-2,302	-1.6%
		PMSA	9,298	7,572	6,915	7,203	7,932	-1,366	-0.7%
49	Electric, gas & sanitation	County	4,309	4,485	3,733	3,984	4,538	229	0.0%
		PMSA	5,194	5,457	5,902	5,341	6,082	888	0.6%
Wholesale		County	33,595	29,405	30,252	32,348	32,192	-1,403	0.0%
		PMSA	44,580	44,363	52,567	59,498	63,101	18,521	2.0%
50	Durable	County	24,325	19,987	20,632	20,546	19,904	-4,421	-0.7%
		PMSA	30,339	28,271	32,517	34,603	36,185	5,846	1.1%
51	Nondurable	County	9,270	9,418	9,620	11,802	12,288	3,018	1.6%
		PMSA	14,240	16,092	20,050	24,895	26,917	12,677	3.5%
Combined industrial sectors		County	126,280	108,290	123,938	132,352	139,447	13,167	0.8%
		PMSA	208,194	189,570	227,032	254,989	285,367	77,173	1.9%
All Industries		County	334,766	319,583	375,768	415,113	453,254	118,488	1.8%
		PMSA	515,277	512,812	637,618	733,896	849,075	333,798	2.8%

* Multnomah County or the Oregon portion of the Portland Metropolitan Statistical Area.

** Annual growth trend is an estimate of the average annual rate of growth, calculated as the slope of an exponential regression line using 1980, 1985, 1990, 1995, and 2000 data.

Sources: Bureau of Planning calculations from Oregon Employment Department data.

**Table 8. Employment Shift-Share Analysis
of Industrial Sectors, PMSA to Nation, 1980-2000**

SIC Industry	PMSA* Share of U.S. Covered Employment by Industry					Percent shift** 1980-00	1980-2000 growth	
	1980	1985	1990	1995	2000		PMSA	U.S.
<i>Construction</i>	0.52%	0.37%	0.57%	0.70%	0.66%	29%	94%	51%
15 General contractors	0.53%	0.33%	0.56%	0.68%	0.72%	36%	73%	27%
16 Heavy construction	0.28%	0.32%	0.37%	0.41%	0.35%	26%	24%	-2%
17 Special trades	0.63%	0.40%	0.64%	0.79%	0.73%	16%	118%	89%
<i>Manufacturing</i>	0.53%	0.49%	0.56%	0.63%	0.70%	31%	18%	-9%
Manufacturing, except electronics	0.54%	0.49%	0.54%	0.58%	0.60%	11%	0%	-10%
20 Food & kindred products	0.46%	0.48%	0.51%	0.52%	0.47%	2%	1%	-1%
22 Textile mill products	0.17%	0.19%	0.20%	0.20%	0.14%	-18%	-49%	-38%
23 Apparel & textile products	0.20%	0.17%	0.19%	0.20%	0.26%	28%	-36%	-50%
24 Lumber & wood products	1.49%	1.29%	1.17%	0.95%	0.90%	-39%	-28%	19%
25 Furniture & fixtures	0.36%	0.35%	0.39%	0.46%	0.44%	24%	48%	19%
26 Paper & allied products	0.72%	0.60%	0.59%	0.60%	0.46%	-36%	-39%	-5%
27 Printing & publishing	0.44%	0.46%	0.51%	0.62%	0.67%	53%	86%	22%
28 Chemicals & allied products	0.15%	0.14%	0.11%	0.17%	0.16%	7%	-1%	-7%
29 Petroleum & coal products	0.20%	0.13%	0.31%	0.23%	0.24%	16%	-28%	-38%
30 Rubber & plastic products	0.24%	0.27%	0.37%	0.49%	0.48%	97%	174%	39%
32 Stone, clay, glass & concrete	0.38%	0.28%	0.43%	0.48%	0.56%	49%	29%	-13%
33 Primary metals	0.60%	0.75%	1.03%	0.91%	1.07%	77%	8%	-39%
34 Fabricated metal products	0.60%	0.53%	0.57%	0.65%	0.68%	12%	6%	-5%
35 Industrial machinery	0.48%	0.47%	0.58%	0.71%	0.65%	35%	14%	-15%
36 Electronic equipment****	0.44%	0.50%	0.72%	1.15%	1.62%	268%	259%	-3%
37 Transportation equipment	0.46%	0.34%	0.48%	0.56%	0.65%	39%	32%	-5%
38 Instruments****	1.86%	1.35%	1.04%	0.92%	1.00%	-47%	-56%	-17%
39 Misc. manufacturing	0.30%	0.45%	0.70%	0.65%	0.62%	103%	88%	-8%
<i>Transportation</i>	0.67%	0.67%	0.77%	0.78%	0.77%	14%	99%	75%
41 Local & interurban transit	0.47%	0.43%	0.67%	0.44%	0.44%	-7%	59%	71%
42 Trucking & warehousing	0.82%	0.84%	0.89%	0.92%	0.83%	2%	46%	43%
44 Water transportation	0.76%	0.61%	0.65%	0.81%	1.11%	46%	31%	-10%
45 Transportation by air	0.28%	0.37%	0.54%	0.67%	0.79%	184%	689%	178%
47 Transportation services	0.94%	0.87%	0.87%	0.84%	0.77%	-18%	90%	132%
<i>Communication & Utilities</i>	0.60%	0.52%	0.50%	0.50%	0.50%	-16%	-3%	15%
48 Communication	0.69%	0.57%	0.52%	0.55%	0.48%	-30%	-15%	22%
49 Electric, gas & sanitary svcs.	0.48%	0.46%	0.48%	0.45%	0.54%	11%	17%	5%
<i>Wholesale</i>	0.84%	0.78%	0.85%	0.93%	0.90%	7%	42%	33%
50 Durable	0.97%	0.84%	0.89%	0.93%	0.86%	-11%	19%	34%
51 Non durable	0.66%	0.69%	0.78%	0.93%	0.96%	45%	89%	31%
<i>Combined Industrial Sectors</i>	0.59%	0.54%	0.62%	0.70%	0.72%	22%	37%	12%

* Oregon portion of Portland Metropolitan Statistical Area.

** Percent shift is the percentage change in PMSA share from 1980 to 2000.

*** This category includes all manufacturing industries except electronics.

**** National data used for the electronics and instruments industries are from the Current Employment Statistics survey, instead of Covered Employment, since the latter source changed how firms were classified among these industries between 1985 and 1990.

Sources: Portland Bureau of Planning calculations from Oregon Employment Department and U.S. Bureau of Labor Statistics data.

Growth in the electronics manufacturing industry reflects an expanding Portland metropolitan area share of national employment from 0.37 percent in 1980 to 1.46 percent in 2000, as shown in Table 8. Thus, the Portland area is one of the focal points of national growth in this industry. Similarly, the PMSA share of air transportation employment increased from 0.28 to 0.79 percent; nondurable goods wholesale trade from 0.66 to 0.96 percent; and special trades construction from 0.63 to 0.73 percent. In contrast, the PMSA's 7,210 new jobs in wholesale trade of durable goods did not keep up with the industry's national growth, and the PMSA employment share fell from 0.97 to 0.86 percent.

⇒ Industrial employment in the Portland metropolitan area grew by 37 percent between 1980 and 2000, compared to 12 percent growth nationwide.

The metropolitan area added 77,200 net new industrial jobs between 1980 and 2000. Of those new jobs, 46 percent were in the distribution sectors of transportation and wholesale trade, 26 percent in manufacturing, and 28 percent in construction. During that 20-year period, the Portland metropolitan area share of national employment grew by 22 percent.

⇒ Multnomah County is the metropolitan area's primary industrial location, but its share of the PMSA's employment in the industrial sectors reduced from 59 percent in 1980 to 48 percent in 2000.

Only 17 percent of the industrial employment added in the region between 1980 and 2000 occurred in Multnomah County. One likely reason for Multnomah County's loss of employment share is its relative availability of vacant industrial land, since Multnomah County is generally more built out than its suburban neighbors. A second reason is Multnomah County's particular mix of expanding and contracting industries relative to the region, as shown in Table 7. For example, the fast growing electronics manufacturing industry is concentrated in Washington County, while most of the slower growing and declining industries in the industrial sectors are concentrated in Multnomah County. A third reason is that some industries experienced substantial employment cutbacks in Multnomah County and growth elsewhere in the region, including durable goods wholesale, communication, industrial machinery, and fabricated metal products.

⇒ While manufacturing employment in the U.S. declined by 9 percent between 1980 and 2000, it increased by 18 percent in the Portland metropolitan area. The metro area share of national manufacturing employment grew by 31 percent during those decades.

Electronics has been the metropolitan area's driving growth industry in the manufacturing sector, adding 20,137 net new jobs between 1980 and 2000, compared with 19,955 net new jobs for the entire manufacturing sector. Combined employment in the region's other manufacturing industries declined slightly, less than 1 percent, but it declined 10 percent nationally. Excluding electronics, the PMSA's share of the national manufacturing employment increased by 11 percent during these decades. Thus, regional manufacturers were significantly outperforming their national counterparts in job creation. The printing and publishing, rubber and plastics, and

transportation equipment industries each added more than 2,000 jobs in the PMSA over the 1980-2000 period, while substantial employment reductions occurred in lumber, paper, apparel, textiles, and instruments manufacturing. The decline in the apparel and textiles manufacturing reflects a national trend, while that in the lumber, paper, and instruments industries reflects a declining PMSA share of national employment.



In the transportation sector, the leading employment generator has been the air transportation industry, growing in Multnomah County from 1,300 jobs in 1980 to 9,040 in 2000.

Air transportation was by far the largest source of industrial job growth in Multnomah County. The air transportation industry is concentrated near the Portland International Airport, although air courier employment also substantially expanded in the harbor area. Water transportation employment experienced modest growth in the PMSA but essentially none in Multnomah County. This industry's employment nationally was declining, so local water transportation firms were outperforming their national counterparts. Multnomah County is clearly the center of the PMSA's transportation employment, although its share reduced from 85 percent in 1980 to 69 percent in 2000, due primarily to suburban growth in trucking and warehousing employment.



The wholesale of durable goods industry in Multnomah County had a downsizing period in the early 1980s, losing over 4,000 jobs, and then stabilized but did not substantially rebound afterward.

In contrast, over 20,000 new wholesale jobs were added in the PMSA with substantial growth in both durable and nondurable goods. Multnomah County's share of PMSA employment in durable goods wholesale dropped from 80 percent in 1980 to 55 percent in 2000; nondurable goods wholesale, from 65 to 46 percent.



The construction sector added 21,918 jobs in the PMSA between 1980 and 2000, including 8,652 jobs in Multnomah County.

Population in the Portland area is growing faster than nationally, and the PMSA share of national construction employment increased from 0.52 to 0.66 percent over the 1980-2000 period. Three out of four new construction jobs in the PMSA were in special trades construction, which expanded at a rapid average annual rate of 5.0 percent. In contrast, heavy construction employment expanded at an average annual rate of 1.5 percent in the PMSA and declined in Multnomah County.

Maritime Employment

To provide a more detailed look at maritime-related employment, Table 9 shows national employment trends since 1980 in selected industry segments at the 4-digit SIC level that include maritime-related uses. These industry segments were chosen to include most of the river-dependent uses on Portland Harbor. Historical trend data is not published for the PMSA at the 4-digit SIC level, but national data is useful for trend analysis at this level of detail.

Table 9 supplements the local trend data shown at the less detailed, 2-digit level in Tables 7 and 8. Table 7 shows that “water transportation” (SIC 44) employment in the PMSA expanded at a 1.6 percent average annual rate between 1980 and 2000, and Table 8 shows that the PMSA share of national water transportation employment expanded substantially from 0.76 to 1.11 percent during that period. In addition to maritime commerce, water transportation also includes excursion boat businesses and marinas.

Table 9. Maritime Employment Trends in U.S., 1980-1999

SIC	Industry	Covered Employment in U.S.					1980-99 Change	Annual Growth Trend**
		1980	1985	1990	1995	1999		
Commodity distribution, including marine terminals								
5153	Grain buying & wholesale	81,615	71,814	67,544	62,157	59,336	-22,279	-1.6%
5171	Petroleum bulk terminals	95,605	84,275	82,289	65,405	60,016	-35,589	-2.4%
5012	Motor vehicle wholesale distrib.	105,839	109,659	119,394	129,173	158,160	52,321	2.0%
9621	Public transportation, incl. Ports	322,806	306,761	323,515	323,515	289,418	-33,388	-0.3%
Water transportation & vessel services								
441	Deep sea foreign transportation	34,827	29,368	22,687	18,303	14,895	-19,932	-4.4%
442	Deep sea domestic transport.	12,142	12,458	11,278	10,144	9,693	-2,449	-1.4%
444	River & canal transportation	16,940	14,768	15,695	12,941	14,296	-2,644	-1.0%
4492*	Towing & tugboat services	25,506	20,020	18,693	18,593	18,985	-6,521	-1.4%
4491*	Marine cargo handling	87,928	68,679	60,241	62,013	62,356	-25,572	-1.7%
Manufacturing, including river-dependent facilities								
3731	Shipbuilding & repair	252,041	220,682	201,251	136,681	126,629	-125,412	-3.8%
295	Asphalt, paving & roofing	31,269	26,101	27,202	26,724	29,856	-1,413	-0.2%
327	Concrete, gypsum & plaster	205,716	204,977	207,459	203,930	240,017	34,301	0.6%
3312	Steel mills & blast furnaces	431,187	238,359	208,908	171,184	153,549	-277,638	-4.9%

* Towing & towboat services data before 1990 was in SIC 4454; marine cargo handling, in SIC 4463.

** Annual growth trend is an estimate of the average annual rate of growth, calculated as the slope of an exponential regression line using 1980, 1985, 1990, 1995, and 1999 data.

Sources: Bureau of Planning calculations from U.S. Bureau of Labor Statistics data.



U.S. maritime employment has generally declined over the last two decades, as maritime operations have become more capital intensive.

As tonnage handled by the marine cargo industry nationally has increased in the 1980s and 1990s (U.S. waterborne cargo tonnage increased from 1.8 to 2.1 billion metric tons between 1980 and 1999, as estimated by the U.S. Maritime Administration), related maritime employment has declined. National employment in marine cargo handling (SIC 4491) declined at an average annual rate of 1.8 percent between 1980 and 1999. Marine cargo handling accounted for 80 percent of the water transportation (SIC 44) employment in the study area in

2000. The shipbuilding and repair industry (another large employer in the study area) eliminated approximately half of its U.S. employment between 1980 and 1999.

Employment Forecasts

In March 2002, Metro completed an employment forecast for the Portland-Vancouver Metropolitan Area by industry to the year 2030. The industrial employment projections of that forecast are shown in Table 10. Metro conducted the forecast to inform upcoming decisions on expansion of the urban growth boundary. The forecast is based on assumptions of national and global conditions prepared by DRI-WEFA, a national forecasting firm.

⇒ Metro (2001) predicts a 0.8 percent average annual growth in regional manufacturing employment from 2000 to 2030, 1.5 percent in transportation and utilities, and 1.6 percent in wholesale trade.

Both Metro and the Oregon Office of Economic Analysis⁸ foresee employment growth over the next five years in most manufacturing and distribution industries. Industrial job growth in the Portland-Vancouver area is predicted to substantially outpace the national average. Wholesale trade, transportation, and electronics manufacturing are predicted to be the primary job-growth industries of the region's industrial sectors, in similar fashion to the trends of recent decades.

⇒ The region's shifting mix of manufacturing industries is projected to continue.

Three out of four new manufacturing jobs between 2000 and 2030 are expected to be created in the electronics and instruments industries (the forecast combines these two industries). Continued employment reductions are projected in the food products, textiles and apparel, lumber, and paper industries.

⇒ Extrapolating from the Metro forecast, overall industrial employment can be expected to increase moderately in the harbor area over the next 30 years.

Based on the Metro forecast and the current mix of harbor area industries, transportation and wholesale trade are likely to be the leading job-growth sectors in the harbor area. The long-term forecast for the metals and equipment industries is mixed but stable overall: anticipated employment gains in industrial machinery manufacturing exceed the modest reductions expected in transportation equipment and metals. The harbor area could also share in the projected regional growth of other manufacturing industries, including electronics, printing and publishing, and the grouped categories of "other durable goods" (e.g., furniture and fixtures, concrete products) and "other nondurable goods" (e.g., rubber and plastics, chemicals, and petroleum products).

⁸ The Oregon Office of Economic Analysis (Department of Administrative Services) also prepares employment forecasts by industry. Their five-year statewide forecasts are used for state budget analysis. The projections of their March 2002 forecast are comparable to those of the Metro forecast in Table 9.

Table 10. Employment Projections to 2030, Portland-Vancouver Region and U.S.

Industry Area*	Average Annual Growth Rate of Employment							Employment Change 2000-30
	2002	2003	2004	2005	1970-00	2000-05	2000-30	
Manufacturing								
Portland-Vancouver	-1.3%	2.8%	3.6%	3.5%	1.7%	1.2%	0.8%	37,400
U.S.	-4.8%	1.0%	1.5%	0.7%	-0.2%	-1.2%	-0.6%	
Food processing								
Portland-Vancouver	-1.7%	0.6%	1.3%	0.3%	-0.7%	-0.9%	-1.2%	-2,600
U.S.	0.4%	1.4%	1.9%	0.2%	-0.2%	0.8%	-0.3%	
Textiles & apparel								
Portland-Vancouver	-0.7%	6.2%	5.0%	1.4%	-1.8%	3.1%	-1.7%	-1,400
U.S.	-7.5%	-0.9%	-0.6%	-1.0%	-2.3%	-4.2%	-1.4%	
Lumber & wood products								
Portland-Vancouver	0.8%	-0.3%	-1.8%	0.4%	-0.7%	-0.6%	-2.5%	-4,000
U.S.	0.1%	4.3%	4.2%	1.4%	0.8%	1.1%	-0.4%	
Paper & allied products								
Portland-Vancouver	-0.6%	0.1%	1.4%	0.8%	-0.4%	0.1%	-0.9%	-1,500
U.S.	-1.6%	1.4%	2.7%	0.2%	-0.2%	-0.2%	-0.7%	
Printing & publishing								
Portland-Vancouver	3.4%	2.9%	2.3%	2.0%	3.4%	2.1%	0.7%	2,700
U.S.	-3.0%	4.2%	5.2%	2.8%	1.1%	1.1%	-0.1%	
Metals								
Portland-Vancouver	-2.7%	3.1%	2.8%	2.3%	1.3%	0.1%	-0.2%	-1,300
U.S.	-4.8%	3.1%	2.8%	0.9%	-0.8%	-0.6%	-1.4%	
Nonelectrical machinery								
Portland-Vancouver	0.0%	3.2%	3.1%	4.1%	2.6%	0.7%	1.2%	7,000
U.S.	-12.6%	-12.6%	-4.0%	-0.2%	0.2%	-7.0%	-0.4%	
Electronics & instruments								
Portland-Vancouver	-1.3%	3.5%	6.4%	5.9%	4.2%	3.8%	1.7%	28,200
U.S.	-5.7%	1.9%	-2.0%	1.0%	0.3%	-1.8%	0.2%	
Transportation equipment								
Portland-Vancouver	-5.4%	3.6%	3.0%	3.5%	2.1%	-3.7%	0.0%	-100
U.S.	-6.8%	1.5%	1.2%	-0.7%	0.0%	-2.1%	-0.8%	
Other durable goods (furniture & fixtures, stone, clay, glass & concrete)								
Portland-Vancouver	-1.7%	3.4%	2.7%	2.7%	0.8%	2.0%	1.6%	5,000
U.S.	-4.5%	1.5%	3.0%	1.2%	0.0%	-0.4%	-0.4%	
Other nondurable goods (chemicals, petroleum products, rubber & plastics, leather)								
Portland-Vancouver	-3.8%	1.2%	2.7%	4.1%	2.5%	-0.3%	1.8%	5,400
U.S.	-1.9%	3.6%	2.7%	0.3%	0.0%	0.3%	0.0%	
Transportation, communication & utilities								
Portland-Vancouver	-0.5%	1.2%	2.7%	2.9%	2.0%	1.0%	1.5%	31,100
U.S.	-0.5%	3.0%	3.9%	2.6%	1.5%	1.9%	0.7%	
Wholesale trade								
Portland-Vancouver	-0.9%	4.1%	4.3%	3.9%	2.5%	1.7%	1.6%	41,400
U.S.	-0.9%	1.3%	2.3%	1.3%	1.9%	0.8%	0.6%	
All industries								
Portland-Vancouver	-0.4%	2.7%	3.4%	3.4%	3.0%	1.7%	1.8%	683,400
U.S.	-0.4%	1.6%	2.1%	1.6%	2.1%	1.0%	1.0%	

* Portland Vancouver Region: Multnomah, Clackamas, Washington, Yamhill, and Clark Counties.

Source: Metro, *Draft Economic Report to the Metro Council* (March 2002) from DRI-WEFA U.S. forecast.

Transportation Analysis Zones Forecast

Metro prepared an employment forecast for subareas of the region called transportation analysis zones (TAZs), which are generally at a neighborhood or business district scale. Table 11 presents the 2020 forecast employment for TAZs that roughly approximate the harbor industrial districts. These forecasts were used for transportation modeling to prepare the *Regional Transportation Plan*. The forecasts were developed with information on and by roughly allocating regional industry forecasts to subareas within the region, giving consideration to the industry mix and the vacant and redevelopable land available in these subareas.

Table 11. Employment Forecast by Transportation Analysis Zones (TAZs) to 2020

Approximate Area*	TAZ	Employment		Change	Annual Growth**
		2000	2020		
Linnton	26	799	1,358	559	2.7%
Guild's Lake	19 & 25	12,155	13,039	884	0.4%
Rivergate	925 & 926	8,755	15,345	6,590	2.8%
St. Johns	920, 922 & 924	6,682	7,670	988	0.7%
Swan Island	852	10,491	11,158	667	0.3%
Lower Albina	928 & 950	2,335	3,109	774	1.4%
Harbor Area Total		41,218	51,680	10,462	1.1%

* TAZ boundaries roughly approximate these districts. The Rivergate TAZs extend east to North Portland Rd. The St. Johns TAZs include the town center.

** Average (compounded) annual rate of growth.

Source: Metro forecast used for Regional Transportation Plan modeling.



The TAZ forecast anticipates over 10,000 net new jobs in the harbor area—primarily in Rivergate, where the majority of the area’s vacant land is located.

The Metro forecast anticipates employment growth in each of harbor area industrial districts. The districts having the most employment in 2000 were Guild’s Lake with 12,155 jobs and Swan Island with 10,491 jobs. The harbor area district forecast to have the most employment in 2020 is Rivergate with a projected 15,345 jobs.

B. LAND USE TRENDS

Industrial Zoning Changes

Many U.S. cities have lost much of their central industrial areas to other land uses in recent decades. As cities grow, development pressure increases for conversion of industrial land to residential and commercial uses that bring higher market land values. In response, the “Industrial Sanctuary” Policy (2.14) in Portland’s *Comprehensive Plan* is to, “Encourage the growth of industrial activities in the city by preserving industrial land primarily for manufacturing purposes.” The Plan designates most of the city’s industrial land, including nearly all of the study area, as Industrial Sanctuary, and the industrial zoning regulations that implement the Plan constrain the encroachment of residential and commercial uses in these areas.

Table 12 lists industrial zone changes adopted in Portland since 1991 and their general location. This list was generated from a review of zone change applications recorded in the City’s computerized CaseInfo database and historical records of legislative projects, such as area plans. Due to the lack of a systematic accounting system for tracking the acreage of historical zone changes, this list is probably incomplete, but it provides an approximation of the acreage involved in industrial zone changes.

⇒ Approximately 474 acres of land have been converted out of the IH and IG industrial zones since 1991 in Portland, equivalent to 2.5 percent of the city’s current industrial land supply.

By comparison, Portland had approximately 2,063 acres of vacant industrial land in 2000 (see Table 6). Most of the acreage converted from the IH and IG zones since 1991 were changed to EX or EG Employment zones, which have an industrial emphasis but also allow a wide range of commercial uses and interspersed residential uses. The largest industrial zone change was for 127 acres from IG2 to EG2 in the Airport Way area. The next largest change was 123 acres in Lents (much of that land in 100-year floodplain) implemented through the *Outer Southeast Community Plan*. The two zone changes that occurred in the study area (both at Guild’s Lake) since 1991 resulted in a minor net addition of 0.04 acres of industrially zoned land.

⇒ Adoption of environmental protection (p overlay) zones since 1989 has also essentially removed development potential on approximately 570 acres in industrial zones.

The environmental protection and conservation (p and c overlay) zones in the *Portland Zoning Code* are intended to protect natural resources and functional values that provide public benefits, such as land next to streams and wetlands. The p overlay zone is applied to areas with the most significant resources and functions, and it only allows development in rare and unusual circumstances. The c overlay sets standards for environmentally sensitive development to conserve natural resources and functions.

⇒ Industrial land supply trends of recent decades in Portland include infill industrial development in the harbor area, expansion of industrial land in the Columbia Corridor, and conversion to non-industrial uses in the Central City.

Table 12. Industrial Zone Changes in Portland, 1991-2001

Date	LUR Case/ Legislative Project	Location	Change	IG or IH acreage affected	Notes
Land Use Review Cases					
5/91	91-00106	Guild's Lake	IH to IG1	0	
6/91	91-00334	Lower Albina	IG1 not changed	0	Mapping error correction
6/91	91-00335	Northwest	IG1 to CS	-0.25	Mapping error correction
9/91	91-00476	NE 181st/Airport Way	IG2 to EG2	-127.35	Change to Comprehensive Plan designation
3/92	92-00027	Central Eastside	IG1 to EX	-0.67	Change to Comprehensive Plan designation
6/92	92-00342	Hayden Island	RF to IG2	0.85	Mapping error correction
10/92	92-00603	Guild's Lake	OS to IH	1.5	
10/93	93-00547	Guild's Lake	OS to IH	1.46	Mapping error correction
12/93	93-00721	Northwest	IG1 not changed	0	
5/95	94-00896	Central Eastside	IG1 to EG2	-13.24	Change to Comprehensive Plan designation
5/95	95-00153	Central Eastside	IG1 to EX	-0.59	Change to Comprehensive Plan designation
8/96	96-00502	Central Eastside	EX to IG1	0.07	Mapping error correction
7/97	97-00131	Central Eastside	IG1 to EX	-0.36	Change to Comprehensive Plan designation
9/97	97-00158	Northwest	IG1 to EX	-7.02	
2/99	98-00903	Central Eastside	IG1 to EX	-0.83	Change to Comprehensive Plan designation
1/00	99-00486	Hayden Island	R2 to IG2	1.68	
Open	00-00672	Sullivans Gulch	IG1, IH, CG to EX		Approximately 5 acres may be affected.
1/02	01-00617	Central Eastside	IG1 to OS & EX	-43.93	I-5 and Eastbank Esplanade right-of-way
				-189	
Legislative Projects*					
8/93	<i>Albina Community Plan</i>			-45	
1/96	<i>Outer Southeast Community Plan</i>				123 ac. changed from IH and IG in Lents; 54 ac. from IG in Hazelwood
4/98	<i>Sellwood-Moreland Neighborhood Plan</i>			-15	14 ac. to EX or EG2
8/01	Northwest Transition Zoning Project			-42	Changes to support new streetcar line and limit telecommunication facilities
				-300	
	Net acreage of industrial zone changes, 1991 to present:			-489	
	Existing acreage in industrial zones (May 14, 2002)			18,809	
	Percentage loss of industrial land, 1991-2001:			-2.5%	

* Acreage is approximate.

Source: Bureau of Planning from CaseInfo database and historical records.

Examples of development and rezoning actions in the harbor area prior to 1991:

- development of the Rivergate Industrial District and expansion of development in the Swan Island/Mocks Bottom area by the Port of Portland;
- annexation and IH Heavy Industrial zoning in various portions of Rivergate;
- EX Employment zoning along the west bank between the Broadway and Fremont Bridges;

- RX Residential zoning at Port of Portland Terminal 1 South (westbank, north of Fremont Bridge);
- EG-2 Employment zoning in the southern portion of Swan Island; and
- EG-2 Employment zoning along the east bank between the Railroad Bridge and Cathedral Park.

Nearly all of the Central City riverfront south of the Broadway Bridge (i.e., south of the harbor shipping channel) has gradually transformed from industrial to other uses with accompanying zoning actions in past decades. In contrast, Portland’s industrial lands supply has substantially expanded in the Columbia Corridor area with the annexation and industrial zoning of former agricultural and industrial land.

Harbor Land Use Trends

The Port of Portland conducted land use inventories of the Portland Harbor riverfront between 1960 and 1997. Table 13 presents a summary of 1960-1997 growth trends (acres per year) by land use, as well as a more detailed account of 1990-1997 changes where vacant land was developed or occupied land was vacated. The inventoried area includes the Willamette riverfront properties from the Steel Bridge to the Willamette/Columbia confluence, the Columbia riverfront from the confluence to the Burlington Northern Railroad Bridge, and West Hayden Island (in the 1997 inventory). The area generally extends from the river to the nearest parallel street (and further to Lombard Street in Rivergate) or railroad right-of-way.

Table 13. Portland Harbor Land Use Absorption, 1960-1997

Land use	Land use inventory changes on the Portland Harbor waterfront*					
	Occupied Acres		1960-1997 Change		1990-1997 Change	
	1960	1997	Acres per Year	Annual Growth**	1990 Vacant to 1997 Use	1990 Use to 1997 Vacant
Marine Cargo	494	1,075	15.7	2.1%	105	43
Marine Industrial	498	704	5.6	0.9%	43	36
Other Industrial & Infrastructure	309	1,189	23.8	3.7%	50	
Parks, Commercial, & Housing	7	221	5.8	9.8%	27	
Other Waterfront	23	114	2.5	4.4%	7	
All Uses	1,331	3,303	53.3	2.5%	232	79
Vacant Land***	2,399	1,164	-33.4	-1.9%		
Total Land***	3,730	4,467				

* The inventory area generally extends from the river to the nearest street or railroad right-of-way, and from the Willamette River's Steel Bridge to the Columbia River's Railroad Bridge.

** Annual growth is the average annual rate, based on 1960 and 1997 data.

*** In 1994, the Port purchased 734 acres of vacant land on West Hayden Island, which was added to the inventory.

Sources: Bureau of Planning calculations from Port of Portland data in *Marine Terminals Master Plan* (1991) and *1997 Portland Harbor Land Use Inventory*.



In 1997, 63 percent of the inventoried land along Portland Harbor was in industrial use, 26 percent vacant, 4 percent in utility corridors, 3 percent in parks and trails, 3 percent in schools and government facilities, and 1 percent in commercial use.

Of the 2,792 acres in industrial use in 1997, 39 percent were in marine cargo uses (ship loading and storage of marine cargo) and another 25 percent in marine industrial uses (other industrial activities dependent on access to the river and providing goods and services associated with river-dependent land or waterway use). The 26 percent vacancy figure includes 734 acres on West Hayden Island, which the Port of Portland purchased in 1994. West Hayden Island is not zoned for industrial development and has not been annexed by the City of Portland. However, it is included within the urban growth boundary, and most of it is designated for industrial use in Metro's *2040 Growth Concept*. If West Hayden Island were excluded, the 1997 vacancy rate would have been 7 percent, compared to 32 percent in 1990. Vacancy has increased since 1997 (see discussion on vacant lands in Chapter 1), partly reflecting the current recession and the listing of the Portland Harbor Superfund Project.



On average, 21 acres per year of new marine cargo and marine industrial development occurred in the harbor between 1960 and 1997.

Between 1960 and 1997, 787 acres of land were absorbed by marine cargo and marine industrial development and 880 acres in other industrial uses within the riverfront area inventoried by the Port of Portland. Much of that development occurred on the 2,700 acres of land acquired in 1960 by the Port of Portland in Rivergate and on vacant land in the Swan Island area. Of the 232 acres that were vacant in 1990 and occupied by 1997, 105 acres were developed as marine cargo uses, 43 acres as marine industrial, and 20 acres as marine infrastructure. The marine cargo development included the Portland Bulk Terminal facility at Port of Portland T-5 (85 acres) and a 20-acre expansion of the container terminal at T-6. The marine industrial development included 20 acres of the intermodal yard at T-6, the chassis yard at T-6 (13 acres), the five-acre aggregate rehandling area on the Linnton Plywood site, and the Ash Grove cement plant (five acres) near Albina Rail Yard.



The proportion of land in industrial and river-dependent uses has been relatively stable or growing in most of the harbor between 1960 and 1997.

While most new industrial development in the harbor area in the last 40 years has occurred on the extensive supply of vacant land in Rivergate, the marine-related riverfront in the older industrial districts has generally remained stable. In the older Guild's Lake and Lower Albina areas, for example, 65 and 70 percent respectively of the lineal riverfront (see Table 4) was in river-dependent industrial use in 2000, and the upland areas include two of Portland's four rail yards and dense concentrations of industrial firms.

Two areas of the harbor are exceptions and have largely converted to non-industrial uses: the River District and North Beach. The west-bank area between the Fremont and Steel Bridges is in the River District urban renewal area, a central city district that has transitioned from largely

industrial to residential and commercial development. The proportion of this riverfront area in marine-related industrial use has dropped from 65 percent in 1960 to none in 1997. The adjacent Terminal 1 South site (directly north of the Fremont Bridge) is also no longer in marine-related use and was rezoned for residential use.

The other area of the harbor that has transitioned away from marine-related industrial use is North Beach, along the east bank between the University of Portland and St. Johns Bridge. This area was primarily in marine-related industrial use in 1960. Today, none are left. The portion of North Beach south of the Railroad Bridge has been vacant since about 1990. Industrial reuse of this area is constrained by marginal truck access and Superfund cleanup liability on the McCormick & Baxter site. The portion north of the Railroad Bridge, adjacent to St. Johns town center, has Employment zoning, and most of it has been converted to public use, including Metro’s Willamette Cove greenspace and the City of Portland Water Pollution Control Laboratory.

Regional Industrial Land Forecast



The *Regional Industrial Lands Study* (Otak, et al.; 1999) forecasts 6,310 acres of net industrial land absorption (demand) in the Portland-Vancouver PMSA from 2000 to 2020.

That study (second phase) converts employment growth projections in industrial sectors to estimates of future land absorption. The study forecasts regional demand for 2,030 acres of warehouse and distribution space, 1,850 acres of general industrial space, 1,168 acres of tech/flex space, and 1,262 acres of non-industrial uses on industrial land. To meet this demand, the study found a total supply of 9,198 acres of vacant industrial land, of which 2,387 acres was classified as Tier A—considered “ready to develop.” In Multnomah County, the study forecasts 813 acres of industrial land absorption over the 20-year period and found a vacant land supply of 2,572 acres, including 442 acres in Tier A and 1,960 acres in Tier B.

In the third phase of the study (Otak, et al., 2001), the authors found that there is currently an adequate supply of unconstrained vacant sites in the 3-50 acres size range to meet nearly all of the projected demand for the next 25 years. However, they found a significant shortfall in unconstrained land to meet projected demand for 50-acre and larger parcels. Transportation consistently emerged as the leading cost factor for removing development constraints, both in and outside of the urban growth boundary. The study will inform upcoming decisions on expansion of the urban growth boundary.

C. FREIGHT DISTRIBUTION TRENDS

Marine Cargo

Tables 14 and 15 show historical data on marine cargo tonnage and vessel trips at Portland Harbor between 1960 and 2000. Table 16 compares the performance of Portland Harbor among other West Coast ports by cargo type, showing how the Portland and Columbia River shares of West Coast marine cargo has shifted between 1985 and 2000. The data sources of these tables

Table 14. Portland Harbor Cargo Trends, 1960-2000

<i>Cargo in Short Tons (000s)</i>								
<i>Year</i>	<i>Foreign</i>			<i>Coastwise</i>		<i>Internal (barges)</i>		<i>Local</i>
	<i>Total</i>	<i>Imports</i>	<i>Exports</i>	<i>Receipts</i>	<i>Shipments</i>	<i>Receipts</i>	<i>Shipments</i>	
1960	13,549	569	2,790	5,227	290	2,606	1,354	713
1965	16,726	977	3,617	5,594	303	3,457	1,628	1,151
1970	15,490	1,322	3,886	4,421	309	2,864	1,118	1,570
1975	19,600	2,030	6,560	3,226	340	3,304	2,203	1,896
1980	29,314	2,087	11,674	4,805	336	5,315	2,996	2,100
1985	21,845	2,319	8,567	2,506	286	5,313	1,866	986
1990	27,475	2,930	13,304	2,581	553	4,974	2,038	1,097
1995	31,256	2,715	14,924	3,230	256	6,005	3,023	1,103
2000	34,334	4,861	13,115	6,778	302	5,648	2,761	869
<i>Average Annual Growth Trend*</i>								
1960s	1.3%	8.8%	3.4%	-1.7%	0.6%	0.9%	-1.9%	8.2%
1970s	6.6%	4.7%	11.6%	0.8%	0.8%	6.4%	10.4%	3.0%
1980s	-0.6%	3.5%	1.3%	-6.0%	5.1%	-0.7%	-3.8%	-6.3%
1990s	2.3%	5.2%	-0.1%	10.1%	-5.9%	1.3%	3.1%	-2.3%
1960-00	2.3%	4.6%	4.5%	-0.6%	0.2%	2.1%	1.9%	-0.2%

* Annual growth trend is an estimate of the average (compounded) annual rate of growth, calculated as the slope of an exponential regression line using the 1960-2000 data shown.

Sources: Port of Portland from U.S. Army Corps of Engineers data. Growth rates by Bureau of Planning.

Table 15. Portland Harbor Vessel Activity Trends, 1960-2000

<i>Outbound Trips, All Vessels</i>								
<i>Year</i>	<i>Self-Propelled Vessels</i>				<i>Other Vessels</i>			
	<i>Total</i>	<i>Pass & Dry Cargo</i>	<i>Tanker</i>	<i>Towboat or Tugboat</i>	<i>Dry Cargo</i>	<i>Tanker</i>	<i>Towboat or Tugboat</i>	<i>Other</i>
1960	22,578	1,192	415	11,550	7,545	1,874	2	2
1965	23,394	1,103	411	11,690	8,960	1,225	-	5
1970	19,082	969	332	9,754	6,697	1,330	-	-
1975	16,019	868	302	8,439	4,978	1,432	-	-
1980	25,330	1,032	281	14,525	5,119	4,373	-	-
1985	22,198	1,444	149	14,372	4,907	1,326	-	-
1990	23,952	1,946	149	15,418	4,517	1,922	-	-
1995	20,256	2,816	151	8,563	6,280	2,446	-	-
2000	16,866	1,472	202	10,091	3,033	2,068	-	-
<i>Average Annual Growth Trend*</i>								
1960s	-1.7%	-2.0%	-2.2%	-1.7%	-1.2%	-3.4%	-	-
1970s	2.9%	0.6%	-1.7%	4.1%	-2.7%	12.6%	-	-
1980s	-0.6%	6.5%	-6.1%	0.6%	-1.2%	-7.9%	-	-
1990s	-3.4%	-2.8%	3.1%	-4.2%	-3.9%	0.7%	-	-
1960-00	-0.3%	1.9%	-2.7%	0.0%	-1.8%	1.0%	-	-
<i>Outbound Trips, Vessels with Drafts of 18 Feet or Less</i>								
1960	21,305	316	27	11,550	7,543	1,867	2	2
2000	15,586	459	16	10,035	3,029	2,047	-	-
1960-00*	-0.8%	0.9%	-1.3%	-0.4%	-2.3%	0.2%	-	-

* Annual growth trend is an estimate of the average (compounded) annual rate of growth, calculated as the slope of an exponential regression line using the 1960-1999 data shown.

Sources: Port of Portland from U.S. Army Corps of Engineers data. Growth rates by Bureau of Planning.

Table 16. Shift-Share Analysis of West Coast Marine Cargo, 1985-2000

Ports by Cargo Type	Share of West Coast Cargo Tonnage*				Percent Shift**
	1985	1990	1995	2000	
Dry Bulks					
Portland	16.8%	18.1%	18.7%	20.9%	24%
Columbia River	40.6%	43.6%	46.3%	42.3%	4%
Containers*					
Portland	2.4%	2.2%	3.2%	1.9%	-21%
Columbia River	2.4%	2.2%	3.2%	1.9%	-21%
Vancouver BC	3.8%	4.4%	4.8%	7.4%	95%
Seattle	13.5%	16.0%	14.2%	9.5%	-30%
Tacoma	10.9%	12.8%	10.5%	8.8%	-19%
Southern California	48.5%	50.7%	51.9%	60.4%	25%
Autos					
Portland	17.1%	15.7%	17.5%	18.5%	8%
Columbia River	17.7%	16.0%	18.5%	21.5%	21%
Breakbulk					
Portland	5.2%	6.4%	3.6%	6.4%	23%
Columbia River	11.1%	11.9%	13.0%	19.2%	73%

* Revenue tonnage calculation for containers, autos, and some breakbulk is based on cubic measure rather than actual tonnage

** Percent shift is the percentage change in the share of West Coast cargo from 1985 to 2000.

Source: DRI-WEFA and BST Associates, Draft Lower Columbia River Cargo Forecast, March 15, 2002 from Pacific Maritime Association data.

differ. The U.S. Army Corps of Engineers data cited in Tables 14 and 15 is not categorized by commodity type but is more comprehensive than the data cited in Table 16. The latter is tracked by the Pacific Maritime Association and measures cargo handled by longshoreman and paid under terms of PMA-ILWU collective bargaining agreements. The PMA data includes most international and domestic dry cargo.

The recently completed *Lower Columbia River Cargo Forecast* (DRI-WEFA, et al, 2002) provides a detailed analysis of cargo tonnage trends by commodity type among the Lower Columbia River ports (Portland, Vancouver, Kalama, Longview, and Astoria). Table 16 and the following discussion provides a brief overview of those trends, drawing from the Forecast as the primary source of marine cargo information.



Cargo moving through Portland Harbor increased at an average annual rate of 2.3 percent between 1960 and 2000. Export cargo was the primary source of this growth.

The export share of total marine cargo increased from 21 percent in 1960 to 38 percent in 2000. The 1970s were the peak period of export cargo growth. Coastwise cargo was cyclical over these four decades and declined slightly overall. Columbia River barge cargo moving through Portland Harbor increased at an average annual rate of 2.1 percent with peak growth in the 1970s as well. As cargo tonnage increased between 1960 and 2000, the number of vessel trips declined substantially, reflecting larger vessel size. Assuming that the vessels with drafts exceeding 18

feet generally reflect oceangoing cargo (foreign and coastwise cargo in Table 14), the average tonnage of oceangoing ships more than doubled between 1960 and 1999 from approximately 7,000 to 17,000 short tons.



DRI-WEFA predicts -0.4 to +0.8 percent average annual growth of total marine cargo handled at the Lower Columbia River ports between 2000 and 2030 without channel deepening. With the proposed Columbia River channel deepening to 43 feet, the forecast range is 0.0 to 1.3 percent.

The forecast is conservative, given the 2.3 percent average rate of marine cargo growth during the 1960-2000 period. These high and low scenarios reflect a range of 34 to 55 million tons of Lower Columbia River marine cargo in 2030.



Dry bulk exports are the Columbia River ports' primary competitive niche among West Coast ports. Modest long-term growth is expected in dry bulk cargo.

Dry bulks made up nearly two thirds of Lower Columbia River marine cargo tonnage in 2000. Lower Columbia dry bulk cargo increased from 14.7 million revenue tons in 1982 to 22.8 million in 2000, with a brief peak of 31.2 million in 1995. Most of that cargo is wheat brought by barge or rail from eastern Oregon, Washington, and inland states for export to Asia. Other dry bulk exports include barley, corn, soybeans, soda ash, potash, and bentonite. Dry bulk imports include limestone, cement, salt, and alumina.

The combined Lower Columbia River ports accounted for 42.3 percent of the dry bulk marine cargo handled at West Coast ports in 2000, up from 40.6 percent in 1985. That percentage is roughly equivalent to market share. Half of the Lower Columbia dry bulk cargo in 2000 was handled at Portland Harbor, also up slightly from 1985. Of the six grain terminals operating on the Lower Columbia, one is in Vancouver, two in Kalama, and three in Portland.

The DRI-WEFA cargo forecast for the Lower Columbia River ports considers the proposed channel-deepening project from 40 to 43 feet as a variable, providing cargo projections with and without deepening. The channel-deepening project would accommodate the expanding fleet of larger grain and container ships that are constrained by the existing channel depth. The forecast predicts a range of 0.5 to 1.5 percent average annual growth of grain tonnage through Lower Columbia River ports from 2000 to 2030 without channel deepening and 1.0 to 2.0 percent with deepening. The 2000-2030 forecast for non-grain dry bulks is -0.3 to 1.7 percent average annual growth for exports and -1.2 to 1.0 percent for imports (not affected by channel deepening).

⇒ Automobile imports are another of Portland Harbor's competitive niches. Modest long-term growth is expected in automobile cargo.

The volume of assembled automobiles moving through Portland Harbor has fluctuated from 2.3 million revenue tons in 1982 to 3.6 million in 1988, 2.2 million in 1996, and 3.7 million in 2000. Portland's three auto terminals (Toyota, Honda, and Hyundai) accounted for 17.1 percent of the automobiles handled at West Coast ports in 1985 and 18.5 percent in 2000. The Subaru terminal in Vancouver handled another 3.0 percent of West Coast auto cargo in 2000. The DRI-WEFA forecast for Lower Columbia River automobile cargo predicts -0.1 to 1.3 percent average annual growth from 2000 to 2030.

⇒ Containerized cargo at Portland Harbor increased rapidly from 0.7 million revenue tons in 1982 to 4.2 million in 1995 and leveled off after 1995. Moderate growth of container cargo is forecast.

Between 1990 and 2000, the Pacific Northwest share (including Vancouver BC) of West Coast container traffic (full TEUs) decreased from 36.2 percent in 1990 to 27.9 percent in 2000, while the Southern California share increased from 50.7 to 60.4 percent. Portland had a relatively small, 1.9-percent share of West Coast container traffic in 2000.

While the range of commodities shipped by containers is diverse, Portland's container facilities primarily serve a niche market for export of agricultural and forest products. The highest volume commodities in 2000 were hay and animal feed, paper, and lumber. Port of Portland Terminal 6 handled 99.7 percent of the Lower Columbia River container tonnage in 2000. The DRI-WEFA forecast for Lower Columbia River container cargo predicts 0 to 1.5 percent average annual growth from 2000 to 2030 without channel deepening and 2.0 to 3.6 percent with deepening.

⇒ Columbia River breakbulk cargo increased slightly from 0.9 to 1.0 million revenue tons between 1982 and 1997, and then grew rapidly to 1.9 million tons in 2000.

Most general cargo that can be shipped in containers is now done so. Breakbulk cargo consists of general goods not shipped in containers, typically steel, paper, and wood products. Breakbulk growth since 1997 has been primarily in steel imports. Steel imports accounted for 55 percent of the Lower Columbia River breakbulk tonnage in 2000, and wood and paper product exports made up another 25 percent. Portland's share of Columbia River breakbulk cargo increased from 43.1 percent in 1982 to 55.9 percent in 1989, and then dropped to 33.2 percent in 2000. The DRI-WEFA forecast for Lower Columbia River breakbulk cargo predicts 0.5 to 0.8 percent average annual growth of breakbulk exports from 2000 to 2030; 0.2 to 1.8 percent average annual growth of breakbulk imports.



Lower Columbia River receipts of refined petroleum products increased moderately from 2.2 million tons in 1990 to 2.6 million tons in 1998 and then rapidly to 5.3 million tons in 2000.

Refined petroleum products, primarily gasoline and diesel, are the primary liquid bulk commodity shipped on the Lower Columbia River. The rapid growth of refined petroleum cargo after 1998 reflected the explosion of the Olympic pipeline, as tanker shipments provided an immediate alternative to pipeline transportation. The pipeline has since been repaired. Portland is the primary Lower Columbia River port for handling liquid bulks. All of the refined petroleum cargo on the Lower Columbia in 2000 arrived in Portland Harbor terminals.

The DRI-WEFA forecast for the Lower Columbia River ports predicts a -1.3 to -0.6 percent average annual decline in refined petroleum cargo from 2000 to 2030. The 2030 forecast 0.6 to 1.6 percent average annual growth for crude oil and -0.6 to 0.6 percent for liquid chemicals and fertilizers.

Mode Split of Marine Cargo

Ocean cargo is transported to or from the marine terminals by rail, truck, barge, or intermodal facilities. Table 17 shows the distribution of ocean cargo among these connecting transport modes at Portland and Vancouver Harbors in 1996 and projections for 2030, along with comparison mode shares of all freight flows in the Portland Metropolitan Area. This information was drawn from the *Commodity Flow Analysis for the Portland Metropolitan Area*, prepared by ICF Kaiser, et al., in 1999. A primary data source for this forecast was the 1993 Commodity Flow Survey conducted by the U.S. Bureau of Census. DRI-WEFA is currently updating the 1999 commodity flow forecast, using data from the 1997 Commodity Flow Survey. Completion of the DRI-WEFA forecast is expected later this year.



The majority of ocean cargo is carried to or from Portland and Vancouver Harbors by rail, and that share is projected to increase in coming decades.

The ICF Kaiser *Commodity Flow Forecast* predicted that the share of ocean cargo transported to or from Portland and Vancouver marine terminals by rail will increase from 51 percent in 1996 to 56 percent in 2030. Marine and rail distribution provide similar functions, emphasizing economical transport of heavy commodities over long distances, and Portland is a regional connecting point for these transport modes. Columbia River barge transportation is a low-cost alternative to rail for grain and other bulk commodities.

**Table 17. Transport Mode Summary of Freight Flows
In Portland-Vancouver Metropolitan Area, 1996 and Forecast 2030**

Mode	Freight Flows in Short Tons Beginning and/or Ending in the Metropolitan Area*							
	Ocean Cargo				All Freight			
	1996		2030		1996		2030	
	Tons (000)	Share	Tons (000)	Share	Tons (000)	Share	Tons (000)	Share
Rail	10,365	50.9%	40,282	55.8%	42,989	22.9%	95,170	23.6%
Truck	4,510	22.2%	19,096	26.5%	103,445	55.0%	195,428	48.5%
Intermodal	269	1.3%	986	1.4%	3,025	1.6%	7,189	1.8%
Barge	5,203	25.6%	11,771	16.3%	18,160	9.7%	32,596	8.1%
Ship					20,353	10.8%	72,157	17.9%
All modes	20,353	100.0%	72,157	100.0%	187,971	100.0%	402,539	100.0%

* Double counting occurs when commodities use more than one mode over the course of their trip in the Metropolitan Area.

Source: ICF Kaiser, et al., *Commodity Flow Analysis for the Portland Metropolitan Area, April 1999*

⇒ Truck transportation is the dominant mode for domestic and overall freight distribution in the Portland metropolitan area.

Truck transportation is also a supplemental mode for ocean cargo, providing for decentralized regional distribution and collection of ocean cargo and more rapid delivery as needed.

Rail Freight

Table 18 shows the growth of rail tonnage carried over specific Portland area rail lines between 1989 and 1999, based on Burlington Northern Santa Fe and Union Pacific data.

Table 18. Rail freight trends on Portland area lines, 1989-1999

Rail lines	Freight (million tons)		Average annual growth, 1989-99
	1989	1999	
Burlington Northern Santa Fe			
Vancouver east (North Bank Columbia)	55.54	61.9	1.1%
Vancouver to NW Portland	50.31	51.9	0.3%
Union Pacific			
Kenton Line (T-4 to Troutdale)	15.98	21.7	3.1%
Graham Line (Rose Qtr. to Troutdale)	20.25	34.63	5.5%
Portland south (Rose Qtr. To Milwaukie)	27.8	29.1	0.5%
Combined Portland lines shown	114.34	137.33	1.8%

Source: BNSF and UP line density maps. Growth calculations by Bureau of Planning



Rail freight on the primary Burlington Northern Santa Fe and Union Pacific lines in Portland increased at a 1.8 percent average annual rate from 1989 to 1999.

Both Burlington Northern Santa Fe (BNSF) and Union Pacific (UP) have Portland area rail lines that extend north to Washington, south to California, and east through the Columbia River Gorge to inland states. The rail lines in the harbor area are shown in Map 2 above. The BNSF line enters Portland from Vancouver and has branch lines that extend into Rivergate and along the west side of the harbor between the Steel and Railroad Bridges. Average annual growth of rail freight on BNSF's Vancouver-Portland route was a slight 0.3 percent between 1989 and 1999. The UP lines enter Portland from the south and east. A looped UP line runs along the east side of the harbor between Port of Portland Terminal 4 and the Rose Quarter, connecting to its Kenton, Graham, and Portland south (former Southern Pacific) lines shown in Table 18. Tonnage on UP's Graham and Kenton lines increased at 5.5 and 3.1 average annual rates (respectively) between 1989 and 1999.



The draft rail forecast being prepared to support I-5 Trade Corridor planning anticipates a 3.0 to 3.5 percent average annual increase in Portland-Vancouver area freight trains between 2001 and 2011.

The 10-year rail forecasts will be finalized later in 2002. A draft 10-year "3.25 percent hybrid" forecast (June 2002) projects a 3.9 percent average annual increase in intermodal trains, 3.9 percent increase in auto trains, 2.2 percent increase in merchandise trains, 3.4 percent increase in grain trains, and 5.2 percent increase in other bulk unit trains. The rail capacity analysis will inform the *I-5 Partnership Strategic Plan*, which includes recommendations for rail system improvements to accommodate projected growth.

Truck Traffic

Table 19 shows traffic count trends of selected higher-volume streets in the harbor area between 1990 and 2001. No systematic, periodic traffic counts were taken that span the entire harbor area during the 1990s, so Table 19 draws from available counts by the Port of Portland and City of Portland, which cover a cross-section of streets over a mix of years since 1990. Each of these traffic count locations are in designated "truck districts" in Portland's *Comprehensive Plan*, except for Interstate Avenue which is adjacent to, and provides access to, the Lower Albina area truck district. The Transportation Element in the *Comprehensive Plan* notes that truck districts are intended to provide for convenient truck movement in areas serving large numbers of truck ends.



Traffic volumes on the busier truck streets in the harbor area generally increased during the 1990s. The fastest growth was in the Rivergate area, reflecting the development of vacant land there.

The two highest volume streets in the study area are Swan Island's Going Street, carrying 38,616 daily trips in October 2000 at the railroad crossing (the entrance to the Swan Island area), and the Guild's Lake area's Yeon Avenue with 35,686 daily trips in January 2001 at 35th Avenue. Going Street (between I-5 and Greeley Avenue) is designed a "major truck street" and Yeon Avenue (between I-405 and Highway 30) a "regional truck route" in Metro's *Regional Transportation Plan*. As shown in Table 19, Going Street had a modest increase in traffic volume between 1994 and 2000, and Yeon Avenue had a modest reduction between 1995 and 2001. The traffic volume of the other streets shown in Table 19 ranged from 7,936 to 13,358 daily trips.



Lumber, wood products, and furniture were the dominant commodity group carried by truck in the region in 1996.

The ICF Kaiser *Commodity Flow Analysis* (1999) found that lumber, wood products and furniture accounted for 56 percent of truck freight in the Portland-Vancouver metropolitan area in 1996, followed by processed food products with 18 percent and stone, clay, concrete, and similar products with 9 percent.

Table 19. Traffic Counts on Selected Truck Streets in Study Area, 1990-2001

Location	Daily Traffic Volume									Average Annual Growth*
	1990	1994	1995	1996	1997	1998	1999	2000	2001	
Rivergate										
Lombard Street, 50 Feet East of Rivergate Boulevard (September counts)										
Westbound	4,070	4,182	3,818	5,497	4,050	4,188	4,553			1.4%
Eastbound	3,689	4,487	3,858	5,423	3,776	4,296	4,615			2.0%
Lombard Street North of Columbia Slough (September counts)										
Northbound	2,349	3,880	3,676	6,866	4,080	4,895	5,346			11.5%
Southbound	2,428	4,120	3,664	5,509	3,944	4,678	5,354			10.1%
Marine Drive West of Portland Avenue (September counts)										
Westbound	4,131	4,272	4,825	6,347	5,572	5,782	6,149			7.2%
Eastbound	4,055	4,724	4,862	6,210	5,703	6,335	6,045			7.2%
Swan Island Area										
Going Street at Railroad Crossing (October counts)										
Westbound	18,914	19,501	21,027	19,441	20,319	21,121	18,935			0.5%
Eastbound	18,975	19,650	20,911	12,739	20,241	23,952	19,681			1.7%
Lower Albina Area										
North Interstate Avenue at Larrabee Avenue										
Total (N & S)				Oct. 6	Aug. 24	Oct. 4				5.7%
				11,948	13,387	13,358				
Guilds Lake Area										
NW Yeon Avenue at 35th Avenue**										
		Sep. 13, 19					Jan. 30			
Westbound		19,674					18,231			-1.3%
Eastbound		18,229					17,455			-0.7%
NW Front Avenue at Kittridge Avenue										
	Mar. 27					Nov. 2	Feb. 5			
Northbound	2,915					3,408	3,408			1.5%
Southbound	3,295					4,528	4,528			3.1%

* Average annual growth rates were calculated using an exponential regression line of the data shown.

** The Sep. 19, 1995, eastbound count was taken on NW Yeon Avenue at 29th Avenue.

Sources: Port of Portland, *2000 Traffic Monitoring Program*, for Rivergate and Swan Island areas. Portland Office of Transportation for Guild's Lake and Lower Albina areas. Growth rates by Bureau of Planning.

3. LOCATION FACTORS AND CONTEXT

A. INDUSTRIAL LOCATION FACTORS

Distribution Infrastructure and Facilities

Maps 7 and 8 depict the freight infrastructure network of the Northwest states and the Portland metropolitan area. Map 7 shows the Pacific Northwest seaports; the Columbia/Snake Rivers barge routes; the Union Pacific, Burlington Northern Santa Fe, and Canadian Pacific rail lines; and interstate highways. Size of seaports is shown by total marine cargo volume in short tons in 2000, based on U.S. Army Corps of Engineers data in *Waterborne Commerce of the U.S.* Vancouver B.C. tonnage data is from the Port of Vancouver website.

Map 8 displays the industrial lands, freight infrastructure, and major freight facilities in the Portland metropolitan area. Industrial and employment zoning depict the region's industrial land use pattern. The railroads, truck routes, and freight transportation facilities on Map 8 are from Metro's 2000 *Regional Transportation Plan*. Marine facilities are where freight is transferred from water- to land-based modes; rail facilities, from rail spurs to other modes; and air facilities, from airport runways to land-based modes. Rail yards, which are shown separately from other rail facilities, are those operated by Union Pacific and Burlington Northern Santa Fe. Truck terminals are truck-to-truck transfer facilities that are primary gateways for freight entering or leaving the region.



Portland is well positioned by its location and intermodal infrastructure for growth as a West Coast distribution hub.

As shown in Map 7, Portland is located at the intersection of the Lower Columbia River deepwater shipping channel, the Upper Columbia/Snake Rivers barge routes, two major national railroads, and two interstate highways. The U.S. Army Corps of Engineers maintains the deepwater channel at 40-foot depth and 600-foot width from the Pacific Ocean to Portland and Vancouver Harbors. The Upper Columbia and Snake River barge network includes 26 ports upriver from Portland that extend north into Eastern Washington and east to Lewiston, Idaho. Portland's rail access is a unique advantage to marine trade. Union Pacific (UP) and Burlington Northern Santa Fe (BNSF) each have West Coast and east-west transcontinental rail lines that run through Portland. The east-west lines leading to Portland cross the Cascade Range along the Columbia River at river grade. The two alternative BNSF lines that cross the Cascade Range to the Puget Sound over Stevens Pass and Stampede Pass require helper locomotives, a cost disadvantage for heavy-haul bulk trains. And the I-5 and I-84 highways intersect in Portland, providing truck access along the West Coast and across the country.



Map 8. Northwest States Freight Distribution Network , 2002

Transcontinental Railroads

..... Burlington Northern
Santa Fe

..... Union Pacific

..... Canadian Pacific

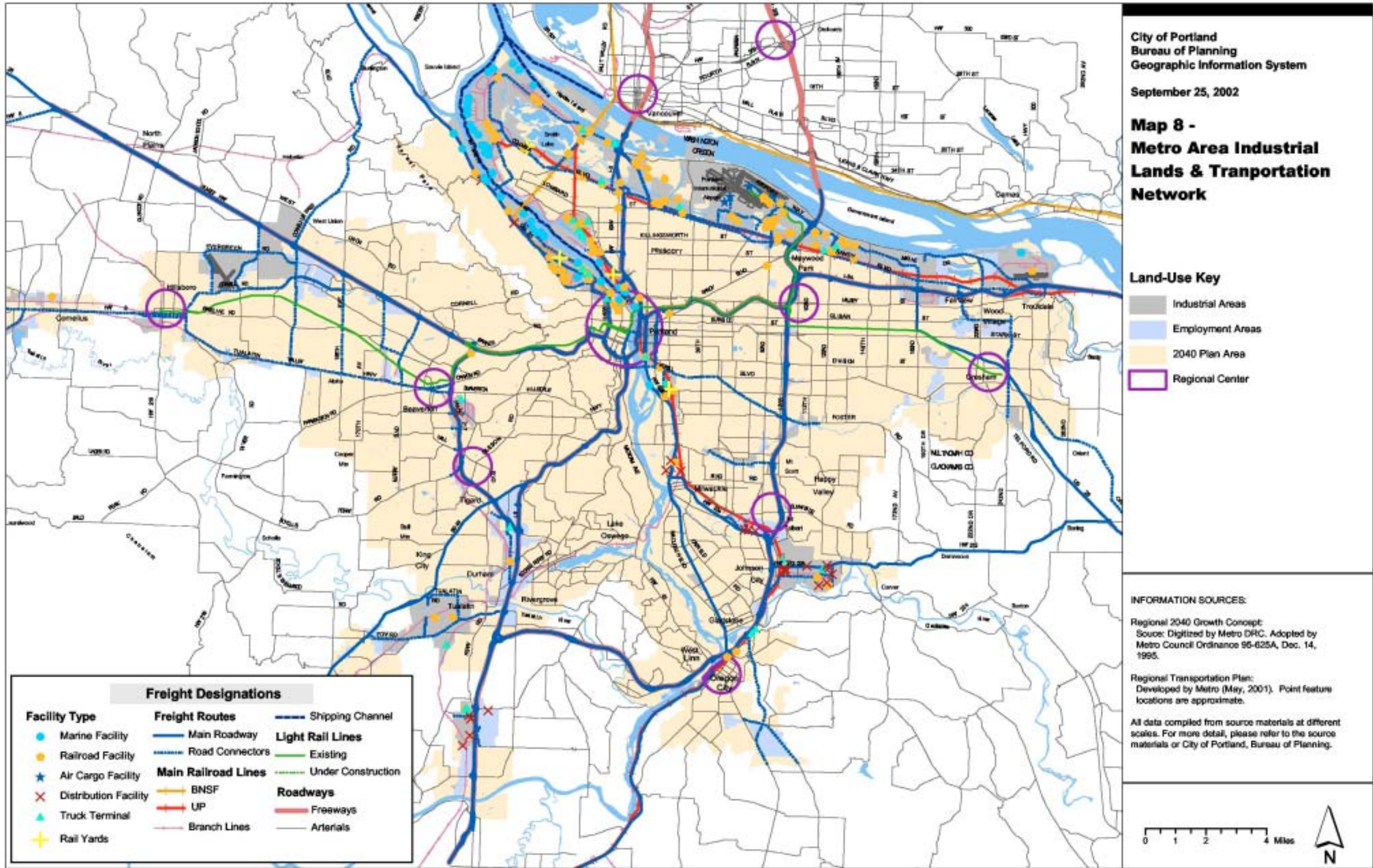
— Columbia/Snake River
Shipping Channel

— Interstate Highway

● Seaports and waterborne tons*
shipped in 2000

○ Other ports and rail connections

* Source: U.S. Army Corps of Engineers, Waterborne Commerce of the U.S.





Portland's freight network supports a variety of international, domestic, and regional distribution functions.

The majority of marine cargo tonnage consists of grain and other export dry bulks, en route primarily to Asia, that arrive at terminals by rail or barge. Several firms also use Portland as an import center for domestic rail and truck distribution, such as Toyota, Hyundai, Honda, Nike, and Columbia Sportswear. Regional distribution (i.e., of freight with an origin or destination in the region) is more diverse and dispersed. Trucking is the primary transport mode for regional distribution, although regional producers and wholesalers to regional markets also rely on rail, ship, barge, pipeline, and air transportation. Air cargo shipping through PDX is primarily of domestic cargo on all-cargo carriers. Portland's air freight activity includes regional hubs for UPS and FedEx and shipping for much of the region's high tech sector. Through-traffic of freight that does not stop in the region is another major use of distribution infrastructure. This combination of regional functions provides a critical mass of facilities that use and support a multimodal distribution network, and these functions also compete for network capacity at congested locations during peak periods.



The harbor area and Columbia Corridor are the center of the region's freight distribution facilities and industrial activity that requires rail or maritime access.

As shown in Map 8, the industrial districts throughout the region are generally well served by truck routes with close access to the freeway system. Rail access is more concentrated along the main rail lines—BNSF lines on the west side of Portland Harbor, Rivergate, and Vancouver and UP lines on the harbor's east side, southward into Clackamas County, and the Columbia Corridor. Marine facilities, railroad facilities, air cargo facilities, and truck terminals (see Map 8) are even more tightly clustered in the harbor area and Columbia Corridor, showing the interconnection of these transportation modes.



Freight transportation investment is a significant industrial location advantage for the harbor area in at least two respects: as a freight hub location for distribution industries growth and as a marine and rail access location for manufacturers that require those facilities.

Map 8 shows the network of intermodal freight infrastructure and the cluster of related transportation facilities in the harbor area. Map 3 in Chapter 1 shows the cluster of 252 wholesale firms in the harbor area and a variety of concrete, metals, and transportation equipment manufacturers that require river access for water transportation. A striking convergence of freight transportation investment and related industrial land uses is evident in these maps. Additionally, Table 10 in Chapter 2, which reviews Metro's 2030 employment forecast, shows that the transportation and wholesale industries are projected to be primary sources of the region's industrial job growth. Thus, the importance of freight infrastructure and facilities as an industrial location factor in the region appears likely to increase in the coming decades.



Long-term industrial strategies that have dramatically expanded global trade in recent decades indicate continuing growth potential of multimodal distribution hubs.

Industrial “globalization” trends that have been widely recognized since the 1970s include international movements of many segments of production processes to lower-cost locations, increasing competition by product diversification into domestic and export niche markets, and “just in time” production and delivery to reduce product and raw material inventories (Storper, 1997). These shifts in how goods are produced and transported have contributed to a substantial increase in global trade and have generated major technological and process changes in the distribution industries. For example, containers, which can be efficiently transloaded between trucks, railcars, ships, and barges, reducing the need for piecemeal reloading at ports, have become a predominant technological feature of global trade. Also, as the timing, transport modes, quantities, and geography of shipping has become more complex, managing the “logistics” of the supply chain to increase productivity has become an expanding function of the distribution industries. These structural shifts indicate an increasing role for the wholesale and transportation industries in multimodal distribution hubs.



Major investments to maintain and expand the capacity of regional freight infrastructure are currently being considered.

The U.S. Army Corps of Engineers and sponsoring ports have proposed the Columbia River Channel Improvements Project to deepen the shipping channel from 40 to 43 foot depth, which is intended to increase access to the expanding international fleet of deeper draft grain and container ships. The feasibility report and environmental impact statement for this project are currently under consideration. The Corps has also begun work on a *Dredge Materials Management Plan* for the Lower Willamette River, to provide for continued maintenance dredging and dredge materials management, including the contaminated portions of the harbor. The I-5 Corridor Partnership, including Oregon and Washington Departments of Transportation and others, has studied and proposed a series of infrastructure and management recommendations to maintain truck and rail capacity along the I-5 corridor between I-84 and I-205 in Vancouver. The multifaceted recommendations include I-5 widening to six lanes (three per direction) from the Fremont Bridge to I-205, further study of 10-lane bridge capacity, further study of rail capacity improvements, and land use management to protect industrial land along I-5 and interchange capacity. These major infrastructure projects will expand the region’s competitive capacity as an intermodal distribution hub.

Industry Clustering

Table 20 is an input-output table, which quantifies the flow of commodities as intermediate inputs between industries. Specifically, the table shows the use of commodities in the U.S. by selected industries that are substantially represented in the study area (generally having location quotients above 1.5 in the study area relative to the PMSA). The table can be read in two ways: each column shows an industry’s composition of intermediate inputs from other industries;

Table 20. Commodity Inputs and Outputs of Selected Industries in the U.S., 1998

For the composition of inputs to an industry, read the column for that industry. For the distribution of output of a commodity, read the row for that commodity.

Percent of total intermediate-input purchases at producers' prices.

SIC	20	25	26	27	28	29	32	33	34	35	36	37	39	40	42	44	45	50, 51	33-37			
	Food & kindred products	Furniture & fixtures	Paper & allied products	Printing & publishing	Chemicals & allied products	Petroleum products	Stone, clay, glass, & concrete	Primary metals	Fabricated metal products	Industrial machinery	Electronics equipment	Transportation equipment	Miscellaneous manufacturing	Railroads & passenger transit	Trucking & warehousing	Water transportation	Air transportation	Wholesale trade	Combined metals & equipment	Combined mfg. industries shown	All industries shown	
Intermediate Inputs																						
Food & kindred products	23%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	3%
Furniture & fixtures	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Paper & allied products	5%	3%	37%	27%	2%	0%	4%	0%	1%	1%	1%	0%	4%	0%	0%	0%	0%	3%	1%	4%	4%	
Printing & publishing	0%	0%	0%	19%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	3%	0%	1%	1%	
Chemicals & allied products	1%	2%	10%	4%	39%	3%	7%	3%	3%	1%	3%	1%	8%	1%	0%	0%	0%	1%	2%	6%	5%	
Petroleum products	0%	1%	1%	0%	1%	14%	1%	3%	0%	0%	0%	0%	1%	8%	4%	1%	11%	1%	0%	1%	2%	
Stone, clay, glass & concrete	1%	1%	0%	0%	0%	1%	24%	2%	1%	0%	1%	1%	1%	0%	0%	0%	0%	0%	1%	1%	1%	
Primary metals	0%	9%	1%	0%	0%	0%	2%	37%	43%	14%	8%	8%	12%	2%	0%	0%	0%	0%	17%	9%	7%	
Fabricated metal products	3%	12%	1%	0%	1%	0%	1%	3%	14%	8%	7%	10%	4%	2%	1%	1%	0%	1%	9%	6%	5%	
Industrial machinery	0%	1%	1%	1%	1%	0%	1%	4%	4%	20%	3%	6%	2%	4%	0%	4%	0%	1%	8%	5%	4%	
Electronics equipment	0%	0%	0%	0%	0%	0%	0%	1%	0%	18%	35%	6%	2%	2%	0%	0%	0%	3%	13%	7%	6%	
Transportation equipment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	27%	0%	8%	1%	3%	14%	1%	10%	5%	5%	
Misc. manufacturing	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%	0%	0%	0%	0%	0%	0%	0%	
Railroads & transit	1%	1%	2%	1%	1%	0%	2%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	
Trucking & warehousing	3%	3%	6%	3%	3%	1%	10%	5%	3%	1%	1%	2%	2%	2%	39%	0%	0%	1%	2%	3%	4%	
Water transportation	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	30%	0%	0%	0%	0%	0%	
Air transportation	1%	1%	1%	1%	1%	0%	1%	1%	1%	1%	1%	1%	1%	1%	2%	0%	12%	2%	1%	1%	1%	
Wholesale trade	9%	13%	8%	7%	10%	5%	8%	12%	10%	13%	11%	8%	16%	5%	4%	2%	2%	9%	11%	10%	9%	
All industries shown above	46%	45%	67%	63%	60%	25%	61%	68%	79%	78%	73%	74%	64%	36%	53%	44%	41%	25%	75%	64%	58%	
Inputs by own industry	23%	1%	37%	19%	39%	14%	24%	37%	14%	20%	35%	27%	11%	11%	39%	30%	12%	9%	57%	26%	58%	
Combined metals & equipment	4%	22%	3%	1%	2%	0%	5%	45%	61%	61%	53%	58%	20%	17%	2%	9%	15%	5%	57%	31%	27%	
All transportation inputs	4%	4%	8%	5%	5%	6%	13%	7%	4%	2%	2%	3%	3%	3%	49%	39%	31%	3%	3%	4%	7%	
Gas and electric utilities	1%	2%	4%	2%	4%	3%	7%	6%	2%	1%	2%	1%	1%	0%	1%	1%	0%	3%	2%	2%	2%	
Business services	2%	5%	3%	9%	8%	3%	4%	3%	5%	4%	5%	3%	5%	9%	7%	19%	5%	23%	4%	4%	7%	
Total intermediate inputs	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	

Source: Portland Bureau of Planning from U.S. Bureau of Economic Analysis annual input-output accounts in 1998.

each row shows a commodity's distribution as output to other industries. The data source is the *Annual Input-Output Accounts of the U.S. Economy, 1998* (Planting and Kuhbach, 2001). Higher proportions in the table represent more significant trade linkages between firms and industries. The highest shares of trade tend to be among firms in the same industry, an indication of "vertical disintegration." Vertical disintegration is the dispersal of production to subcontractors, suppliers, and services instead of production internally within vertically integrated firms. Higher shares of trade between industries can also be seen as a blurring of industry boundaries, showing that linked industries have interdependent roles in a larger production process.

⇒ Agglomeration economies, evident in the geographic clustering of many industries in a small number of locations, have been recognized in industrial location literature as a significant location factor.

The inter-firm and inter-industry production complexes evident in Table 20 have geographic implications. As globalization of production has reduced the importance of proximity to markets as an industrial location factor, it has increased the importance of access to inter-firm production complexes and suitable labor markets. Industrial districts literature beginning in the 1980s recognized that localized clusters of firms in high tech, film, and other industries have emerged as a common competitive model of industrial organization, distinct from the "fordist" model of mass-production in vertically integrated firms (Piore and Sabel, 1984; Storper and Walker, 1989). Networks of firms with significant trade, competition, and cooperative relationships and a skilled labor pool combine to give firms in the cluster a competitive edge, or agglomeration economies. A key advantage results from an expansive industrialization process within the cluster, where competition drives innovation in new activities and technologies to continually develop new products and split off new firms.

Industrial districts focused on localized linkages are only one form of the specialized industrial complexes that have driven growth in many second-tier cities such as Portland and Seattle (distinct from the largest metropolitan areas) in the last two decades (Markusen, et al., 1999). These complexes also include "hub-and-spoke" districts dominated by one or a few large firms with significant inter-firm relationships in and outside the region (e.g., Boeing in Seattle); satellite industrial platforms made up primarily of branch plants with minimal intra-district trade; and state-anchored districts that develop around large universities, military bases, or similar institutions. The role of these clusters in regional economies is further discussed in last section of this chapter.

⇒ The Portland area's industry clusters in primary metals and transportation equipment manufacturing are part of a larger complex of metals and equipment industries with significant inter-industry linkages.

The existence of an integrated metals and equipment industries complex (primary metals, fabricated metal products, industrial machinery, electronics equipment, and transportation equipment) is suggested by their significant input-output relationships and their geographic clustering in the harbor area. In 1998, approximately 57 percent of the production inputs of the

metals and equipment industries nationally was provided by other firms within that industry group, as shown in Table 20. For instance, the primary metals industry is a major supplier to each of the others. In particular, 43 percent of the inputs to the fabricated metal products industry were from the primary metals industry. The transportation equipment industry is a major consumer of output from each of the others. The industrial machinery and electronics industry are also major consumers of each other's products and of fabricated metal products and primary metals. The significant trade volumes between these industries appear to be consistent with the substantial representation of each in the harbor area. As described in Chapter 1, the metals and equipment industries cluster in the harbor area in 2000 included 213 business establishments and 16,860 jobs. The presence of these firms, their skilled labor pool, established networks of suppliers and customers, specialized infrastructure, and other inter-firm relationships are potentially significant location factors for the cluster's continued growth.

⇒ The wholesale and manufacturing sectors have significant inter-industry trade linkages.

Wholesale trade made up 10 percent of intermediate inputs into the combined manufacturing industries shown in Table 20. Given the significance of these linkages, it is not surprising that the manufacturing industries that are highly concentrated in the harbor area tend also to have high concentrations of related wholesale trade (e.g., metals, transportation equipment, food products, chemicals, and petroleum industries).

Transportation costs accounted for an additional 4 percent of intermediate inputs into the combined manufacturing industries, the highest shares being 13 percent of inputs to the stone/clay/glass/concrete industries category, 8 percent to paper products, 7 percent to primary metals, and 6 percent to petroleum products. These manufacturing industries with the highest shares of transportation costs nationally also have substantial presence of firms and employment in the harbor area, benefiting from the area's network of transportation infrastructure and facilities.

⇒ Table 20 also shows the advantage of a diverse industrial district for inter-industry trade.

Combining all of the industries shown in Table 20 that have substantial representation in the harbor area, 58 percent of their inputs are provided by other firms among those industries. Some industries benefit more than others from location within diverse industrial districts. Transportation equipment, electronics equipment, fabricated metal products, and industrial machinery manufacturers, on average, depend on the other industries shown in the table for more than 70 percent of their inputs.

Central Urban Location

As shown in Map 8, the harbor area is centrally located in the region and directly north of downtown Portland. Its central location provides both advantages and disadvantages for industry.



Access to labor is a primary industrial location factor between regions. Within the region, the harbor area offers central access to the metropolitan area labor supply.

Recent studies have highlighted the importance of suitable labor markets as a primary inter-regional location factor for manufacturing firms in the U.S. (Dumais, et al., 1997; Portland Development Commission, 2002). As technology and knowledge have become increasing factors of industrial competitiveness, location of a firm in a place where skilled and professional labor want to live has in turn become more important (Atkinson and Gottlieb, 2001). For large manufacturing employers, labor access may also be an important intra-regional location advantage for the harbor area, drawing from its central access to the regional labor market, transit options, and the livability of Portland's close-in neighborhoods. As housing costs in Portland have increased closer to the Central City, other locations in the region likely become more attractive to large employers of lower paid workers. However, the average employee earnings in the local industrial sectors generally is much higher than the county average for all sectors, as shown in Table 23 below. The labor access advantage of a central location may be reduced over time by urban traffic congestion, although that reduction can potentially be mitigated by transit improvements in industrial areas.



For regional wholesaling and delivery facilities, the harbor area's central location is also a location advantage.

Harbor area wholesalers that serve regional markets benefit from relative proximity to delivery destinations across the region and central access to the region's truck network. These proximity-to-market advantages for wholesale facilities are in addition to the freight hub advantages discussed above, resulting from proximity to freight terminals (the primary freight entry points into the region) and to related manufacturers. As with labor access benefits, the advantage of a central regional location for wholesalers may be reduced over time by urban traffic congestion at particular locations and peak periods.



A central location can increase gentrification pressure to convert land to non-industrial uses that bring higher land values.

Historical industrial development has been displaced from parts of the Central City to accommodate highway construction (e.g., former Harbor Drive and I-5) and higher density mixed-use development (e.g., Pearl District and North Macadam). Industrial Sanctuary zoning (discussed in Chapter 2) has been applied as a tool to prevent conversion of important industrial land to other uses. The *Guild's Lake Industrial Sanctuary Plan*, adopted earlier this year, established the Vaughn Street corridor as an "iron curtain," the northern boundary of Central City mixed-use development on the west side of the river.

Regional Heavy Industrial Complex



“Heavy industrial” uses characterize the established land use pattern in most of the harbor area, and those lands are a substantial portion of the region’s heavy industrial land supply.

Conceptually, heavy industrial areas provide locations for industries with objectionable impacts and appearance, separated from other urban areas. Thus, maintaining an adequate supply of heavy industrial land in suitable locations reduces their disturbance in the rest of the city. The harbor area is one of the primary locations in the region for many uses that are typically perceived as heavy industrial, such as steel mills, heavy equipment manufacturing, petroleum bulk storage, chemicals manufacturing and distribution, utility yards, rail yards, and marine terminals. Also, most of the land in Portland with heavy industrial zoning is in the harbor area, and nearly all of the rest is adjacent, i.e., in the Columbia Corridor west of I-5. Metro’s *2040 Growth Concept* also designates other smaller heavy industrial areas in the region, including at Hillsboro, Tualatin, Gresham, and Vancouver.



What constitutes heavy industry and heavy industrial areas, however, is imprecise and evolving.

Examples of objectionable impacts include use of hazardous materials, air pollution, water pollution, scale of heavy equipment use, odors, noise, dust, and outdoor storage. An accounting of these impacts is not necessarily consistent with the types of industries and facilities that have historically been considered heavy industrial. The historical image of heavy industry as major polluters is less relevant today. Environmental regulations require control and filtering of industrial point sources of air and water pollution. For example, a large warehouse that would typically be considered light industrial may generate more air pollution from truck exhaust than a heavy equipment factory with a regulated smokestack. Also, indiscriminate dumping practices that were historically common and contributed to many of today’s contaminated sites have been curbed. There remains, nevertheless, a perhaps growing difference between general industrial areas that include traditional heavy industries and contemporary light industrial parks characterized by more flex office and retail space, minimal rail access, and more aesthetic design control.



Portland’s heavy industrial districts are more a result of practice than regulation.

The *Portland Zoning Code* does distinguish between IH Heavy Industrial and IG General Industrial zones, and these two zones implement Portland’s Industrial Sanctuary policy. Most of the IH zoning is along the Willamette, and most of the Columbia Corridor and Central Eastside are in IG zones. Nevertheless, both zones allow nearly all industrial uses, including smokestack industries in IG zones. The essential use-related difference is that IH is more restrictive in the use of hazardous substances. Specifically, packaged explosives are allowed in IH zones with a hazardous substances review and not allowed in IG; and flammable solids, irritating gases, and

combustible liquids in bulk form require a hazardous substances review in IG and not in IH. There are also some design standard differences between IH and IG zones regarding building setbacks, lot coverage, and landscaping.

Emerging Environmental Challenges



Major environmental planning projects affecting the harbor area are underway that implement federal and state mandates.

- A six-mile segment of Portland Harbor was listed as a Superfund site in 2000. This project addresses contaminated in-water sediments and approximately 50 (as of 2002) upland site investigation and clean-up projects. The multi-year Superfund project entails investigation, contamination source control, remedies to remove or isolate contaminants, restoration of resulting natural resource damages, and assigning liability for project costs.
- Willamette River populations of Steelhead Trout and Chinook Salmon were listed (in 1998 and 1999, respectively) as threatened under the *Endangered Species Act* (ESA). The Act restricts, at both a programmatic and case-by-case level, activities that have potential to harm the fish or its habitat. The City of Portland is developing a comprehensive program to respond to the listings and assist with species recovery. Federal permitting of in-water construction (e.g., harbor docks) and discharges also enforce ESA restrictions.
- Among its provisions, the *Clean Water Act* sets standards for point-source discharges into waterways and stormwater discharges by jurisdictions with more than 50,000 people, enforced through NPDES (National Pollution Discharge Elimination System) permits. Section 303(d) of the Act also requires states to develop plans to reduce pollution in water quality impaired streams, including the Lower Willamette River which is listed for mercury, bacteria, high temperature, and (near the McCormick & Baxter site in Portland Harbor) PCP and arsenic. The City of Portland is preparing watershed plans that will recommend ways to achieve compliance with both the *Clean Water Act* and *Endangered Species Act*.
- Oregon's Statewide Planning Goal 5 requires local jurisdictions to inventory natural resources, including riparian areas and wildlife habitat, and take steps to protect them. While most jurisdictions have complied with Goal 5, Metro is currently developing a regional interpretation of Goal 5 with the fish and wildlife conservation element of Title 3 in its *Functional Plan*. Title 3 will set regional Goal 5 standards for natural resource protections, such as riparian setbacks.

These environmental initiatives have a wide range of potential implications for industrial operations in the harbor area, including cost and allocation of liability for cleanup and restoration, effect on available land for industrial expansion, disruption to current and future industrial operations, and the initiatives' effects on timing of property investments.

The City of Portland is currently in the early stages of developing the *Riverside Plan*, an area plan for the river corridor. Its products will include technical studies (including this document) and area-specific policies and recommended actions on land use and built form, transportation, recreation, economic development, and natural resources. Among the tasks of this planning effort are to integrate ESA, Watershed Health, and Title 3 Goal 5 responses for the river corridor and develop a land-use framework for the Superfund project. Those tasks are part of a broader

charge of the *Riverside Plan* to integrate and advance each of the City's *River Renaissance Vision* themes in the river corridor, including those for a clean and healthy river and prosperous working harbor.

B. RELATION TO OTHER REGIONAL SEAPORTS

Cargo Distribution

Table 21 compares the performance of Portland Harbor among other Lower Columbia River ports by cargo type, showing how their shares of Lower Columbia marine cargo has shifted between 1985 and 2000. The data source is the Pacific Maritime Association and covers the cargo handled by longshoreman and paid under terms of PMA-ILWU collective bargaining agreements. As discussed in Chapter 2, the U.S. Army Corps of Engineers marine cargo data is more comprehensive than the PMA data, but it does not track cargo by type.

Table 21. Shift-Share Analysis of Columbia River Marine Cargo, 1985-2000

Ports by Cargo Type	Tonnage (000s) in 2000	Share of Columbia River Cargo Tonnage				Shift** 1885-00
		1985	1990	1995	2000	
Dry Bulks						
Portland	11,246	41.4%	41.6%	40.5%	49.4%	8.0%
Astoria	-	0.0%	0.0%	0.0%	0.0%	0.0%
Vancouver	3,561	19.4%	18.4%	15.4%	15.6%	-3.8%
Longview/Kalama	7,965	39.2%	40.0%	44.1%	35.0%	-4.2%
Containers						
Portland	3,675	98.8%	99.2%	99.7%	99.7%	0.9%
Astoria	-	0.1%	0.0%	0.0%	0.0%	-0.1%
Vancouver	11	0.8%	0.8%	0.2%	0.3%	-0.5%
Longview/Kalama	1	0.4%	0.0%	0.1%	0.0%	-0.4%
Autos						
Portland	3,659	96.5%	98.0%	94.6%	86.1%	-10.4%
Vancouver	591	3.5%	2.0%	5.4%	13.9%	10.4%
Breakbulk						
Portland	634	47.0%	53.8%	27.7%	33.2%	-13.8%
Astoria	-	1.5%	2.9%	0.0%	0.0%	-1.5%
Vancouver	384	15.7%	9.0%	32.4%	20.1%	4.4%
Longview/Kalama	890	35.8%	34.3%	39.9%	46.7%	10.9%

* Shift is calculated as the 2000 share minus the 1985 share.

Source: DRI-WEFA and BST Associates, *Draft Lower Columbia River Cargo Forecast*, March 15, 2002, from Pacific Maritime Association data.



Portland Harbor is a major West Coast seaport, the fourth largest in total marine cargo tonnage in 2000.

A comparison of total marine cargo tonnage (short tons) handled in 2000 among the largest West Coast seaports is as follows (U.S. Army Corps of Engineers, *Waterborne Commerce of the U.S.*; Vancouver B.C. data is from the Port of Vancouver website):

Vancouver, B.C.	84.4 million
Puget Sound, WA	
Seattle	24.1 million
Tacoma	22.3 million
Anacortes	18.0 million
Columbia River	
Portland, OR	34.3 million
Portland, excluding internal barge activity	25.1 million
Vancouver, WA	7.7 million
Kalama, WA	5.8 million
Longview, WA	4.1 million
Bay Area, CA	
Richmond	19.5 million
Oakland	12.2 million
San Francisco	3.6 million
Southern California	
Long Beach	70.2 million
Los Angeles	48.2 million
San Diego	3.7 million

The cargo and vessel mix of each of these ports varies widely. By tonnage, grain is the primary marine cargo line in Portland, containers in Seattle and Tacoma, petroleum at Anacortes, and coal in Vancouver BC. Of the 34.3 million tons of waterborne cargo handled at Portland Harbor in 2000, 18.0 million tons (52 percent) was international cargo, 7.1 million tons (21 percent) was coastwise cargo (primarily petroleum from Puget Sound refineries), and 9.3 million tons (27 percent) was internal cargo carried by barge (see Table 14).



Portland terminals handled about two thirds of the total marine cargo tonnage of the Columbia River seaports in 2000.

The primary deepwater ports on the Columbia River are Portland, Vancouver, Kalama, and Longview. Each abuts the deepwater (40 foot) channel, the Union Pacific and the Burlington Northern Santa Fe main lines, and I-5. Astoria is also a deepwater port, but handled less than one percent of the Columbia River marine cargo tonnage in 2000 (see Table 21) and does not abut I-5 or the UP or BNSF railroads. A comparison of total marine cargo tonnage (short tons) handled at the Columbia River deepwater ports in 2000 is as follows (U.S. Army Corps of Engineers, *Waterborne Commerce of the U.S.*):

Portland	34.3 million	66%
Vancouver, WA	7.7 million	15%
Longview, WA	4.1 million	8%
Kalama, WA	5.8 million	11%
Total	51.9 million	100%



Portland Harbor currently competes with the other Columbia River seaports primarily for dry bulk and breakbulk cargo. Virtually all of the Columbia River container and petroleum cargo and 86 percent of the automobile cargo were handled in Portland in 2000.

Most of the cargo handled at each of the Columbia River seaports is for export. The primary marine exports (by weight) are wheat, soda ash, and potash in Portland; wheat in Vancouver, wheat and corn in Kalama, and logs in Longview. As shown in Table 21, Portland handled about 49 percent of the Columbia River dry bulk tonnage in 2000, up from 41 percent in 1995 following construction of the Portland Bulk Terminal at T-5 (Port of Portland Terminal 5). Grain terminals operating include three in Portland (Columbia Grain at T-5 and Cargill and Louis Dreyfus in Lower Albina), two in Kalama (United Harvest and Kalama Export), and one in Vancouver (United Harvest).

Portland's share of Columbia River breakbulk cargo has fallen from 47 percent in 1985 to 33 percent in 2000, as the cargo mix and location have shifted (BST and DRI-WEFA, 2002). Columbia River imports of breakbulk steel have increased from 276,100 metric tons in 1990 to 1.2 million in 2000, at which time 52 percent was handled in Portland, 18 percent in Vancouver, 25 percent in Kalama, and 5 percent in Longview. Breakbulk lumber exports and coastwise shipments from the Columbia River plummeted from 350,500 metric tons in 1990 to 31,800 in 2000, and 74 percent of the 1980 tonnage was shipped from Portland. Reductions in breakbulk lumber exports are attributed to declines in regional production, shift to domestic markets, and conversion from breakbulk to container shipping. Columbia River exports of breakbulk newsprint, nearly all from the NORPAC mill in Longview, have grown from 247,200 metric tons in 1990 to 367,000 in 2000. As Columbia River log exports have dropped from 1.7 million tons in 1982 to 0.7 million in 2000, the share of log tonnage in Longview and Kalama has increased from 68 percent in 1982 to 92 percent in 2000.

Available Land for River-Dependent Industry

Table 22 presents a selective summary of available vacant and planned river industrial sites at Portland, Vancouver, Kalama, and Longview harbors. Specifically, the table includes sites that are at least ten acres in size, have deepwater shipping channel access, and are owned by the Ports of Portland, Vancouver, Kalama, or Longview. The 10-acre and port-ownership criteria are intended to be indicators of suitability for marine cargo and marine industrial use. These criteria result in an incomplete summary of vacant land. For example, the 146 acres of available sites in Portland shown in Table 22 is less than half of the 310 acres of vacant riverfront land in the study area shown in Table 5. Other sites shown in Table 4 generally have constraints to current availability, including vacant portions of private sites held for future expansion, Superfund project sites, and land with employment (not industrial) zoning. For reference, the 1,100-acre Columbia Gateway site planned by the Port of Vancouver and 750-acre West Hayden Island site

planned by the Port of Portland are also listed. The Vancouver, Kalama, and Longview information is from their perspective port's websites. The Bureau of Planning estimated the Portland information from ownership maps.

Table 22. Available and Planned Industrial Sites at Lower Columbia River Seaports, September 2002

A summary of available and planned industrial sites that are owned by the Ports of Portland, Vancouver, Kalama, or Longview; are ten acres or larger; and have deepwater channel access.

10+ Acre Industrial Sites with Deepwater Channel Access	Acreage		Heavy Industrial Zoning	BNSF or UP Rail Access	Current Availability for Sale or Lease
	Total	100+ acre sites			
Portland					
T-6 site abutting Hyundai	22	0	yes	yes	yes*
T-6 site abutting Honda	15	0	yes	yes	yes*
T-5 site abutting Portland Bulk Terminal	63	0	yes	yes	yes*
15540 Lombard at T-5, former Alcatel	16	0	yes	yes	yes
Channel Ave. site abutting shipyard	30	0	yes	yes	yes
West Hayden Island	<750	<750	no	planned	planned
Vancouver					
Parcel 1-A	55	0	yes	yes	yes
Parcel 1-C	<12	0	yes	yes	yes
Parcel 1-D	10	0	yes	yes	yes
Columbia Gateway	<1,100	<1,100	yes	planned	planned
Kalama					
North Port Marine Terminal	125	125		yes	yes
South Port Industrial Park	23	0		yes	yes
Kalama River Industrial Park, 9 lots	75	0		yes	yes
Longview					
Port of Longview East Park	120	120	yes	yes	yes
Port of Longview West Park	180	180	yes	yes	yes

* Sites are vacant portions of Port of Portland terminals and available only for marine cargo uses consistent with terminal configuration and objectives.

Source: Vancouver, Kalama, and Longview information from their respective port authority websites, September 2002. Portland info estimated by Bureau of Planning.

⇒ The Ports of Portland, Vancouver, Kalama, and Longview each have river-access industrial sites of ten acres or larger available. Of these, the only 100+ acre sites currently available are one in Kalama and two in Longview.

The Port of Portland's *West Hayden Island Development Program Final Report* (Century West Engineering, 1997) cites land area needs for new marine terminals to reflect current and projected technology. For example, the report recommends 115-125 acre sites for grain and dry

bulk terminals, to accommodate a rail loop, and 50-100 acre sites for auto and container terminals, to provide adequate yard storage area. Land requirements for river-dependent manufacturing, warehouse, and industrial service facilities are more varied. There are many existing river-dependent industrial sites on Portland Harbor in the 5-50 acre range. The only vacant site with more than 100 acres along Portland Harbor is West Hayden Island, and only three sites have more than 50 acres—at T-5 and the former McCormick & Baxter and Atofina sites. The 63-acre vacant portion of T-5 is primarily within the Portland Bulk Terminal rail loop and its use is probably limited to that facility’s expansion or a compatible mineral bulk terminal. The approximately 50-acre McCormick & Baxter site and 60-acre Atofina site are part of the harbor Superfund project. As such, they are not currently available for reuse and have significant cleanup liability constraints. The McCormick & Baxter site also has marginal truck access over residential streets and requires major access improvements. The Port of Portland’s *Marine Terminals Master Plan* process underway has also proposed alternatives for accommodation of new grain, dry bulk, auto, and container facilities through redevelopment, consolidation, or relocation of facilities within the existing terminal sites.

⇒ The Ports of Portland and Vancouver also own large undeveloped sites planned for future industrial use—West Hayden Island and Columbia Gateway.

In 1960, the Port of Portland purchased 2,700 acres in the Rivergate Industrial District for industrial development. Most of that land is now in industrial use. In 2000, only 381 acres of Rivergate land was still vacant in the study area, which includes most of Rivergate. In a comparable strategy, the Port of Portland purchased approximately 734 acres on West Hayden Island, which is being held in reserve for future marine terminal development when the market warrants. The *West Hayden Island Development Program Final Report* (Century West Engineering, 1997) proposes a flexible 556-acre development area for grain, mineral bulk, and container facilities and a 269-acre open space area for wetland and shallow water habitat.

The Port of Vancouver has recently prepared a draft environmental impact statement for a subarea plan to develop Columbia Gateway. The alternatives propose 504-720 acres of industrial development on the 1,094-acre site, including 152-504 acres of water-dependent industry and 242-326 acres of mitigation open space. Both the West Hayden Island and Columbia Gateway are in the 100-year floodplain and their development would require extensive fill to a suitable elevation on developed portions of the site.

C. REGIONAL ECONOMIC ROLE OF HARBOR AREA

Role of the Harbor Area’s Traded Sectors

A region’s economic growth or contraction in the long run tends to be tied to the performance of its “traded sectors.” Traded sectors are those that compete across regions in national and international markets. Michael Porter (2000; 2002) has broadly applied the concept of clustering as an explanation of regional economic structure. He has found that traded sectors tend to concentrate in a small number of locations, where agglomeration economies provide a competitive advantage in national and international markets. These industries tend to be the engines of regional economic competitiveness and generate high wage jobs through productivity growth. In the *Regional Connections Project* (1999), the Institute of Portland Metropolitan

Studies similarly explains Portland's recent growth as largely the result of expansion in a few traded clusters (identified by higher location quotients, number of employees, and growth rates).



Most of the Portland area's traded clusters with the highest levels of employment are the types of land uses that locate in industrial districts. Some of these clusters are concentrated in the harbor area.

Traded clusters with the highest employment in the Portland-Vancouver PMSA in 1999 were as follows, in descending order (Porter, 2002). Those concentrated in the harbor area (having location quotients above 3 in the harbor area relative to the PMSA) are shown in bold text:

- Business services
- Information technology
- Education and knowledge creation
- Distribution services**
- Financial services
- Transportation and logistics**
- Heavy construction services
- Tourism and hospitality
- Metal manufacturing**
- Analytical instruments
- Processed food**
- Motor vehicles**
- Medical devices
- Publishing and printing
- Forest products

Regional Multiplier Effects of Harbor Area Jobs

Table 23 shows the multiplier effects of harbor area jobs in 2000 on employment and income in the Portland-Vancouver PMSA. The output associated with each job in the harbor area indirectly generates additional jobs and resulting earnings in the region, called multiplier effects. The employment multipliers used in the table account for the sum of (1) the "direct" employment at business establishments in the harbor area; (2) the "induced" employment resulting from purchases by harbor area employees of goods and services in the region; and (3) the "indirect" employment resulting from purchases of intermediate inputs by harbor area firms from other firms in the region. Industries that pay higher wages and salaries and that purchase more intermediate inputs in the region for a given level of output have higher multipliers. The U.S. Bureau of Economic Analysis calculated the multipliers used in the table through the Regional Input-Output Modeling System (RIMSII) applied to the Portland-Vancouver PMSA.

Table 23. Multiplier Effects of Employment and Earnings in Study Area, 2000

<i>SIC</i>	<i>Industry</i>	<i>Covered Employment in Study Area (Column A)</i>	<i>PMSA Employment Multiplier* (B)</i>	<i>Total PMSA Employment Impact of Study Area Employment (A x B)</i>	<i>County Average Annual Pay per Worker (C)</i>	<i>PMSA Earnings Multiplier** (D)</i>	<i>Total PMSA Earnings Impact of Study Area Employment in \$ millions (A x C x D)</i>
15-17	Construction	2,081	2.4414	5,081	\$46,355	2.1958	\$211.8
20-39	Manufacturing	19,391		65,285	\$43,745		\$2,287.4
20	Food & kindred products	1,241	3.2133	3,988	\$36,320	2.9999	\$135.2
22-23	Apparel & textile products***	68	1.9860	135	\$27,979	2.0971	\$4.0
24-25	Wood products, furniture & fixtures	429	3.6948	1,585	\$44,104	3.0511	\$57.7
26	Paper & allied products	318	4.4759	1,423	\$49,279	2.9804	\$46.7
27	Printing & publishing	1,111	2.1568	2,396	\$42,480	2.0809	\$98.2
28-29	Chemicals & petroleum products	699	3.9370	2,752	\$47,424	2.3255	\$77.1
30-31	Rubber, plastic & leather products	103	2.2301	230	\$31,699	2.1731	\$7.1
32	Stone, clay, glass, & concrete	309	2.4360	753	\$39,019	2.2616	\$27.3
33	Primary metal industries	3,016	3.2387	9,768	\$48,014	2.3334	\$337.9
34	Fabricated metal products	930	2.4712	2,298	\$35,503	2.2937	\$75.7
35	Industrial machinery & equipment	829	3.0254	2,508	\$47,163	2.4035	\$94.0
36	Electronic & electric equipment	2,094	3.0432	6,372	\$48,313	2.1528	\$217.8
37	Transportation equipment***	7,811	3.8655	30,193	\$51,232	2.6981	\$1,079.7
39	Misc. manufacturing industries	433	2.0400	883	\$28,355	2.3635	\$29.0
41-47	Transportation	6,460	2.3748	15,341	\$36,453	2.1025	\$495.1
48-49	Communication & utilities***	71	4.4967	319	\$81,345	2.4480	\$14.1
50-51	Wholesale trade	6,269	2.1945	13,757	\$43,884	1.8232	\$501.6
52-59	Retail trade	1,481	1.5391	2,279	\$20,869	1.7649	\$54.5
60-69	Finance, insurance & real estate	865		2,159	\$47,093		\$98.5
	Finance	420	2.2322	938	\$56,660	2.0622	\$49.1
63-64	Insurance	353	2.8445	1,004	\$45,891	2.4168	\$39.2
65	Real estate	92	2.3669	218	\$31,128	3.5982	\$10.3
70-89	Services	2,559		4,665	\$33,500		\$127.6
70, 72	Hotels & personal services***	247	1.5358	379	\$19,593	1.8817	\$9.1
73, 87	Business services	1,298	1.8768	2,436	\$33,502	1.7325	\$75.3
80	Health services	494	1.8966	937	\$24,870	1.6625	\$20.4
	Other services	520	1.7546	912	\$21,422	2.0425	\$22.8
99	Nonclassified employment	15			\$38,615		
	<i>All industrial sectors in study area</i>	34,272		99,783			\$3,510
	<i>All private industries in study area</i>	39,192		108,887			\$3,791
	<i>All private industries in Multnomah County</i>	389,826			\$36,486		\$14,223
	<i>All private industries in Ptd.-Vanc. PMSA</i>	842,561					\$31,279

* Total change in the number of jobs in the six-county PMSA in all private industries that results from a change of one job in the industry corresponding to the entry.

** Total change in the earnings of households in the six-county PMSA employed by all private industries that Results from a change of one job in the industry corresponding to the entry.

*** Industries or industry segments are aggregated to avoid the need to suppress employment data. The Corresponding employment and earnings multipliers are estimated as the average of the multipliers of each Aggregated industry or industry segment.

Sources: Bureau of Planning calculations from Oregon Employment Department data and U.S. Bureau of Labor Statistics RIMSII multipliers for the Portland-Vancouver PMSA.

The multipliers are based on the 1992 benchmark input-output accounts for the U.S. economy and 1997 regional location quotients.



Overall, the industrial firms operating in the harbor area generated approximately one out of eight jobs in the Portland-Vancouver region in 2000, taking into account the multiplier effects of regional purchases by harbor area firms and employees.

This regional employment impact accounts for direct, induced, and indirect employment effects. In 2000, the output of industrial firms that employed 34,300 workers in the harbor area generated 99,800 jobs in the Portland-Vancouver PMSA. In comparison, Multnomah County had 390,000 private sector jobs in 2000, and the Portland-Vancouver PMSA had 843,000. The regional employment impact of the transportation equipment manufacturing firms in the harbor area was 30,200 jobs; the primary metals manufacturing firms, 9,800 jobs; the transportation and wholesale firms, 29,100 jobs.



The industrial firms in the harbor area generated \$3.5 billion of employee earnings in the Portland Vancouver region in 2000, which is 11 percent of the total regional payroll of private firms.

Industrial sectors continue to pay employee earnings that are significantly above the average of all sectors in Multnomah County. In 2000, the ratio of average annual employee earnings in the industrial sectors to the county average of all sectors was as follows:

	Employee earnings ratio
Construction	127%
Manufacturing	120%
Transportation	100%
Communication & utilities	223%
Wholesale	120%

While the employee earnings ratio for the transportation sector is the same as the county average of all sectors, the ratio for the water transportation industry specifically is 143 percent.

Employment and Income Benefits of Maritime Activity



Maritime activity at Portland Harbor generated 21,364 jobs and \$970 million of resulting employee earnings in 2000.

Martin Associates (2001) calculated these economic impacts. The estimated 21,364 jobs that depend on maritime activity include 7,189 direct jobs involved in the harbor's maritime operations, 4,222 induced jobs from local purchases made by those directly employed as a result of port activity, and 9,953 indirect jobs from local purchases by firms directly dependent on port

activity. In addition to these jobs that are dependent on maritime activity, there are another 52,233 “influenced” jobs with Oregon manufacturers and agricultural producers that export or import cargo through Portland Harbor, primarily through the container terminal at T-6. These impacts were estimated for the year 2000. Employment impacts have likely reduced since 2000 as cargo tonnage has declined (e.g., grain, containers, alumina, and salt).

The direct employment includes 2,870 jobs in the maritime services sector; 1,793 trucking and railroad jobs involved in moving cargo to and from port terminals; 2,340 jobs at port-dependent manufacturers (shippers) located on or near the harbor; 166 jobs in the Port of Portland marine and dredge operations; and 50 jobs in banking, insurance, and legal services related to port transactions. Of this direct employment, an estimated 1,234 jobs were attributable to container cargo, 759 jobs to petroleum cargo, 740 jobs to breakbulk, 700 jobs to alumina, 686 jobs to sand and gravel, 659 jobs to grain, 583 jobs to autos, and the rest to various other commodities in smaller amounts. Virtually all of the direct employment occurred in Oregon or Washington, and 81 percent in the Portland-Vancouver PMSA.

Regional Transportation Costs and Access



Shippers in the Pacific Northwest saved \$67.9 million per year in transportation costs as a result of Portland’s container terminal at T-6.

HDR Engineering (2000) calculated these transportation cost savings, representing the difference between existing transportation costs and hypothetical costs in the absence of Portland’s container service. Approximately \$17.9 million of the estimated savings accrued to shippers of grain, seed, fruit, and hay; \$11.2 million to wood products shippers; \$8.4 million to paper and paperboard shippers; \$6.1 million to vegetables shippers; \$5.0 million to wood pulp and waste paper shippers; and the rest to shippers of other commodities. An estimated 79 percent of the savings was for export cargo and 21 percent for imports. Portland’s container market area, where exporters and importers benefit from these cost savings, includes Oregon and parts of Washington, Idaho, and Montana.

About two thirds of the savings resulted from cargo shipped through T-6, and one third resulted from competitively lowered rates by ocean carriers for regional commodities handled at other container ports. In other words, to compete for cargo originating in Portland’s container market area, ocean carriers calling on Seattle, Tacoma, and Oakland container facilities essentially absorb the rail or truck drayage costs from Portland to these other ports.

Port of Portland staff have estimated that shipper savings has likely declined to between \$54 million and \$58 million since 2000, due to reduced inland transportation rates.

Regional exporters and consumers also accrue transportation cost savings from access to Portland’s bulk, breakbulk and auto terminals, as well as its rail, barge, truck, and air freight facilities. Savings result from modal options within a distribution hub, which enable shippers to manage their supply chain transactions to increase productivity. Modal options also increase transportation system reliability, providing a relative cushion against shocks. For example, after

the explosion of the Olympic pipeline, which supplied most of Oregon's gasoline and diesel, Portland Harbor's petroleum tanker volume more than tripled between 1998 and 1999 to meet the demand. As the global marketplace continues to become more integrated, using the distribution sector as a tool to increase productivity, exporters and consumers will be primary beneficiaries of those changes.

BIBLIOGRAPHY

- Bureau of Economic Analysis, U.S. Department of Commerce. 1999. *Regional Input-Output Multipliers for the Portland Vancouver PMSA*. Washington, D.C.: U.S. Government Printing Office.
- Bureau of Planning, City of Portland, Oregon. 1991. *Portland Zoning Code*. Portland, Oregon.
- Bureau of Planning, City of Portland, Oregon. 2001a. *McCormick & Baxter Reuse Assessment*. Portland, Oregon.
- Bureau of Planning, City of Portland, Oregon. 2001b. *Guild's Lake Industrial Sanctuary Plan*. Portland, Oregon.
- Century West Engineering, et al., prepared for Port of Portland. 1997. *West Hayden Island Development Program: Final Report*. Portland, Oregon.
- CH2MHill, BRW, VZM, Intergraph Corporation, Gene Leverton, and Jeanne Lawson & Associates. 1997. *Oregon's Intermodal Management System*. Portland, Oregon.
- Columbia River Economic Development Council. 2000. "Report to Clark County on Current Industrial Land Inventory." Vancouver, Washington.
- Custred, M. 1998. "Alternative Analysis of Terminal Facilities in the Portland Harbor," Master's Field Paper. Portland State University: Portland, Oregon.
- DRI-WEFA and BST Associates. 2002. *Lower Columbia River Marine Cargo Forecast*. Portland, Oregon.
- HDR Engineering, Inc., and John Martin & Associates. 2000. *Port of Portland Marine Economic Impact Study: Container Transportation Cost-Benefit Analysis*. Portland, Oregon.
- Holmes, J. 1986. The Organizational and Locational Structure of Production Subcontracting. In *Production, Work, Territory*, eds. Scott, A., and M. Storper. Boston: Allen & Unwin, 80-106.
- ICF Kaiser, Columbus Group, Reebie Associates, WEFA Group, and Port of Portland. 1999. *Commodity Flow Analysis for the Portland Metropolitan Area*. Portland, Oregon.
- Institute of Portland Metropolitan Studies, Portland State University. 1999. "Progress of a Region: The Metropolitan Portland Economy in the 1990s," Regional Connections Project Technical Report. Portland, Oregon.
- Markusen, A., Y.-S. Lee, and S. DiGiovanna. 1999. *Second Tier Cities: Rapid Growth Beyond the Metropolis*. Minneapolis, Minnesota: University of Minnesota Press.

- Martin Associates. 2001. *The Local and Regional Economic Impacts of the Portland Harbor*. Lancaster, Pennsylvania.
- Merchants Exchange, Columbia Snake River Marketing Group. 2001. *The Great Waterway: The Guide to Marine Facilities and Industrial Properties on the Columbia Snake River System*. Vancouver, Washington.
- Metro. 2000. *2000 Regional Transportation Plan*. Portland, Oregon.
- Metro. 2002a. "Economic Report to the Metro Council: Draft 2000-2030 Regional Forecast." Portland, Oregon.
- Metro. 2002b. "2002-2022 Urban Growth Report: An Employment Land Need Analysis." Portland, Oregon.
- Office of Economic Analysis, Department of Administrative Services, State of Oregon. 2001. "Economic and Revenue Forecast, September 2001." Salem, Oregon.
- Oregon Employment Department. 2002. "Covered Employment and Payroll." Salem, Oregon.
- Otak, Inc., Hammer Siler George Associates, and Golder Associates. 1999. *Regional Industrial Lands Study for the Portland-Vancouver Metropolitan Area*. Portland, Oregon.
- Otak, Inc., ECONorthwest, Parametrix. 2001. *Phase 3: Regional Industrial Lands Study for the Portland-Vancouver Metropolitan Area*. Portland, Oregon.
- Piore, M., and C. Sabel. 1984. *The Second Industrial Divide*. New York: Basic Books.
- Planting, M., and P. Kuhbach. 2001. "Annual Input-Output Accounts of the U.S. Economy, 1998." *Survey of Current Business*, December: 41-70. Washington, D.C.: U.S. Government Printing Office.
- Port of Portland. 1991. *Marine Terminals Master Plan: 1991 Update*. Portland, Oregon.
- Port of Portland. 1998. *1997 Portland Harbor Land Use Inventory*. Portland, Oregon.
- Port of Portland. 2000. *2000 Traffic Monitoring Program*. Portland, Oregon.
- Porter, M. 2000. "Location, Competition, and Economic Development: Clusters in a Global Economy." *Economic Development Quarterly* 14, no. 1: 15-34.
- Porter, M. 2002. "Oregon: Profile of the State Economy." Institute for Strategy and Competitiveness, Harvard Business School: Cambridge, Massachusetts.
- Portland Development Commission. 2002. *Draft Economic Development Strategy for the City of Portland*. "Location Factors by Sector" and other appendices. Portland, Oregon.

- Portland/Vancouver I-5 Transportation and Trade Partnership. 2002. *Final Strategic Plan*. Portland, Oregon.
- Slyman, P. 1996. "Oregon's Oil: A Geographic View of Petroleum Distribution and Associated Risks," Master's Thesis. Portland State University: Portland, Oregon.
- Storper, M. 1997. *The Regional World: Territorial Development in a Global Economy*. New York: Guilford.
- Storper, M., and R. Walker. 1989. *The Capitalist Imperative: Territory, Technology, and Industrial Growth*. Oxford, UK: Basil Blackwell.
- U.S. Army Corps of Engineers. 2001. *Waterborne Commerce of the U.S.* Washington, D.C.: U.S. Government Printing Office.

PORTLAND HARBOR



INDUSTRIAL LANDS STUDY



Part Two: Interviews and Analysis

February 2003

Prepared by:

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Economic and Development Services



City of Portland
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Portland Harbor Industrial Lands Study Part Two: Interviews and Analysis

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EXECUTIVE SUMMARY

The Portland Harbor Industrial Lands Study (PHILS) assesses the future land needs of industries in the Portland Harbor area, focusing on river-dependent, freight-related, and other concentrated industries in this area. The study has been prepared for the City of Portland Bureau of Planning, Portland Development Commission, and Port of Portland.

This Part Two study draws from a series of 80 in-depth personal interviews conducted with harbor area industry leaders, two focus groups and additional input-output economic analysis. The results are intended to supplement Part One employment and land use analysis conducted by the Bureau of Planning.

What follows is a summary of major observations focused primarily on this Part Two PHILS assessment.

PART ONE PHILS SUMMARY

The Bureau of Planning's Part One report reviews employment and land use trends over the last 20 years from within the Portland metropolitan area. A summary of results and implications from the Part One study pertinent to the Part Two analysis follows:

- Approximately 940 private sector businesses are located within the Portland Harbor area, employing nearly 39,200 workers or one in eleven jobs in Multnomah County. Half of the study area's workers are employed by manufacturers, with another one-third in distribution (transportation and wholesale sectors).
- Portland's share of the nation's manufacturing base is increasing even as manufacturing represents a smaller component of the nation's total employment base. Much of the region's heavy manufacturing base and its core transportation infrastructure is centered on the harbor industrial area. Nearly 65% of the harbor study area's future employment growth has been forecast to occur within the Rivergate area.
- U.S. maritime employment is declining as marine terminal operations have become less labor intensive and offshore competition has grown. However, Portland's harbor area is the center of the region's and state's competitive maritime industry – with competitive niches as a major west coast center for auto imports, grain and dry bulk exports and specialty container activity.
- Industrial sites within the Portland Harbor area vary widely in size. The *median* property size is 2.2 acres. However, the large industrial sites within the study area bring *average* site size up to 8 acres. Average employment density is 8.1 jobs per acre with manufacturing having the highest employment density at 12.4 workers per acre.
- The Portland Harbor area comprises over 5,532 acres of industrial land (excluding rights-of-way) – or nearly one-third of the City's industrial land base. As of July 2000, 543 acres (or 10%) were vacant Tier A/B lands. (Metro classifies undeveloped, unconstrained land over 1 acre Tier A; Tier B is comprised of undeveloped land with some constraints – including land banked sites – over 2 acres). Only 33 acres are free of constraints (Tier A). Over one-half of the vacant land is located in Rivergate.

In short, Portland's harbor is Oregon's freight transportation hub, connecting the seaport with regional barge routes, interstate highways, and transcontinental railroads. It is also in close proximity to Portland International Airport. There is no similar place in Oregon with this confluence of significant intermodal transportation facilities – nor is there any expectation that a similar transportation hub will be developed elsewhere in the state for the foreseeable future.

The Part One Bureau of Planning research raised two central questions for Portland's harbor industrial area. Simply stated, those questions are: Will Portland's harbor area continue as the focus for the region's maritime and heavy manufacturing activities? Or, is the harbor area transitioning to a different and as yet undefined future? Part Two industry interviews are intended to provide an initial framework within which these questions can be addressed.

PART TWO INDUSTRY INTERVIEWS

The consultant team interviewed a selected target group of 80 business leaders within the Portland harbor industrial study area. Information obtained from the interviews provides both factual information and opinions into the public policy and economic issues affecting area industries:

- Industries in the Portland Harbor area can be divided into two distinct groups: a) *river-dependent* uses encompassing aggregate firms, marine terminals, and supporting marine services, and b) other non-marine or *non-river dependent* firms including manufacturing, wholesale/distribution and land-holding activities.

The *manufacturing grouping* is represented by seven industry clusters that comprise chemicals, electronics, food-related, metals, printing/publishing, transportation manufacturing, and specialty manufacturing industries. *Wholesale/distribution* includes distribution centers, distribution service providers, recycling, and wholesalers.

- The firms interviewed employ almost 13,000 full and part-time workers. The manufacturing sector employs the largest number (70%) of workers. River-dependent employers provide another 16% of the jobs, followed by wholesale distribution at 14%. The more than 12,500 full-time employees for the firms interviewed represent 32% of the 39,200 jobs in Portland's harbor industrial area.

In addition to the firm interviews, two focus group discussions were conducted during September 2002. The groups were convened to: (a) present and discuss results of what was learned from the industry interviews and associated analysis; and (b) identify potential policy implications for Willamette River planning initiatives.

Results of both the interview and focus group research have been organized around four major questions – which also serve as a basis for discussion of potentially important policy questions and options. Responses to these questions – as stated by interview and focus group participants – are summarized as follows:

1. What are the Major Trends & Issues Affecting Prospects for Portland's Harbor Area Industries?

- Business activity is expected to be stable through the recession but limited job growth is anticipated with economic recovery.
- Even with expansion, existing medium-larger firms anticipate minimal need for added industrial land.
- Remaining cost competitive emerges as the #1 issue for harbor area firms – extending beyond the current economic downturn. This is in part due to the growing perception of Portland as a high cost place to do business.
- Many long time manufacturers will reinvent their business model and operations over the next 10-20 years – to remain competitive domestically and globally.
- Local issues affecting business investment are noted as including:
 - ✓ Superfund uncertainty & competitive multi-modal transport – for *riverfront* owners.
 - ✓ Regional congestion (freight/employee), non-industrial encroachment, permitting, public policy & community support – for *riverfront and upland* firms.

2. Will the Mix of Harbor Industries Change?

Both current conditions and the outlook vary depending on the industry grouping considered:

- *River-Dependent* – need multi modal access including 20+ foot depth for barges, 30-40+ foot for deep draft vessels. These firms serve as suppliers and transporters to the entire metro area and state. Little near-term expansion is anticipated except for auto imports.
- *Wholesale Distribution* – separated between (a) serving Central City and metro area from a central location and (b) markets beyond the metro area. Firms that serve the local market likely will continue to value a harbor area location; demand for firms serving a regional or national market is more uncertain depending on comparative costs of business and intermodal transport accessibility.
- *Manufacturing:*
 - ✓ Chemicals & electronics – tend to be suppliers to the region's industrial base; a central harbor-area location with in-place capital investment remains important.
 - ✓ Printing/publishing – have and will continue to value Central City proximity and interaction though the industry is rapidly becoming more global.
 - ✓ Metals & transportation – significant inter-industry linkages are led by Freightliner, Esco, Oregon Steel, and Gunderson, firms that are also associated with growth prospects for a wide array of additional support businesses.

Mid/large manufacturer land needs are expected to be relatively modest; growth needs are linked to the desire or capacity to accommodate smaller firms. Growth will occur within existing operations before plant expansion is considered.

- *Other Sectors Potentially Suited to Harbor Area* – sectors with a potential (but not current) harbor presence include:
 - ✓ **High tech/bio tech**
 - ✓ **Wood/plastics/fiber materials**
 - ✓ **Creative services/information technology**
 - ✓ **Corporate headquarters & business parks**

3. What are the Needs & Issues Facing River-Dependent Industries & Sites?

- From existing operations, greatest demand (for 100+ acres) is indicated by marine terminals (notably auto importers).
- Approximately 9% of 3,130 acres of riverfront property is classified as vacant (and within the top two tiers of the 2000 Buildable Land Inventory) by Metro.
- Only 153 acres of Tier A/B vacant riverfront land are situated north of the St. Johns Bridge.
- A site constraints evaluation has focused on *threshold criteria* of appropriate zoning and minimum depth barge access. Other criteria considered include deep draft shipping, rail/street access, lot depth, environmental contamination, compatible neighbors, wetlands, trail easements, flood plain, and scenic overlay.
- Capital investment for riverfront and related sites may be deferred pending Superfund resolution.
- Harbor area firms express interest in reserving riverfront sites for industrial use – whether marine dependent or not.
- Reserving riverfront land for future generations’ industrial use also is an expressed or implied interest for a number of firms – even if demand for added riverfront activity is not readily foreseeable today.

4. What are the Needs & Issues Facing Upland Industries & Sites?

- There appears to be a general consensus to continue exclusion of residential and large scale commercial from the industrial sanctuary.
- Less agreement is evident on how broadly “industrial” should be construed with potential flexibility for:
 - ✓ Corporate office
 - ✓ Support retail/service
 - ✓ Creative services/information technology
 - ✓ Business park/flex space
- Priority emphasis is desired by firms throughout the harbor area for roadway improvements for freight and employee commutes.
- Some shift from manufacturing to transportation dependent firms is expected, particularly if major manufacturing anchors downsize or terminate Portland operations.
- There is strong interest in improved transit – including service for shift workers.

- Firms desire greater evidence of public support for improved, faster, lower-cost permitting, and managing labor issues including rising workers compensation and health care costs. Public support is seen as the first step in taking action to address these issues.
- Pro-active public decision-maker support also is desired for (a) increased business/policy maker interaction, and (b) policy/investment decisions that make a difference.

HARBOR INDUSTRY ANALYSIS

The second portion of this Part Two analysis employs input-output economic data to investigate and expand upon the insights expressed by interview and focus group participants and recognized in Part One of the PHILS study. This section focuses on identifying the Portland metro economy’s current and prospective *competitive advantage* and the clusters of economic activity for which the harbor is particularly well positioned. Also considered are the land use implications of industry trends and the quality of the harbor area’s industrial land supply.

Competitive Advantage. To identify the industries for which the Portland metro areas offers the greatest competitive advantages – on both a regional and national scale – a series of screening criteria were applied to industry sectors. Five sets of *screening criteria* have been developed:

1. Current and changing *competitive position* – of the industry relative to the nation.
2. *Worker productivity* – and change in productivity.
3. *Value-added* output – measured in terms of value of output per labor hour.
4. *Economic impact* – measured by employment multiplier and/or forecast employment growth.
5. *Wage levels* – including changes over time compared to other industries in the metro area.

Taken together, nearly half of the industrial sectors portray the Portland-Vancouver metro area as being strongly competitive. Industry sectors meeting *four or more* of the criteria noted include:

Construction	Instruments
Lumber & Wood	Trucking & Warehousing
Paper Products	Water Transportation
Stone, Glass & Concrete	Communications
Industrial Machinery	Electric, Gas & Sanitation
Electronic Equipment	Wholesale Trade
Transportation Equipment	

As indicated by the **boldface** type, nine of these thirteen sectors are already well represented within Portland’s harbor industrial area. Maintaining and enhancing the region’s competitive position for these key sectors will be dependent on steps to preserve and enhance the capacity for Portland’s harbor industrial users. The economic vitality of the entire region cannot be easily separated from the prospects of sectors for which the harbor area is particularly well suited.

Summary Economic Impact. Consistent with employment data developed by the Bureau of Planning for Part One, Portland’s harbor industrial area currently has an employment base of 39,190 jobs. Of these, 34,270 (or 87%) are industrial jobs.

The harbor area’s 34,270 industrial jobs *leverage* another 46,890 jobs throughout the metro area – for a total of 81,160 jobs directly and indirectly attributable to harbor area industries.

The full economic impact to the metro area of Portland’s harbor area extends beyond these quantitative estimates. Businesses and residents regionwide are dependent on goods and services that often are uniquely provided by harbor area industries.

District Characteristics. Interviews with study area business leaders reveal a number of intra- and inter-industry relationships within the harbor area, as well as inside and outside the region. In effect, the Portland harbor industrial area currently functions similar to a *hub-and-spoke* district for several key industry groupings and clusters.

Study area activity has been dominated by a few large firms (hubs) such as Freightliner, Gunderson, Wacker, Oregon Steel Mills, ESCO, and Port of Portland. The ten largest harbor area private sector firms employ over 60% of the study area’s workers. Due to extensive inter-firm relationships (spokes), these industry leaders also support a significant portion of the remaining workforce.

However, the harbor area may be in transition. While still dominated by large locally owned firms, the district increasingly appears to be shifting more to a *satellite platform* model, in which branch offices or plants are both supplied by and cater to customers outside of the industrial district. This is exemplified by the comment from a focus group participant – and supported by interviews – that the harbor’s future may be more toward wholesale-distribution and transportation-oriented activities rather than manufacturing.

In the short term, this transition suggests a *hybrid district* comprised both of large locally owned firms as well as regional/branch plants. Yet the ongoing trend of local firms seeking national/international alliances (e.g. Freightliner) creates challenges for locally dominated sectors to remain competitive with a *hub-and-spoke model*. Also noted is the trend for non-local firms using Portland as a regional hub to serve the western states of Oregon, Washington, Idaho, and Montana.

In this report, inter-industry linkages have been *mapped* for the transportation equipment and metals manufacturing industry clusters – which still approximate the *hub-and-spoke* model. In contrast, a third cluster profiled – maritime industry – more closely approximates the model of a *satellite platform* district – with more diverse supplier and customer linkages both locally and globally.

Riverfront Site Constraints. In order to address the long-term viability of utilizing *riverfront* properties for continued maritime use, E.D. Hovee & Company developed a set of criteria for identifying potential site development constraints. *Threshold criteria* are appropriate zoning and minimum depth barge access. *Other criteria* considered include deep draft shipping, rail/street

access, lot depth, site contamination, compatible neighbors, environmental constraints, trail easements, flood plain, and scenic overlay height restrictions.

- Of the approximately 3,130 acres of riverfront property, an estimated 580 acres (19%) have no constraints – all located in Rivergate. The majority (51%) of riverfront properties comprising 1,600 acres have 1-3 constraints that could require some form of mitigation to remain suitable for maritime use.
- An estimated 270 acres (9%) has anywhere from 4-11 constraints. In some cases, the constraints noted may be amenable to remediation for river-dependent uses in a manner that allows private investment to proceed. In other instances, the constraints or cost to convert may exceed what industrial users find feasible in today's market.
- Finally, 670 acres (21% of the total) are deemed as not meeting minimal threshold constraints for suitable industrial zoning and direct barge access. This includes some river-related (but upland properties) that may be suitable for non-marine industrial activity.

Upland Sites. The harbor industrial area has another 2,400 acres of upland property – sites located inland and away from the Willamette and Columbia riverfronts. While a detailed quantitative and mapping assessment of these properties has not been conducted as part of this PHILS study, criteria that could be important to assess site suitability and constraints for industrial use include such factors as appropriate zoning, site size, rail/truck and transit accessibility, site contamination, and compatible neighbors. Undertaking such an assessment will require data not readily available to usefully and objectively assess upland site constraints – for a broader variety of parcels and potential uses than with riverfront sites.

Land Use Sensitivity. As Portland's harbor industrial area adapts to changing market and regulatory challenges, the type and intensity of industrial activity that chooses to locate in this area likely will be affected by three specific factors – availability of useable (ready-to-build) land, development and business occupancy costs, and viable alternative locations inside or outside the region.

Specifically noted is that the availability of Tier A ready-to-build property is currently extremely limited – at only 33 acres. At some riverfront sites, the combination of environmental and infrastructure requirements will be more costly than the resulting value of the land for industrial reuse – meaning that there is little to no incentive from a current or prospective owner to redevelop. Viable alternative locations are extremely limited within the region – particularly for marine terminal and heavy industrial uses – meaning that future relocations or major industry expansions would more likely occur outside the Portland metro area.

The degree to which these factors affect land demand in the harbor area may well differ with the perspective of each user or developer. However, for both existing and prospective riverfront and upland users, these considerations can be expected to challenge the harbor area's long-term viability and competitiveness.

In addition to the sensitivity factors noted above, two other sets of private business planning decisions have been identified – either of which could substantially affect both transportation and land-use planning for the harbor area long-term:

- Growing need of the two main rail carriers serving Portland to establish a several hundred acre *intermodal rail yard* – most likely outside the harbor area and possibly outside the metro area.
- Potential to eventually consolidate up to three existing *grain elevators* (including two near the Rose Quarter) at an alternate location on the lower Columbia – subject to needs for superior/expanded unit train service and ability to make a new facility investment that increases economic returns to the operator(s) long-term.

POLICY QUESTIONS

A series of policy questions to be addressed have been raised by this Part Two study – with *industry driven* perspectives drawn from industry interviews and focus groups.

All Harbor Industries. Many of the cost disadvantages faced by harbor industries – such as distance from major markets – may be beyond the influence of the Portland community to affect. Other factors – related to labor, infrastructure and regulation – may be more amenable to corrective public policy and action, although not without attendant public expense.

For riverfront and some nearby owners, issues most pressing today include uncertainty and potential cost associated with Superfund cleanup and maintenance of competitive multi-modal transportation (marine, rail, highway). For upland as well as waterfront industries, additional issues of concern include regional congestion (for employees and freight), encroachment of incompatible non-industrial uses, high cost and time delay for permitting, and perceived lack of city/regional public policy and community support.

If not addressed, these are issues that individually or collectively could cause harbor industries to relocate and/or disinvest over time. There appear to be two primary suggestions identified by those interviewed to proactively address industry concerns – expressed interest/interaction from the City followed by policies and investments that can make a demonstrable difference for harbor industries.

River-Dependent Industries. Relatively little demand for added industrial land is expected from the existing major industries interviewed – except for auto import facilities. However, if patterns of demand experienced in the past re-emerged (including significant new facilities located from outside the region), existing vacant riverfront sites north of the St. Johns Bridge could be depleted within as little as a 7-year period.

Limited availability of vacant riverfront sites (150 acres north of the St. Johns Bridge) occurs at a time when a greater number of sites on the Willamette River lie underutilized or vacant due to industry contractions or closures. The speed of site reuse likely depends on market recovery (from the current recession), Portland's changing competitive position for non-auto maritime uses, and regulatory conditions – especially cost liability resolution for Superfund sites.

Currently, 670 acres of riverfront land do not meet threshold criteria for river-dependent industrial use. Another 270 acres face multiple constraints. In summary, 30% of the 3,130 acres of riverfront land may be questionable for on-going river-dependent industrial or marine terminal use in the future.

In summary, appropriate public policy questions for riverfront sites are essentially four-fold:

- Determination of which sites are sufficiently constrained to no longer be suitable for river-dependent industrial use – whether now or in the future.
- Determination of whether to reserve suitable but vacant or underutilized riverfront sites for river-dependent industry or non-river-dependent industry for the long-term – even if river-dependent demand is not anticipated on the immediate horizon.
- Consideration of how to best allocate limited remaining riverfront sites (150 acres) north of the St. Johns Bridge – including possible actions to convert Tier B lands to Tier A status.
- Consideration of incentives for conversion of suitable but vacant or underutilized sites back to productive use – generating additional jobs and tax revenues.

Upland Industries. The primary issue distinctive to upland sites relates to maintenance of the existing industrial sanctuary. While continued sanctuary designation appears widely supported, there will continue to be questions surrounding the amount of flexibility that should be encouraged – for related commercial functions, corporate office, creative service/information technology, and business park/flex space applications. Transitional areas at the interface between harbor industrial districts and adjoining commercial or residential neighborhoods also may warrant consideration.

Portland Harbor's Future. Both business leaders and public policy makers will play a vital role in shaping the harbor's economic future. A significant number of the business leaders interviewed indicated they are uncertain about the economic/financial outlook of their companies and industry. These uncertainties stem from forces external and internal to the City of Portland. Local policy makers can directly influence the effect of internal forces by forging partnerships with the private sector to develop mutually beneficial harbor area economic development strategies.

Based on this industry-driven interview and focus group discussion process, a variety of alternative development permutations are viewed as possible. The development alternative that actually emerges will depend on how the Portland Harbor area is positioned to encourage on-going and future economic activity.

A continuation of current industry trends coupled with no significant change in the public policy and regulatory environment could result in limited re-investment or disinvestment in waterfront sites, with resolution of Superfund and related harbor planning and regulatory issues being a major factor. Continuation of the *status quo* also could result in more non-maritime activity and perhaps a shift over time from manufacturing to wholesale-distribution.

Policies and investments made by the public sector likely will affect the character of private investment, whether in transition toward an alternative set of economic activities or to revitalization of existing industries. Futures that diverge from the status quo most often mentioned by interview and focus group participants have involved discussion of industrial revitalization and/or transition:

- Efforts made to strengthen Portland's distinctive maritime niches, reposition harbor area manufacturing, reinvest in multi-modal transportation, maintain the harbor industrial sanctuary, and dramatically streamline current regulatory including greenway requirements could help to facilitate a *revitalization* of the harbor's traditional industries.
- *Transitioning* toward (or incorporating) a different set of industries/activities, while perhaps consistent with recent public policy and national market trends, would represent more of a departure from the status quo for Portland's harbor industrial area.

Concluding Observations. In conclusion, five overall observations are suggested from this preliminary review of public policy questions:

1. The future of Portland's harbor industrial area is less certain today than in even the recent past – due to the confluence of changing global market conditions and public policy.
2. What happens in the harbor area is of profound importance to the economic vitality of Portland and the entire metro area.
3. The future that happens can and will be strongly influenced by local public policy and investment decisions yet to be made.
4. An appropriate starting point for multi-agency public planning is to determine the maritime future of the Willamette River (below the Steel Bridge) and the Columbia River, followed by evaluation of Portland's realistic and desired future for traditional industries including transportation equipment and metals manufacturing.
5. The public policy course selected has the best opportunity for successful realization with active public/private sector collaboration.

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E.D. Hovee & Company

Portland Harbor Industrial Lands Study Part Two

I. INTRODUCTION

As Part Two of the Portland Harbor Industrial Lands Study (PHILS), E.D Hovee & Company together with Parsons Brinckerhoff and The JD White Company, Inc. has conducted an assessment of the changing economic dynamics of the Portland harbor industrial area. This Part Two study has been prepared on behalf of City of Portland Bureau of Planning in partnership with the Portland Development Commission and Port of Portland.

A. BACKGROUND

The history of Portland is inextricably linked to commerce on the Columbia and Willamette Waterways. The City's first industrial activities were oriented to the river, the docks, stevedoring, warehousing, distribution and manufacturing activities.

As with other American waterfront cities, Portland's relationship to its riverfront has changed over the last three decades:

Economic Drivers:

- A primary driver for marine industrial land development has been the continued expansion of foreign trade. Historically, waterborne trade through the Columbia River has increased by about 3% annually. On average, over 200 acres of new industrial land have been needed each decade to keep pace with the volume of trade at the Port of Portland alone, even after redevelopment and joint venture strategies are considered.
- In recent years, interest in the marine industrial activities of the Portland Harbor area have increased markedly with expanded port traffic, a changed economic outlook, shrinking land supplies, neighborhood impact concerns, public interest in waterfront access, and issues associated with environmental quality of the Willamette River.

Marine Industrial Trends:

- Marine terminal and industrial land backup needs associated with maritime shipping have increased – placing more emphasis on larger Willamette River sites closer to the confluence with the Columbia and on Columbia River frontage.
- Some formerly marine dependent properties (e.g. Terminal One, McCormick Baxter) are now vacant and/or lightly used while other local industries (e.g. grain elevators, aggregate operations, shipyard repair) continue to rely on significant levels of Willamette water-borne commerce.
- Local industries today are relying on an increased array of transportation modes in addition to maritime shipping – including rail, truck, air, ecommerce and/or some combination of the above. Less clear have been the linkages between and the shifting reliance on these various modes of freight transport.
- Within the Pacific Northwest, the focus of regional distribution also has shifted in recent years from Portland to the Seattle-Tacoma metro area. This shift has occurred despite tax and location advantages for the Portland region – due to issues related to multi-modal transportation, the structure of related economic base activity, and suitable site availability.

Emerging Issues:

- West coast ports are dominated by a few activity centers. Portland's ability to compete with the major players is limited by the Columbia River channel's 40 foot depth, which severely constrains container shipping – as the container industry transitions to deeper draft vessels.
- The designation of Portland harbor as a Federal Superfund site, the channel deepening project, Port expansion in North Portland, and proposed future Port development of West Hayden Island for marine industrial use have captured the attention of the City, business community, neighborhood and citizen interests.
- Increased scarcity of metro area industrial sites is beginning to place a greater premium on maintenance and recycling of existing properties for continued if not more intense industrial use.
- Pending the outcome of these emerging issues, the future of some harbor-oriented industries has been called into question. Cost and uncertainty associated with issues such as Superfund and brownfield sites make the financial feasibility of continued use for industrial activity more tenuous. There is increasing discussion of re-focusing non-strategic river front sites for other forms of reuse ranging from open space to mixed-use development.

Cooperative Planning:

- The ongoing revitalization of Portland's Central City has brought new interest in reuse and redevelopment of selected waterfront sites for uses not related to maritime industry or transportation – for residential, lodging, retail, office, recreation and mixed-use development.
- The City has initiated the River Plan program to coalesce and focus harbor-related planning efforts into more of a common vision. The City and the Port are cooperating in this effort, with broader business and community representation through the River Economic Advisory Group.

B. PHILS PURPOSE

The Portland Harbor Industrial Lands Study (PHILS) is set within the context of these changing economic drivers, marine industrial trends, and emerging issues. This Part Two research project is intended to assess the future land needs of industries in the Portland Harbor area, focusing on river-dependent, freight-related, and other concentrated industries in this area.

The study has been prepared for the City of Portland Bureau of Planning, Portland Development Commission, and Port of Portland. The purpose of the study is to inform the City of the economic implications of potential revisions to land use policies in the Portland Harbor industrial areas, including a preliminary assessment of which lands should be reserved for river-dependent and river-related industry.

Related Strategic Planning. The study will inform the Portland Development Commission's work on industrial development strategies, supporting the update underway of Portland's

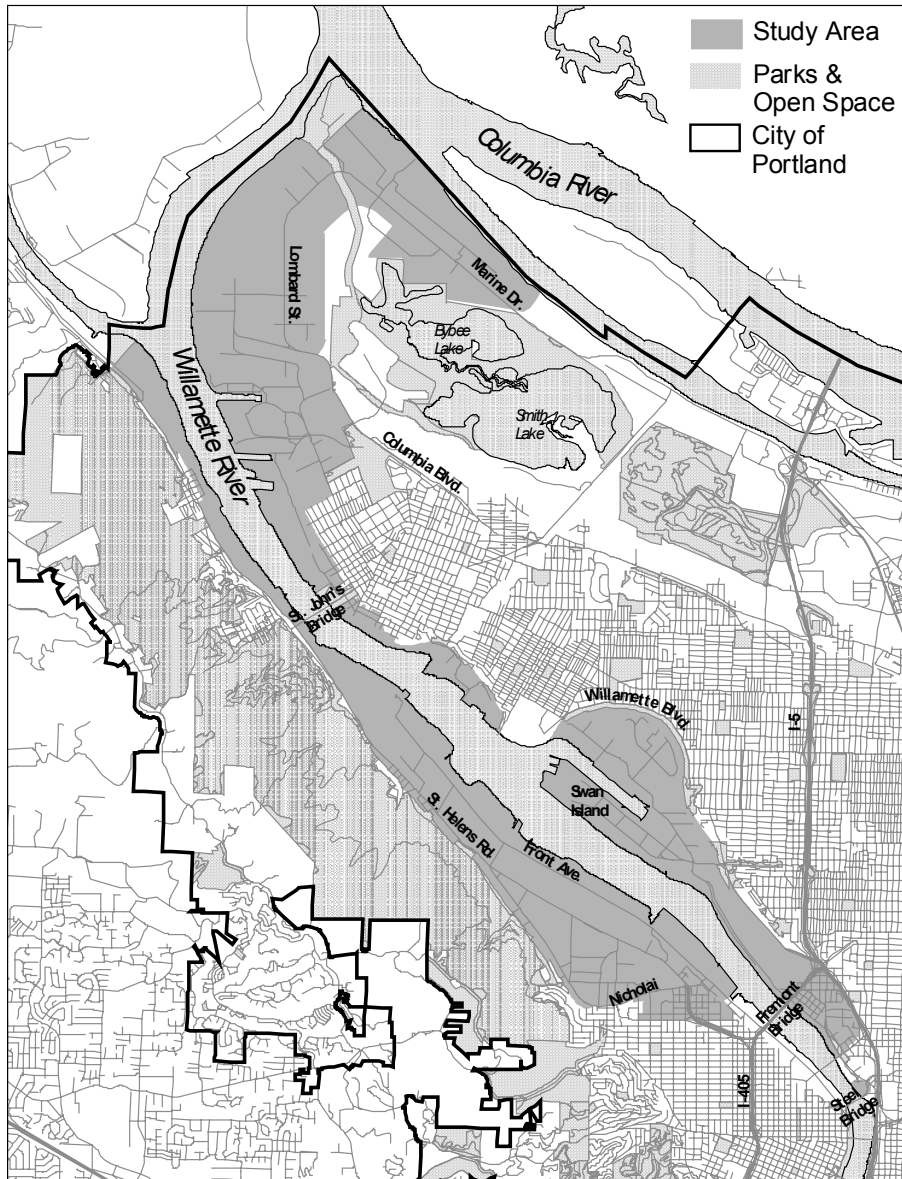
Economic Development Strategy. The PHILS study also will assist the Port of Portland by informing strategic decisions on land use, development, and planning for marine facilities.

A number of other related planning efforts will also benefit from the information collected from this PHILS research. This research is intended to inform the Portland Harbor Superfund Site project, as background research for harbor land use planning. PHILS will shed light on the land use and economic implications of major regional freight infrastructure projects under consideration, including maintenance dredging, channel deepening, and I-5 improvements.

PHILS Phasing. The PHILS study comprises two phases that have been conducted concurrently:

- *Part One*, prepared by Bureau of Planning staff, involves a contextual summary of industry patterns and trends in the study area – based on published information and data.
- *Part Two*, the consultant team’s work, represents an in-depth analysis of why firms and industries are in the study area and what presence they may have in the harbor area of the future.

Study Area. The PHILS study area consists generally of the industrially zoned districts situated along Portland’s Harbor – including the Guild’s Lake, Linnton, Lower Albina, Swan Island, St. Johns, and Rivergate industrial areas.



Source: E.D. Hovee & Company.

This study area encompasses a total of 5,532 acres – including 3,133 acres of riverfront and 2,398 acres of upland property. The principal use of developed property in the study area has been and continues to be industrial – with most of the area designated by the City of Portland as *industrial sanctuary*.

Planning Challenge. The combination of the trends noted places new challenges before business and property owners throughout the Portland Harbor area. Changing industry dynamics and public planning issues pose new challenges and opportunities for policy makers as well.

Pivotal to the discussion at hand has been the question of whether Portland should adapt to current industry trends or plan for the contingencies of a longer 50-100 year time horizon. Also

important is the need to determine sites that should be reserved short- or long-term for maritime commerce versus those that might appropriately transition to other uses.

Approach to Analysis. The E.D. Hovee project team has viewed its consultant responsibility as essentially two-fold:

- In depth, *on-the-ground* assessment of issues and opportunities faced by a cross-section of industry leaders whose decisions will shape or reshape the future of Portland's waterfront.
- *Integrating* results of interviews with city provided Part 1 inventory, characterization and trend analysis.

The aim was to conduct the interview research and analysis thoroughly and in concert with the City's Part 1 analysis. Results are intended to be presented in a manner that is concise, clear and useful for affected industries, policy makers and the broader Portland community.

C. APPROACH TO PART TWO

Key elements of the Part Two PHILS research have involved interviews, focus groups and resulting analysis.

Interviews. This Part Two PHILS research is driven by an intensive interview process. The consultant team has conducted 80 interviews with business leaders from companies located within the Portland harbor industrial area. Questions were organized around eight topics:

- Historical background of firm or organization
- Current harbor-related marine, industrial or other activities
- Current location attributes
- Inter-industry linkages (vendor and customer) both locally and internationally
- Sources of competition in Portland, regionally and globally
- Industry changes and emerging trends (market, technology, transportation, distribution)
- Challenges, opportunities and plans (for the firm or organization)
- Concluding comments and suggestions

Focus Groups. Subsequent to conducting a majority of the business interviews, the consultant team facilitated two more in-depth focus groups: one with interested business leaders and another with the River Economic Advisory Group. The purposes for meeting with the focus groups were to ascertain the degree to which the results of the work completed to date was accurate, to identify issues affecting harbor businesses, and to outline policy considerations for maintaining the study area as an economically viable segment of the Portland economy.

Analysis. This Part Two study concludes by addressing the following:

- **Industry dynamics** – portrayed in two ways: a) using the firm mapping technique identified by the City in 2-3 different illustrative types of firms or organizations; and b)

applying the results of the database to an input-output economic model to assess the economic impacts of harbor industrial lands on the Portland metro area generally, and on key industry sectors (e.g. wholesale trade, manufacturing) more specifically.¹

- **Land use implications** – involving preliminary estimates of expanding versus declining harbor industry sectors – together with associated building space and land acreage requirements. More detailed cross-tabs are used to characterize demand anticipated for riverfront properties by river segment, and for upland properties. Assessments include a description of land and location attributes critical to realization of demand projections.
- **Land use sensitivity** – discussion is focused on factors pivotal to affecting harbor area industrial activity. These factors include net useable acreage, cost of development/business occupancy and availability of viable alternative sites in and outside the Portland metro area.
- **Industrial site quality** – assessed via identification of threshold criteria and other factors that may constrain a site’s suitability for industrial use – distinguishing properties for which on-going use is relatively certain versus sites for which reuse is less certain and focused on sites directly accessible to the Willamette or Columbia Rivers.
- **Policy questions** – characterized in terms of importance for riverfront and upland sites. Rather than framing these policy issues solely in either/or terms, policy implications of 2-3 attainable alternative Portland Harbor industrial scenarios are also considered – covering an approximately 20-year time horizon.

D. ORGANIZATION

The remainder of this study is organized around the following topics:

Part 1 PHILS Summary
Industry Interview Results
Harbor Industry Analysis
Policy Questions

Three appendices are provided with this Part Two PHILS report. *Appendix A* provides a copy of the industry interview questionnaire. *Appendix B* details results of the focus group discussion. *Appendix C* includes a site specific review of the riverfront constraints/use suitability analysis.

II. PART 1 PHILS SUMMARY

The City of Portland Bureau of Planning has conducted Part 1 of the Portland Harbor Industrial Land Study (PHILS). The Part 1 report reviews employment and land use trends over the last 20 years from within the Portland metropolitan area and focuses on an inventory of employment sectors and land uses specifically in the Portland Harbor area.

The Part 1 analysis has been instrumental to both inform and shape this Part Two research and interview report. A summary of results and implications from the Part 1 study is presented in this section.

A. EMPLOYMENT TRENDS

The Bureau of Planning performed a macro level analysis of the employment and land use trends within the region and Multnomah County. That analysis provides insight into the underlying changes occurring within Portland's economic base and where those changes are occurring.

Employment information covers regional trends, Multnomah County maritime employment and employment forecasts.

Regional Trends. The mix of industries and their location in the Portland metropolitan area has changed markedly over the last two decades. Manufacturing employment in the region experienced relatively modest average annual growth of 1.1%. However, the region's share of national manufacturing employment increased from 0.53% to 0.70%, as manufacturing growth has been slower elsewhere in the U.S. In effect, Portland's share of the nation's manufacturing base is increasing even as manufacturing represents a smaller component of the nation's total employment base.

Electronic manufacturing, construction trades, air transportation, and wholesale trade constitute the region's top job growth industries. The electronic manufacturing and construction trade sectors lead all industries with 20,140 and 21,920 added jobs between 1980 and 2000, respectively. Wholesale Trade added 18,520 jobs and air transportation with an additional 9,040 jobs.

The printing and publishing (+4,820), rubber and plastics (+3,100), and transportation equipment (+2,920) industries also added industrial jobs; however, job growth in these sectors has been more than offset by losses within lumber (-2,900), paper (-1,960), apparel and textiles (-920), and instruments (-10,630). Job losses in the apparel and textile sectors coincide with national trends, while lumber, paper, and instruments reflects a declining regional share of national employment – signaling a potential change in the region's national competitiveness for those sectors.

Multnomah County. Multnomah County is the Portland region's primary location of industrial jobs. However, its share of the region's industrial job base has fallen from 59% (1980) to 48% (2000), as it captured only 17% of the region's industrial job growth over the last two decades. Multnomah County's shrinking competitive share is due to:

- Multnomah County (including the City of Portland) being generally more built out than its more suburban neighbors.
- The particular mix of expanding and contracting industries in Multnomah County relative to the region. For example, the fastest-growing industry (electronics manufacturing) is concentrated in Washington County, while more of the slower growing and declining industries are concentrated in Multnomah County.
- Some industries experienced substantial employment cutbacks in Multnomah County, but expanded elsewhere in the region. Examples are durable goods wholesale, communication, industrial machinery, and fabricated metal products.

Maritime Employment. U.S. maritime employment has declined over the last two decades, as U.S. maritime operations have become less labor intensive and offshore competition has grown:

- Between 1980 and 1999, U.S. waterborne cargo tonnage increased by 0.9% per year even as related employment declined by 1.8% per year. In 2000, marine cargo handling employment accounted for 80% of all water transportation employment within the Portland Harbor study area.
- Between 1980 and 1999, the U.S. lost half of its shipbuilding and repair jobs, as less expensive offshore competitors (such as Korea) increased their market presence in U.S. for non-defense related shipbuilding and repair.

Employment Forecasts. According to Metro and Oregon Office of Economic Analysis, industrial job growth in the Portland metropolitan area is predicted to substantially outpace the national average, increasing the region's national competitiveness for industrial jobs. Employment is expected to get back *on track* with its historical growth trajectory as the recession ends, though the recovery in Oregon likely will lag the nation.

Wholesale trade, transportation, and electronics are expected to continue to lead the region in job growth. The region's shifting mix of manufacturing industries is projected to continue. Three out of four new manufacturing jobs are forecast to occur within the electronics sector. However, job reductions within food products, apparel and textiles, lumber, and paper industries are projected to persist over the next 30 years.

Based on the Metro forecast and the current mix of harbor area industries, transportation and wholesale trade could be expected to continue as leading job-growth sectors in the harbor area. Employment in metals and equipment industries will be mixed but potentially stable, with anticipated gains for industrial machinery exceeding modest reductions in transportation equipment and metals.

The harbor area may also capture a portion of the region's growth in other sectors such as electronics, printing and publishing, other durable goods (e.g. furniture and fixtures, concrete products), and other nondurable goods (e.g. rubber and plastics, chemicals, and petroleum products).ⁱⁱ

B. LAND USE TRENDS

Many U.S. cities have lost much of their central city industrial land to other uses as development pressure has led to conversion of industrial land to residential and commercial uses that command higher market land values. To date, this has not occurred extensively within the city of Portland as most of the city's industrial land is protected by the City's industrial sanctuary policy (*Comprehensive Plan Policy 2.14*), limiting the encroachment of non-industrial uses.

Citywide Changes. The city of Portland has 18,800 acres of industrially zoned land, approximately 11% is vacant. Over the last decade, the City has allowed only a limited amount of industrial land (2.5%) to convert to other uses. The majority of these conversions have been focused within four specific areas: a) 181st/Airport Way, b) Lents, c) Central Eastside, and d) River District. These latter two districts are located within Portland's Central City area.

Harbor Area Changes. According to a 1997 Port of Portland Industrial Land Study, approximately 3,730 acres (excluding West Hayden Island) of land is located along the Portland Harbor – 2,790 acres are in industrial use. Approximately 39% of the industrial land was in *marine cargo* uses, directly dependent on access to the Willamette and Columbia River system.

Between 1960 and 1997, the proportion of land in industrial or marine use has been relatively stable or growing in most of the harbor area except for:

- **River District** – the proportion of riverfront area in marine-related industrial use dropped from 65% in 1960 to none in 1997. This is largely due to the creation of the River District urban renewal area and termination of marine cargo activities at the Port of Portland's Terminal 1 facility.
- **North Beach Areas** – have transitioned from being primarily marine-related to public use or vacant. Much of the area south of the Railroad Bridge on the east bank of the Willamette is vacant due to marginal truck access and superfund cleanup liability. The area north of the Railroad Bridge, adjacent to St. John's Town Center, has converted to public use (e.g. Metro's Willamette Cove greenspace and the city of Portland's Water Pollution Control Laboratory).

According to the 1997 study, only 7% (or 260 acres) of the land located along the Portland Harbor was vacant (defined as either undeveloped or unleased), down from 32% in 1990. However, vacancies have increased since 1997, reflecting the current economic recession and effects of the 1999 Portland Harbor Superfund Project.

Between 1990 and 1997, 160 acres were developed for industrial uses. All but 14 acres were for marine-related uses. Marine cargo developments included the Portland Bulk Terminal at T-5, the chassis yard and intermodal yard expansion at T-6, and the Ash Grove plant at Albina Rail Yard.

C. FREIGHT DISTRIBUTION

The movement of goods through the Portland Harbor area also has changed over the last four decades, reflective of changing market conditions and transportation technology. The Bureau of Planning has reviewed several studies to obtain a basic understanding of what changes have occurred and trends are forecasted over the next 30 years.

Marine Cargo. Cargo tonnage has generally increased over the last 40 years, with the 1970s being the peak period of growth. Between 1960 and 2000, marine cargo tonnage increased at an annual rate of 2.3%, primarily driven by growth in exports. Columbia River barge cargo increased at a similar rate (2.1% per year). However, cargo growth has been restricted to vessels with drafts greater than 18 feet, as outbound trips for vessels with less than 18 foot drafts have declined across all cargo types.

Portland has been capturing an increased share of marine cargo on the West Coast, with the exception of containers. Portland handles 21% of the West Coast's dry bulk goods, 19% of the automobiles, and 6% of breakbulks. However, Portland handles less than 2% of all West Coast container traffic, as Southern California is the dominate market. *Note:* Portland represents a niche container market driven by agriculture and forest product exports.

Over the next 30 years, DRI-WEFA is projecting an increase across all cargo types except liquid bulk. Increases in liquid fertilizers and chemicals are expected to be offset by declines in refined petroleum products. Declines in refined petroleum marine shipment are expected to occur with a transition back toward pipeline shipments.

Mode Split of Marine Cargo. Rail is the primary mode of transportation for *ocean bound* cargo, handling 51% of all tonnage. Another 26% is barged and 22% is trucked. Shipments are expected to increase across all modes of transportation; however, the proportion moving by barge is projected to decrease.

Trucking is the preferred method of transporting *non-ocean* freight, followed by rail and ships. Non-ocean tonnage is also projected to increase. However, the proportion trucked will decline as rail and ships capture an increased share of tonnage.

Rail Freight. Rail tonnage has increased by 1.8% per year over the last ten years. Preliminary forecasts being prepared as part of the I-5 Trade Corridor study anticipate rail tonnage to increase at an even greater 3.0%-3.5% annualized rate over the next ten years. Significant increases are expected for auto, grain, and bulk unit trains. This growth may place significant strains on regional rail capacity as the Pacific Northwest is recognized as having some of the most congested rail corridors in the nation – for both east-west and north-south freight movements.

Truck Traffic. Traffic volumes on the busier “truck streets” in the harbor area generally increased during the 1990s. The primary reason was development of vacant land in the Rivergate area. Swan Island's Going Street and Guild's Lake area's Yeon Avenue are the two highest volume streets in the harbor industrial area.

A 1999 *Commodity Flow Analysis* found that lumber, wood products and furniture accounted for 56% of regional truck freight. Food products accounted for another 18% and aggregate-related products represented 9%. All are products that are relatively heavy and bulky in relation to product value.

D. BUSINESS INVENTORIES

The Bureau of Planning also has conducted a more detailed analysis of the harbor area to garner an understanding of the current economic inter-dynamics and competing land needs of industries within the study area.

Approximately 940 private sector businesses are located within the Portland Harbor area, employing nearly 39,200 workers or one in eleven jobs in Multnomah County. Half of the study area's workers are employed by manufacturers, with another one-third in distribution (transportation and wholesale sectors).

Concentrated Industries. The harbor area has been in industrial use for nearly a century. Both its age and continuing competitive advantage as an industrial area has led to the diverse mix of businesses currently in operation. However, the harbor area has specific industry concentrations in transportation equipment, primary metals, petroleum products, and water transportation.

Over three-quarters of private sector manufacturing workers are employed in metals and equipment manufacturing; most work for primary metals and transportation equipment firms. Due to established supplier, subcontractor, and customer linkages, these industries have become highly interdependent upon one another.

Distribution industries (transportation and wholesale trade) employs 31% of study area workers. Water transportation is the most concentrated sector of the distribution industries, due to the proximity of deep water access. Wholesaling of alcoholic beverages, metals, petroleum products, chemicals, and furniture is also well represented.

River-Dependent Industries. Portland's Harbor is Oregon's freight transportation hub, connecting the seaport with regional barge routes, interstate highways, and transcontinental railroads. There is no similar place in Oregon with this confluence of significant intermodal transportation facilities – nor is there any expectation of development of a similar transportation hub elsewhere in the state for the foreseeable future.

Much of the harbor riverfront is lined with river-dependent industrial uses, which is a result of City policy reserving those properties for only river-related and river-dependent activities. River-dependent activities within the Portland harbor industrial area can be grouped into three categories:

- **Marine Cargo Terminals** – loading and unloading of commodities for trans-shipment or storage on land for eventual distribution.
- **Marine- or Vessel-Related Services** – includes barging, dredging, and cargo handling services, as well as naval and coast guard services.
- **Marine-Dependent Manufacturers** – including fabricators that rely upon marine facilities for transport of raw and finished products.

A 2001 study conducted for the Port of Portland estimated that almost 7,200 jobs depend on cargo moving through private and public port facilities.

E. PLANNING FOR INDUSTRY

Freight-related firms including transportation and wholesale activities that depend on the Harbor's multimodal transportation network for conducting business and infrastructure span the entire length of the harbor and the width of the adjacent industrial districts. Marine cargo terminals and other river-dependent industries extend from the grain terminals and concrete industries in Lower Albina to the container and auto facilities at Terminal 6. Rail lines run the length of both sides of the harbor with Albina and Lake rail yards situated within a few hundred feet of the river.

The "lower harbor" area of Rivergate is well situated to receive a significant portion of Portland's maritime industrial growth, with competitive advantages of large sites, vacant land, convenient rail access, and few superfund sites. However, the freight distribution complex is not yet necessarily moving northward. Transportation and wholesale firms remain densely concentrated in the "upper harbor" area (Guild's Lake, Swan Island, and Lower Albina). The investment represented by this existing transportation and distribution *infrastructure* could be expensive and logistically challenging to duplicate elsewhere – even with eventual relocation to the nearby Rivergate area.

Concentrated Industries. Within the distribution industries, petroleum and automobile terminals are tightly clustered around Port terminal facilities. The west side of the river in Linnton and Guild's Lake areas serves as Oregon's petroleum distribution hub receiving product via tankers and Olympic pipeline. Automobile terminals are situated in Rivergate and St. John's, where trains unloading Ford, GM, and Honda vehicles from the Midwest load vehicles from Asia (i.e. Honda, Hyundai, and Subaru) bound for inland U.S.

Major employers requiring large sites encompass most of the transportation equipment and primary metal industries. Many of these companies have riverfront facilities due to their historic dependence on the river for transporting products. There also are a number of smaller metals and equipment firms that are concentrated in the southern Guild's Lake and Lower Albina areas. Southern Guild's Lake and Lower Albina is also home to printing, publishing, and paper industries.

Land Area. Industrial sites within the Portland Harbor area vary widely in size. The *median* (50% being below or greater) property size is 2.2 acres. However, the large industrial sites within the study area bring *average* site size up to 8 acres. Utilities, primary metals, manufacturing, and water transportation uses tend to occupy sites that average 20 acres or greater.

Average employment density is 8.1 jobs per acre. Manufacturing has the highest employment density at 12.4 workers per acre; and utilities have the lowest job density at 0.5 employees per acre.

Vacant Lands. The Portland Harbor area comprises over 5,532 acres of industrial land – or nearly one-third of the City's industrial base. As of July 2000, 543 acres (or 10%) were undeveloped, vacant Tier A/B lands. Over one-half of the vacant land is located in Rivergate. Only 33 acres are free of constraints (Tier A), as over 90% of the vacant land is constrained by

landbanking, corporate ownership, access, unstable slopes, or taxlots smaller than 2 acres. The Port of Portland is the largest owner of these lands.

Recent industry contractions indicate that harbor area land and buildings available for lease may be increasing. Atrofina (59 acres), Time Oil (20 acres), and Alcatel (15 acres) have all either vacated sites or ceased operations. Considerations such as environmental contamination and associated regulations may hinder reinvestment in these sites. Vestas' interest in a 113 acre Rivergate site represents a potential reduction to the area's inventory of land available for lease. The Vestas project also illustrates the relatively *lumpy* and somewhat unpredictable nature of harbor area investment opportunity coming from outside the Portland metro area.

F. SUMMARY IMPLICATIONS OF PART ONE RESEARCH

The Portland metro area represents a growing share of the U.S. economy and industrial base. Over the last 20 years, the region has captured an increasing share of the nation's manufacturing employment. And marine facilities have captured an increased share of West Coast tonnage.

However, the region's ability to maintain or improve its competitiveness will depend part-in-part on how it addresses environmental issues, maintaining an adequate supply of industrial land (including large sites), continuing to make freight mobility improvements, and creating a positive business environment.

Industrial Base. Multnomah County, more specifically the City of Portland, will have to address these same issues to minimize additional erosion of its industrial base. As the region has increased its competitiveness nationally, Multnomah County has been falling behind, as:

- Multnomah County is generally more built out than its suburban neighbors;
- The particular mix of industries in Multnomah County have been stagnate or declining; and
- Some industries experienced substantial employment cutbacks in Multnomah County, but expanded elsewhere in the region – which may signal a decline in the county's ability to compete competitively with the rest of the region.

The harbor area is located at the heart of Portland's industrial/economic base. One-third of the City's industrial land is located within the Portland Harbor area and area employers provide one in eleven jobs countywide. More important is the harbor's intrinsic link to the regional and statewide economy – and to a certain degree the Pacific Northwest – as a distribution hub due to deep water access and multi-modal transportation infrastructure. While the region has been competitive nationally for industrial development – including for traditional heavy industry – it is not clear whether these trends will continue to benefit the harbor area in the future. Addressing questions of future industry plans is a major focus of the Part Two PHILS research.

Marine Terminals. Marine facilities in Portland have been capturing an increasing share of west coast marine cargo activity, except containers. Marine cargo business is forecast to continue to increase across all cargo types except petroleum. Some forecasters expect pipeline activity to increase coinciding with a decrease in vessel reliance.ⁱⁱⁱ

Marine activity requiring drafts greater than 18 feet is also expected to grow. However, smaller vessels with less than 18 foot drafts are anticipated to remain unchanged and may decline slightly.

Policy & Planning. Unlike most central city industrial areas throughout the U.S., the Portland Harbor area has experienced only minor loss of industrial land to other competing uses. The primary reason is the City's *industrial sanctuary* policy that is designed to protect against encroachment of incompatible uses. Whether or not to maintain the *industrial sanctuary* policy in its current form may be an issue to be addressed through this planning process.

Another issue that is being assessed is whether to maintain waterfront property for water-related/dependent activities. Between 1990 and 1997, 160 acres of industrial land was developed in the harbor area. All but 14 acres were marine-related. This has equated to an annual absorption of 21 acres per year for marine activities.

All of these issues are part of two larger, more central questions for Portland's harbor industrial area. Simply stated, those questions are: Will Portland's harbor area continue as the focus for the region's maritime and heavy manufacturing activities? Or, is the harbor area transitioning to a different and as yet undefined future?

To better address these questions, Part Two of the Portland Harbor Industrial Land Study (PHILS) draws from the perspectives of a cross-section of industries currently conducting business in the harbor area – both river dependent and upland firms. It is to the results of these in-depth interviews that this analysis now turns.

III. INDUSTRY INTERVIEWS

The focus of this Part Two PHILS research is to obtain a more in-depth understanding of the characteristics of industries operating in Portland's harbor industrial area. This purpose has been accomplished through a series of interviews with a cross-section of area industries. The interview process has obtained information regarding current characteristics and operational issues as well as perspectives about future prospects for continued operation and investment.

The consultant team interviewed a selected target group of 80 business leaders within the Portland harbor industrial study area. Information obtained from the interviews provides some insight into the public policy and economic issues affecting area industries.

This evaluation is intended to provide the framework for discussing issues and potential public sector policies. A summary of common themes is provided in this section. A copy of the survey questionnaire is provided in Appendix A.

A. APPROACH TO INTERVIEWS

Due to the length and potentially sensitive nature of the interview questionnaire, a structured process was used to select, contact, conduct and tabulate responses from the interviews. Key features of the interview process have included:

- Identification of firms constituting a representative cross-section of harbor area industries by business type and location – with focus on larger firms or industry leaders within each major sector.^{iv}
- Mailing of a letter inviting participation in the interview process – with the letter jointly signed by chief executive officers of the City of Portland Bureau of Planning, Portland Development Commission and Port of Portland.
- Follow-up personal contact to schedule an interview appointment by a consultant team representative – typically with the questionnaire e-mailed or faxed to the participating company in advance of the interview.
- Conduct of the interview with the company CEO or other primary decision maker, with interviews occurring on the premises of the participating company whenever possible.
- Entry of results into a computer database – for tabulation of both quantitative and qualitative responses.
- Calculation of *all group* averages – as a weighted average of those responding to a particular question.
- Aggregation of results so that comments are not directly attributable to any individual respondent – to maintain the confidentiality of proprietary information and opinions.

It is noted that the interview process, while yielding useful information, required a level of effort beyond what is typically required for one-on-one business interviews. This appears to be the case for a variety of reasons including: length of the interview questionnaire, proprietary nature of much of the information requested, time constraints of respondents, concerns over how the

results might be used, lack of familiarity with the river planning process, and/or concerns in participating in a local government initiated study.^v

Despite these constraints, interviews were completed with firms representing one-third of Portland Harbor area employment. This report now proceeds to report results – as tabulated and reported both in quantitative and qualitative terms in response to the questions asked.

B. INDUSTRY PROFILE

Industries in the Portland Harbor area are divided into two distinct groups: a) river-dependent, with direct marine terminal access (primarily for liquid and dry bulk goods including Port and proprietary users); and b) non-river dependent firms.

Non-river dependent categories include wholesale/distribution, manufacturing, and land-holding activities. Manufacturing and wholesale/distribution businesses generally do not use the river as a convenient means to move products internally between various company-owned facilities, nor do they receive/send products indirectly, through marine facilities located in Portland or outside the region.

Of the 80 businesses interviewed, 25 (or 31%) are considered river-dependent. Most firms interviewed are either related to manufacturing (33) or wholesale/distribution activities (20).

Figure I. Interviews Completed by Industry Grouping

<u>Industry Group</u>	<u># Interviewed</u>
River-Dependent	25
Wholesale/Distribution	20
Manufacturing	33
Land-Holding	2
All Groups	80

Notes: Land-holding comprises respondents that are not currently engaged in industrial activities but own key parcels within the Portland Harbor area.

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc., as of October 2002.

The manufacturing grouping is represented by seven industry clusters that comprise chemicals, electronics, food-related, metals, printing/publishing, transportation manufacturing, and specialty manufacturing industries. Wholesale/Distribution includes distribution centers, distribution service providers, recycling, and wholesalers. River-dependent encompasses aggregate firms, marine terminals, and supporting marine services.^{vi}

Figure 2. Industry Cluster by Major Grouping

Industry Group	Industry Cluster (# of Interviews)
River-Dependent (25)	Aggregate (6) Marine Terminal (15) Marine Service (4)
Wholesale/Distribution (20)	Distribution Center (9) Distribution Service (6) Recycling (2) Wholesaler (3)
Manufacturing (33)	Chemicals (3) Electronics (1) Food-Related (4) Metals (6) Printing/Publishing (2) Transportation Manufacturing (5) Specialty Manufacturing (12)

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc., October 2002. Above listing excludes two interviews with land-holding entities.

The non-river-dependent businesses typically have located in Portland’s harbor industrial areas for one of two reasons:

- Transportation advantages (rail but primarily truck access to Central City and region)
- Historic reasons no longer necessarily applicable

Interconnectedness of harbor area industrial uses has developed over time and represents a significant competitive advantage for firms that are suppliers to or customers of other harbor industries. Examples of industry clusters include maritime bulks, metals, graphic arts/printing, and distribution.

Loss of a single major firm (e.g. Freightliner) could, in some cases, jeopardize supporting businesses. More detailed examples of inter-industry linkages are provided in Section IV of this report.

C. ECONOMIC BASE

As background information, respondents provided information about site usage, employment, other plant locations, and gross business revenues.

Site Usage. Portland’s harbor area industries exhibit a pattern of remarkable longevity – often with deep roots in the harbor area. On average, those interviewed have operated at their current location for 32 years. The newest firm of those interviewed located in the harbor area three years ago. The railroads and barging services have had harbor area operations for 100+ years.

Figure 3. Site Usage

Industry Group	Average Years at Location	Average Site Size (acres)	Average Building Square Footage	Average # of U.S. Locations
River-Dependent	31	64	60,611	38
Wholesale/Distribution	26	39	200,145	36
Manufacturing	35	27	264,139	28
Land Holding	51	30	99,875	0
All Groups	32	43	185,310	33

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc. October 2002.

Average site size is 43 acres, median size is 20 acres. Armstrong Manufacturing, a small tool and equipment manufacturer has operations on the smallest site at one acre. Ross Island Sand & Gravel Company has the largest site at 499 acres. Generally, larger land users are river-dependent firms.

The typical respondent has 185,310 square feet of building space on-site. Larger building footprints are associated with manufacturing – but with relatively smaller site requirements. The smallest building footprints – albeit the largest sites – are associated with river-dependent uses.

River-dependent firms are most likely to have other facilities elsewhere in the U.S. and wholesale/distribution firms are most likely to have other facilities globally.

Employment. The firms interviewed employ almost 13,000 workers, most being employed full-time. The manufacturing sector employs the largest number (70%) of workers. River-dependent employers provide another 16% of the jobs, followed by wholesale distribution at 14%.

Figure 4. Current Employment by Industry Group

Industry Group	Full-Time	Part-Time	Total
River-Dependent	2,012	105	2,117
Wholesale/Distribution	1,542	260	1,802
Manufacturing	8,951	90	9,041
Land-Holding	4	2	6
All Groups	12,509	457	12,966

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc. October 2002.

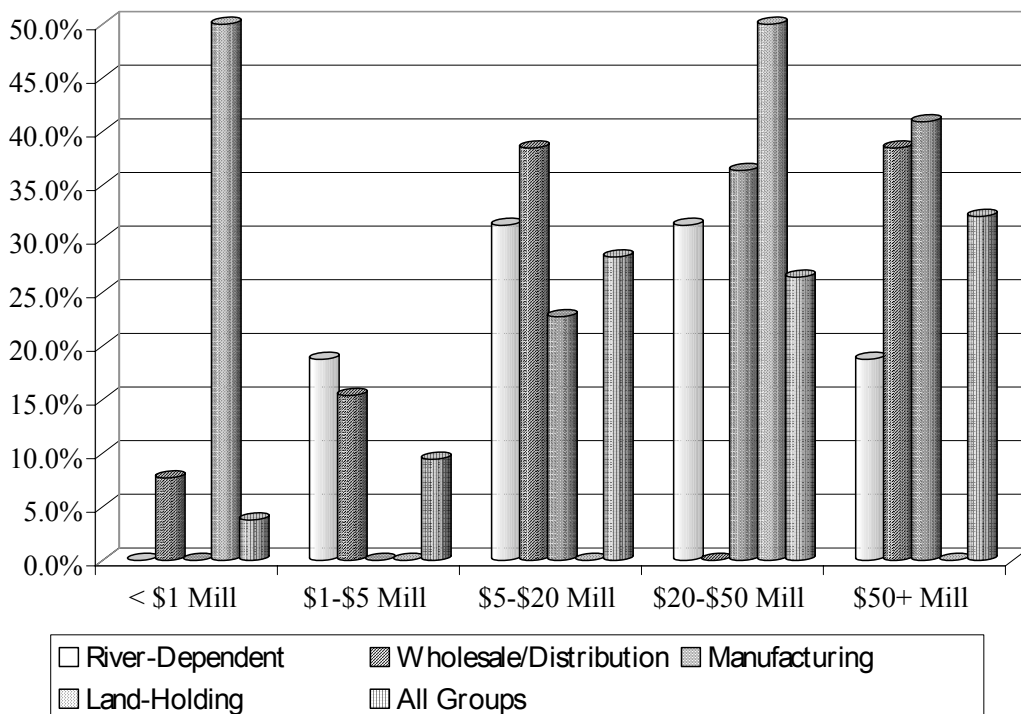
The more than 12,500 full-time employees for the firms interviewed represent 32% of the 39,200 jobs in Portland's harbor industrial area.

Gross Revenues. Nearly 60% of the firms interviewed produce over \$20 million annually in gross revenues at their Portland Harbor sites – 26% at \$20-\$50 million and 32% at \$50+ million. Another 28% generate between \$5-\$20 million each year. This finding is consistent with the survey sampling technique, emphasizing larger firms and industry leaders.

Manufacturers tend to generate higher revenues than the other industry groups. Over 75% of manufacturers surveyed report gross revenues of \$20 million or more. In comparison, only 50% of river-dependent and 39% of wholesale/distribution firms have gross revenues greater than \$20 million.

As a point of comparison, it is noted that the typical manufacturing firm in the City of Portland generates annual gross revenues of \$15.6 million. On average wholesalers gross \$7.5 million. Information is derived from the 1997 U.S. Economic Census as reported for the City of Portland. Gross business volume estimates are adjusted into 2002 dollars using the Portland-Vancouver consumer price index.

Figure 5. Annual Gross Business Revenues (in millions of \$)



Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc., October 2002.

In the last 3-5 years, revenues have increased for 32% of respondents, decreased for 24% and stayed the same for 21%. An additional 23% did not indicate a response. Revenues are more likely to have decreased for the manufacturing sector.

D. TRANSPORTATION & UTILITY INFRASTRUCTURE

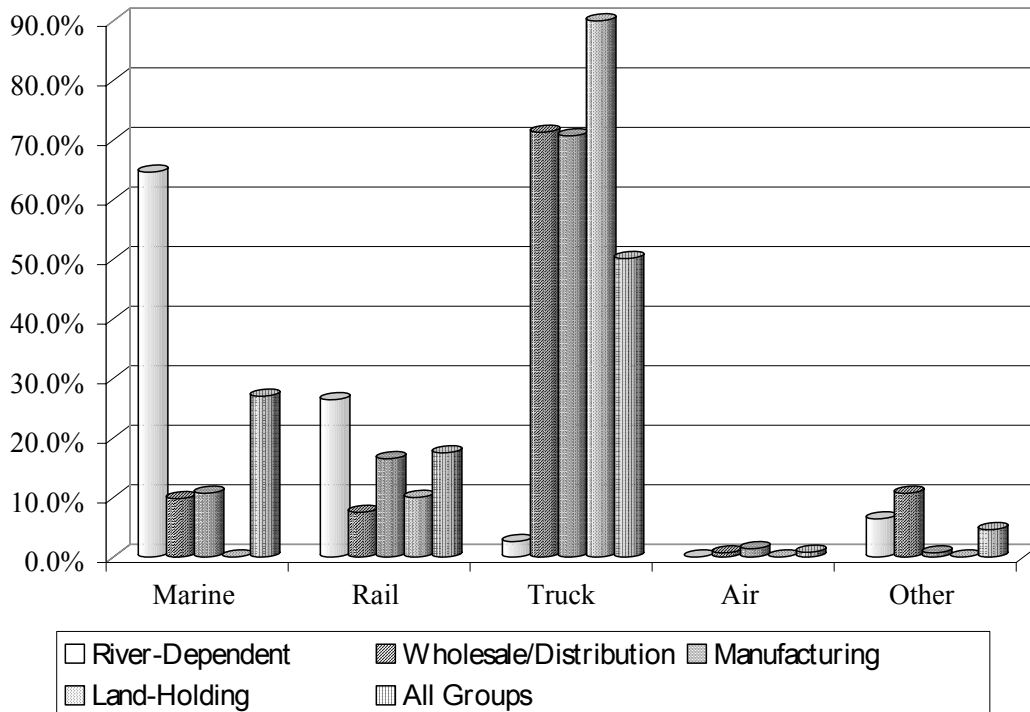
Inbound/outbound freight mobility data reported in this section represents unweighed average of responses by the firms interviewed. Data primarily represents frequency of mode use and should not be construed as referring to value or tonnage of shipments.

Inbound Freight. Products transported *into* the Portland harbor industrial area typically arrive by truck, with the exception of river-dependent operators, who typically rely more heavily on

marine facilities and rail. All industry groups utilize some combination of marine, rail, and truck services.

About 65% of in-bound shipments for river-dependent industries arrive by a marine-related transportation mode. For all other industry groupings, the level of marine transportation is considerably less, often below 10%. For harbor industries, air freight represents a relatively small proportion of in-bound shipments.

Figure 6. Long Haul Shipments into Harbor Area



Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc., October 2002.

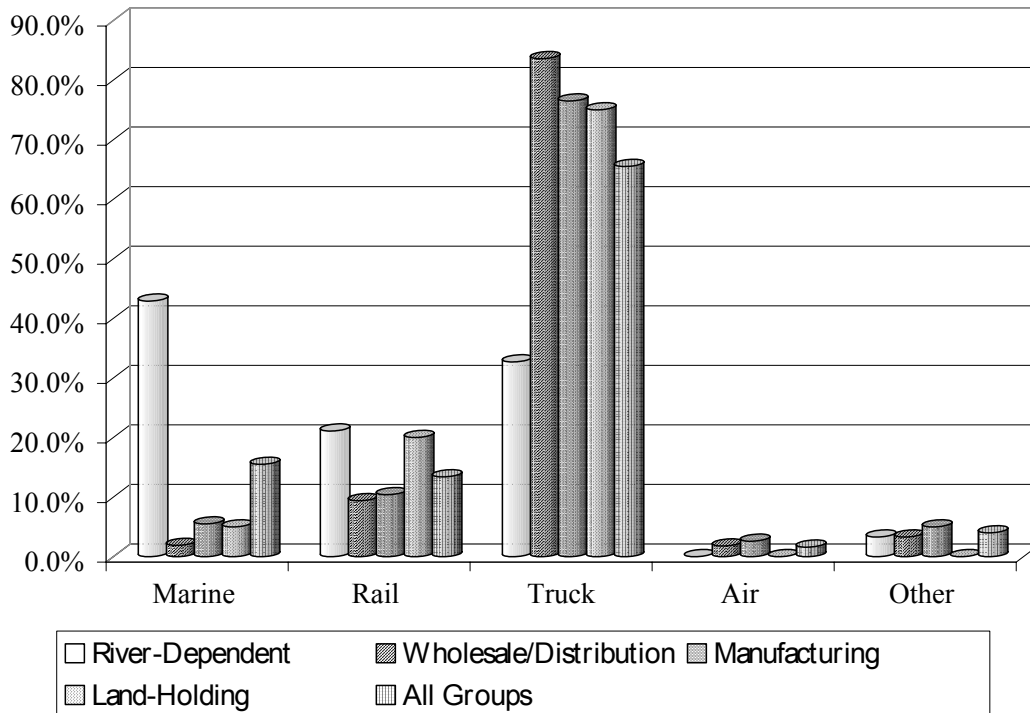
River-dependent transporters use truck for less than 5% of inbound freight, relying on marine shipments for about 65% and rail for about another 26%. All other industry groupings rely on truck shipment for the majority of their inbound freight activity.

Outbound Freight. Trucking is the preferred method for shipping products *out of* the harbor area. Rail and marine facilities are also used, but with less frequency than inbound shipments. The heavier reliance on trucking is due in large part to the local interindustry linkages between harbor firms and local/regional distribution centers.

No industry grouping relies on marine transportation as the primary source of outbound goods movement. This is true even of river-dependent uses, which (on average) use marine transportation for just over 40% of outbound freight movement. However, there are some portions of the river-dependent segment (notably grain elevators) for whom outbound marine transportation facilities are of paramount importance.

Of all industry groups, rail is of greatest importance for river-dependent uses (accounting for about 20% of outbound freight). As with inbound movements, air freight constitutes a relatively small proportion of outbound freight across all of the harbor area industry groupings.

Figure 7. Long Haul Shipments Out of Harbor Area



Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc., October 2002.

Marine Terminal Users. Of those making use of marine terminals, the following characteristics are noted.

Figure 8. Usage of Marine Terminals

Industry Group	On Site	In Harbor	Elsewhere	Berth Length (feet)*	Calls/Year	Maximum Channel Depth Need
River-Dependent	19	2	2	703	332	32
Wholesale/Distribution	1	7	1	–	–	–
Manufacturing	4	13	7	657	14	35
Land Holding	–	1	1	–	–	–
All Groups	24	23	11	692	268	33

*Note: Data does not include docks located at Cascade General.

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc. October 2002.

On the Willamette River south of the St. Johns Bridge, considerable diversity in required channel depth is noted – depending on the needs of different industry users. Key marine terminal

facilities include the Louis Dreyfus terminal (with a current minimum draft of 50 feet), the Swan Island Shipyard/Cascade General (40 foot draft on riverside, with drafts as shallow as 10 feet on channel side), Glacier Northwest (Albina site, which requires a 40 foot draft), Goldendale Aluminum Co. (38 foot draft), Shaver Transportation Company (requiring a 40 foot draft for servicing larger vessels), and possibly Terminal 2 break-bulk activities (30-40 foot depth). Barge activities (generally 15-20 foot draft) and liquid bulk (about 30 feet) require less in the way of maintained channel depth.

Materials or products shipped are indicated by the following representative listing.

Figure 9. Materials/Products Shipped Via Marine Terminals

Inbound	Outbound
River-Dependent: Raw material e.g. grain, sand, gravel, limestone, petroleum products) Finish goods (e.g. autos, ships, containers)	River-Dependent: Raw materials (e.g. grain, sand, gravel, soda ash, petroleum products) Finished goods (e.g. autos, ships, containers)
Wholesale/Distribution: Apparel/footwear, paper, steel rail	Wholesale/Distribution: Frozen products, paper, baled pet plastic
Manufacturing: Raw materials (e.g. alumina ore, polysilicon, steel slabs & castings, coffee beans) Finished goods (e.g. books, brass parts, glass shades, wheels, axles)	Manufacturing: Paint, pickles, beer, steel plate products, steel pipe, shingles, mattresses, electric motors, completed barges

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc. October 2002.

The usage undertaken by marine terminal users today looks very different than it did 20 years ago. Most companies have either increased or decreased marine terminal usage in this time period.

A majority of firms indicate that use of marine terminals is expected to increase over the next 20 years. This increase is contingent upon several factors, most notably the influence of domestic and/or foreign market growth and modernization of facilities and/or equipment.

Transportation Issues. Fifty-eight percent of the respondents indicated issues or concerns with access to or quality of services for marine terminal, rail, trucking and/or air services. Issues listed include:

- Congestion and truck access
- Quality of rail service
- Infrastructure development and maintenance of both rail and roads
- Cost of transportation and labor
- Consolidation of transportation companies

Even river-dependent firms use marine transportation for less than 50% of outbound shipments. As with inbound activity, rail generally accounts for less than 20% of outbound freight activity. Use of air freight is relatively minor.

Utilities: Businesses interviewed typically use a wide range of utilities for their operations. There is no variation between industry clusters.

Future usage does vary by service and industry cluster.

- *Water* – nearly two-thirds of those responding indicated no change over the next 3-5 years. However, 38% of manufacturers report that they anticipate their water usage to increase. No major issues were noted regarding quality or quantity of service.
- *Sewer* – again, nearly two-thirds do not expect their sewer usage to change, but 36% of manufacturers' project an increase. As with water, no major issues were noted regarding existing service.
- *Electric* – fifty percent of respondents do not expect their electric usage to change, while the other 50% anticipate a growing need – two-thirds of those projecting increases are manufacturers.

Two major issues were noted by respondents: power outages and costs. Comments made about power outages related to supply shortages experienced during 2001 and the business costs associated with downtime/restart-up of heavy machinery. Rising energy costs are of particular concern to manufacturers and certain marine terminal users as escalating costs affect their ability to deliver goods and services at a competitive price. In particular, metals firms and transportation equipment manufacturers have been especially hard hit as they struggle to maintain global competitiveness with lower cost Pacific Rim producers. A prime example is the demise of the aluminum industry with aluminum supplies now arriving from offshore producers.

- *Natural Gas* – fifty percent of firms indicated no change while the other 50% project increases – manufacturers account for three-quarters of all increases. No major concerns were noted.
- *Telecommunications* – over fifty percent of respondents expect their telecommunications usage to increase, with manufacturers leading the way. Several respondents mentioned issues with both quality and availability of telecommunication services. The primary issues surrounding availability is attributable to lack of high speed data/internal service. Quality of service relates to frustrations with customer service. Specific problems cited included line static and occasional outages. Some firms have employed cell phones as a back up means to minimizing business interruptions due to harbor area phone outages.

In general, a number of firms commented about the increasing cost of utilities. A few noted that utilities now represent over 10% of business operating costs. Firms are especially sensitive to rising utility costs, or other business expense, during the current economic recession as managers attempt to maintain or reduce operations expense.

E. LOCATION ATTRIBUTES

Business leaders were asked to identify both advantages and disadvantages of being located within the Portland harbor industrial area. A number of common themes emerge from interviews conducted to date.

Advantages. The question posed to those interviewed was: *Currently, what are the primary advantages for operating at this location?* Representatives identified seven common advantages to being located within the Portland harbor industrial area.

Access to a solid, intermodal transportation infrastructure is generally viewed as the greatest advantage across all industry groups. Frequently listed transportation advantages are “proximity to freeways” and the importance of the “convergence of all transportation modes.” Close proximity to customers and vendors, followed by proximity to river, access to a skilled labor force, and low cost availability of land and building space also were frequently mentioned.

Industrial sanctuary designation appears to be a locational advantage primarily to manufacturers, but this should not be construed unimportant to other industry groups. A significant number of all respondents indicated a preference for reserving riverfront properties for maritime/industrial activities and a reservation about allowing industrial sites to convert to non-industrial uses.

Figure 10. Portland Harbor Area Location Advantages

Location Advantage	River Depend	Whsl Dist	Mfg	Misc	Total
Transportation infrastructure	13	11	11	1	35
Close proximity to customers/vendors	5	6	10	1	21
Central location to skilled workforce	2	2	6	-	10
Land/space availability/low cost	2	4	2	-	8
Proximity to river	12	1	1	-	14
Established industrial area	-	-	4	-	4
Unique property characteristics	2	-	3	1	5

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc., October 2002.

Disadvantages. Unlike the location advantages, no clear cut indications emerge as to locational disadvantages within the Portland harbor industrial area. However, there are a number of issues that were mentioned with some frequency:

- Traffic congestion/constrained transportation network
- Proximity of residential areas
- General costliness of conducting business in Portland
- Not central to major consumer markets
- High labor costs
- Expensive real estate
- Limited channel depth/lack of container handlers

- Perceived lack of public transit
- Poorly configured marine terminals
- Bad connection to freeways/I-5
- Lack of city support
- Stringent environmental regulations
- Lack of dining
- Proximity to river
- Lack of room for expansion

The concerns with traffic congestion included many of Portland's main freeways such as I-5, I-405, Highway 26 and Highway 217. The main issues with freeway congestion are the interference of the timely transportation of freight and employee commute times.

Concerns also were voiced regarding the effectiveness of rail service. There is a desire for "longer unit trains," an increase in the number of switches per day, and "reciprocity" between BNSF and UP.

While no individual disadvantage was highly represented, a *common overall theme* throughout many of the interviews appears to be that Portland is now perceived as a difficult place to conduct business for several factors:

- High cost of doing business (both regulatory and market)
- Perceived anti-business sentiment
- Small economy/consumer market of Portland metro area
- Not central to major U.S. markets

A recurring comment throughout the interview process is the perception of Portland as "business unfriendly," especially from firms that have been *rooted* in the harbor area for decades. This perception stems from concerns regarding the cost of doing business and the feeling of being unwanted. Several firms stated that the combination of taxes, utilities, and environmental compliance costs are out of line with other metro areas, most notably in the south and east coast, such as North Carolina. For many firms, the competition is now more with urban or rural communities across the U.S., as well as offshore.

As one respondent surmised, "If the city wants to recruit and maintain industries to Portland they need to develop incentives (lower cost of taxes and utilities) as well as facilitate a streamlined permitting process." Another firm commented that "it costs \$50 to correct a \$15 problem."

Managers or owners of long-time local companies comment on public efforts to court new businesses, but view nothing comparable as being done directly for existing firms. The multiple layers of federal, state, and local government regulations make it difficult or costly to address issues such as environmental cleanup before a major problem occurs.

One small manufacturing firm cited an experience that while making a business trip to a customer in North Carolina, local public officials “rolled out the red carpet.” They greeted company officials at the airport, dined them, and gave a community tour. At the end of the business trip, the Portland business manager was handed a one-page building permit application stating that they could literally start construction tomorrow. Company officials were surprised at how well they were treated, especially given the fact they are not a Fortune 500 firm.

When questioned about why the community had gone to so much trouble, local public officials stated they just wanted to attract firms with good paying jobs. The reason the company representative mentioned this North Carolina experience was the firm had just completed a recent expansion in Portland. The representative continued by stating that it took an extra 18 months to complete their Portland project, due to difficulties in working through Portland’s permitting processes.

Comments made regarding Portland being a small market relate to the fact that many of the harbor area’s major employers do not rely on Portland as their primary source of business. A number of manufacturing firms, specifically transportation equipment manufacturers, mentioned that the east coast and south constitute more significant customer markets for their industry.

Useful Life. For most firms – across all industry groupings – there are no significant constraints to the remaining useful life of current plan and equipment. The cycle time for reinvestment is considerably longer than for many of the region’s *high tech* firms, for example. A number of respondents characterized remaining useful life as “indefinite.” However, a number of the maritime/river-dependent users mentioned that their facilities need investment, but are not likely to make those decisions for another few years.

F. INTERINDUSTRY LINKAGES

Those interviewed were asked about vendor and supplier relationships service needs, industry/trade association representation, and actions that could be taken “to attract firms with whom you conduct business to Portland.” Due to the proprietary nature of the questions, responses are noted primarily in broad form. This information was employed in the more detailed linkage analysis of Chapter Four.

Vendors & Customers. The following profiles are noted by industry group.

Figure 11. Vendor/Customer Relationships

Industry Group	Vendors	Customers
River-Dependent	Aggregate sources, grain, auto and petroleum suppliers. Primarily transported to Portland by marine vessels and rail.	Local distribution for aggregate and petroleum products, primarily by truck. U.S. or global for auto and grain – by train and deep draft ships respectively.
Wholesale/Distribution	Local resources such as fuel, transportation services, and products from parent company.	Local and regional retail outlets/stores and goods/services to area industrial businesses.
Manufacturing	Refined products from outside the region, with exception of transportation equipment which purchases a few products (metals-related) from local suppliers.	Local retail/wholesale and manufacturing businesses. Larger firms (e.g. transportation equipment) sell most goods nationally.
Land Holding	NA	NA

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc. October 2002.

The most notable major *vendor or customer trend* is continued industry consolidation creating uncertainty about where supplies will come from and whether or not current customer relationships will continue.

Services. A wide range of other services are provided to Portland harbor industries. Those commonly cited are financial, legal, and accounting. Many of these services are provided by Portland area firms. Exceptions are most likely with conglomerates that have services in-house or through parent company/headquarters.

Industry & Trade Associations. Most firms belong to both national and international trade organizations plus local industry or more general business organizations – such as the Chamber of Commerce (now Portland Business Alliance) or Associated Oregon Industries. Local/statewide membership may be for purposes of industry specific information and/or advocacy on local/statewide issues. Specific associations mentioned include:

American Foundry Society	Oregon Natural Step Network
American Waterways Operators	Oregon Petroleum Marketers Association
Associated Oregon Industries	Pacific Maritime Association
Chamber of Commerce	Pacific Northwest Grain & Feed Association
Metals Service Center Institute	Pickle Packers International
National Auto Dealers Association	Printing Association of America
Oregon Concrete & Aggregate Producers Association	Shipbuilders Council of America
Oregon Metals Industry Council	Specialty Coffee Association of America

Actions to Attract Vendors & Suppliers. For many of those interviewed, there is a perception that little could be done to significantly alter the current mix of vendor and customer relationships *in Portland*. This is typically for reasons including:

- An established mix of supplier/customer relationships

- Specialized nature of key suppliers – not likely to be readily duplicated in Portland
- Relatively small size of the Portland market
- Negative industry perceptions of Portland as a place to do business

Regarding the small size of the Portland market, one firm stated, “The manufacturing base isn’t large enough to support a solid base of vendors to maintain competitive pricing.” A number of firms cite issues with the center of their market located somewhere other than Portland. In some cases, that center is on the East Coast and Portland is “too far.”

One small, but rapidly growing, manufacturing firm commented that they have to seek out suppliers in other regions around the U.S. and Canada. They indicated a willingness to invest in local companies to develop the technologies required locally. However, they want local and state government agencies to demonstrate willingness to partner with them or other local companies in working through the regulatory process. Basically, the interest in investment is coupled with an expressed desire for compliance with the regulatory process to feel like more of a “team effort.”

For those who did note some level of opportunity, the following types of actions are suggested for vendors and customers:

- Streamlining regulatory process
- Providing certainty around environmental issues
- Developing a positive business environment
- Make transportation improvements
- Grow local economy

“Fine tuning the regulatory environment” and “streamlining the review and permit process” were stated by several firms, in order to enable their businesses to make changes in a timely manner. Financially, Portland requires a “higher cost to invest due to the slow city process.”

Many firms stress the importance of developing a positive business environment. One firm expressed a desire for Portland to “foster and nurture” the “internal growth” of businesses. This firm specifically listed disadvantages as the high cost of land, the large quantity of paperwork, and the lack of support, where as other places have rolled out the “red carpet” and made them “feel wanted.” The representative of another firm simply stated, “It is just a matter of letting us know you want us!”

G. COMPETITION

The changing competitive landscape may be critical to a firm’s interests in remaining or expanding in Portland. For harbor industries that service local customers or clientele, global competitiveness is of lesser concern than for Portland businesses selling into the domestic or worldwide market.

As with the discussion of interindustry linkages, the presentation of interview results is aggregated and generalized to avoid disclosure of proprietary information.

Figure 12. Competitive Position of Harbor Industries

Industry Grouping	Competitive Position
River-Dependent:	
<ul style="list-style-type: none"> • Local Market Oriented 	<p><i>Competitors are in the Portland metro area</i></p> <p><i>Advantages of harbor location are multi-modal transportation and central location in region</i></p> <p><i>Disadvantages are transportation congestion and environmental costs/uncertainties associated with harbor clean-up</i></p>
<ul style="list-style-type: none"> • Domestic/Global Market Orientation 	<p><i>Competitors are other west coast ports</i></p> <p><i>Portland advantages are at grade rail/barge east of the Cascades, multi-modal transportation and land for terminal operations (at Rivergate)</i></p> <p><i>Disadvantages are shrinking land availability, rail constraints and uncertainties over harbor dredging/cleanup</i></p>
Wholesale/Distribution:	
<ul style="list-style-type: none"> • Local Market Oriented 	<p><i>Competitors are other metro area wholesale/distribution facilities</i></p> <p><i>Advantages are quality goods and services, pricing, established business relationships, and e-commerce/technology</i></p> <p><i>Disadvantages include primarily transportation-related issues such as regional congestion or constrained infrastructure</i></p>
<ul style="list-style-type: none"> • Domestic/Global Market Orientation 	<p><i>Competitors are often located outside the metro area</i></p> <p><i>Advantages include multi-modal transportation, proximity to manufacturers and centrality to Pacific Northwest customer markets</i></p> <p><i>Disadvantages include distance from major U.S. markets, increased land costs, reduced availability of large sites, labor and regulatory issues</i></p>
Manufacturing	
	<p><i>Competitors are located outside the immediate metro area</i></p> <p><i>Advantages are quality goods and customer service, pricing, technology, established business relationships, and R&D</i></p> <p><i>Disadvantages are high labor rates, regulatory costs (all levels), high cost of doing business, and Portland is a small market</i></p>

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc. October 2002.

Commonly cited competitive advantages include quality goods and customer service, pricing, technology, established business relationships, and research and development (R&D). Most business representatives believe they provide better quality goods/services over their competitors. However, harbor area firms recognize that in order to be competitive in today's marketplace they have to provide superior customer service, establish strong business relationships with both vendors and customers, and provide the best quality for the customer's dollar.

Several firms stated that their customers are willing to pay a little more, with the customer knowing that they will receive exactly what they need. A few firms had temporarily lost business due to pricing; however, their customers returned because they received poor customer service and/or inferior product/service from an alternative source of supply.

Harbor firms realize that technology and R&D are important components to remaining competitive long-term. Many harbor area firms continue to refine or develop new products to

stay ahead of the competition. Examples range from developing new roofing materials to the creation of enclosed car carriers.

H. TRENDS & EMERGING ISSUES

Business leaders were asked to identify emerging trends or issues affecting their companies centered around seven specific topics. While there is significant variation, a few key trends are mentioned with frequency.

- **Consolidation & Mergers** – Many firms are continuing to deal with industry mergers/consolidation and trying to determine how they can remain in business. Portland harbor industries are both forging new global alliances and competing globally. Not only are local firms facing increased competition from national/global interests, but they also are being affected by consolidation of vendors and customers, as well as being absorbed by national conglomerates.
One firm is finding “continued competitive growth by larger, better funded firms.” Another firm cited increased difficulty in maintaining vendor relationships as suppliers are absorbed by large conglomerates. This shrinkage of the competitive base of mid-to-large size firms brings into question the ability to readily procure supplies and/or maintain a viable customer base.
- **Enhancing Transportation Network** – Several respondents cite the current transportation infrastructure as a key advantage of operating within the Portland harbor industrial area. However, long-term economic viability of the area will require continued enhancement of the transportation network. Enhancements include minimizing surface transportation congestion (for both freight and employee commutes), greater rail capacity (especially unit trains and rail reciprocity), and improved marine terminal facilities (from containers to bulk facilities). Firms realize the importance of the harbor’s transportation network and the need for long-term investments.
- **Workforce** – Area employers express concern with their ability to access qualified, skilled labor. A number of firms interviewed cite inadequacies in the K-12 school system. As one business manager expressed, “Public schools don’t provide links to manufacturing.” Another indicated the need for public schools to offer opportunities to be trained in a broad set of skills, from welding to computers. Another growing concern is the rising cost of labor including benefits, such as healthcare and workers compensation.
- **Capital Investment** – Representatives of several firms question whether it is feasible or competitive to make major long-term investments in Portland. One firm has invested \$4.5 million in its Portland foundries over the last few years, and over half of that investment has been for environmental regulations. As stated by the respondent, “Future capital invested in Portland will depend on the Portland plant’s ability to compete in the worldwide markets.” This competitiveness is hampered when a significant portion of new investment is aimed at regulatory compliance – which creates little added value to customers.

Many of those interviewed expect to continue making minor investments to maintain their current competitiveness. Continued automation and integration of new technologies is pivotal for remaining in business.

Firms today are more reliant on e-commerce and telecommunications for reaching customers or buying from suppliers. Continued automation will likely lead to greater production, at least in the short-term. However, as traditional industries mature, fewer gains from automation may be realized, raising questions about long-term stability and viability.

I. CHALLENGES, OPPORTUNITIES & PLANS

Primary Challenges. When asked what is the most important challenge presently facing your firm's operation in regards to its current location, answers tended to be unique to each firm in question. However, these specific answers can be grouped into several common categories. Caution in interpreting these interview results is warranted – due to the location and industry specific nature of the comments received.

Local Infrastructure & Regulatory Environment:

- Anti-business environment – perception of not being wanted or frustrations resulting from bad regulatory experience
- Expensive place to conduct business (e.g. high taxes, stringent environmental regulations, difficult permitting, etc.) – refers to the combination of a down economy and rising regulatory costs
- Understanding, working and complying with regulations – including difficulties in working through malaise of local, state, and federal regulations
- Encroachment of non-industrial activity – specific to areas bordered by residential
- Traffic congestion – mostly with respect to the regional freeway and arterial system

Marine/Port Facilities:

- Channel deepening to maintain viable port facilities
- Better configuration of rail access to minimize site access issues
- Long-term ability to handle marine cargo demand and required facilities

Private Market Issues:

- Minimizing costs to be competitive – both regulatory and internal to firm
- Generating enough business to utilize existing capacity – Portland is a small market
- Finding adequate skilled and motivated labor
- Rising labor costs
- Keeping up with customer demand
- Penetrating new markets
- Finding unencumbered available land/space to meet long-term needs

Opportunities:

- Strategically positioned within Pacific Northwest – for example, warehouse/distribution firms can serve multiple markets from Northern California to Alaska to Western Montana
- Skilled workforce
- Flexible distribution network – built around the harbor’s multi-modal transportation network and the interconnectedness/convergence of interstate highway, rail, and deep draft/marine systems
- Room to grow within an industrial sanctuary – minimizing conflicts between incompatible uses
- Business opportunities unique to firm interviewed, regardless of specific harbor area location

Future Plans. Most firms interviewed expect business operations to remain essentially the same over the near term of the next 3-5 years. Eight (out of 62) indicated they could potentially expand, six expect to reconfigure, and four indicate they are likely to downsize.

Over the longer term horizon of the next 5-20 years, most business representatives could not predict the “state” of their companies due to uncertainty regarding industry transitions/consolidations, Portland economy/business environment, and continued globalization. However, about one-eighth (11 firms) indicate a potential for expansion.

Figure 13. Operational Plans over the Next 3-5 & 5-20 Years

Industry Group	Next 3-5 Years				Next 5-20 Years			
	As-Is	Expand	Downsize	Reconfig	As-Is	Expand	Downsize	Reconfig
River-Dependent	11	1	1	4	5	0	2	5
Wholesale/Distribution	14	2	1	1	6	4	1	1
Manufacturing	18	5	2	0	8	7	0	3
Land-Holding	1	0	0	1	0	0	0	0
All Groups	44	8	4	6	19	11	3	9

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc., October 2002.

Firms interested in expansion are most likely to be manufacturers. With few exceptions, the firms planning to expand in the harbor area all can do so on property they currently own or otherwise control.

While few of the businesses interviewed plan to relocate out of the harbor area, long-term commitment to the harbor area is less certain due to:

- Increased cost of doing business in Portland compared to the past (e.g. electricity, labor, transportation congestion, land/building space)

- Specific issues/concerns, perceptions, or frustrations with City, Port of Portland, and other regulatory agencies (e.g. permitting time/cost; lack of incentives for smaller, long-established business, etc.)

Frustration is often greatest with long-time established businesses who feel their contributions to Portland’s economic vitality have been overlooked in recent years.

J. HARBOR AREA ISSUES

Each business representative was asked to identify whether or not a series of harbor related issues affect their business. Results for each issue covered are discussed in turn.

Portland Harbor Superfund. Of the issues probed, superfund concerns pose perhaps the greatest uncertainties for area industries, including some upland firms. One effect appears to be the indefinite delay of major capital investment that would be otherwise justified (e.g. modernization, vacant land utilization, and expansion).

The majority of representatives interviewed indicated that the *superfund* issue would either have no effect or a negative impact on their companies. Of those responding “no effect” or “uncertain,” many expressed concerns that the City of Portland may try to spread the cost of cleanup over the entire district through a fee or tax. If a fee or tax were imposed, their response would change to a “negative effect.”

Several business representatives also indicated that their firms will end up paying indirectly as the major defendants will seek to pass on their financial liabilities.

Another concern centers on the liability of the properties themselves. One land owner in the harbor area has “property available” for purchase but the “environmental issues are too big” and prospective buyers are advised not to invest. Another firm has limited the liability of its property through a transferable bond but has not yet made this potential marketing advantage known publicly.

Figure 14. Portland Harbor Superfund Effect

Industry Group	Positive Effect	Negative Effect	No Effect	Uncertain
River-Dependent	3	6	5	6
Wholesale/Distribution	-	3	6	8
Manufacturing	1	13	15	1
Land-Holding	-	2	-	-
All Groups	4	24	26	15

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc., October 2002.

Columbia Channel Deepening. About half of those responding – primarily manufacturers – indicate that the deepening of the Columbia River Channel will have no readily discernable effect on their business. However, a significant number thought the project would have a positive influence – mainly river-dependent and wholesale/distribution companies. Positive comments

included “enhancing Port traffic” and keeping Portland “competitive with Seattle and Long Beach.”

Figure 15. Effect of Columbia River Channel Deepening Project

Industry Group	Positive Effect	Negative Effect	No Effect	Uncertain
River-Dependent	11	1	7	1
Wholesale/Distribution	8	-	5	4
Manufacturing	8	2	16	3
Land-Holding	-	-	1	-
All Groups	27	3	29	8

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc., October 2002.

Even among the river-dependent industries, about one-half of respondents expect little effect on their business from channel deepening. This is primarily true for marine terminal business reliant on shallow draft vessels, e.g. barges.

Willamette Maintenance Dredging. Responses to this issue are similar to the Columbia Channel Deepening, with a slight majority indicating “no effect.” The majority responding “positive effect” tend to be river-dependent industries or companies that use the river for distribution. This is true even for river-dependent firms for whom marine transportation is no longer a major component of their business operations. “The move is important” and a number of firms “want to make sure it happens.”

Figure 16. Effect of Willamette River Maintenance Dredging

Industry Group	Positive Effect	Negative Effect	No Effect	Uncertain
River-Dependent	13	1	6	-
Wholesale/Distribution	5	-	9	3
Manufacturing	10	1	15	3
Land-Holding	1	-	1	-
All Groups	29	2	31	6

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc., October 2002.

I-5 Trade Corridor Improvements. Overwhelmingly, most of the firms interviewed indicate that improvements to I-5 are a benefit to their firm’s operation. However, many of the firms interviewed appear to be not well informed about trade corridor planning underway. A number of representatives also indicated that improvements made to other regionally important freeways, such as Highway 26 Sunset Corridor and Highway 217, would benefit their firms as well as the broader region.

Figure 17. Effects of I-5 Trade Corridor Improvements

Industry Group	Positive Effect	Negative Effect	No Effect	Uncertain
River-Dependent	15	-	1	4
Wholesale/Distribution	15	1	-	1
Manufacturing	20	-	7	1
Land-Holding	-	-	1	-
All Groups	50	1	9	6

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc., October 2002.

Endangered Species & Clean Water Acts. Over 36% (23) indicated that the *Endangered Species and Clean Water Acts* have a negative effect on their operations. This is because most indicated increased regulations directly increase the cost of doing business, which cannot always be passed on to the consumer – hence reduced profitability of Portland operations. As the representative of one firm stated, changing regulations have made it “more costly to operate” but they were “committed to comply with the standards.” About 30% (or 19) indicated these issues have no effect on their companies.

Figure 18. Effects of Endangered Species & Clean Water Acts

Industry Group	Positive Effect	Negative Effect	No Effect	Uncertain
River-Dependent	1	7	5	5
Wholesale/Distribution	2	1	6	7
Manufacturing	1	14	8	5
Land-Holding	-	1	-	-
All Groups	4	23	19	17

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc., October 2002.

In addition to the cost implications, Portland businesses also express concern with the uncertainty caused by changing regulations or planning underway for which the outcome is as yet not determined.

Recreational Boating & Trail Access. The majority of those surveyed believe that recreational activities within the Portland harbor industrial area have no effect on their companies. However, many specified that additional river-recreation opportunities should be carefully selected as some business operations may not be conducive to recreation activities.

Negative effects appear to be of greatest concern for river-dependent firms. Negatives cited include conflicts between commercial vessels and recreational craft, with resulting safety and liability concerns. Examples of concerns noted include “smoking recreational boaters” and “conflicts with jet skis and barge tie lines.”

Figure 19. Effects of Recreational Boating & Trail Access

Industry Group	Positive Effect	Negative Effect	No Effect	Uncertain
River-Dependent	-	4	14	2
Wholesale/Distribution	-	1	11	5
Manufacturing	1	3	16	7
Miscellaneous	1	1	-	-
All Groups	2	9	41	14

Source: Business Interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc., October 2002.

Transition to Housing, Park, or Commercial Uses. Less than 10% of those interviewed thought the transitioning of harbor sites to non-industrial uses would be beneficial. A slight majority indicate that the transition to non-industrial uses would probably have a negative impact.

Reasons cited for this concern include encroachment of incompatible uses; potential increased business costs related to mitigation of noise, light, and other environmental conditions; the region’s lack of industrial land (pricing and competition); and the attractiveness of operating within an “industrial sanctuary.” As one respondent noted, a transition of riverfront property to housing would “take away the most positive aspect of being in the harbor area.”

Figure 20. Effects of Transitioning to Non-Industrial Uses

Industry Group	Positive Effect	Negative Effect	No Effect	Uncertain
River-Dependent	2	9	6	5
Wholesale/Distribution	1	8	1	6
Manufacturing	2	10	9	8
Land-Holding	-	-	-	1
All Groups	5	27	16	20

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc., October 2002.

While not directly asked, businesses seem to be generally supportive, with a few exceptions, of non-marine dependent use on the river, as long as it is industrial. There appears to be support for maintaining the industrial sanctuary to limit incompatible residential/mixed use, but perhaps on a selective or location-specific basis. *Note:* This is a topic that has been pursued further in focus group discussions.

Reserving Land for Maritime Industries. The majority of respondents indicate that reserving riverfront sites for maritime industries would have a positive effect on their companies for some of the same reasons indicated earlier for not transitioning sites. However, as noted many indicate a strong desire to place primary emphasis on maintaining the harbor area for industrial use, regardless of whether the riverfront use is river-dependent. A particular respondent expressed that reserving the land for industry “builds a stronger economy and more jobs.”

Figure 21. Effects of Reserving Land Harbor Industrial Riverfront Sites

Industry Group	Positive Effect	Negative Effect	No Effect	Uncertain
River-Dependent	12	-	6	1
Wholesale/Distribution	9	-	4	3
Manufacturing	10	4	8	5
Land-Holding	-	1	-	-
All Groups	31	5	18	9

Source: Business interviews conducted by E.D. Hovee & Company, Parsons-Brinckerhoff, and The JD White Company, Inc., October 2002.

Other Issues. Other issues were noted by about 10% of the business representatives interviewed. Positive issues mentioned were maintaining Naito Parkway as a 4-lane industrial access roadway and the railroad crossing at Columbia.

Negative issues cited are quite diverse – including the planned temporary/construction closure of the St. Johns Bridge, air quality from car emissions viewed as more of a detriment than industry emissions, and cottonwood blowing into industrial plant equipment from trees planted by the City along the riverbank.

There is surprisingly strong interest in obtaining better transit service from a wide range of firms from Northwest to Rivergate. A growing portion of the labor force appears to be more dependent on transit. This need is becoming particularly critical for firms operating more than one shift or weekend hours.

K. FOCUS GROUP RESULTS

As a complement to company interviews, two focus group discussions were conducted on September 4, 2002, and on September 19. Purposes of the focus group sessions were to: (a) present and discuss results from industry interviews and associated analysis completed to date (about 50 interviews); and (b) discuss policy implications for Willamette River planning initiatives.

A detailed discussion of focus group results is provided as Appendix B to this report. What follows is a synopsis from the two focus group sessions.

Portland Business Climate – Today & Tomorrow: The purpose of the first topic was to encourage participants to begin talking about *big picture* issues and opportunities affecting Portland’s overall business climate. Comments were solicited regarding the external environment (global/national) and Portland’s competitive position (within the metro area). Comments made by focus group participants included:

- Competitiveness is seen as a critical issue for Portland businesses.
- Portland is not only *perceived* as a highest cost location, but is *in fact* a high cost location.

- There is a perception that the City and Port have adopted the attitude that if companies move anywhere in the region, it's good for the region – even if they don't stay in the City of Portland.
- There seems to be a “so what” public agency mind set – exemplified by the City's handling of the Columbia Sportswear corporate headquarters office relocation.
- Environmental regulatory encroachment is voiced as a growing concern.
- Does Portland have a continuing role as a major west coast port? What is that role?
- Portland's harbor area is “out of the mainstream” and receives little visibility or public interest. There is no *branding* of the harbor image or product.
- Portland now has a reputation of having no land to build on.
- Certainly Title 3 exacerbates the situation including the provision that you can't develop just one portion of a parcel.
- More than one company representative stated that the firm has expanded outside of Oregon, but not within the state.
- There was a comment that “there is nothing like a good recession to get people's attention.” Another participant questioned whether this (focus on harbor industry and other economic development needs region-wide) is just “palliative” and short-term until the current recession ends.
- The anticipated *River Plan* can be a step in the right direction.

Harbor Questions & Discussion: The remainder of each focus group session was organized to provide background information and obtain participant input on four harbor area questions. Each question is presented, followed by preliminary findings from interviews and then representative participant comments.

Figure 22. Focus Group Questions & Discussion

Question: What Are the Major Trends & Issues Affecting Prospects for Portland’s Harbor Area Industries?

Both changing private market forces and regulatory environment are having an effect on harbor area employers. Increasing costs (market and regulatory) coupled with economic uncertainty have companies worried about their long-term competitiveness/viability. Uncertainty around environmental, regulatory issues and the commitment level of local officials have further exacerbated problems. In short, if businesses feel local government is willing to work with them in maintaining their firm’s viability they are apt to remain committed to Portland and continue to make local investments.

A brief summary of findings and focus group discussion follows:

Preliminary Findings:

- Business activity is expected to be stable through the recession but limited job growth is anticipated with economic recovery.
- Even with expansion, existing medium-larger firms anticipate minimal need for added industrial land.
- Remaining cost competitive emerges as the #1 issue for harbor area firms – extending beyond the current economic downturn; Portland increasingly is perceived as a high cost place to do business.
- Many long time manufacturers will reinvent their business model and operations over the next 10-20 years – to remain competitive domestically and globally.
- Local issues affecting business investment are noted as including:
 - ✓ Superfund uncertainty & competitive multi-modal transport – for *riverfront* owners.
 - ✓ Regional congestion (freight/employee) non-industrial encroachment, permitting public policy & community support – for *riverfront and upland* firms.

Focus Group Discussion:

- Other rural locations and some urban centers (even Denver) are perceived as less expensive.
- Questions are raised as to whether to keep an existing Portland harbor location.
- Business closures, e.g. Consolidated Freightways, hurt Portland competitiveness.
- Marine-oriented distribution firms require improved rail facilities – for unit trains with separated facilities.
- Environmental, labor, healthcare and energy all are concerns for Portland operations.
- Regulation and permitting fees are too high and the review process “is too long” – with no understanding of the private sector concept that “time is money.”
- The superfund issue is described as a “huge black hole.”

Question: Will the Mix of Harbor Industries Change?

Harbor area industries will continue to change in order to adapt and stay competitive in an ever changing marketplace that is increasingly becoming nationalized or global. To effectively compete, companies will morph in order to take advantage of strategic opportunities. How and where firms change depends in part on the opportunities available and where they can be the most competitive. Several infrastructure investments are important to the harbor and region. A summary of findings and discussion points is presented below:

Preliminary Findings:

- *River Dependent* – need multi modal access including 20+ foot depth barges, 30-40+ foot deep draft. These firms serve as suppliers and transporters to the entire metro area and state. Little near-term expansion is anticipated except for auto imports.
- *Wholesale Distribution* – separated between (a) serving Central City & metro area from a central location and (b) markets beyond the metro area. Firms that serve the local market likely will continue to value a harbor area location; demand for firms serving a regional or national market is more uncertain depending on comparative costs of business and inter-modal transport accessibility.
- *Manufacturing:*
 - ✓ Chemical & electronics – tend to supply to the region’s industrial base, for whom a central harbor-area location with in-place capital investment remains important.
 - ✓ Printing/publishing – have and will continue to value Central City proximity & interaction though the industry is rapidly becoming more global.
 - ✓ Metals & transportation – significant inter-industry linkages noted are led by Freightliner, Esco, and Gunderson around whom prospects for a wide array other support firms are closely related.Mid/large manufacturer land needs are expected to be relatively modest; growth needs linked to the desire/capacity to accommodate smaller firms.
- Other Sectors Potentially Suited to Harbor Area:
 - ✓ Wood/plastics/fiber materials
 - ✓ High tech/bio tech
 - ✓ Creative Service/information technologyCorporate headquarters & business parks

Focus Group Discussion:

- A number of *metal fab* companies are not making a profit, competition from China is intense and local labor is difficult to get.
- Portland no longer has *Fortune 500* companies; Nike is headquartered in Beaverton, not Portland.
- For marine terminals, the picture for autos is optimistic.
- It will prove difficult for Portland to overcome its reputation as a city that is “difficult to deal with.”
- Major rail yards could move eventually to the fringe of the metro area as has occurred elsewhere in the U.S.
- Three grain elevators on the upper Willamette conceivably could relocate to a consolidated facility.
- Mocks Landing requires rail overcrossing seismic upgrades.
- Outside the Port areas, industries are not as well connected to the region’s freeways.
- Portland wants “sustainable” industry; harbor area industries such as metals do considerable recycling but receive little recognition.

Uncertainties with planning and zoning deter development. Planning issues “shouldn’t be debated forever.”

Question: What Are the Needs & Issues Facing River-Dependent Industries & Sites?

River-dependent industries and sites are facing a number of issues that in part are related to long-term needs. Needs and issues range from regulatory to maintaining a viable working waterfront to lack of readily developable sites to private market forces.

Below is a synopsis of PHILS findings and focus group discussion:

Preliminary Findings:

- From existing operations, greatest demand of (100+ acres) as indicated by marine terminals (notably auto imports).
- Approximately 9% of 3,130 acres of riverfront property is classified as vacant (and within top two tiers of buildable land inventory) by Metro.
- Only 153 acres of tier A/B vacant riverfront land are situated north of the St. Johns Bridge.
- A site constraints evaluation has focused on threshold criteria of appropriate zoning and minimum depth barge access. Other criteria considered include deep draft shipping, rail/street access, lot depth, environmental contamination, compatible neighbors, wetlands, trail easements, flood plain, and scenic overlay.
- Capital investment may be deferred pending Superfund resolution.
- Harbor area firms express interest in reserving riverfront sites for industrial use (whether marine dependent or not).
- Reserving riverfront land for future generations also is an expressed or implied interest for a number of firms – even if demand for added riverfront activity is not readily foreseeable today.

Focus Group Discussion:

- A participant's company has purchased two new plants outside Oregon because it is easier to do business in other locations.
- Superfund uncertainties have affected lease negotiations with a major user of Port facilities.
- To be competitive, river land needs to be able to be used in a more timely fashion.
- How will Metro Goal 5 setbacks affect industry location and viability along the river?
- Portland needs continued job base of companies like Freightliner.
- Fewer ships are calling on the Port; it is important to try to prevent a "dying waterfront."
- The region needs a "more sophisticated way" of looking at riverfront land.
- New large river-dependent industries are locating outside Portland elsewhere on the Lower Columbia River.

Question: What Are the Needs & Issues Facing Upland Industries & Sites?

Upland industries and sites are facing a slightly different set of needs and issues. Maintenance of the City's industrial sanctuary policy is important for the harbor to remain a viable industrial district. Transition to knowledge base industries is desired, and raises questions concerning the education system's ability to effectively serve those industries. Establishing a program that creates interaction between public and private stakeholders could reinstate confidence in Portland being a desirable place to operate a business. A brief synopsis follows:

Preliminary Findings:

- There appears to be general consensus to continue exclusion of residential and large scale commercial from the industrial sanctuary.
- Less agreement is evident on how broadly "industrial" should be construed with flexibility for:
 - ✓ Only 153 acres of tier A/B vacant riverfront land north of the St. Johns Bridge
 - ✓ Support retail/service
 - ✓ Creative services/information technology
 - ✓ Business park/flex space
- Priority emphasis is desired from firms in all harbor area industrial district for roadway improvements for freight and employee commutes.
- Some shift from manufacturing to transportation dependent firms is expected, particularly if major manufacturing anchors downsize or terminate Portland operations.
- There is strong interest in improved transit – including shift workers.
- Greater evidence of public support is desired to build consensus for action to address issues of improved, faster, lower-cost permitting and addressing labor issues including workers comp/health care costs.
- Pro-active public decision-maker support also is desired for (a) more interaction with policy makers; and (b) policy/investment decisions *making a difference*.

Focus Group Discussion:

- Portland's future is not manufacturing but distribution to the Pacific Rim.
- The City needs to determine what it wants Portland's harbor area to be in the future.
- A priority should be to pursue knowledge-based industry. But what is the education system capable of turning out?
- The City "over regulates and under interacts."
- Portland should "have a calling program" with regular visits to business and industries.

Source: E.D. Hovee & Company. Compiled from focus group discussions of September 4 and 19, 2002. See Appendix B for added detail.

Summary Implications: The business interviews and focus group sessions unveiled several *big picture* issues and opportunities facing the harbor area as well as the region.

The 80 businesses interviewed employ about one-third of the district's workforce, as the questionnaire focused on medium to large firms. Nearly 60% of firms interviewed indicated that their harbor operations produce annual gross revenues of \$20 million or more. One-third indicated revenues have increased over the last 3-5 years, while one-fourth indicated a decline – due primarily to a recessionary economy.

Business leaders noted a number of advantages to being located within the Portland harbor industrial area. Access to a solid, intermodal transportation infrastructure is generally viewed as the greatest advantage across all industry groups. Close proximity to customers and vendors, followed by proximity to river, locations central to a skilled labor force and low cost availability of land and building space also were frequently mentioned.

Industrial sanctuary designation appears to be a locational advantage primarily to manufacturers, but this should not be construed as not being important to the other industry groups. A significant number of all respondents indicated a preference for reserving riverfront properties for maritime/industrial activities and a reservation about allowing industrial sites to convert to non-industrial uses.

While no individual disadvantage was highly represented, a *common overall theme* throughout many of the interviews appears to be that Portland is (or has) become an undesirable place to conduct business (most strongly felt by deep-rooted firms) for several factors, as identified by those interviewed:

- High cost of doing business (both regulatory and market)
- Perceived anti-business sentiment
- Small economy/consumer market of Portland metro area
- Not central to major U.S. markets

Business leaders identified several emerging trends/issues affecting their companies such as consolidation and mergers, enhancement of the transportation network, access to qualified, skilled labor, and feasibility of long-term capital investments. Firms are faced with a number of challenges that fall under local infrastructure constraints, regulatory environment, long-term viability of marine facilities and private market issues (e.g. cost competitiveness, labor costs, penetrating new markets, unencumbered land, etc.). Opportunities noted include:

- Strategically positioned within Pacific Northwest
- Skilled workforce
- Distribution network
- Room to grow within an industrial sanctuary
- Business opportunities unique to firm interviewed, regardless of harbor area

Most firms interviewed anticipate business operations to remain the same over the next 3-5 years, with less certainty longer-term. Manufacturers are the most likely candidates to expand; only a few require additional land not currently under their control.

While few of the businesses interviewed plan to relocate out of the harbor area, long-term commitment to the harbor area is less certain due to:

- Increased cost of doing business in Portland compared to the past (e.g. electricity, labor, transportation congestion, land/building space).
- Specific issues/concerns with City, Port of Portland, and other regulatory agencies (e.g. permitting time/cost, lack of incentives for smaller, long-established business, etc.).

Business leaders were asked to give their opinion on the effect certain harbor-related issues would have on their firms:

- *Portland Harbor Superfund* – twenty-six indicated no effect, 24 expect adverse effects and 15 were uncertain.
- *Columbian River Channel Deepening* – twenty-nine do not anticipate any effects, while 27 indicated a positive effect.
- *Willamette River Maintenance Dredging* – thirty-one said no effect, as 29 expect positive results.
- *I-5 Trade Corridor Improvements* – nearly all expect a positive influence on business.
- *Endangered Species & Clean Water Acts* – twenty-three responded with a negative effect, 15 no effect, and 17 uncertain.
- *Recreational Boating & Trail Access* – forty-one said no effect and 14 were uncertain.
- *Transitioning to Non-Industrial Uses* – twenty-seven were against the idea and another 20 were uncertain about the impacts.
- *Reserving land for Maritime Industries* – thirty-one responded with a positive and 18 said no effect. Most just want land reserved for industrial use, maritime or otherwise.

IV. HARBOR INDUSTRY ANALYSIS

This analysis now shifts from the selected sample of interview and focus group respondents to a broader harbor industry analysis. This expanded review draws from interview results combined with quantitative analysis using regional input-output economic data.

A more in-depth review of underlying industry dynamics both regionally and within the Portland harbor industrial area is provided in this section. The analysis also evaluates the suitability of Harbor area industrial sites and land use sensitivities.

A. COMPETITIVE ADVANTAGES

Economic development opportunities that may be available for the Portland harbor industrial area will result in part from the Portland-Vancouver metro area's overall competitiveness in attracting industries relative to other regions nationwide. The Portland-Vancouver metro area is defined to include Clackamas, Multnomah, and Washington Counties in Oregon as well as Clark County in Washington State. The entire metro area is viewed as the most appropriate level of analysis because it functions as an integrated labor market, is the region used by Metro for planning purposes, and represents the core economic base.

The City's Part 1 study considered the region's current competitive advantage based solely on employment concentration. This Part Two report takes the analysis one step further by examining how the region's competitiveness has changed since 1990, as well as measuring its competitiveness across a broader number of important economic factors.^{vii}

Regional Competitive Methodology. This Part Two assessment identifies the industries for which the Portland-Vancouver metro area has a *competitive advantage* with the greatest potential for success in attracting (or retaining) added business investment and employment. The end result of this analysis will be a determination of the industries that will most likely prosper and be best suited for the region with particular application to the harbor area.

Key information provided in this section comes from Minnesota IMPLAN Group's proprietary IMPLAN database and model.^{viii} Information for 1999 is the most recent available, and is used to analyze current conditions. In some cases, 1990 data is also incorporated to identify the underlying structural changes and economic trends occurring since 1990.^{ix}

A key measuring tool – or benchmark – used to analyze a local industry cluster's performance as compared to the nation is termed a *location quotient* (LQ). The LQ measures how competitive firms in the Portland metro area are to other firms operating in the same industry nationally. The LQ is computed as a ratio between the region and the nation.

An LQ of more than 1.00 indicates that the region outperforms the nation. For industries where the LQ is less than 1.00, the region underperforms the U.S. For example, if the output per worker for the transportation equipment industry is \$361,800 in the Portland-Vancouver metro area and \$320,000 nationwide, then the LQ would be 1.13 (or $\frac{\$361,800}{\$320,000}$). An LQ below 1.0 means the industry could be at a competitive disadvantage and an LQ above 1.0 means the industry could have a competitive advantage.

Regional Employment Concentration. As of 1999, the metro area contained nearly 1.2 million jobs; 37% are industrial-related. The job base has increased by 32% since 1990.

While the industrial job base has been increasing in the region, a similar trend has occurred nationally but at a much slower rate. Between 1990 and 1999, the region's industrial employment increased by 23% versus 9% nationwide.

Figure 23. Concentration of Portland-Vancouver Metro Area's Employment Base

Employment Sector	PDX Metro Area		PDX Average Wage		United States		Jobs LQ	
	1999 Jobs	% Chg. 1990-99	1999	% Chg. 1990-99	1999 Jobs	\$ Chg. 1990-99	1999	Chg. 1990-99
Construction	80,313	+28.3%	\$44,200	+22.7%	10,976,290	+18.7%	1.04	- 0.02
Manufacturing	142,208	+14.3%	\$55,800	+10.6%	19,125,967	- 2.6%	1.06	+0.07
20 Food products	8,449	- 4.7%	\$39,600	- 12.9%	1,724,836	+2.6%	0.70	- 0.13
22 Textile mill products	1,376	- 17.0%	\$40,200	+12.5%	567,371	- 19.5%	0.35	- 0.02
23 Apparel & textiles	2,599	- 15.1%	\$18,200	- 25.1%	743,851	- 31.6%	0.50	+0.06
24 Lumber & wood	6,663	- 22.5%	\$45,300	+2.9%	941,306	+10.6%	1.01	- 0.57
25 Furniture & fixtures	2,904	+7.4%	\$30,700	- 11.0%	584,973	+10.9%	0.71	- 0.09
26 Paper products	6,053	- 25.9%	\$56,900	- 18.3%	669,733	- 3.9%	1.29	- 0.55
27 Printing & publishing	12,101	+31.3%	\$41,100	- 3.4%	1,665,500	- 3.0%	1.04	+0.20
28 Chemical products	1,683	+15.0%	\$56,700	+0.9%	1,044,571	- 4.1%	0.23	+0.02
29 Petroleum products	332	- 31.1%	\$54,900	- 27.4%	127,420	- 15.2%	0.37	- 0.13
30 Rubber & plastics	5,129	+47.7%	\$35,300	- 13.1%	1,010,091	+13.0%	0.72	+0.12
31 Leather products	296	- 3.5%	\$27,500	+41.5%	80,601	- 42.1%	0.52	+0.18
32 Stone, glass & concrete	3,382	+4.5%	\$40,700	+21.8%	594,588	- 4.9%	0.81	+0.00
33 Primary metals	7,391	- 28.4%	\$54,700	- 8.7%	698,865	- 7.0%	1.51	- 0.64
34 Fabricated metals prod.	12,136	+36.3%	\$39,800	- 14.2%	1,572,816	+9.4%	1.10	+0.13
35 Industrial machinery	18,101	+22.9%	\$65,000	+23.9%	2,164,051	+1.1%	1.19	+0.12
36 Electronic equipment	30,334	+104.0%	\$80,400	+46.8%	1,691,104	- 0.1%	2.56	+1.18
37 Transport. equipment	12,629	+22.8%	\$58,600	- 6.2%	1,902,800	- 5.2%	0.95	+0.14
38 Instruments	7,197	- 31.5%	\$67,400	+22.9%	854,158	- 14.9%	1.20	- 0.44
39 Misc. manufacturing	3,453	- 3.2%	\$27,500	+1.6%	487,332	+8.8%	1.01	- 0.24
Transportation	40,635	+35.0%	\$39,400	- 13.6%	5,041,707	+34.1%	1.15	- 0.10
41 Transit	3,682	+34.9%	\$23,900	- 8.4%	607,020	+46.9%	0.86	- 0.17
42 Trucking & warehousing	19,521	+5.9%	\$40,400	- 12.6%	2,446,837	+22.0%	1.14	- 0.30
44 Water transportation	2,436	+56.7%	\$56,400	- 14.4%	191,350	+1.7%	1.81	+0.52
45 Air transportation	9,958	+165.1%	\$40,900	- 25.9%	1,230,284	+70.4%	1.15	+0.34
47 Transportation services	5,037	+39.1%	\$35,700	- 7.2%	566,216	+31.7%	1.27	- 0.05
Communication & Utilities	88,150	+28.2%	\$56,700	+4.6%	9,624,844	+11.4%	1.31	+0.06
48 Communication	9,776	+49.3%	\$66,500	- 5.0%	1,467,423	+19.9%	0.95	+0.11
49 Electric, gas & sanitation	4,774	+20.1%	\$85,200	+23.8%	697,084	- 12.4%	0.98	+0.19
Wholesale	73,600	+26.3%	\$53,500	+4.1%	7,460,337	+12.8%	1.41	+0.03
Combined Industrial Sectors	424,906	+23.5%	\$51,800	+7.3%	52,229,145	+9.0%	1.16	+0.04
All Employment Sectors	1,156,428	+31.9%	\$36,700	+3.2%	164,835,917	+20.2%		

Note: LQ means Location Quotient. All figures are preliminary and subject to change.

Source: E.D. Hovee & Company using Minnesota IMPLAN Group's proprietary IMPLAN database and model.

Relative to the U.S., it appears that the Portland-Vancouver metro area has a high level of industrial activity. However, this is not true for all employment sectors, as the region has a high activity level (or potential competitive advantage) in only half of the industrial sectors noted above (such as electronic equipment, water transportation, and primary metals).

The highest level of activity, by far, occurs within the electronic equipment industry. The level of concentrated activity has in fact increased significantly since 1990. While primary metals is a relatively competitive industry, it has declined in its relative concentration of activity as compared to the U.S. The same is true for the lumber & wood products industry.

The *fastest-growing* industry in the Portland-Vancouver metro area is air transportation, which has gone from 3,756 jobs in 1990 to 9,958 in 1999. Other rapidly-growing industries have included electronic equipment, water transportation, communications, and rubber & plastics.

While industrial employment has not increased as rapidly as the Portland metro non-industrial job base, industrial jobs pay an average of \$51,800 per year. This is more than 40% above the *average wage* for all employment sectors of \$36,700. Average wages for industrial jobs also increased by more than 7% from 1990-1999 (in real or inflation adjusted terms), well above the 3% gain experienced for all employment sectors of the metro area economy.

There are a limited set of industry sectors that *score well* according to all of the following criteria:

- Average wage above the average for all Portland metro employment
- Wage increases exceeding the average for all sectors
- Industry concentration higher than the U.S. average (i.e. LQ greater than 1.00)
- Increased industry concentration (or LQ) in the 1990s

The four industry sectors that have met all of these criteria are industrial machinery, electronic equipment, communication & utilities, and wholesale trade. *Note:* The employment analysis presented in this section appears generally consistent with the City's Part I analysis. While specific estimates may differ, the results are similar.

Industry Productivity & Value-Added. Regionally, industrial workers are nearly on par with the rest of the nation in terms of *productivity* (measured as value of output produced per worker). In 1999, the average industrial worker in the metro area produced output valued at \$141,100, only 2% below comparable national rates.

Portland area industries exhibiting relatively high rates of productivity compared to the U.S. include electronic equipment, lumber & wood, and industrial machinery. Productivity in these industries relative to the nation also has increased in recent years. The electronic equipment industry, with the highest productivity rate as compared to the U.S., has improved its productivity position with the fastest growth rate among all industrial-related sectors.

Figure 24. Average Productivity by Sector for Portland-Vancouver Metro Area (versus U.S.)

Employment Sector	1999 Output/ Worker	Location Quotient		% of Output Value-Added			
		1999	Change 1990-99	1999		Change 1990-99	
				PDX	US	PDX	US
Construction	\$119,400	1.08	+0.14	41.0%	39.0%	+3.6%	+0.7%
Manufacturing	\$223,100	1.04	+0.13	40.4%	35.7%	+1.5%	- 3.4%
20 Food products	\$288,500	1.02	+0.09	30.4%	26.8%	- 1.6%	- 0.2%
22 Textile mill products	\$131,200	0.98	+0.02	42.6%	33.3%	+4.3%	+4.1%
23 Apparel & textiles	\$99,900	0.91	- 0.04	25.5%	31.3%	- 15.4%	- 9.7%
24 Lumber & wood	\$160,900	1.23	+0.08	38.2%	35.8%	+0.5%	+1.3%
25 Furniture & fixtures	\$114,800	0.95	- 0.08	34.8%	36.3%	- 11.8%	- 8.9%
26 Paper products	\$253,700	1.02	- 0.01	36.0%	33.8%	- 5.6%	- 2.8%
27 Printing & publishing	\$122,600	0.93	- 0.00	44.0%	45.1%	- 8.2%	- 4.6%
28 Chemical products	\$271,400	0.71	- 0.05	36.7%	43.5%	+1.3%	+5.1%
29 Petroleum products	\$435,100	0.33	- 0.19	49.3%	16.7%	+26.1%	- 7.0%
30 Rubber & plastics	\$165,600	0.97	+0.03	29.3%	32.3%	- 24.1%	- 20.0%
31 Leather products	\$74,300	0.68	- 0.32	54.7%	47.6%	+23.3%	+9.8%
32 Stone, glass & concrete	\$141,400	0.86	+0.00	41.1%	41.8%	+1.5%	- 5.0%
33 Primary metals	\$201,100	0.79	- 0.13	34.7%	30.4%	+12.2%	+1.9%
34 Fabricated metal prod.	\$146,800	0.94	- 0.03	45.7%	44.0%	+0.2%	+0.1%
35 Industrial machinery	\$235,900	1.22	+0.17	32.9%	36.5%	- 14.5%	- 12.3%
36 Electronic equipment	\$286,100	1.28	+0.28	57.8%	48.8%	+26.9%	+6.9%
37 Transport. equipment	\$361,800	1.13	+0.14	23.9%	28.5%	- 14.6%	- 12.1%
38 Instruments	\$189,400	1.00	+0.25	38.6%	37.0%	- 20.7%	- 19.7%
39 Misc. manufacturing	\$94,300	0.87	+0.01	46.6%	51.8%	+6.8%	+10.5%
Transportation	\$105,200	1.05	- 0.00	52.7%	52.7%	- 10.5%	- 5.5%
41 Transit	\$47,100	1.04	+0.07	61.8%	60.7%	- 12.0%	- 7.0%
42 Trucking & warehousing	\$116,800	1.08	- 0.03	46.1%	43.1%	- 20.2%	- 18.7%
44 Water transportation	\$231,500	1.08	- 0.06	38.6%	34.4%	- 3.7%	+2.2%
45 Air transportation	\$94,900	0.87	- 0.07	68.7%	69.2%	+10.5%	+12.8%
47 Transportation services	\$62,300	0.88	- 0.08	73.3%	73.3%	+6.3%	+13.0%
Communication & Utilities	\$54,600	0.70	+0.07	60.7%	60.0%	- 3.1%	- 1.4%
48 Communication	\$260,000	0.87	- 0.09	55.5%	56.5%	- 22.2%	- 19.4%
49 Electric, gas & sanitation	\$475,000	1.06	+0.08	66.6%	65.0%	+15.3%	+15.9%
Wholesale	\$129,600	1.07	+0.09	71.0%	71.0%	- 8.6%	- 4.5%
Combined Industrial Sectors	\$141,100	0.98	+0.13	47.9%	44.1%	+0.7%	- 1.2%
All Employment Sectors	\$100,600	1.03	+0.13	57.2%	57.9%	- 1.7%	+0.3%

Note: All figures are preliminary and subject to change.

Source: E.D. Hovee & Company using Minnesota IMPLAN Group's proprietary IMPLAN database and model.

As compared to the nation, the Portland-Vancouver metro area's industrial sectors (taken together) produce a level of value-added output above the nation.^x Out of the 28 industrial sectors identified, 13 out-performed the U.S. over the last decade. In effect, Portland's level of industrial value-added also has improved relative to the nation.

Export Orientation, Procurement & Multipliers. Traditionally, to be deemed *export-oriented*, an industry must export at least 50% of its output to purchasers outside the region. Taken as a whole, the region's industrial sectors come close the threshold as they export almost 50% of their output to communities outside the Portland-Vancouver metro area.

Figure 25. Export Orientation, Local Procurement, and Economic Impact by Sector

Employment Sector	% of Portland Output Exported		1999 Local Procure.	Economic Multipliers (1999)		
	1999	Change 1990-99		Output	Income	Jobs
Construction	18.1%	+8.5%	100.0%	1.82	1.85	2.16
Manufacturing	69.3%	+48.7%				
20 Food products	45.5%	+38.5%	41.8%	1.72	2.74	3.42
22 Textile mill products	84.1%	+80.5%	7.0%	1.55	1.65	1.80
23 Apparel & textiles	10.4%	+5.1%	26.0%	1.63	2.34	1.72
24 Lumber & wood	26.7%	- 3.4%	80.4%	1.93	2.17	2.47
25 Furniture & fixtures	10.0%	- 2.4%	53.0%	1.74	2.03	1.90
26 Paper products	89.2%	+43.3%	11.8%	1.65	2.06	2.68
27 Printing & publishing	45.4%	+43.3%	43.7%	1.68	1.77	1.93
28 Chemical products	16.1%	+6.6%	21.4%	1.63	2.12	2.79
29 Petroleum products	1.9%	- 3.0%	12.4%	1.29	1.78	2.17
30 Rubber & plastics	100.0%	+99.7%	1.2%	1.66	2.15	2.14
31 Leather products	21.4%	+6.8%	10.5%	1.52	1.52	1.44
32 Stone, glass & concrete	87.5%	+80.1%	7.9%	1.70	1.90	2.04
33 Primary metals	96.2%	+65.8%	2.7%	1.60	1.83	2.27
34 Fabricated metal prod.	90.9%	+57.9%	10.5%	1.52	1.73	1.85
35 Industrial machinery	65.6%	+44.1%	32.6%	1.72	1.96	2.68
36 Electronic equipment	68.8%	+41.3%	63.1%	1.57	1.75	2.62
37 Transport. equipment	91.8%	+80.3%	7.4%	1.54	2.24	2.99
38 Instruments	49.0%	+36.8%	62.2%	1.82	1.87	2.63
39 Misc. manufacturing	87.1%	+67.7%	9.9%	1.60	1.80	1.63
Transportation	36.8%	- 4.8%				
41 Transit	27.6%	+3.2%	74.3%	1.72	1.55	1.40
42 Trucking & warehousing	19.5%	- 20.8%	99.6%	1.97	2.06	2.25
44 Water transportation	67.7%	+19.9%	100.0%	1.85	2.40	3.34
45 Air transportation	63.9%	+18.2%	46.2%	1.51	1.48	1.61
47 Transportation services	31.2%	- 15.7%	69.5%	1.71	1.50	1.55
Communication & Utilities	28.1%	+17.1%				
48 Communication	35.2%	+12.2%	54.7%	1.67	1.97	2.95
49 Electric, gas & sanitation	20.2%	+20.0%	93.8%	1.39	1.80	2.90
Wholesale	32.6%	- 6.5%	99.9%	1.61	1.58	1.96
Combined Industrial Sectors	49.6%	+28.0%				
All Employment Sectors	36.8%	+11.4%				

Note: All figures are preliminary and subject to change.

Source: E.D. Hovee & Company using Minnesota IMPLAN Group's proprietary IMPLAN database and model.

Twelve of 28 industry sectors reviewed appear to be export-oriented, with most of the other 16 showing very low proportions of their output being sold or delivered outside the region. The main reason the group as a whole does not quite meet the 50% benchmark is that this region's transportation industry, in particular trucking & warehouse – one of the region's largest employment sectors – is mostly locally focused.

Industries exporting more than 90% of their output outside the metro area include: rubber & plastics, primary metals, transportation equipment, and fabricated metal products. All four of these sectors have a strong presence in the harbor area. Another four industries showing a relatively high amount of export orientation include paper products, stone, glass & concrete, miscellaneous manufacturing, and textile mill products.

Industries making significant *local purchases* are generally found within transportation and wholesale sectors. However, there are a few manufacturers that also exhibit high levels of local purchasing, including lumber & wood, electronic equipment, and instruments.

Less than half of the industrial sectors have a *jobs multiplier* under 2.0 – in other words they support less than one job elsewhere in the Portland economy for every worker they directly employ. In fact, a number of industries support two or more indirect and induced jobs for every direct job. These sectors include food products, water transportation, transportation equipment – all of which have an active presence in Portland's Harbor industrial area. *Note:* Multipliers identified in the Planning Bureau's Part I analysis may differ, due to differences in geographic representation and data source.

Competitive Advantage Framework. The framework for evaluating potential competitive advantages is predicated on the assessment of the *current and changing competitive position* of various industry clusters in the region as compared to the nation. As indicated by the chart which follows, four distinctive *quadrants* of competitiveness can be identified:

- *Strong and growing* sectors represent industries that have an existing competitive presence in the metro area, exceeding the national average. For these sectors, the region's competitive position not only is above average, but has increased in recent years (from 1990–1999).
- In contrast, *weak and declining* industries are those that currently have below average representation; the region's competitive position for these sectors diminished even further between 1990 and 1999.
- A *mature* industry is one that currently maintains a strong and competitive position, but whose competitive position has decreased since 1990.
- Finally, *emerging* sectors are those that historically have maintained a below average competitive position but have achieved gains in competitive share since 1990.

Figure 26. The Portland-Vancouver Metro Area Competitive Advantage

Change in Competitive Position (LQ) Growing (+) Declining (-)	Emerging: Apparel & Textiles (0.50) Chemical Products (0.23) Rubber & Plastics (0.72) Leather Products (0.52) Stone, Glass & Concrete (0.81) Transportation Equipment (0.95) Communication (0.95) Electric, Gas & Sanitation (0.98)	Strong & Growing: Printing & Publishing (1.04) Fabricated Metal Products (1.10) Industrial Machinery (1.19) Electronic Equipment (2.56) Water Transportation (1.81) Air Transportation (1.15) Wholesale (1.41)
	Weak & Declining: Food Products (0.70) Textile Mill Products (0.35) Furniture & Fixtures (0.71) Petroleum Products (0.37) Transit (0.86)	Mature: Construction (1.04) Lumber & Wood (1.01) Paper Products (1.29) Primary Metals (1.51) Instruments (1.20) Misc. Manufacturing (1.01) Trucking & Warehousing (1.14) Transportation Services (1.27)
	Weak (< 100%)	Strong (> 100%)
	Competitive Position (LQ)	

Note: **Boldface** print items represent sectors with above average productivity. Percentages in parenthesis indicate employment location quotient (LQ) or competitive position relative to the nation.

Source: E.D. Hovee & Company, using IMPLAN input-output data sets, October 2002.

In reviewing the matrix classifications, the natural inclination might be to assume only “strong and growing” industries represent best industrial development opportunities. However, a more diversified *portfolio* approach should be considered. This would involve tailoring strategic decisions around:

- Limited effort – in terms of general marketing and response to inquiries – for *weak and declining* sectors (with the notable exception of the transit sector).
- Repositioning of the *mature* sectors – with emphasis on innovation, value-added diversification, improved work force skills and environmental stewardship.
- Targeted business recruitment, workforce training and infrastructure investment – for selected *emerging* industries

- Strategic business development and infrastructure support – targeted to specific industry-driven needs of *strong and growing* sectors.

Competitive Clusters. To identify the industries that the region has the greatest advantage in competing for versus other areas around the U.S., a series of screening criteria have been applied to the industry sectors identified. Five sets of screening criteria have been developed:

1. Current and changing *competitive position* of the industry – relative to the nation (as illustrated by the previous target industry matrix). The recommended target should *either* have a strong competitive position currently *or* demonstrate improvement in its competitive standing in recent years (since 1990).
2. *Worker productivity* and change in productivity – as quantifiable indicators of workforce suitability. To be recommended as a target industry, existing regional firms should *either* demonstrate high productivity comparable to other firms nationally *or* a rate of productivity increase more rapid than has been experienced by this industry sector nationwide.
3. *Percent of Output Value-Added* – with more than 50% indicating a majority of an industry's output value being created within the regional economy.
4. *Employment multiplier and/or forecast employment growth* – with the multiplier indicating the *ripple effect* that the sector provides as a stimulus to other supporting employment activity in the region. To be recommended as a target industry, the sector should demonstrate a relatively high employment multiplier.^{xi}
5. *Wage levels* including changes over time – relative to other industries in the metro area. A target threshold of preference is given for jobs *either* paying at least the region-wide average annual wage of \$36,700 *or* with positive wage growth from 1990–1999.

In the matrix chart that follows, industries are assigned a 1 for each criterion they meet. A zero is assigned for every criterion not met.

Figure 27. Screening Competitive Advantage Industries

Employment Sector	Employment LQ		Productivity LQ		% Value-Added	Jobs Mult.	Average Wage		LQ		% Value-Added	Jobs Mult.	Avg. Wage	Total
	1999	1990-99	1999	1990-99			1999	1990-99	Emp.	Prod.				
Construction	1.04	- 0.02	1.08	+0.14	41.0%	2.16	\$44,200	+22.7%	1	1	0	1	1	4
Manufacturing	1.06	+0.07	1.04	+0.13	40.4%		\$55,800	+10.6%						
20 Food products	0.70	- 0.13	1.02	+0.09	30.4%	3.42	\$39,600	- 12.9%	0	1	0	1	1	3
22 Textile mill products	0.35	- 0.02	0.98	+0.02	42.6%	1.80	\$40,200	+12.5%	0	1	0	0	1	2
23 Apparel & textiles	0.50	+0.06	0.91	- 0.04	25.5%	1.72	\$18,200	- 25.1%	1	0	0	0	0	1
24 Lumber & wood	1.01	- 0.57	1.23	+0.08	38.2%	2.47	\$45,300	+2.9%	1	1	0	1	1	4
25 Furniture & fixtures	0.71	- 0.09	0.95	- 0.08	34.8%	1.90	\$30,700	- 11.0%	0	0	0	0	0	0
26 Paper products	1.29	- 0.55	1.02	- 0.01	36.0%	2.68	\$56,900	- 18.3%	1	1	0	1	1	4
27 Printing & publishing	1.04	+0.20	0.93	- 0.00	44.0%	1.93	\$41,100	- 3.4%	1	0	0	0	1	2
28 Chemical products	0.23	+0.02	0.71	- 0.05	36.7%	2.79	\$56,700	+0.9%	1	0	0	1	1	3
29 Petroleum products	0.37	- 0.13	0.33	- 0.19	49.3%	2.17	\$54,900	- 27.4%	0	0	0	1	1	2
30 Rubber & plastics	0.72	+0.12	0.97	+0.03	29.3%	2.14	\$35,300	- 13.1%	1	1	0	1	0	3
31 Leather products	0.52	+0.18	0.68	- 0.32	54.7%	1.44	\$27,500	+41.5%	1	0	1	0	1	3
32 Stone, glass & concrete	0.81	+0.00	0.86	+0.00	41.1%	2.04	\$40,700	+21.8%	1	1	0	1	1	4
33 Primary metals	1.51	- 0.64	0.79	- 0.13	34.7%	2.27	\$54,700	- 8.7%	1	0	0	1	1	3
34 Fabricated metal prod.	1.10	+0.13	0.94	- 0.03	45.7%	1.85	\$39,800	- 14.2%	1	0	0	0	1	2
35 Industrial machinery	1.19	+0.12	1.22	+0.17	32.9%	2.68	\$65,000	+23.9%	1	1	0	1	1	4
36 Electronic equipment	2.56	+1.18	1.28	+0.28	57.8%	2.62	\$80,400	+46.8%	1	1	1	1	1	5
37 Transport. equipment	0.95	+0.14	1.13	+0.14	23.9%	2.99	\$58,600	- 6.2%	1	1	0	1	1	4
38 Instruments	1.20	- 0.44	1.00	+0.25	38.6%	2.63	\$67,400	+22.9%	1	1	0	1	1	4
39 Misc manufacturing	1.01	- 0.24	0.87	+0.01	46.6%	1.63	\$27,500	+1.6%	1	1	0	0	1	3
Transportation	1.15	- 0.10	1.05	- 0.00	52.7%		\$39,400	- 13.6%						
41 Transit	0.86	- 0.17	1.04	+0.07	61.8%	1.40	\$23,900	- 8.4%	0	1	1	0	0	2
42 Trucking & warehousing	1.14	- 0.30	1.08	- 0.03	46.1%	2.25	\$40,400	- 12.6%	1	1	0	1	1	4
44 Water transportation	1.81	+0.52	1.08	- 0.06	38.6%	3.34	\$56,400	- 14.4%	1	1	0	1	1	4
45 Air transportation	1.15	+0.34	0.87	- 0.07	68.7%	1.61	\$40,900	- 25.9%	1	0	1	0	1	3
47 Transportation services	1.27	- 0.05	0.88	- 0.08	73.3%	1.55	\$35,700	- 7.2%	1	0	1	0	0	2
Communication & Utilities	1.31	+0.06	0.70	+0.07	60.7%		\$56,700	+4.6%						
48 Communication	0.95	+0.11	0.87	- 0.09	55.5%	2.95	\$66,500	- 5.0%	1	0	1	1	1	4
49 Electric, gas & sanitation	0.98	+0.19	1.06	+0.08	66.6%	2.90	\$85,200	+23.8%	1	1	1	1	1	5
Wholesale	1.41	+0.03	1.07	+0.09	71.0%	1.96	\$53,500	+4.1%	1	1	1	0	1	4
Combined Industrial Sectors	1.16	+0.04	0.98	+0.13	47.9%		\$51,800	+7.3%						
All Industries					57.2%		\$36,700	+3.2%						

Notes: LQ denotes location quotient or competitive position relative to the entire nation. An LQ of over 100% exceeds the national average. In the five columns at the far right, 1 indicates the criterion is met. Otherwise 0 is shown. The last column indicates the number of threshold criteria met.

Source: E.D. Hovee & Company using IMPLAN.

Only the electronic equipment and electric/gas/sanitation industries meet all five criteria. However, another eleven industries met four of the five criteria. Taken together, nearly half of the industrial sectors portray the Portland-Vancouver metro area as being strongly competitive. Industries meeting *four or more* criteria include:

Construction	Instruments
Lumber & Wood	Trucking & Warehousing
Paper Products	Water Transportation
Stone, Glass & Concrete	Communications
Industrial Machinery	Electric, Gas & Sanitation
Electronic Equipment	Wholesale Trade
Transportation Equipment	

As indicated by the **boldface** type, nine of these thirteen sectors are already well represented within Portland’s harbor industrial area. Maintaining and enhancing the region’s competitive position for these key sectors will be dependent on steps to preserve and enhance the capacity for Portland’s harbor industrial users.

Summary Economic Impact. Consistent with employment data developed by the Bureau of Planning for Part 1, Portland’s harbor industrial area currently has an employment base of 39,190 jobs. Of these, 34,270 (or 87%) are industrial jobs.

The harbor area’s 34,270 industrial jobs *leverage* another 46,890 jobs throughout the metro area – for a total of 81,160 jobs directly and indirectly attributable to harbor area industries.

Figure 28. Economic Impact of Portland Harbor Area Industry

	Jobs
Portland Harbor Area Industries (Direct)	34,270
Other Economic Activity Indirectly Supported in Portland Metro Area	46,890
Total Economic Impact to Portland Metro Area	81,160
Economic Impact Multiplier	2.37

Source: E.D. Hovee & Company, using IMPLAN and Bureau of Planning employment data.

The overall impact multiplier of 2.37 for harbor area industries exceeds the typical multipliers associated with service sector jobs. This is due to relatively high wages of harbor area firms coupled with extensive local inter-industry linkages – as revealed both by industry interviews and input-output data.

The full economic impact to the metro area of Portland’s harbor area extends beyond what is represented by these quantitative estimates. Businesses and residents regionwide are dependent on goods and services that often are uniquely provided by harbor area industries.

B. CHANGING DYNAMICS OF HARBOR INDUSTRIES

Based on interviews conducted for this Part Two report, three industry clusters are of special interest for more detailed evaluation – transportation equipment manufacturing, metals, and

marine terminals. Before consideration of the inter-industry linkages that these clusters represent, we first describe an analytic framework for distinct characteristics and harbor industry linkages.

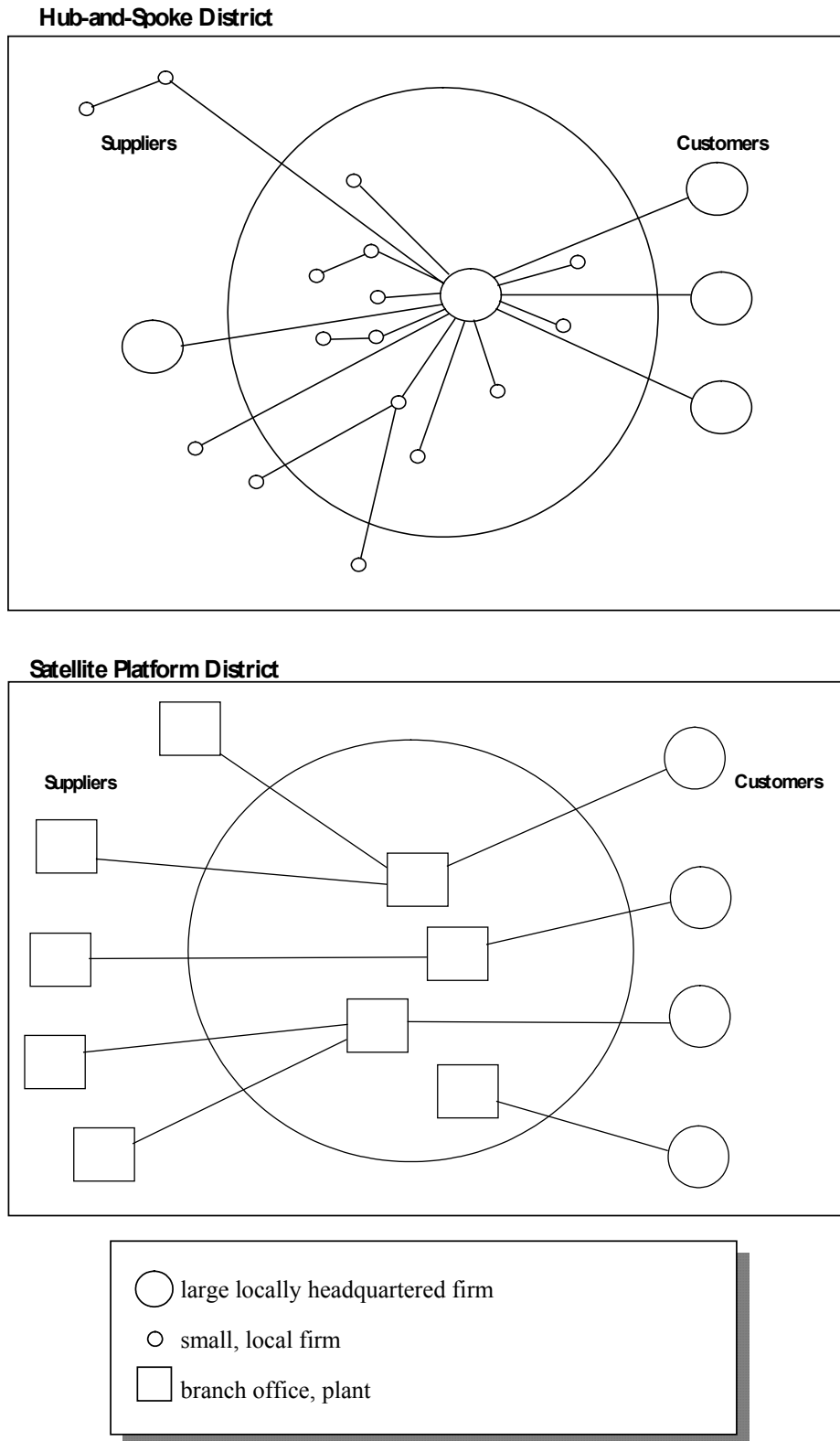
District Characteristics. As evidenced by Part 1 and 2 PHILS analysis, the Portland harbor industrial district represents an important and dynamic segment of the region's economy. Interviews with study area business leaders unveiled a number of intra- and inter-industry relationships within the harbor area, as well as inside and outside the region.

In thinking about the functioning of an industrial district, two alternative analytic frameworks are useful for consideration:

- A *hub-and-spoke* district – with large and often locally headquartered firms supplying customers often outside the district but with numerous local suppliers.
- A *satellite platform* district – with branch offices or plants served by suppliers and catering to customers largely located out of the industrial district.

The Portland harbor industrial area currently functions similar to a *hub-and-spoke* district.^{xii} Study area activity has been dominated by a few large firms such as Freightliner, Gunderson, Wacker, Oregon Steel Mills, ESCO, and Port of Portland. The ten largest harbor area private sector firms employ over 60% of the study area's workers. Due to extensive inter-firm relationships, they also support a significant portion of the remaining workforce.

Figure 29. Industrial District Characteristics



Source: Ann Markus. "Sticky Places in Slippery Space: A Typology of Industrial Districts." *Economic Geography*, July 1996.

However, the harbor area may be in transition. While still dominated by large locally owned firms, the district increasingly appears to be shifting more to the satellite platform model. This is exemplified by the focus group comment that the harbor's future may be more toward wholesale distribution rather than manufacturing.

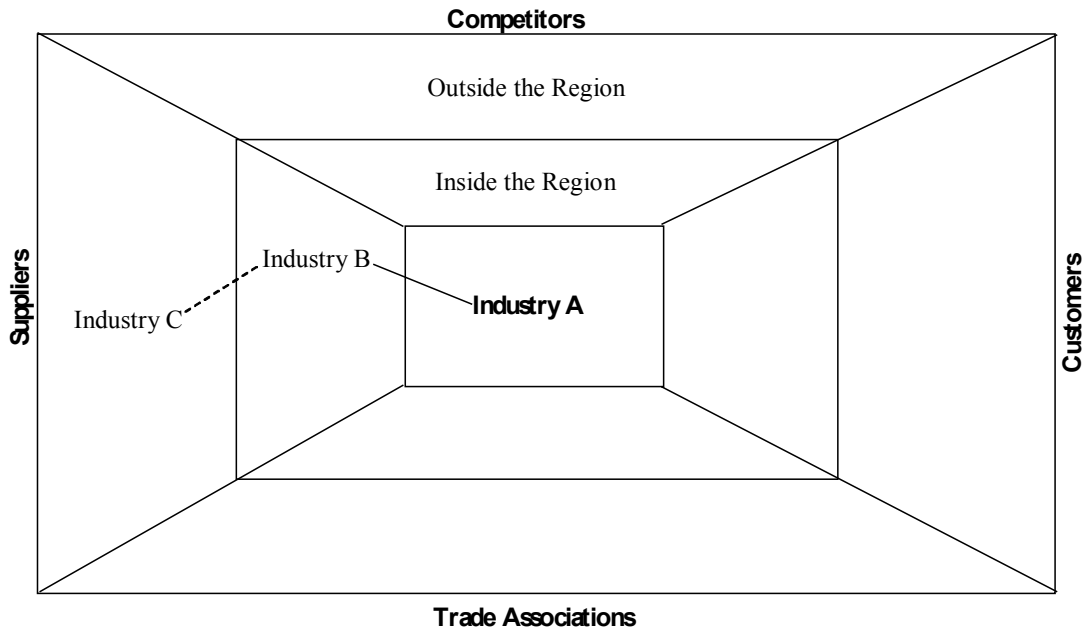
In the short term, this transition means a *hybrid district* of both large locally owned firms as well as regional/branch plants. Yet the ongoing trend of local firms seeking national/international alliances (e.g. Freightliner) creates challenges for locally dominated sectors to remain competitive with a *hub and spoke model*. Also noted is the trend for non-local firms using Portland as a regional hub to serve the western states of Oregon, Washington, Idaho, and Montana.

Harbor Industry Linkages. The business interviews revealed a number of industry linkages. Because the interview questionnaire primarily focuses on the three largest suppliers, customers, and competitors, the linkages depicted in this analysis likely underestimate the amount of interaction between harbor activities.

The Portland harbor industrial area has developed primarily around the district's major industrial/marine activities such as transportation equipment manufacturing (e.g. Freightliner, Gunderson, Zidell, etc.), petroleum products, metals, and marine terminals at the Port of Portland. In an effort to depict the business linkages between harbor industries, information collected from the business interviews is illustrated using a multi-firm/industry mapping diagram developed by the University of Minnesota.

The mapping diagram denotes inter-relationships by organizing activities into *four quadrants* and placing the subject activity in the center of the quadrants. Activities within the four quadrants are further divided between relationships identified within the local region versus outside the region. Linkages between specific activities are illustrated by the connecting lines: a) solid line for direct linkages with central activity in question and b) dashed line for linkages not directly associated with central activity.

Figure 30. Industry Mapping of Local and Non-Local Relationships



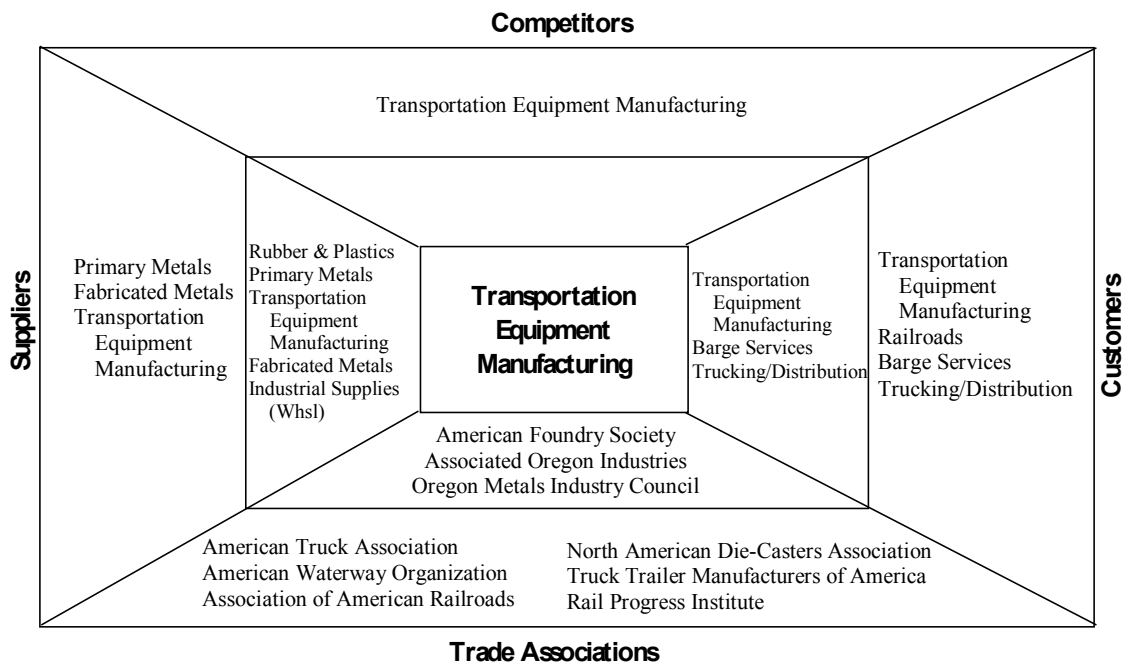
Source: Ann Markusen, et al. 1999. *Second Tier Cities: Rapid Growth beyond the Metropolis*. Minneapolis: University of Minnesota Press.

This mapping technique is now illustrated using survey data for three harbor area industry clusters – transportation equipment manufacturing, metals, and marine terminals.

Transportation Equipment Manufacturing. Harbor area firms comprise both major manufacturers of finished products (e.g. railcars, barges, car carriers and trucks) as well as component companies such as hubs. There are a number of intra- and inter-relationships between companies, especially with metals and truck-related manufacturers.

The six firms interviewed from the Transportation Equipment Manufacturing sector employ 3,680 full-time workers and likely support another 7,300 within the Portland-Vancouver metro area. All six have annual revenues of \$20 million or more each.

Figure 31. Transportation Equipment Manufacturing Linkages



Source: E.D. Hovee & Company.

In Portland, transportation equipment manufacturers support a wide range of vendors – located in the harbor area and elsewhere throughout the metro area. Home grown firms such as Gunderson and Freightliner are industry leaders.

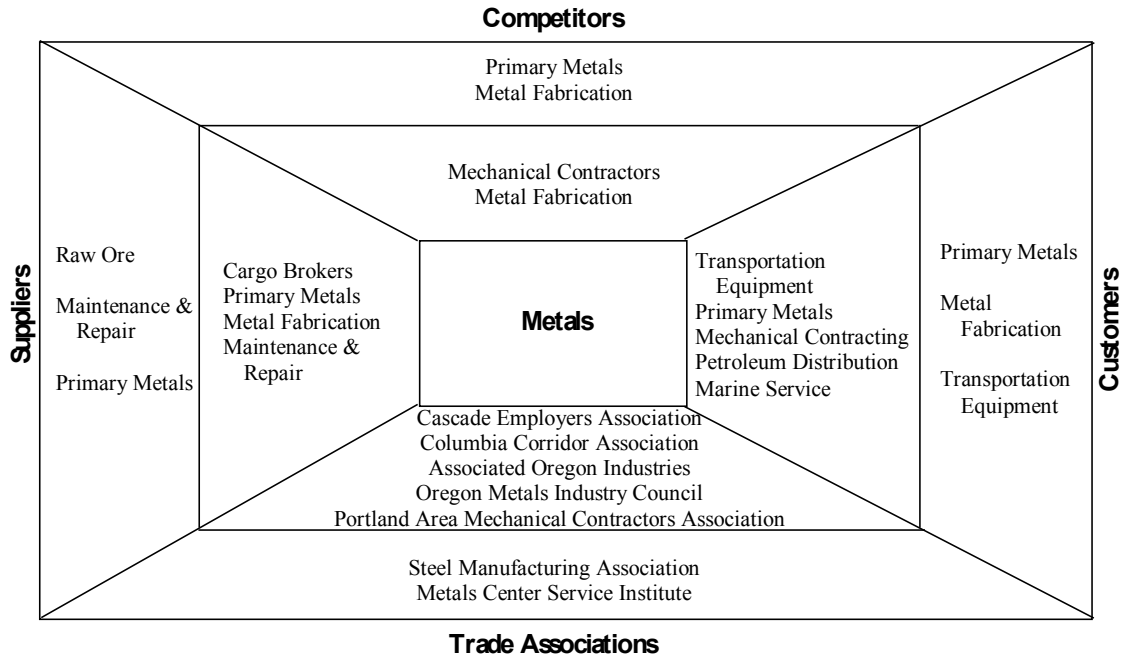
Curtailed or relocation of these operations would have substantial negative ripple effects throughout the metro economy. Conversely, efforts to stabilize and continue to grow these economic *powerhouses* in Portland would capitalize on the region’s in-place infrastructure of supporting vendors and offer continued prospects for high wage employment benefiting Portland and the region.

Metals. The metals industry is an important segment of the regional economy. While the four harbor area firms interviewed employ only 850 workers, these firms provide a *foundation* for goods and services essential to a variety of other companies throughout the region and beyond.

The industry comprises both primary foundries as well as fabricators, with a slant toward steel products. The metals industry supplies goods and services to a variety of other harbor industries

such as transportation equipment, petroleum distribution and marine services. These firms also supply each other with goods and services.

Figure 32. Metal Industry Linkages



Source: E.D. Hovee & Company.

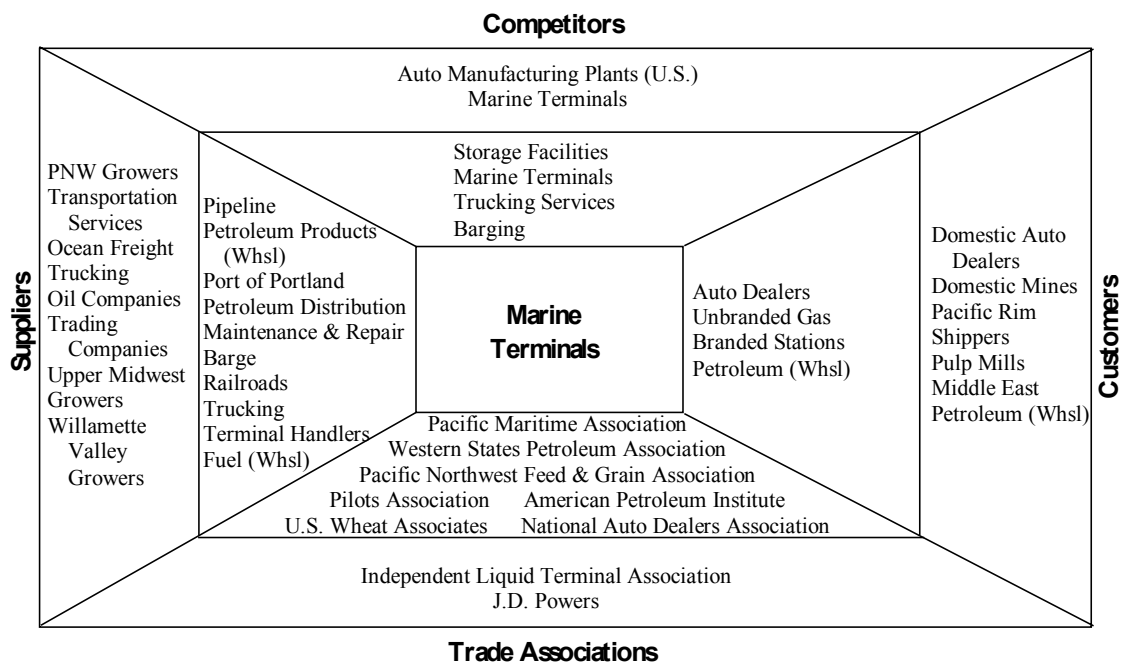
The metals cluster is increasingly research and technology oriented and comprises a wide range of firm types and sizes. Critical to continued competitiveness will be the capacity for continued quality and innovation to support product pricing above what foreign or domestic customers might offer.

As with transportation equipment, the ability to continue growing a strong, competitive (but specialized) metals industry in Portland will affect the region's ability to maintain and build a high wage economy. Most likely, industry strengthening and repositioning can occur only as the result of active public-private collaboration – with public support in targeted education/training, infrastructure investment, and regulatory reform.

Marine Terminals. Interviews were conducted with thirteen private sector businesses that utilize Port or proprietary marine terminal facilities in Portland’s harbor industrial area. Activities include grain elevators, auto terminals, petroleum distribution, containers, and liquid bulk facilities. The marine terminals are more apt to be competitors than business affiliates – unlike the two previously discussed industry groupings. In fact, none of the terminal operators interviewed directly conduct business with one another.

The thirteen marine terminal businesses interviewed employ 780 workers directly on-site. However, they service an expansive region reaching as far as the upper Midwest of the U.S. – with exports to the Pacific Rim. Most of the terminals reporting gross revenues indicated \$5-\$20 million for their Portland harbor facility.

Figure 33. Marine Terminal Industry Linkages



Source: E.D. Hovee & Company.

In effect, the maritime industry cluster more closely approximates the model of a *satellite platform district* – with more diverse interindustry linkages both locally and globally. While marine terminal operators draw from a diverse set of customers and serve widely varying markets, they share similar needs for continued viability in the Portland harbor:

- Access to competitive multimodal transportation facilities.
- Availability of sites suitable for continued operations, modernization and expansion.
- Incentives to remain and re-invest in Portland harbor operations.

Portland’s ability to maintain and benefit from this activity likely depends on greater understanding and supportive investment tailored both to the unique and common interests of its marine terminal users.

C. INDUSTRIAL SITES & SUITABILITY

To this point, the harbor industry analysis has focused on the demand side of industry potentials. The analysis now turns to supply side issues affecting the harbor area's regional competitiveness. At the core of the supply variables that can be affected locally is industrial site availability and suitability.

River-Dependent Use. In order to address the long-term viability of utilizing riverfront properties for continued maritime use, criteria were developed to identify potential site development constraints. The fourteen criteria appear on the following table, with the evaluation illustrated on the subsequent map.^{xiii}

Of the approximately 3,130 acres of riverfront property, an estimated 580 acres (19%) have no constraints – all located in Rivergate. The majority (51%) of riverfront properties comprising 1,600 acres have 1-3 constraints that could require some form of mitigation to remain for maritime use.

Figure 34. Ranking Criteria for Evaluating Long-term Viability of Riverfront Properties for Marine Terminal Use

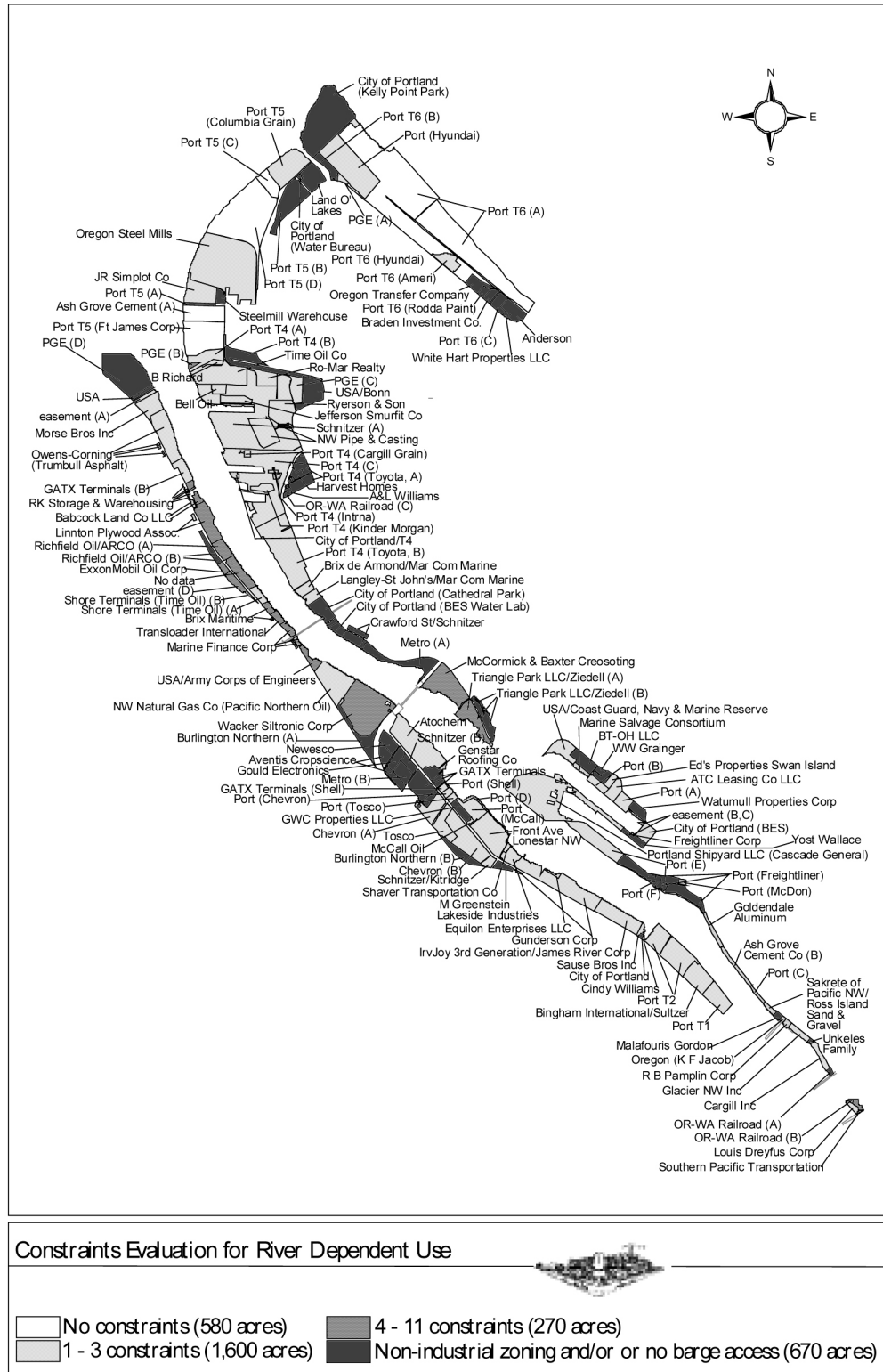
Criteria	Constrained ⊕	Unconstrained ●
THRESHOLD CRITERIA		
1. Appropriate Zoning	Non-industrial zone.	Industrial zone (IH or IG).
2. Barge Access	No existing dock and lacks mooring access with at least 20' draft within 150' of shore. Barge access extended to lots under same ownership/lease, adjacent to public ownership with barge access, or within taxlots with barge access.	Existing dock or 20' + draft within 150' of shore.
ADDITIONAL CRITERIA		
3. Shoreside Barge Access	No existing dock, and lacks mooring access with at least 20' draft for a length of 400' within 10' of shore.	Existing dock, or 20' + draft for a length of 400' within 10' of shore.
4. Ship Access	No existing dock and lacks mooring access with at least 35' draft for a length of 400' within 10' of shore.	Existing dock or mooring access with at least 35' draft for a length of 400' within 10' of shore.
5. Rail Access	No rail access.	Rail spur on property.
6. Truck Access	Access by local streets through residential zones.	Site within truck district that has access to a regional trafficway, major street, or district collector in Portland <i>Comprehensive Plan</i> .
7. Appropriate Street Conditions	Presence of steep topography and/or inadequately maintained access road.	Minimal topography, adequately maintained access road.

Criteria	Constrained ⊕	Unconstrained ●
8. Sufficient Lot Depth	Lot depth under 400'	Lot depth over 400'
9. Lack of Contamination	Current or previous superfund site, high priority remedial investigation or clean-up, or high priority expanded preliminary assessment.	All other sites
10. Compatible Neighbors	Linnton area taxlots adjacent to developed residential, commercial or mixed-use commercial zone.	Outside of Linnton, and no adjacent developed residential, commercial or mixed-use zoning.
11. Lack of Environmental Constraints	30% or more site coverage by wetlands or river natural (n) overlay zoning.	Less than 30% wetland coverage and within river industrial (i) or river general (g) zoning.
12. Lack of Public Easement	Existing trail (off street) at or near top of bank.	No off-street trail at or near top of bank.
13. Low Flood Risk	More than 10% of aggregated lot within flood plain.	<10% within flood plain.
14. No Building Height Limitations	Presence of height restrictions through the scenic overlay zone.	No scenic overlay zone.

Note: Criteria applied to taxlots directly fronting the river or with river access, grouped by ownership.

Source: E.D. Hovee & Company.

Figure 35. Constraints Evaluation for River-Dependent Use Map



Source: E.D. Hovee & Company

An estimated 270 acres (9%) has anywhere from 4-11 constraints. In some cases, the constraints may be amenable to remediation for river-dependent uses in a manner that allows private investment to proceed. In other instances, the constraints or cost to convert may exceed what industrial users find feasible in today's market.

Finally, 670 acres (21% of the total) are deemed as not meeting minimal threshold constraints of suitable industrial zoning and barge access. This includes sites (particularly upland properties) that may be suitable for non-marine industrial activity.

Upland Sites. The harbor industrial area has another 2,398 acres of upland property, or sites located inland and away from the Willamette and Columbia riverfronts. A detailed quantitative and mapping assessment of these properties has not been conducted as part of this study. This is for two reasons:

- The *criteria* important for evaluating constraints or suitability for non-river-dependent industrial use are different from and more varied than for river-dependent industrial activity.
- There is less data readily available to usefully and objectively assess upland site constraints.

Criteria that could be applied to assessing upland site limitations could be drawn from the following listing.

Figure 36. Potential Criteria for Upland Site Suitability

1. Appropriate zoning – industrial or employment zone.
2. Site size – can be more varied depending on business needs and whether developed for single user or as multi-tenant industrial park space.
3. Truck access – freeway connections and congestion.
4. Transit access – distance from bus stop and frequency/availability of service (including evening/weekend shifts).
5. Lack of contaminated sites – current or previous superfund designation high priority remedial investigation or cleanup, or high priority expanded preliminary assessment.
6. Compatible neighbors – proximity to residential or commercial uses that could be negatively affected by or object to industrial use (particularly at edges of the harbor industrial area).

Source: E.D. Hovee & Company.

D. LAND USE SENSITIVITY

The type and intensity of industrial activity that will locate within the Portland harbor area will be affected by several market and non-market factors. Three specific factors that will challenge the harbor area's long-term viability and competitiveness relate to availability of useable land, development and business occupancy costs, and viable alternative locations inside or outside the region.

Useable Land. A number of the river-dependent sites have constraints, which limits the amount of useable acreage for further maritime use/development. As noted earlier, only 580 acres have no constraints, most of which are owned by the Port of Portland and are located along the Columbia River at T-6. There is a significant amount of land (1,600 acres) that is encumbered

with 1-3 constraints. These sites tend to be privately owned/operated and are located along the Willamette River. There are only a few hundred acres that have a significant number of encumbrances (4-11 constraints). However, these sites are strategic for the Harbor's long-term maritime viability. These sites include Linnton, Oregon's petroleum hub, and McCormick Baxter properties.

In order for Portland to maintain a viable maritime industry, the public sector will need to work with the private sector to find feasible means for mediating the challenges facing the encumbered riverfront sites. Currently, it appears that the more constraints a site has the less investment (or more disinvestment) is occurring.

A specific example of the practical issues that site constraints pose – even for established industries – is provided by Portland's petro-chemical industry. At identified petroleum facility sites, interview results indicate that the expense of meeting environmental regulations has deterred private investment. Unless a constructive framework is developed to address many of the issues facing riverfront properties, Portland may experience relocation or displacement, over the long-term, as has occurred at other sites such as Linnton and McCormick Baxter.

Development/Business Occupancy Costs. One of the primary issues affecting the harbor area, as well as the entire City of Portland, relates to comparative costs of development and ongoing business operations. Some development costs are more specific to the harbor area (such as brownfield remediation) than the rest of Portland. However, if the harbor area is going to remain competitive with other industrial districts inside or outside the region, the issue of regulatory costs borne by the private sector appears increasingly critical to address.

Other studies conducted for sites within the harbor area have shown that industrial reuse on the Willamette River can have a negative land value. Negative land value occurs when the cost of environmental remediation and infrastructure *exceed* the competitive value of a land parcel ready for development.

When the land value goes negative, there is no incentive for the current land owner (or a prospective purchaser) to proceed with redevelopment. Industrial reuse is particularly vulnerable, since industry typically supports a lower land value than other private market uses – including residential and commercial reuse.

Studies completed for two sites in particular, McCormick Baxter and Terminal One North, indicate that without infusion of public sector resources, redevelopment for industrial (and perhaps even other higher value) use is infeasible, which means these sites are likely to remain vacant for at least the near term.

Viable Alternatives. Viable locations for various industries depends on the nature of the activity in question. The chart below identifies potential locations by industry cluster.

Figure 37. Alternatives for Industry Relocation

Within Portland Metro Area	Outside Metro Area
<i>River-Dependent:</i>	
Aggregate Most likely along Columbia River, but greater increase in transportation costs due to heavier reliance on trucks.	Not feasible due to need to serve the local market (particularly construction activity).
Marine Service Follow marine terminal activity Close operations	Not feasible or already have operations in other major markets.
Marine Terminals <i>Autos</i> North of St Johns Bridge/Rivergate Hayden Island Vancouver	Seattle/Tacoma or other west coast ports.
<i>Grain</i> North of St Johns Bridge/Rivergate Hayden Island Elsewhere on lower Columbia River (Vancouver, Kalama, etc)	Most likely to California
<i>Petroleum</i> Vancouver (near pipeline); increased pipeline reliance (albeit with greater vulnerability to pipeline service disruption).	Already have facilities in other major markets.
<i>Other</i> North of St Johns Bridge/Rivergate Hayden Island Elsewhere on lower Columbia River (Vancouver, Kalama, etc)	Seattle/Tacoma California
<i>Wholesale/Distribution:</i>	
Distribution Center North of St Johns Bridge/Rivergate Hayden Island Airport Way Wilsonville Clark County	Seattle/Tacoma Eastern Oregon/Washington (I-82/84 corridors) California
Distribution Service Locate near distribution activity	Already have facilities in other major markets.
Recycling North of St Johns Bridge/Rivergate Hayden Island Elsewhere on lower Columbia River (Vancouver, Longview, etc)	Not feasible (without major transportation costs due to need to serve local consumer and business markets).
Wholesaler Locate closer to vendors Other industrial district	Not readily feasible for firms requiring immediate proximity to serve the Portland metro market.

Within Portland Metro Area	Outside Metro Area
<i>Manufacturing:</i>	
Chemicals Other heavy industrial districts, as available Close operations	Pipeline transportation (not currently in place). Already have facilities in other major markets.
Electronics Gresham Hillsboro Clark County	Other high-tech centers elsewhere in U.S. or globally
Food Related Rivergate Vancouver Otherwise difficult due to lack of heavy industrial zoning in metro area.	Counties at edge or beyond metro area (e.g. Columbia, Cowlitz). Relocate out of Pacific Northwest.
Metals Rivergate Vancouver Otherwise difficult due to lack of heavy industrial zoning in metro area.	Counties at edge or beyond metro area (e.g. Columbia, Cowlitz). Relocate out of Pacific Northwest.
Printing-Publishing Any industrial district in metro area (but with inferior Central City proximity).	Seattle
Specialty Manufacturing Most industrial districts, except heavy industrial activities. Difficulty for heavy industrial activities.	Seattle Locally focused operations would cease to exist.
Transportation Manufacturing NW Industrial District Swan Island Rivergate Clark County Difficulty for heavy industrial activities.	East Coast, Midwest or foreign production.

Source: E.D. Hovee & Company.

Transportation & Land Use Planning. Three sets of private business planning decisions have been identified – either of which could substantially affect both transportation and land-use planning for the harbor area long-term:

- Growing need of the two main rail carriers serving Portland to establish a several hundred acre intermodal rail yard – most likely outside the harbor area and possibly outside the metro area.
- Surface transportation is important to harbor industries as trucking is the method most frequently used to transport goods in and out of the harbor. Maintaining efficient flow of traffic within the harbor area and on the region’s freeway network is critical to retaining existing businesses as well as attracting new features.
- Potential to eventually consolidate up to three existing grain elevators (including two near the Rose Quarter) at an alternate location on the lower Columbia – subject to needs for

superior/expanded unit train service and ability to make a new facility investment that increases economic returns to the operator(s) long-term.

E. LAND DEMAND

Future demand for industrial land within the Portland Harbor area will be affected by both public policy and private market forces. Policy issues include the public’s commitment to sustaining the Harbor’s locational advantages (e.g. multi-modal transportation network, viable maritime industry, industrial sanctuary, etc.) as well as working with the private sector to resolve the uncertainties/issues facing area businesses (e.g. superfund, regulatory process, etc.). The land demand analysis provided in this Part Two study relies partially upon information presented in the Bureau of Planning’s Part One analysis and interview results reported in Chapter III of this document.

The harbor area has 543 acres of vacant (undeveloped) industrial land. Only 33 acres are readily developable (Tier A) as 510 acres are constrained in some manner (Tier B).^{xiv} Of the 543 vacant acres, 294 acres are located along the waterfront and 249 acres are comprised of upland sites.

Figure 38. Portland Harbor Vacant Industrial Lands (2000)

	Tier A	Tier B	A & B
Waterfront	12.2	281.9	294.1
Upland	21.2	227.9	249.0
Total	33.3	509.8	543.0

Source: Metro, E.D. Hovee & Company.

The next chart reports vacant land by harbor subarea as reported in PHILS Part One; totals vary slightly (by 4 percent) from total land vacancy figures above due to varying methodologies. However, the general conclusions derived from both sets of data are consistent. This vacant land inventory by subarea allows land availability to be matched with projected job growth by district for a more specific land needs analysis.

Figure 39. Vacant Industrial Lands by Subarea (2000)

District	Tier A	Tier B	A&B
Linnton	2.1	19.6	21.7
Guild’s Lake	1.2	97.7	98.9
Rivergate	26.2	323.5	349.7
St. Johns	3.7	66.3	70.0
Swan Island	0.0	26.1	26.1
Lower Albina	0.0	0.0	0.0
	33.1	533.2	566.4

Note: Inventory does not include underutilized sites that may redevelop.

Source: Metro, as reported by Part One PHILS report.

Metro is projecting an added 10,460 jobs for the Portland Harbor area. This equates to an added 523 jobs per year over the next 20 years. Sixty-three percent are anticipated for the Rivergate area.

Figure 40. Portland Harbor Area Employment Forecast

District	2000	2020	00-20
Linnton	799	1,358	559
Guild's Lake	12,155	13,039	884
Rivergate	8,755	15,345	6,590
St. Johns	6,682	7,670	988
Swan Island	10,491	11,158	667
Lower Albina	2,335	3,109	774
All Districts	41,218	51,680	10,462

Note: Data based on Metro's TAZ boundaries that do not exactly represent harbor boundaries.

Source: Metro.

Employment growth will occur at both existing occupied and vacant sites. Assuming all added employment was to occur at current harbor area employment densities (8 jobs per acre), nearly 1,310 acres would be required to house all 10,460 new workers. The harbor area has only 566 acres of vacant Tier A/B land.

Businesses will accommodate additional employees on already occupied sites by reconfiguring operational layouts, adding additional shifts, or housing space currently not utilized (or being used inefficiently). A number of firms interviewed indicated they would be more likely to add an additional shift or ramp up operations during off-peak hours before considering expansion. Concerns over inadequate transit service increase when considering expanded operational hours beyond a typical "day shift," which could be a constraining factor to future employment growth

Figure 41. Portland Harbor Jobs Forecast vs. Vacant Industrial Land

District	Job Growth	Land (Acres)*	Vacant Land
Linnton	559	70	21.7
Guild's Lake	884	111	98.9
Rivergate	6,590	824	349.7
St. Johns	988	124	70.0
Swan Island	667	84	26.1
Lower Albina	774	97	0.0
All Districts	10,462	1,310	566.4

Note: Job growth projections were divided by 8 jobs per acre to estimate associated land area.

Source: E.D. Hovee & Company using Bureau of Planning.

Very few businesses interviewed indicated they had plans of expanding over the next 3-5 years or longer 5-20 year time horizon. Uncertainty surrounding current economic conditions, continued nationalization/globalization of the marketplace, and several local regulatory issues contributed to their inability to project beyond current needs. However, a few firms did indicate expansion plans. All together only 33 acres are anticipated over the next 3-5 years and 17 acres over the next 5-20 years. *Notes:* This excludes identified need for a 500-acre intermodal rail hub.

The Bureau of Planning has completed analysis of land demand for river-dependent activities. In each of the last four decades, 200 acres of riverfront property was developed for maritime

activities. This equates to an annual average absorption of 20 acres. Assuming a similar trend was to continue over the next 20-30 years, 400-600 acres of riverfront industrial property could be needed to sustain an economically viable working waterfront. Assimilating this amount of riverfront property could prove challenging, and brings into question the potential of using nearby upland sites – including potential future consideration of industrial land reserves associated with the west end of Hayden Island.

V. POLICY QUESTIONS

The analyses completed for both Part One and Two studies have surfaced a number of policy issues that should be addressed as the City carries forward its Portland harbor planning efforts. As noted at the beginning of this Part Two PHILS report, results are also expected to be important for Portland's updated economic development strategy and for marine facilities planning by the Port of Portland.

The Bureau of Planning proposed policy questions for this study to address. Additional related policy issues have surfaced from the industry interviews and economic research conducted for this Part Two PHILS report. These Part Two results are termed "survey results."

Policy questions addressed are grouped into four major topic areas covering: a) all harbor area industries, b) river-dependent industries, c) upland industries, and d) alternative futures.

A. ALL HARBOR AREA INDUSTRIES

Further understanding of three questions posed by the Bureau of Planning will be important in deciding which alternative future is the more viable – whether from a market-driven or public policy perspective. The first question relates to overall trends and issues for harbor industries, the second to the potentially changing mix of harbor area business activity, and the third to overall policy implications.

1. What are the major trends and issues affecting business and employment prospects for Portland's harbor area industries?

- *What are the major industry trends affecting Portland harbor area industries? To what extent will harbor firms be in the same business 5-10 years from now? In what ways may the face of business change? And, what are the long-term implications for the Portland harbor industrial area?*

While the national economic downturn has dramatically affected Oregon and the metro area, Portland's harbor industries generally appear to be holding their own. On average, reported employment is up by about 7% for full-time employees and down 5% for part-time employees compared to 3-5 years ago.

While stable on the downside, these businesses (generally the larger employers in the harbor area) also do not expect to be adding substantial numbers of new jobs as the economy rebounds. Average gains of 9% for full-time and 30% for part-time employees are projected over the next 3-5 years. These gains would bring full-time employment back slightly ahead of pre-recession levels; more substantial growth potential appears to lie with part-time jobs.

While considerable investment is occurring or is expected, both river-dependent and larger upland firms that plan to expand generally can do so without need for additional harbor area industrial land. Some industries – such as transportation and metals manufacturing – may essentially reinvent themselves over the next 10-20 years. All firms

that serve a national or global market are facing extraordinary competitive pressures – particularly to be more cost competitive.

- *Has Portland changed from a low-moderate cost to high cost city for business? If so, are these trends beyond local/regional control or can Portland's cost competitiveness be improved? Can cost disadvantages be offset by technological innovation and industry leadership? What supportive actions can be taken by the City, Port and other regional and state agencies?*

Finding ways to remain cost-competitive appears to be the #1 issue facing Portland harbor area industries. The challenge is particularly intense for these firms because they generally perceive Portland as no longer a low-moderate but rather a high cost city from which to do business – compared to their industry peers. The reasons vary by firm and include such factors as wage and benefit costs, cost of land, distance from market/transportation cost, underinvestment in transportation and education infrastructure, and the combined cost, uncertainty and perceived anti-business character of state/local regulation.

Some of these cost disadvantages – such as distance from market – may be beyond the influence of the Portland community to affect. Other factors – related to labor, infrastructure and regulation – may be more amenable to corrective public policy and action, although not without attendant public expense.

- *What harbor area issues are most affecting business planning and investment decisions now? In what ways? What issues potentially could become major tipping points – causing business to disinvest in the harbor area? How can these issues be addressed proactively, responding to critical business concerns and interests?*

For riverfront and some nearby owners, issues most pressing today include uncertainty and potential cost associated with superfund cleanup and maintenance of competitive multi-modal transportation (marine, rail, highway). For upland as well as waterfront industries, additional issues of concern include regional congestion (for employees and freight), encroachment of incompatible non-industrial use, high cost and time delay for permitting, and perceived lack of city/regional public policy and community support.

If not addressed, these are issues that individually or collectively could cause harbor industries to relocate and/or disinvest over time. There appear to be two primary means to proactively address industry concerns – expressed interest/interaction from the City followed by policies and investments that can make a demonstrable difference for harbor industries.

2. How will the mix of industries change in the harbor area to 2030?

- *Map the primary inter-firm and inter-industry linkages that keep particular industry segments in the harbor area.*

Key linkages for major harbor area industry groupings are summarized as follows:

- ✓ *River-Dependent* – Aggregate firms require multi-modal access including convenient local street access to major street networks. Firms must be linked to both Columbia River sites in order to transport aggregate materials (generally barged in for shallow 15-20 foot draft), and to Central City/metro area construction sites. Marine terminal/service firms require deeper draft facilities of 30-40+ feet, multi-modal access, and significant site depth. These firms are widely linked as suppliers to the region’s gas/petroleum product distribution network; regional manufacturing, wholesale and retail industries; and as transporters of products ranging from Portland metro industrial goods to Pacific Northwest/Midwest agricultural commodities.
- ✓ *Wholesale/Distribution* – Firms can be generally classified as two types: a) those serving metro area business and consumer needs, thereby placing premium value on a central regional (including Central City) location together with ready freeway access; and b) distribution centers/transshipment facilities serving markets largely located outside the metro area. For this second group, intermodal connections and competitive business cost factors are of greater importance than a central location.
- ✓ *Manufacturing* – Harbor area chemical and electronics companies are suppliers to a wide spectrum of the metro area’s high tech and general manufacturing industrial base. Food-related companies also are diverse, and vary in their utilization of regional agriculture for a regional/global market versus a local/metro market. Printing/publishing firms benefit from proximity to the Central City and from interaction with close-by suppliers and customers.

Metals and transportation firms have substantial in-place capital investment, often requiring intermodal transportation capability for bulk products, and draw on extensive vendor-supplier relationships with other similar firms as well as wholesalers and transporters in the harbor area. The long-term viability of the harbor metals/transportation clusters is closely aligned with operations of local industry leaders – notably Freightliner, Esco and Gunderson. These linkages will be illustrated with greater detail in the final report.

All harbor area manufacturing clusters (except printing/publishing) typically require heavy to general industrial zoned land that may not be readily available or suitable elsewhere in the Portland metro area. Metro’s 2000 Buildable Industrial Lands Inventory identifies only 238 vacant Tier A acres designated for heavy industrial use throughout the region, much of which appears to be comprised of relatively small development parcels. Including Tier B land brings the regional total of vacant heavy industrial inventory to just over 1,500 acres.

- *Are the land needs of these industry clusters growing, stable, or declining and by how much (e.g., acres per year to 2030)?*

Land needs vary depending on the general industry grouping and more detailed cluster under consideration:

- ✓ *River-Dependent* – Little near-term expansion demand from existing firms/operations in the Portland harbor area is foreseen, with the possible exception of auto import facilities. Relocation demand is possible depending on factors such as market pressures for existing close-in sites, resolution of superfund and dredging issues, and results of the *River Renaissance Plan*.
- ✓ *Wholesale/Distribution* – Demand has been and is expected to remain strong, consistent with historically low vacancy rates for close-in distribution space. Demand will remain particularly active with firms primarily serving the Central City/Portland metro market, assuming reasonable levels of local arterial and freeway congestion are maintained. The need for Portland harbor area distribution facilities serving a broader regional to global market is more uncertain, and depends on factors such as the competitive cost of business in Portland and suitable transportation access compared to other site alternatives considered.
- ✓ *Manufacturing* – Land needs for the industries surveyed ranges from none to modest expansion, as most firms report the ability to accommodate expansion needs on-site. However, the interview sample excludes smaller firms that may be currently generating strong land demand, both for new locations and expansion.
- *What other growing industries are well suited to the harbor area because of its location advantages (e.g., truck access in central location) and what are their likely land needs (e.g., acres per year)?*

Survey Results: For this response, the analysis draws not only from the survey results to date but other related research conducted by our firm. Some opportunities can be clearly discerned; others are more speculative. Therefore, no specific land demand projections are made at this time. For discussion purposes, it is assumed that comprehensive plan designations/zoning may be changed to meet the needs of the industries described.

- ✓ *Regional Distribution* – This assumes that Portland regains competitive share lost to Seattle-Tacoma over the last 20 +/- years. Factors pivotal to successful repositioning include available and reasonably priced land, strengthened Port/maritime activities, transition of more freight to rail (with the Columbia River as a more attractive east-west route), and supportive economic development programs.
- ✓ *Transportation/Metals* – If these existing harbor area industry clusters remain in Portland, many of these businesses likely will be dramatically reconfigured over the next 10-20 years. These industries are expected to move toward more leading technology R&D, prototype development, testing, marketing and administrative functions.
- ✓ *Wood, Plastic and other Fiber Material Technologies (including end products such as furniture)* – This assumes a renewed priority to re-capitalize on Portland's historic

forest products dominance, this time with *green products* and engineered composites most likely leading the way.

- ✓ *High Tech/Bio Tech* – The harbor area could be positioned to attract firms that: a) support existing high tech and the emerging biotech/lifescience cluster (i.e. vendors and contractors); and b) major fab operations (as in semiconductors similar to Wacker).
- ✓ *Creative Services & Information Technology (including film & video)* – While likely centered in Portland’s Central City, close-in portions of the harbor area present some opportunity due to the strong presence of the existing printing/publishing cluster. Large isolated land sites could prove attractive for larger footprint uses as for a sound stage facility. Attracting more of this investment activity likely requires adjustments to the existing industrial sanctuary.
- ✓ *Corporate Headquarters & Business Park Facilities* – Prime sites could include riverfront locations no longer suited for river-dependent activity and too expensive (when all site costs are considered) to justify industrial reuse. Accommodation or recruitment of this emerging cluster would also require modifications to existing industrial sanctuary policy.

3. What planning and policy issues are important to address for harbor industries?

- *What is the composite industrial land demand for riverfront and upland industrial sites?*

This question is difficult to address from interview data – because interview information does not cover needs of smaller industries and/or potential new firms not currently located in the harbor area. However, Metro employment forecasts provide one possible indicator of industrial land need – assuming regional growth allocations are realized.

Within Metro’s regional land inventory, there are only 33 acres of vacant Tier A land plus another 510 acres of vacant Tier B sites. This includes both river and upland sites. At absorption rates consistent with the Metro employment forecast, the Tier A inventory would be depleted within less than one year and the entire Tier A/B inventory within 9 years. This assumes that Tier B lands can be readily converted to Tier A status within the absorption time period indicated.

If this demand materializes, it can be expected from three primary sources: auto-oriented marine terminals, smaller industries in the harbor area with potential to expand, and firms not currently present in the harbor area or metro region.

- *What types of public infrastructure investments are important to continued vitality of harbor area industries?*

For both river dependent and upland firms, continued investment in the region’s multi-modal transportation system is of critical importance to industry competitiveness. I-5 Trade Corridor and congestion relief on the region’s freeway and arterial network is of interest to a wide range of businesses. Improved transit service also is identified as a growing interest.

While of greatest significance for river-dependent firms continued competitiveness of the harbor area’s intermodal capability also affects related upland industries – especially

transportation and distribution firms. This includes initiatives to maintain and improve Portland facilities and intermodal rail capabilities.

- *How can local authorities minimize regulatory costs?*

The cost, time delays and uncertainties associated with permitting coupled with the perceived lack of public agency and community support for traditional industry are major sources of frustration for many business owners – especially those with deep roots in the Portland community. Streamlining the permitting process in a manner that produces a predictable outcome within a reasonable timeframe is of critical importance to address both on-going maintenance needs and reinvestment in new or upgraded facilities. Providing assistance in working through the complex web of local, state, and federal regulations would go a long way toward rebuilding a positive relationship/image with area businesses.

- *What can be done to present Portland as a business friendly community?*

Businesses indicate that addressing industry concerns can be proactively addressed by: a) interaction with City and Port policy and decision-makers, followed by b) City policy and investment commitments that can make a demonstrable difference for harbor area industries.

B. RIVER-DEPENDENT INDUSTRIES

Two questions are of primary importance in planning for the needs of Portland’s river-dependent industry – virtually all of which is encompassed by the Willamette/Columbia harbor area defined for this study. The first question relates to the amount of land required; the second to most suitable locations.

1. How much land is needed for expansion of river-dependent industry to 2030?

- *The 1997 Harbor Land Use Inventory found a 21-acre per year average of marine industrial development on previously vacant land since the previous 1990 inventory. Is that acres-per-year trend likely to be similar over the next 30 years?*

Future demand for marine industrial land will likely be driven primarily by users not currently located in the Portland Harbor area, possibly coupled with relocation and expansion of a limited set of existing Portland Harbor area industries.

Based on interviews completed to date, there appears to be little net new land demand on at least the near term horizon from existing river-dependent industries, with the exception of auto import facilities. Future demand from external and relocation sources can come in large increments (e.g. a Vestas-type use) but is difficult to predict in advance. A key policy issue is whether to reserve marine industrial uses for future needs that can not be readily foreseen. Policy for the harbor area should address the importance of maintaining a working waterfront and determine what is required to sustain an economically viable maritime trade – both short-term and over a longer 50-100 year time horizon.

- *How much 30-year demand for land is for 50+-acre, ship-access sites? How much for 5+-acre, barge-access sites?*

In general, firms that were interviewed had difficulty projecting land needs 30 years out. Those that did venture an opinion generally indicate little to no need for added land. Most firms also report adequate expansion potential on their existing site for at least the near term (3-5 years). The greatest near-term land demand increase is projected by marine terminals, which estimated a combined total demand increase of 100+ acres. Minimal increases in land demand (not currently controlled) have been projected by manufacturers (metals, electronics and specialty) – for a total by those reporting of just under 20 acres. This demand was reported by manufacturing firms currently located on water access sites. The exception is with rail distribution, reporting a long-term need for an additional 500 acres – not expected to be readily accommodated within the harbor area and perhaps not in the Portland metro area.

- *Will there be a glut of vacant riverfront land as a result of the Superfund project (e.g., Atofina, Time Oil) or industry contraction (e.g., Alcatel, Cascade General)?*

Land data collected over the past two years preliminarily suggests an estimated 294 acres of vacant (unbuilt) riverfront/direct river access property that is not in active use, with the possible exception of minor storage activities. These sites comprise about 9% of the approximately 3,133 acres in Portland's industrial harbor area that directly front the Willamette or Columbia Rivers, or have river access (as illustrated by the land constraints mapping conducted with this analysis).

It is noted that this inventory does not include sites that are built but currently vacant – whether for sale or lease. Also noted is that, while the extent to which sites are underutilized due to Superfund or other factors has proven difficult to quantify, survey results clearly suggest that opportunities for redevelopment are contingent upon achieving greater clarity as to public/private responsibilities for remediation and the associated private property owner cost.

The constraints mapping of Section III to this report indicates an estimated 670 acres of land not well suited for river-dependent industrial activity. Another 270 acres is identified as having 4-11 constraints. These sites are most *at risk* of transitioning from active river-dependent/industrial use in the future – depending on long-term economic prospects and regulatory conditions.

For at least the immediate (3-5 year) future, it appears likely that more land along the Willamette Riverfront will be vacant or underutilized. Even sites with existing businesses may not operate to their full potential or capacity as new investment is deferred.

Underinvestment in riverfront sites can be attributed to both market and regulatory considerations. The recession has been particularly challenging for capital goods and trade-related industries – which characterize the industries of Portland's harbor area. With economic recovery, a longer-term challenge will be Portland's competitive position for trade and industrial investment.

This longer-term competitive posture will be affected by decisions about key regional investments as for channel deepening and maintenance, and ultimate resolution of major

policy/planning issues – notably superfund liability. If resolution of these issues places Portland’s riverfront industries at an increased competitive disadvantage, riverfront site underinvestment could become more pronounced than they are at present. Conversely, if resolution is achieved allowing for an adequate financial return on investment, currently vacant and underutilized sites could come back on-line with active river-dependent and/or other industrial use.

- *If the existing River Industrial Zone was substantially reduced (e.g., to the T-4 to T-6 area of the Peninsula), how soon would competing industrial uses deplete the available supply of vacant harbor riverfront land?*

This response assumes that the proposed reduction is for river-dependent uses (along Willamette and Columbia frontage) and that there are no other significant changes in upland industrial sanctuary designations.

Metro’s 2000 industrial buildable lands inventory identifies 152 acres of Tier A/B vacant riverfront north of the St. Johns Bridge (roughly equal to the land between the Port’s T-2 and T-4). Of this amount, only 12 acres are designated as Tier A with 140 acres classified as Tier B.

In comparison, developed riverfront industrial land south of the St. John’s Bridge is estimated to total just under 760 acres (also based on 2000 data). While this amount of development could not be accommodated with waterfront sites alone, the ability to at least partially accommodate potential relocation need is expanded if upland sites are included.

The inventory of all vacant Tier A land north of the St. Johns Bridge (river plus upland sites) is 32 acres. Tier B sites add 362 acres. Best case, this inventory of river-oriented and upland sites would be adequate to handle only about one-half of the acreage of current river-dependent industries south of the St. Johns Bridge.

In summary, the speed with which riverfront land north of the St. John’s Bridge is absorbed will primarily depend on: a) expansion of T-4 related auto import facilities; b) any relocation demand from river-dependent (and possibly other) industries south of T-4 on the Willamette; and c) accommodation of external demand from river-dependent users not currently located in Portland’s industrial harbor area. If demand continued at the historical (90-97) pace of 21 acres per year, Tier A and B riverfront sites could be depleted in as little as 7 years.

2. What locations make sense to reserve for river-dependent industry?

- *Which lands are the most advantageous, which are moderately advantageous, and which are marginally suited to meet future demand for river-dependent industrial use?*

The results of a preliminary riverfront sites constraints review are described in the criteria/matrix and map attached as Appendix C to this report. Fourteen criteria recommended on a preliminary basis to assess site suitability for river-dependent use are:

Threshold Criteria:

- ✓ Appropriate zoning
- ✓ Barge access

Additional Criteria:

- ✓ Shoreside barge access
 - ✓ Ship access (deep draft)
 - ✓ Rail access
 - ✓ Truck access
 - ✓ Appropriate street conditions
 - ✓ Sufficient lot depth
 - ✓ Lack of contamination
 - ✓ Compatible neighbors
 - ✓ Lack of environmental constraints
 - ✓ Lack of public easement
 - ✓ Low flood risk
 - ✓ No building height limitation
- *How long will the delay of major capital investment in the Superfund project area continue?*

Based on comments of those interviewed, major capital investment is generally likely to be postponed at least until there is more certainty as to affected private owner cost responsibilities. If the time period for clear assignment of costs is extended indefinitely, some existing operating businesses may make decisions to effectively disinvest in existing Portland Harbor facilities.

In situations where private Superfund related cost responsibilities exceed private owner resources, some remaining facilities could be closed. If private clean-up costs plus demolition exceed underlying land values consistent with property zoning, affected current and future vacated sites could remain underutilized indefinitely, unless land use redesignations allowing high value uses or public funding support for remediation occurred.

- *Should riverfront sites be considered for non-river-dependent uses? If so, for what uses and under what conditions?*

While this question was not directly asked in the interviews, there appears to be definite majority interest in having the City continue to preserve the working harbor area for industrial use. This interest is further supported by focus group discussion. If river-dependent use is no longer likely (at some river sites), conversion to another non-water dependent industrial use is generally preferred over conversion to significant retail, office, residential or mixed use.

Conversion of riverfront land to non-river-dependent industrial use will commit the land to this use for a significant period of time, but not in perpetuity. Depending on the anticipated useful and depreciable life of the investment made, these sites would likely become available for reconversion to river-dependent uses – if demand materializes – over a 20-50 year time period.

A minority of interviewees would support mixed use at selected high amenity sites and some would like more commercial services to area firms (such as dining) situated within the industrial sanctuary. For example, maintaining river-dependent industry in Linnton may prove problematic due to narrow depth of industrial land, nearby adjoining residential use, and closure/curtailment of some of the more dominant historical industrial uses.

C. UPLAND INDUSTRIES

Upland industries are defined as those firms located on sites without direct frontage or immediate site access to the Willamette and Columbia Rivers. Issues and needs associated with upland industries are not as central to Portland’s River Plan process, but are important to understand because of the interconnected nature of river-dependent with upland industrial activity. Harbor area industries are also somewhat unique in the metro area – because they are located on the largest repository of land designated for heavy industrial activity not readily accommodated elsewhere in the region.

1. What are the land needs, policies and priorities for upland (non-river) sites?

- *Should industrial sanctuary policy in Portland’s harbor area be revisited? Should mixed use including commercial/residential activity be allowed? Under what conditions?*

There appears to be general consensus from those interviewed that residential and large scale commercial retail should not be allowed in an industrial sanctuary. There is less agreement as to how broadly the term “industrial” should be construed – particularly in an era when many businesses are blurring the traditional boundary between industrial and commercial functions.

Some would favor more zoning flexibility for related commercial employment functions, including corporate office, creative services/information technology and business park/flex space applications. Others prefer maintaining existing distinctions, fearing that more flexibility will compromise the ability for some existing businesses to continue industrial operations in the manner to which they have been accustomed. If greater flexibility is desired, broadening employment uses could occur as *transition elements* along the fringes of the district where industrial and non-industrial uses abut.

- *What transportation network improvements are important to upland industries?*
As with riverfront industries, upland firms are interested in improved transportation – particularly roadway improvements both for freight and employees. This includes I-5 Trade Corridor and other congestion relief to the region's freeway and arterial network. There is perhaps surprisingly strong interest in obtaining better transit service for firms situated in locations ranging from NW Portland to Rivergate. An increasing proportion of

the industrial labor force – especially entry level including shift workers – is dependent on transit.

D. PORTLAND HARBOR’S FUTURE

Both business leaders and public policy makers will play a vital role in shaping the harbor’s economic future. A significant number of the business leaders interviewed indicated they are uncertain about the economic/financial outlook of their companies and industry. These uncertainties stem from forces external and internal to the city of Portland.

Other than promoting a favorable business environment, local policy makers may have few means to assist companies in coping with *external forces* (e.g. condition of the national economy, globalization, federal policies, etc.). However, local policy makers can directly influence the effect of *internal forces* by forging partnerships with the private sector to develop mutually beneficial harbor area economic development strategies.

Based on the industry-driven interview and focus group discussion process utilized for this Part Two industrial lands study, a variety of alternative development permutations are viewed as possible. The development alternative that actually emerges will depend on how the Portland Harbor area is positioned to encourage on-going and future economic activity.

A continuation of current industry trends coupled with no significant change in the public policy and regulatory environment could result in limited re-investment or disinvestment in waterfront sites, with resolution of Superfund and related harbor planning and regulatory issues being a major factor. Continuation of the *status quo* could result in more non-maritime activity and perhaps a shift over time from manufacturing to wholesale-distribution.

Figure 42. Portland Harbor Futures

	Riverfront	Upland
Status Quo		
<i>Characteristics:</i>	<ul style="list-style-type: none"> • Continue current industry trends • No major public policy/regulatory changes 	
<i>Implications:</i>	<ul style="list-style-type: none"> • More non-maritime activity (including vacated sites) • Limited site reinvestment or gradual disinvestment (pending Superfund resolution) 	<ul style="list-style-type: none"> • Possible shift from manufacturing to wholesale-distribution
Industrial Revitalization		
<i>Characteristics:</i>	<ul style="list-style-type: none"> • Balanced, multi-modal transportation investment • Industrial sanctuary maintenance • Regulatory streamlining 	
<i>Implications:</i>	<ul style="list-style-type: none"> • Strengthened maritime niches • Stable to expanded West Coast competitive position 	<ul style="list-style-type: none"> • Targeted harbor industry cluster strategies (esp. manufacturing) • Continued strength in traditional industry (versus U.S.)
Industrial Transition		
<i>Characteristics:</i>	<ul style="list-style-type: none"> • Multi-modal transportation investment (highway & transit emphasis) • Broadened set of industry clusters & non-industrial activities • Consistency with local public policy and national/global market trends 	
<i>Implications:</i>	<ul style="list-style-type: none"> • Deemphasized deep draft marine (esp. on the upper Willamette) • Selective site transition to non-industrial use 	<ul style="list-style-type: none"> • Diminished importance of metals/transportation clusters • Increased wholesale/distribution (truck related) & new industry clusters
Other Futures		
<i>Characteristics:</i>	<ul style="list-style-type: none"> • Some combination of the above futures or a course as yet not identified • Multiple strategies tailored to specific harbor subareas and/or industry clusters 	
<i>Implications:</i>	<ul style="list-style-type: none"> • Depends on the strategy mix implemented for riverfront land 	<ul style="list-style-type: none"> • Depends on the strategy mix implemented for upland sites

Assertive policies and investment from the public sector could lead to responsive private sector investment. These policies and investments undoubtedly will affect the character of private activity, whether in transitioning toward an alternative set of economic activities or to revitalization of existing industries. Futures that diverge from the status quo most often mentioned by interview and focus group participants have involved discussion of industrial revitalization and/or transition:

- Efforts made to strengthen Portland’s distinctive maritime niches, reposition harbor area manufacturing, reinvest in multi-modal transportation, maintain the harbor industrial sanctuary, and dramatically streamline current regulatory including greenway requirements could help to facilitate a revitalization of the harbor’s traditional industries. However, this move toward *industrial revitalization* essentially represents a countertrend to broader U.S. economic changes away from an industrial based economy coupled with local/regional policies viewed as discouraging investment in private heavy industrial and

marine terminal investment. The Portland region has successfully resisted the national trend toward deindustrialization, and continued success could prove challenging even with recovery from the current recession.

- Transitioning toward (or incorporating) a different set of industries/activities, while perhaps consistent with recent public policy and national market trends, would represent more of a departure from the status quo for Portland's harbor industrial area. An *industrial transition* approach involves consideration of multiple strategic choices such as de-emphasizing marine cargo (except barge and shallow draft ship activity) within the upper Willamette (south of the St. Johns Bridge), diminishing importance of metals/transportation manufacturing clusters, increasing wholesale/distribution activity (primarily truck-related), and/or transitioning selected river sites to non-industrial use (with some combination of commercial, residential, mixed use and open space/recreation).

These potential futures are not necessarily mutually exclusive. One approach could be taken for one portion of the harbor area, another for a different portion. Whether the course selected leads to status quo, industrial revitalization, industrial transition, or some other alternative, decisions made by both policy makers and private industry will be instrumental to shape the long-term economic future of the harbor area. In deciding the appropriate course, the harbor's short and long-term economic importance both to the region and rest of Oregon should be actively considered.

E. SUMMARY OBSERVATIONS

Five concluding observations are suggested by this preliminary review of public policy questions:

1. *The future of Portland's harbor industrial area is less certain today than in even the recent past – due to the confluence of changing global market conditions and public policy.* Market conditions of importance center on extreme global competitive pressures that will extend beyond the recent economic downturn. Globalization affects traditional bulwarks of the harbor area ranging from metals, transportation equipment and printing manufacturing to ship calls for grain, breakbulk and dry-bulk cargo, autos and petro-chemicals. Public policy issues are wide-ranging – including questions related to deepening of the Columbia River channel, maintenance dredging of the Willamette, uncertain resolution of harbor Superfund issues, and growing requirements renewed multi-modal transportation infrastructure investment.
2. *What happens in the harbor area is of profound importance to the economic vitality of Portland and the entire metro area.* This is for two reasons: a) high wages of harbor area industries; and b) interconnectedness of harbor industries and transportation functions of the harbor area to businesses and industries located throughout the metro area. No other place in the Portland region or the state of Oregon has the ability to provide the multi-modal transportation capacity of Portland's harbor; no other place can readily accommodate the heavy industries which have been engines of growth and economic vitality – even during periods of economic downturn.

3. *The future that happens can and will be strongly influenced by local public policy and investment decisions yet to be made.* Planning activities of particular importance at present are the Portland River Plan, city-wide economic development strategy, and Port of Portland harbor facilities planning now underway. An important threshold question is whether to continue to actively support maintenance of the harbor area's competitive position for river-dependent and upland industry that can not readily be accommodated elsewhere in the region, or to seek a new vision for some or all of Portland's harbor area.
4. *An appropriate starting point for multi-agency public planning is to determine the maritime future of the Willamette River (below the Steel Bridge) and the Columbia River, followed by evaluation of Portland's realistic and desired future for traditional industries including transportation equipment and metals manufacturing.* If the community prioritizes investment in a strong maritime future, there are multiple options as to where that maritime sector is best accommodated. However, the level of public-private investment and the risk is substantially increased if the decision is to transition deep-draft and/or other river-dependent/industrial uses north of the St. Johns Bridge. Introduction of mixed use concepts along the Willamette north of the Steel/Fremont Bridges also substantially complicates the task of maintaining a viable competitive position for maritime commerce and upland industrial.
5. *Whatever course is selected has the best opportunity for successful realization with active public/private sector collaboration.* Private market interests for river-dependent industry can be substantially thwarted by perceived or real lack of public policy support – as the current harbor Superfund uncertainty demonstrates. Similarly, an aggressive public planning approach to change the face of some or all of the Willamette riverfront will be compromised if not perceived to be in the economic interests of current riverfront owners and industrial users – as demonstrated by continued presence of grain elevators in immediate proximity to the Central City Rose Quarter. Recommended hallmarks of a public-private approach should include clear public policy objectives, regulatory certainty, significant new infrastructure investment, and corresponding private commitment for reinvestment consistent with mutually acceptable planning objectives.

APPENDIX A. INDUSTRY INTERVIEW QUESTIONNAIRE

Portland Harbor Industrial Land Study – Business Questionnaire

Your interest in participating with the *Portland Harbor Industrial Land Study* is most appreciated. Please complete the questionnaire as fully as possible before the interview. The interview will be an opportunity to clarify any questions and to further discuss your firm's ongoing role in Portland's harbor area.

Feel free to skip questions for which you do not have information, or to involve others in your organization as needed. For items not applicable to your firm, simply indicate NA in the space provided.

Your responses will be aggregated so that results are not attributable to a particular firm. The only information that may be described by firm is current site area (acreage), current employment, and on-site marine terminals. Please let the interviewer know if any of these items should remain as proprietary information. **Again, thank you for taking the time to participate in this important study for the Portland Harbor industrial area.**

Name _____ Position _____
Firm/Organization _____ Phone _____
Address _____ Fax _____
City _____ State _____ Zip _____ E-mail _____
Interviewed by _____ Date of Interview _____

Background Information:

1. What are the primary *goods and/or services* that you manufacture and/or sell from this site?

Primary: _____ Secondary: _____

2. How many *years* have you operated at this location? _____ years

3. Please estimate current *land area and building space* at this site.

Land: _____ acres (site area)

Building Area: Office _____ sq. ft. Manufacturing _____ sq. ft.

Distribution/Shipping _____ sq. ft. Other (specify _____) _____ sq. ft.

4. Please provide a brief *chronology* of on-site development and significant changes in uses or operations over the time that your firm has been located at this site: _____

5. How many people are *employed* at this property?

Currently: _____ full-time _____ part-time

3-5 years ago: _____ full-time _____ part-time

Anticipated 3-5 years from now: _____ full time _____ part time

6. At how many *other locations* does this firm have other plants or facilities?

_____ in the U.S. _____ outside the U.S.

How many are in the Pacific Northwest? _____

What percentage of total firm-wide revenues does this Portland operation represent? _____%

7. What is the approximate annual *gross business revenue* provided from this site? (check one)

less than \$1 million \$1-\$5 million \$5-\$20 million \$20-\$50 million over \$50 million

In the last 3 years, have business revenues:

Increased Decreased Stayed the same

Harbor and Related Infrastructure:

8. Please estimate the portion of your inbound and then outbound *shipments* using the following modes of transportation. We are interested in the major forms of *long-haul* shipping rather than local pick-up and delivery:

Mode of Transportation	Long Haul Shipments	
	Inbound	Outbound
Marine	_____%	_____%
Rail	_____%	_____%
Truck	_____%	_____%
Air Transport	_____%	_____%
Other (specify _____)	_____%	_____%
Total	<u>100 %</u>	<u>100 %</u>

9. Do you make use of *marine terminal* facilities:

on your property in the Portland Harbor area elsewhere (specify _____)

10. What materials or products do you have *shipped via marine* terminal facilities?

Inbound (inputs): _____

Outbound (products): _____

11. Has your use of marine terminal facilities *changed* in the last 20 years? yes no

If yes, describe how: _____

12. Do you expect your firm's use of marine terminal facilities will change in the next 20 years?

yes no If yes, how? _____

13. If your company makes *direct use* of marine terminal facilities, please describe:

Shipping (berth length): _____ feet Depth of channel required: _____ feet

Estimated ship calls per year: _____ ships

Seasonal periods of greatest terminal activity: _____

14. Does your firm face any *issues or concerns* with access to or quality of services for marine terminal, rail, trucking and/or air services? yes no

If yes, please describe: _____

15. Please indicate your firm's current and planned future usage of the following utility services for *industrial process* (i.e. non-domestic, non-office related) purposes (check all that apply):

Type of Utility/Service	Current Use for Industrial Process	Future Planned Needs			Comments
		Increase	Decrease	No Change	
Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Sewer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Electric Power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Natural Gas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Telecommunications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

Do you face any *issues or concerns* with the quantity or quality of service for any of these utilities?

yes no If yes, please describe: _____

Location Attributes:

16. To the best of your knowledge, why was this facility *originally sited* in the Portland metro area?

And why sited in the *harbor area*? _____

17. Currently, what are the primary *advantages* for operating at this location? _____

18. What are the primary *disadvantages* of operating at this location (and reasons)? _____

19. What is the anticipated remaining *useful life* of existing plant and equipment facilities? _____

20. Does your firm need to be located on or in close *proximity* to the river/harbor area? yes no

If yes, please describe: _____

21. If your company were to consider a new facility, would this investment most likely occur in:

City of Portland Elsewhere in metro area Outside metro area

If you were to look beyond the City of Portland, what other areas would likely be considered?

Interindustry Linkages (Locally & Globally):

22. Who are your 3 major *vendors* currently?

<u>Name of Vendor</u>	<u>Products/Services</u>	<u>Primary Plant Location of Vendor</u>	<u>Method of Shipment Used</u>
A. _____	_____	_____	_____
B. _____	_____	_____	_____
C. _____	_____	_____	_____

Recent & anticipated trends: _____

23. Please provide similar information for your 3 most important *customers*.

<u>Name of Customer</u>	<u>Products/Services Purchased</u>	<u>Customer Location</u>	<u>Primary Shipment Method</u>
A. _____	_____	_____	_____
B. _____	_____	_____	_____
C. _____	_____	_____	_____

Recent & anticipated trends: _____

24. Please indicate up to *three services* critical to the success of your firm's operations at this location. (Note: examples include financial, legal, accounting, business consulting, travel services, etc.)

<u>Type of Service</u>	<u>Location of Service Provider (in/outside Portland)</u>
A. _____	_____
B. _____	_____
C. _____	_____

25. Identify *industry or trade associations* on which your firm relies for industry information and/or advocacy. _____

Which of these organizations is active at the *local or regional* (Portland and Pacific Northwest) geographic level? _____

26. What *actions* could be taken to attract firms with whom you conduct business to Portland as:

Vendors _____

Customers _____

Competition:

27. Who are the major *competitors* for your firm's primary product or service?

<u>Name of Firm</u>	<u>Location of Competitor (in/outside Portland)</u>	<u>Comments</u>
A. _____	_____	_____
B. _____	_____	_____
C. _____	_____	_____

28. What are the primary competitive *advantages* that your firm offers relative to your major competitors?

Currently: _____

Next 3-5 years: _____

5-20 years: _____

29. To what degree are these advantages currently or prospectively related to your firm's operation in the *Portland Harbor* industrial area? _____

30. What are the principal *disadvantages* that your firm faces relative to its major competition?

Currently: _____
Next 3-5 years: _____
5-20 years: _____

31. To what degree are these disadvantages related to your firm's current operations or location within *Portland Harbor* industrial area?

Industry Trends & Emerging Issues:

32. Please describe any significant *trends* on the horizon that might affect your industry and/or firm related to:

Customer and client markets _____
Vendor sourcing _____
Transportation & distribution _____
Labor (availability, skills & productivity) _____
Capital Investment _____
Technology _____
Other (please specify) _____

Challenges, Opportunities and Plans:

33. What is the most important *challenge* presently facing your firm's operation at this location? _____

34. What is the most important *opportunity* currently available for your firm at this location? _____

35. Please describe any *plans* that your company presently anticipates for this location (e.g. expansion, contraction, relocation, and reconfiguration) together with anticipated job, building and land requirements.

<u>Timeframe</u>	<u>Type of Change</u>	<u># of Jobs Added/Lost</u>	<u>Building Space Square Feet</u>	<u>Land Area (Acres)</u>
Next 3-5 yrs	_____	_____	_____	_____
5-20 yrs	_____	_____	_____	_____

Comments: _____

36. Is the site at which this firm operates *adequate* to accommodate expanded or reconfigured operations?

Next 3-5 years: yes no uncertain

5-20 years: yes no uncertain

If no or uncertain, please describe any issues that limit suitability of your current site: _____

37. If your firm's operations were to relocate from this site, what would be your *land and location needs*?

How could these needs be accommodated by other property located:

In the Portland harbor area _____

Elsewhere in the metro area _____

38. If this operation is being considered for *downsizing*, are there opportunities to sell or lease portions of your site for other purposes? Please describe: _____

39. What governmental actions could help *facilitate* your firm's existing operations and/or future plans?

40. Please provide any *additional information* pertinent to your future operations including anticipated land and building needs at this location. Specific information or examples are appreciated.

41. The City of Portland and the region currently are facing a number of *harbor issues* that could affect Portland harbor area industries. Based on information currently available to you, please give us your assessment of the anticipated effects from each of the following issues on your firm's ability to maintain competitive operations or expand in the harbor area:

Issue	Positive Effect	Negative Effect	No Effect	Uncertain	Examples or Comments
Portland Harbor Superfund	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Columbia Channel Deepening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

Willamette Maintenance Dredging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
I-5 Trade Corridor Improvements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Endangered Species and Clean Water Acts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Recreational boating and trail access	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Transitioning harbor sites to housing, park or commercial uses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Reserving harbor industrial riverfront for maritime industries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other (specify _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

Other Comments and Suggestions:

42. Are there any critical *messages* that you would like us to communicate back to the sponsors of the study (City of Portland, Portland Development Commission, Port of Portland)?

43. Do you have any further *suggestions* for uses of this Portland Harbor Industrial Land Study?

44. Please identify *anyone else* that you recommend we contact: _____

45. At the completion of the interview process, we anticipate conducting two *focus groups* to review results, as well as discuss findings and policy implications for Portland's industrial harbor area. Would you be interested in participating in an approximately 90-minute focus group session?

yes no If yes, identify person to be contacted:

Name _____ Phone _____ E-mail _____

APPENDIX B. FOCUS GROUP DISCUSSION

As part of the Portland Harbor Industrial Lands Study (PHILS), two focus group discussions were conducted. Focus Group #1 was conducted on September 4, 2002, with representatives of harbor area industries. Focus Group #2 was held with the River Economic Advisory Group and interested industry representatives on September 19.

FOCUS GROUP PURPOSES

Purposes of the focus group sessions were to: (a) present and discuss results of what was learned to date from the industry interviews and associated analysis and (b) discuss policy implications for Willamette River planning initiatives.

PARTICIPANTS

Participants in the two focus group sessions are listed as noted below.

Person	Organization
<i>Focus Group #1:</i>	
Carol Grant	Northwest Pipe
Wayne Thomas	Sulzer
Ron Corbin	Toyota
Steve Barrager	Grubb & Ellis
Bob Short	Lower Albina Council/Glacier Northwest
Steven Shain and Bill Gobel	Zidell
Debbie Deetz	Oregon Steel and Columbia Corridor Association
Wayne Cozad	Cascade General
<i>Focus Group #2:</i>	
Tom Wright	Group Mackenzie, North Macadam Business Assn.
Wayne Kingsley	Portland Spirit, Central Eastside Industrial Council
Rod McDowell	OMSI, Central Eastside Industrial Council
Cindy Cato	Associated General Contractors
Howard Werth	Gunderson
Greg Peden	Portland Business Alliance
Don Grigg	Parsons Brinckerhoff
Brian Campbell	Port
Elissa Gertler, Fred Wearn	PDC
Deborah Stein, Sallie Edmunds, Barb Grover, Barbara Hart, Steve Kountz	Bureau of Planning

Both focus groups were facilitated by John White and Eric Hovee. At the second session, introductory comments and wrap-up items were covered by Steve Kountz, Bureau of Planning.

FOCUS GROUP TOPICS

A similar agenda was followed for each of the two focus groups. Each session lasted approximately 1 ½ hours.

Portland Harbor Industries – Focus Group Topics

- 1. Introduction & Focus Group Purposes
(John White, The JD White Company, Inc.)**
 - Participant introductions
 - Purpose of focus group
 - Your participation

- 2. Overview of Portland Harbor Industrial Land Study
(Eric Hovee, E.D. Hovee & Company)**
 - Part 1 Bureau of Planning inventories and trends
 - Part 2 industry interviews
 - Relationship to Portland River Plan

- 3. Portland Business Climate – Today & Tomorrow
(Group Discussion with John White & Eric Hovee, Facilitators)**
 - External environment – global/national
 - Portland’s competitive position – metro and city

- 4. Harbor Questions & Discussion (Group Discussion)**
 - Major trends affecting harbor area business and employment prospects
 - Changing mix of harbor area industries
 - Land needed for expansion and priority sites to reserve for river dependent industry
 - Planning & policy issues for upland (non-river) sites
 - Other topics of group interest

- 5. Wrap-Up & Next Steps (Eric Hovee)**

We now proceed to provide discussion topics and groups responses – in the order of the discussion topics noted. For each topic (except the project overview), information as presented to the attendees is presented followed by comments from Focus Group #1 and Focus Group #2. Comments are generally arranged in the order discussed.

OVERVIEW OF PORTLAND HARBOR INDUSTRIAL LANDS STUDY

The following background information was briefly presented in outline format:

- Purpose –** Assess industry dynamics and future land needs for the Portland Harbor area, focusing on:
- ✓ River-dependent
 - ✓ Freight-related
 - ✓ Other concentrated industries
- Participation –** City of Portland Bureau of Planning
Portland Development Commission
Port of Portland
- Part 1 –** Bureau of Planning prepared:
- ✓ Inventories of industries & land uses
 - ✓ Job, land use & freight distribution trends
 - ✓ Location needs & regional role of harbor industries
- Part Two –** E.D. Hovee & Company with Parsons Brinckerhoff & The JD White Company, Inc.:
- ✓ Industry interviews – profile, trends & uses
 - ✓ Harbor industry dynamics, sites & land use
 - ✓ Policy questions – river-dependent & upland
- Next Steps –** Industrial Lands Study a key background document for (a) Portland River Plan; (b) Port Marine Terminals Master Plan; (c) PDC's Economic Development Strategy.

PORTLAND BUSINESS CLIMATE – TODAY & TOMORROW

The purpose of the first topic was to encourage participants to begin talking about *big picture* issues and opportunities affecting Portland's overall business climate. Comments were solicited regarding the external environment (global/national) and Portland's competitive position (within the metro area).

Focus Group #1 Discussion:

- Competitiveness is a critical issue for Portland businesses. Industrial land can be anywhere – in Portland or suburban locales. There is some concern that more businesses may move to Vancouver. There is concern with the environmental overlay zone constraints in Portland especially the Columbia Corridor.

- There is a perception that the City and Port have adopted the attitude that if companies move anywhere in the region, it's good for the region – even if they don't stay in the City of Portland.
- The River Plan can be a step in the right direction.
- One focus group participant has issues with DEQ. A ship ties up sometimes using a waterfront moorage on a lease basis but not directly serving this firm's needs as a waterfront industry.
- Environmental regulatory encroachment is voiced as a growing concern.
- There seems to be a “so what” public agency mind set – exemplified by the City's handling of the Columbia Sportswear corporate headquarters office relocation.
- A key question: does Portland want to continue to be aggressively in the business of being a major West Coast port?
- A related question is posed as to whether Portland wants environmental protection zones or industry. The answer does not need to be *either or* but could be *both and*..... However, the emphasis is currently perceived as unbalanced toward environmental control.
- Vacancies for industrial use are up in Portland but there is still strong demand for available land because of the tight urban growth boundary. However, this also means that the cost of the land base is increasingly high compared to other alternative locations. For example, does it make more sense for medium/heavy industry to relocate to Centralia, Washington?
- The now-vacant Alcatel site has an approximately \$8.5 million building. It was stated that the Port will not provide a quoted ground lease rate until there is a serious inquiry. The ability for Alcatel to sign its lease depends upon Port approval of the specific user.
- Portland's harbor area is “out of the mainstream” and receives little visibility or public interest. There is no *branding* of the harbor image or product. Worse, there is very little understanding of the contributions that the harbor industries make to the general economy and to business. For example, one does not see signage on packages if this is a product “delivered by Zidell barge.” Another example: there is a disconnect from the need for the petroleum tank farm and the gas with which somebody fills their SUV.
- For an industry such as ship repair, on-going industry viability is clearly linked to the labor market. It is not possible to compete with Singapore which has wage rates of \$8 per day.
- For another metals manufacturer, availability of skilled labor is crucial. “It's real work,” which deters many young people from entering a more physically demanding occupation.
- Another long-time company currently needs 75 workers but can only get about 52. It used to be that the firm would attract and retain second and third generation workers but no longer because this is not viewed as a valued occupation.
- Gravel and cement have been cheap but won't be when the readily accessible Santoosh deposits run out. For example, in Puget Sound, sand & gravel is now being barged in from Canada.

- Another industry representative noted that Portland is not *perceived* as a highest cost location but is *in fact* a high cost location. The term *perceived* is too generous.

Focus Group #2 Discussion:

- John White observed that considerable difficulty was experienced in obtaining commitments from businesses to be interviewed for this study. Part of the reason was uncertainty over how the results would be used.
- A focus group participant noted that this uncertainty as to how the results were to be used gave them pause to participate. However, this firm decided to go ahead after attending the August meeting. It was stated there is a desire that they did “not want the information to be used against us.”
- A part of the resistance to participation stems from City and Metro planning approaches that appear to be leading to greater restrictions on industries within the harbor industrial area. The Columbia Corridor sited was an example of environmental issues such as increased animal habitat. The “list of exactions is long.” Also there are certain disagreements about whether an industry should be considered as “river-dependent.”
- Noted by one participant is a sense of “hostility” between planners and business people. “Do you really need that?”
- Portland has a reputation of having no land to build on. On the west side, Intel can not obtain land needed for additional employee housing. Within the harbor area, Freightliner has opened a new production facility in North Carolina because of difficulties in dealing with the City of Portland.
- Certainly Title 33 exacerbates the situation including the provision that you can’t develop just one portion of a parcel.
- Elissa Gertler with PDC commented that the citywide economic development strategy will address constrained sites and improvements in the harbor area. Deborah Stein with the Bureau of Planning noted that the Bureau is currently involved in a regulatory improvement project.
- A company representative with Gunderson stated that the firm has expanded in Portland but not elsewhere in Oregon. They have experienced considerably more of a partnership relationship with facilities in Texas and Nova Scotia, but this has yet to occur in Oregon. However, the Oregon Economic Development Department did help Gunderson with its rail car maintenance facility in Springfield in the early 1990s. In Texas, assistance has been provided to lead the company through the state agency requirements and also identify grant funding opportunities.
- There was a comment that “there is nothing like a good recession to get people’s attention.” Another participant questioned whether this is just “palliative” and short-term until the current recession ends.

HARBOR QUESTIONS & DISCUSSION

The remainder of each focus group session was organized to provide background information and obtain participant input on four harbor area questions. Each question is presented, followed

by preliminary findings from interviews completed to date (about 50) and then participant comments with each focus group.

Question: What Are the Major Trends & Issues Affecting Prospects for Portland's Harbor Area Industries?

Preliminary Findings:

- Stable through recession but limited job growth anticipated with economic recovery.
- Even with expansion, existing medium-larger firms anticipate minimal need for added industrial land.
- Remaining cost competitive emerges as the #1 issue – extending beyond the current economic downturn; Portland increasingly is perceived as a high cost place to do business.
- Long time manufacturers will reinvent their business model and operations over the next 10-20 years.
- Local issues affecting business investment:
 - ✓ Superfund uncertainty & competitive multi-modal transport – for *riverfront* owners
 - ✓ Regional congestion (freight/employee) non-industrial encroachment, permitting, public policy & community support – for *riverfront and upland* firms.

Focus Group #1 Discussion:

- For one focus group participant, even Denver is perceived as a less expensive location. Currently this firm is in the process of changing much of its order process to Kansas where from which the freight is cheaper.
- With environmental regulations there are “so many entities that want a piece of the pie.” It is noted that high tech companies have more “bad stuff” from an environmental perspective on their sites than many more traditional heavy industries these days.
- The closure of Consolidated Freightways may hurt transportation competitiveness from Portland. The “fallout is just starting.”
- A company owned by one of the participants makes pipe fittings, a commodity product. This company is faced with global pressures and dumping issues and is difficult to be competitive from Portland. This firm buys plate from a local manufacturer but structural steel is imported.

Focus Group #2 Discussion:

- One participant noted that they have a plant in the harbor area and are questioning whether to keep that location.

- Environmental labor and energy issues are noted as concerns for their operation. Medical coverage costs in Portland have now surpassed comparable cost in other areas of the country.
- Regulatory and permitting fees are not too high in Portland but the Port process “is too long.” In North Macadam, there is the question of what is the setback? Uncertainties with questions such as these create project delays. The sentiment expressed is that agencies such as the City Planning Bureau don’t operate with an understanding of the private sector concept that “time is money.”
- Gunderson is fearful the superfund will affect its marine operations. Already there is a cost of hundreds of thousands of dollars per year for a study without any particular implementation. Part of Gunderson’s problem is created by the nearby BES outfall. Overall, the superfund issue represents a “huge black hole” although the firm has tried to be proactive in dealing with this and other environmental issues. EPA has helped to facilitate by providing answers within a two-week period, but the City has taken longer.” Fortunately, however, these issues have not yet affected ongoing operations.
- Don Grigg with the consultant team (Parson Brinckerhoff) described somewhat different issues for marine-oriented distribution firms. A main priority is rail. More freight is shifting to unit trains that require separated facilities. Businesses need the right location that can accept these more expanded rail operations. Cost is not as much a driver, although, for auto importers improved service and related BES drainage cost all have become an issue. Longshore labor and work rules historically have been represented a cost disadvantage for Portland and this continues.

Question: Will the Mix of Harbor Industries Change?

Preliminary Findings for Existing Harbor Industries:

- *River-Dependent* – need multi-modal access including 20+ foot depth barges, 30-40+ foot deep draft. Suppliers and transporters to entire metro area and state. Little near-term expansion except auto imports.
- *Wholesale Distribution* – separated between (a) serving Central City & metro area from central location and (b) markets beyond metro area– with demand more uncertain depending on comparative cost of business and inter-modal transport accessibility
- *Manufacturing:*
 - ✓ Chemical & electronics – suppliers to regional industrial base
 - ✓ Printing/publishing – Central City proximity & interaction
 - ✓ Metals & transportation – inter-industry linkages led by Freightliner, Esco, and Gunderson

Mid/large manufacturer land needs modest; growth needs linked to desire/capacity to accommodate smaller firms.

Other Sectors Potentially Suited to Harbor Area:

- | | |
|--|--|
| ✓ Regional distribution | ✓ High tech/bio tech |
| ✓ Transportation/metals | ✓ Creative Services/information technology |
| ✓ Wood/plastics/fiber materials | ✓ Corporate headquarters & business parks |

Focus Group #1 Discussion:

- A City Commissioner reportedly is unfavorable toward our firm since receiving a tax break.
- Six to seven metal fabs in the Portland area are not making a profit currently. China is “kicking our butt daily.” This industry is likely to increasingly go off shore for lead orders.
- Also noted is that it is increasingly difficult to get metals-related labor in Portland.
- Portland has no *Fortune 500* companies. Nike should not be counted because it is not headquartered in Portland but in Beaverton.
- Corporate headquarters and business parks make sense in North Macadam but not in Albina. It is noted that the Triangle Park vacant property below the University of Portland was the location for the filming of “The Hunted.”
- There currently is a more optimistic picture for autos. Containers are more profitable for ports and require less footprint area of land. The Columbia River looks increasingly competitive for the auto business; however, Portland does not have a lot of upland/dockside space. The 30-foot draft is not an issue for this type of cargo. Portland is competitive for auto imports except to serve the southern U.S. for which entry in southern California is more competitive. Auto imports can expect to be stable over the next 15 years but with potential market shift from other west coast cities to Portland.
- It will prove challenging for Portland to overcome its reputation as a city that is “difficult to deal with.” On the plus side, Portland is probably the most competitive west coast city “cost wise” for auto import activity.
- Metal companies are “working so hard to make so little.” Very little, if any, substantial expansion can be expected.
- There currently is a potential client for a 400,000 sq. ft. distribution center. Portland can be competitive if the client can come to grips with the Port of Portland. The Port does not have the vested interest that a private owner would have to make the deal happen.
- Swan Island has seen sustained growth in distribution from companies like Federal Express; however, there is only one way in and out to Mocks Landing over the Union Pacific rail line.
- An estimated \$2.5 million of infrastructure is required to upgrade the Mocks Landing over cross into seismic standards. This includes an extra \$1 million dollars needed to assure that there will be no disruption to the railroad. This may be funded through an LID as no City participation is expected for this type of project.
- Outside the Port areas, industries are noted to be not as well connected to the region’s freeways.

Focus Group #2 Discussion:

- Portland wants “sustainable” industry. But what does this mean? Portland metals firms do considerable recycling. The system could almost be considered as a “closed loop” but this contribution gets little recognition elsewhere in the community.
- Gunderson is spending capital to maintain its operations and cut costs. The competition now is really with Canada and Mexico rather than only other plants sites due to NAFTA (the North America Free Trading Agreement).
- Oregon Steel has one of the most automated facilities in the world based upon purchase, reuse and recycled steel. However, the plant is now reportedly doing less melting and more rolling.
- It was noted that Freightliner has an office 75 feet from the river’s edge but in North Macadam the greenway setback proposal is now for 150 feet. Uncertainties with zoning and planning affect the ability to proceed with development. This issue “shouldn’t be debated forever.”
- While the City is actively recruiting Vestas, this is still an industry that involves a typical industrial production process to manufacture a “long pipe and blade.”
- The national trucking company, JB Hunt, is making greater use of train car facilities.
- Don Grigg observed that there is potential for major rail yards to move eventually to the fringe of the Metro area as has occurred elsewhere in the country. Burlington Northern is also considering a mega rail yard located between Portland and Seattle. If there were to be a new regional facility outside the City, some firms that rely heavily on rail freight might relocate as well. Example would be UPS.
- Three grain elevators on the Upper Willamette are now under one common ownership and could potentially look to relocate to a consolidated facility. This could be in Portland, for example, the vicinity of Terminal 4, or it could be elsewhere on Lower Columbia River at a site that offers unit train and barge as well as deep draft access.

Question: What Are the Needs & Issues Facing River-Dependent Industries & Sites?

Preliminary Findings:

- From existing operations, greatest demand (100+ acres) by marine terminals.
- Approximately 9% of 3,130 acres of riverfront property classified as vacant (and within top two tiers of buildable land inventory) by Metro.
- Only 153 acres of tier A/B vacant riverfront land north of the St. Johns Bridge.
- Site constraints evaluation focuses on threshold criteria of appropriate zoning and minimum depth barge access. Other criteria considered include deep draft shipping, rail/street access, lot depth, environmental contamination, compatible neighbors, wetlands, trail easements, flood plain, and scenic overlay.
- Capital investment may be deferred pending Superfund resolution.
- Interest in reserving riverfront sites for industrial use (whether marine dependent or not)

- Reserving riverfront land for future generations – even if demand is not readily foreseeable today.

Focus Group #1 Discussion:

- One Rivergate firm has recently purchased two new plants – both outside the State of Oregon in part because it is easier to do business in those locations. This is an indication of their future direction.
- For an auto importer, superfund uncertainties are posing a major issue in reaching a lease with the Port that will be acceptable to the firm. This example illustrates the potentially widening impact on the ability to effectively market Portland sites. This firm might well reconsider its choice to be in Portland if it were made again today.
- Oregon Steel is an example of a firm that is not water-dependent for marine terminal use but is water-dependent from the standpoint that the company uses Willamette River water in their industrial process and also has a discharge permit. In other words, being river-dependent does not mean just ship access.
- To be competitive it will be more important to be able use more river land in a timely fashion.
- Otherwise, Portland can easily miss the “business window” of a particular company for investment.
- The Freightliner wind-tunnel issue was “too drawn out.” The approval process proved extremely expensive. It makes no sense to require planting the trees where ships are being tied up which the City has requested.
- How will Metro Goal 5 setbacks affect industry location and viability along the river? There is concern that Metro may not be coordinating well with the City. It is going to be impossible to preserve river-dependent land if it’s impossible to actually locate, build or expand industry along the river.
- Portland needs the continued job base of a major company like Freightliner. A more business-friendly approach might have helped to keep the manufacturing in Portland rather than having the plant shut and the business shifted to North Carolina. This is affecting regional metal fabrication activity. For example, one firm in Oregon City was 60 percent dependent upon Freightliner business.
- There is concern that the City has been approaching Freightliner on a piece-meal basis with no sense of priority to the significance of the employment base that this company represents and its extensive local subcontractor supplier relationships.
- The upcoming St. Johns Bridge closure is a concern although it is expected to be of short duration. The notion of a bicycle path on this bridge does not make sense since the bridge is not wide enough to accommodate bicycles plus vehicular traffic. This was cited as another example of the City making decisions that result in it being harder to do business here.
- There was discussion of planning to redo Russell Street in the Lower Albina industrial area. A comment was made that the people want the road to be “cute and boutiquey.” This does not make sense in an industrial area. Portland needs to look at the big picture as to what priority improvement make the most sense for the funding available.

Focus Group #2 Discussion:

- Portland has vacant sites on the river, not elsewhere. Eric Hovee noted that there is not much other heavy industrially-zoned land elsewhere in the Portland Metro area. A significant portion of the heavy industrial land base is situated directly within Portland's harbor industrial area.
- It was suggested that the solution is to provide additional vacant buildable industrial inventory elsewhere, including the possibility of expansion to the suburbs.
- Fewer ships call on the Port of Portland. An example cited is that Gunderson has 1,100 foot long dock that has been used in past for rental berthage, for example, by ships waiting in the Harbor. There is less need for short-term rental moorage now, although Gunderson uses this also for its own barge building purposes.
- What's the plan to revitalize marine terminal use in the Portland waterfront? It is important to try to stop and prevent a "dying waterfront."
- There do not appear to be many surprises with the draft map showing river industrial site constraints. However, it was noted that some Port sites indicated as no constraints do in fact have some land constraints. While the Port's master planning focuses on direct cargo facilities, a key question is how much land is needed for other river-dependent non-cargo-related activities?
- Brian Campbell with the Port of Portland indicated that the industrial harbor is expected to remain a working harbor. The Port will support land expansion also in the metro area. The region needs a "more sophisticated" way of looking at riverfront land including the marine needs of occasional users.
- Don Grigg suggested a similar need for more sophisticated criteria for riverfront sites. One option would be to do more clustering of sites.
- A major question is what do we want our industrial base to be? The strategy that results needs to reflect Portland's answer to that question. Prioritize industries to be targeted plus support what is here now.
- It was noted that new large marine water-dependent industries locating in the region (such as U.S. Gypsum) in Rainier are finding sites elsewhere on the Lower Columbia out of the metro area. This is for reasons including lower cost of land and labor and more conducive permitting processes.
- Even if a regional rail yard is built, Albina yard would likely be retained as part of rail to truck distribution center.
- Railroads nationally are shedding equipment (like phone companies). They are maintaining a core fleet with other operations increasingly contracted to third parties. Real estate property managers for the rail companies are focused on industries that generate rail traffic. Repair functions such as previously existing at Albina Yards have been relocated to more rural communities such as Hermiston.

Question: What Are the Needs & Issues Facing Upland Industries & Sites?

Preliminary Findings:

- General consensus to continue exclusion of residential and large scale commercial from the industrial sanctuary
- Less agreement on how broadly “industrial” should be construed with flexibility for
 - ✓ Corporate office
 - ✓ Support retail/service
 - ✓ Creative services/information technology
 - ✓ Business park/flex space
- Priority emphasis on roadway improvements for freight and employee commutes
- Shift from manufacturing to transportation dependent firms
- Strong interest in improved transit – including shift workers
- Desired public support for improved, faster, lower-cost permitting and addressing labor issues including workers comp/health care costs
- Pro-active public support desired for (a) more interaction with policy makers; and (b) policy/investment decisions making a difference

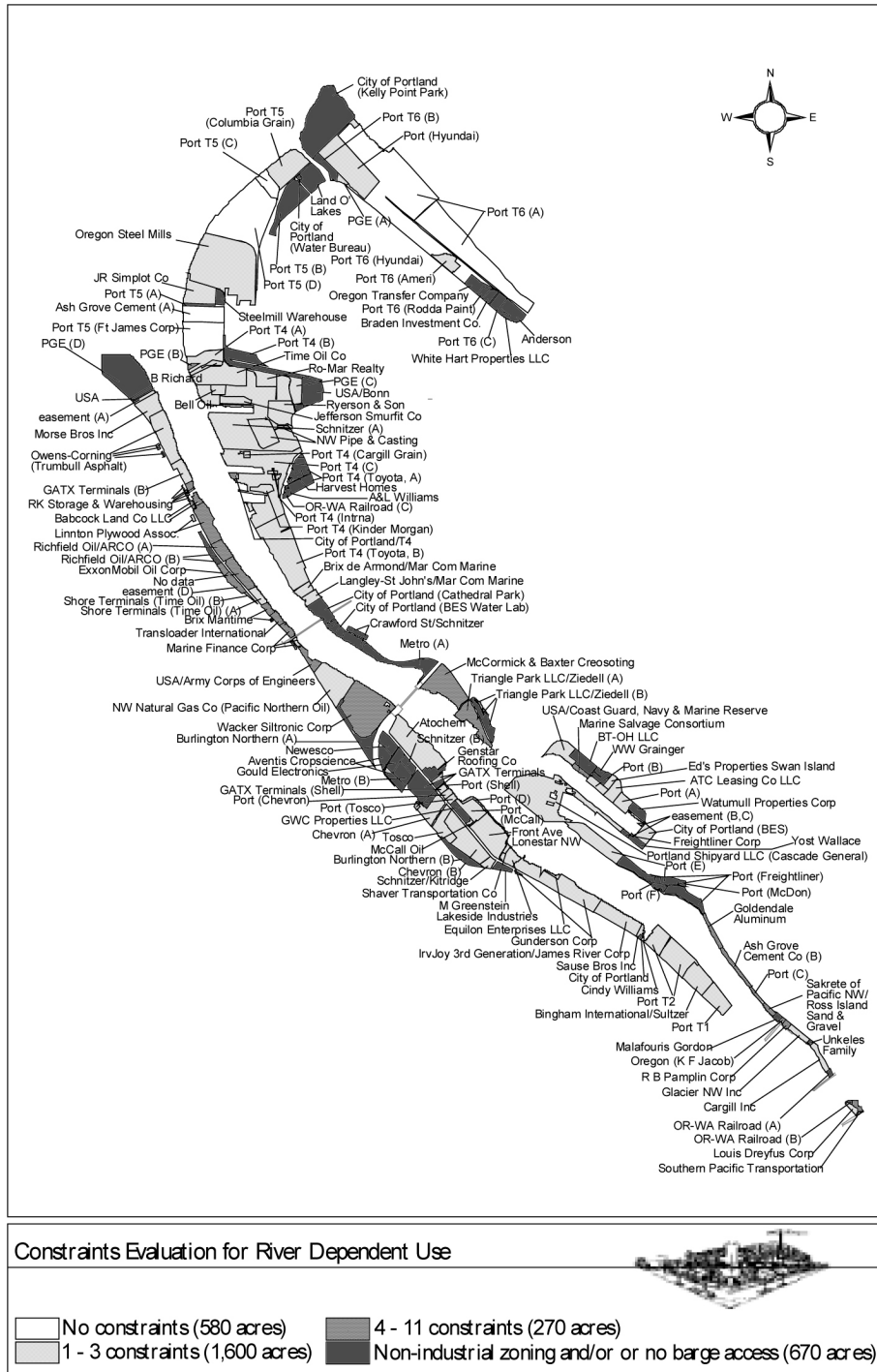
Focus Group #1 Discussion:

- Portland’s future is not manufacturing but rather distribution to the Pacific Rim. However, there seems to be no city or state desire to create the road infrastructure needed to accommodate this shift in industrial activity.
- City government needs to decide what it wants the Portland Harbor area to be in the future. There is virtually no direction right now. It was suggested that the City wants jobs without industries.
- Is it the City’s goal to determine future business and marketplace activity or to support businesses that are here? The City could have a priority both to *serve existing* businesses and *attract* a more select set of target industries.
- Bio-tech may look good 50 years from now but is not likely to deliver much in the way of net new employment short-term.
- A City priority should be to work with who is here or to pursue knowledge-based industries. But, what is the education system capable of turning out?
- There is clear interest in more interaction with elected officials. Currently, the sense is the City “over regulates and under interacts.” The opposite approach should be taken – more of a broader policy focus but accompanied by more interaction with policy makers looking at the specific issues and opportunities associated with individual property and business opportunities.

Focus Group #2 Discussion:

- The first participant comment – many of the problems would fall away if we can “generate love” especially between the City and private business community.
- Portland should have been addressing the problem of its harbor-related industries back when times were good in 1997-1998. There were warning signs on the horizon even then. An example was the issues that the aluminum industries faced that affected Portland’s metals complex.
- A focus group participant noted in their 75-80 years in business in Portland, only once in the last ten years did a public sector representative come calling on us and that was in the last few weeks.
- Portland should “have a calling program” with regular visits to businesses and industries to see what their needs and issues are.
- It was suggested that the “code maintenance” program be shifted to “code change” for consideration.
- A final suggestion – make more effort for us to get policy makers inside our Portland harbor industrial plants.

APPENDIX C. RIVERFRONT SITE CONSTRAINTS REVIEW



Source: E.D. Hovee & Company.

Proposed Ranking Criteria for Aggregated River Access Taxlots for Marine Terminal Use

Criteria applied to taxlots directly fronting the river or with river access, grouped by ownership.

Criteria	Constrained ●	Unconstrained ○	Notes
THRESHOLD CRITERIA			
1. Appropriate Zoning	Non-industrial zone.	Industrial zone (IH or IG).	
2. Barge Access	No existing dock, and lacks mooring access with at least 20' draft within 150' of shore. Barge access extended to lots under same ownership/lease, adjacent to public ownership with barge access, or within taxlots with barge access.	Existing dock or 20' + draft within 150' of shore.	
ADDITIONAL CRITERIA			
3. Shoreside Barge Access	No existing dock, and lacks mooring access with at least 20' draft for a length of 400' within 10' of shore.	Existing dock, or 20' + draft for a length of 400' within 10' of shore.	This criteria is a more restrictive version of the threshold barge access criteria and addresses the scenario in which new docks face substantial permitting challenges.
4. Ship Access	No existing dock, and lacks mooring access with at least 35' draft for a length of 400' within 10' of shore.	Existing dock, or mooring access with at least 35' draft for a length of 400' within 10' of shore.	
5. Rail Access	No rail access.	Rail spur on property.	Remains non-threshold due to the reasonable percentage of ship cargo that does not leave the harbor via rail.
6. Truck Access	Access by local streets through residential zones.	Site within truck district that has access to a regional trafficway, major street, or district collector in Portland <i>Comprehensive Plan</i> .	This assumes that development review poses obstacles for industrial development that is not accessed via streets with these designations. Remains non-threshold due to the reasonable percentage of ship cargo that does not leave the harbor via truck. Waiting for data to evaluate.

7.	Appropriate Street Conditions	Presence of steep topography and/or inadequately maintained access road.	Minimal topography, adequately maintained access road.	Evaluated through limited first hand experience; further field work necessary to comprehensively evaluate taxlots.
8.	Sufficient Lot Depth	Lot depth under 400'	Lot depth over 400'	Adjacent smaller lots under same ownership exempted.
9.	Lack of Contamination	Current or previous superfund site, high priority remedial investigation or clean-up, or high priority expanded preliminary assessment.	All other sites	Evaluated according to June 2002 DEQ Portland Harbor Upland Cleanup Site map.
10.	Compatible Neighbors	Linnton area taxlots, and lots adjacent to developed residential, commercial or mixed-use commercial zone.	Outside of Linnton, and no adjacent developed residential, commercial or mixed-use zoning.	Conflict over Linnton industry is receiving increasing public attention. Incompatible adjacent zoning represents pressure to convert from industrial use.
11.	Lack of Environmental Constraints	30% or more site coverage by wetlands or river natural (n) overlay zoning.	Less than 30% wetland coverage and within river industrial (i) or river general (g) zoning.	
12.	Lack of Public Easement	Existing trail (off street) at or near top of bank.	No off-street trail at or near top of bank.	
13.	Low Flood Risk	More than 10% of aggregated lot within flood plain.	<10% within flood plain.	
14.	No Building Height Limitations	Presence of height restrictions through the Scenic Overlay zone.	No Scenic Overlay zone.	

Constraints Evaluation for River Dependent Use

Property Owner/Lessee	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A&L Williams	○	●	●	●	○	○	○	●	●	○	○	○	○	○
Anderson	○	●	●	●	○	○	○	○	○	○	○	○	○	○
Ash Grove Cement Co (A)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ash Grove Cement Co (B)	○	○	○	○	●	○	●	●	○	○	○	○	●	●
ATC Leasing Co LLC	○	○	●	●	○	○	○	○	○	○	○	○	●	○
Atochem North America Inc	○	○	○	○	○	○	○	○	●	○	○	○	○	○
Aventis	○	●	●	●	●	○	○	○	●	○	○	○	○	○
Aventis	○	●	●	●	●	○	○	●	○	○	○	○	○	○
Babcock Land Co LLC	○	○	●	●	●	○	○	●	○	●	○	○	●	○
Babcock Land Co LLC	○	○	●	●	●	○	○	●	○	●	○	○	○	○
Bell Oil	○	○	○	○	●	○	○	○	○	○	○	○	○	○
Bingham International/Sultzer	○	○	○	○	○	○	○	○	●	○	○	○	○	○
Braden Investment Co	○	●	●	●	○	○	○	○	○	○	○	○	○	○
Brix De Armond/Mar Com Marine	○	○	○	○	●	○	○	○	○	○	○	○	●	○
Brix Maritime Co	○	○	○	○	●	○	○	●	●	○	○	○	○	●
Brix Maritime Co	○	●	●	●	●	○	○	●	○	○	○	○	○	●
BT-OH LLC	○	●	●	●	●	○	○	○	○	○	○	○	○	○
Burlington Northern (A)	○	●	●	●	●	○	○	○	○	○	●	○	○	○
Burlington Northern (B)	○	●	●	●	●	○	○	●	○	○	○	○	○	○
Cargill Inc.	○	○	○	○	●	●	○	●	○	○	○	○	○	○
Chevron (A)	○	○	○	○	○	○	○	○	●	○	○	○	○	○
Chevron (B)	○	○	○	○	●	○	○	○	○	○	○	○	○	○
City of Portland	○	●	●	●	●	○	○	●	○	○	○	○	○	○
City of Portland/BES	○	○	○	○	●	○	○	○	○	○	○	○	●	○
City of Portland/BES Water Lab	●	○	●	●	●	●	○	○	○	○	○	●	●	○
City of Portland/Cathedral Park	●	○	○	○	●	○	○	○	○	○	○	●	●	●
City of Portland/Kelly Point Park	●	○	○	○	●	○	○	○	○	○	○	○	●	○
City of Portland/T4	○	○	●	●	●	○	○	●	○	○	○	○	○	○
City of Portland/Water Bureau	○	●	●	●	●	○	○	●	○	○	○	○	○	○
Crawford Street Corp/Schnitzer	●	○	●	●	●	●	○	●	●	○	○	○	●	●
Crawford Street Corp/Schnitzer	●	○	●	●	●	●	○	●	●	○	○	○	○	○

Property Owner/Lessee	1	2	3	4	5	6	7	8	9	10	11	12	13	14
easement A	○	○	●	●	●	○	○	○	○	○	○	○	○	○
easement B	○	●	●	●	●	○	○	●	○	○	○	○	○	○
easement C	○	●	●	●	●	○	○	●	○	○	○	○	○	○
easement D	○	○	○	○	●	○	●	●	○	●	○	○	○	○
Ed's Properties Swan Island	○	○	●	●	○	○	○	○	○	○	○	○	○	○
Equilon Enterprises	○	○	○	○	●	○	○	●	○	○	○	○	●	○
ExxonMobile Oil	○	○	○	○	●	○	○	●	●	●	○	○	○	○
Freightliner Corporation	○	●	●	●	●	○	○	●	○	○	○	○	○	○
Front Ave LLP	○	○	○	○	○	○	○	○	●	○	○	○	○	○
GATX Terminals	○	●	●	●	○	○	○	○	○	○	○	○	○	○
GATX Terminals	○	●	●	●	○	○	○	○	●	○	○	○	○	○
GATX Terminals	○	●	●	●	●	○	○	●	○	○	○	○	○	○
GATX Terminals (Shell)	○	○	○	○	●	○	○	●	○	○	○	○	○	○
GATX Terminals Corp (B)	○	○	○	○	●	○	○	○	●	●	○	○	○	○
Genstar Roofing Co	○	●	●	●	○	○	○	○	○	○	○	○	○	○
Glacier Northwest Inc	○	○	○	○	●	○	○	●	○	○	○	○	○	○
Goldendale Aluminum	○	○	○	○	○	○	●	●	●	○	○	○	○	○
Gould Electronics	○	●	●	●	○	○	○	○	●	○	○	○	○	○
Gunderson Inc	○	○	○	○	●	○	○	○	●	○	○	○	○	○
Gunderson Inc	○	●	●	●	●	○	○	●	○	○	○	○	○	○
GWC Properties LLC	○	●	●	●	○	○	○	●	○	○	○	○	○	○
Harvest Homes	○	●	●	●	●	○	○	○	○	○	○	○	○	○
Irvjoy 3rd Generation/James River	○	○	○	○	●	○	○	○	○	○	○	○	○	○
Jefferson Smurfit Corp	○	○	○	○	○	○	○	●	●	○	○	○	○	○
JR Simplot Company	○	○	○	○	●	○	○	○	○	○	○	○	○	○
Lakeside Industries	○	○	○	○	●	○	○	○	○	○	○	○	○	○
Land O' Lakes	○	●	●	●	●	○	○	○	○	○	○	○	○	○
Langley-St. John's/Mar Com Mar	○	○	○	○	●	○	○	○	●	○	○	○	○	○
Linnton Plywood Assn	○	○	○	○	●	○	○	●	○	●	○	○	○	○
Linnton Plywood Assn	○	○	○	○	●	○	●	○	●	●	○	○	○	○
Louis Dreyfus Corporation	○	○	○	○	○	○	○	●	○	●	○	○	○	○
M Greenstein	○	●	●	●	●	○	○	●	●	○	○	○	○	○
Malafouris Gordon	○	●	○	○	●	○	●	●	○	○	○	○	○	○

Property Owner/Lessee	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Marine Finance Corp	○	○	○	○	●	○	○	●	●	○	○	○	●	●
Marine Finance Corp	○	○	○	○	●	○	○	●	○	○	○	○	○	●
Marine Finance Corp	○	○	○	○	●	○	●	●	○	○	○	○	○	●
McCall Oil & Chemical Corp	○	○	○	○	●	○	○	●	○	○	○	●	○	○
McCormick & Baxter Creosoting	○	○	○	○	○	●	●	○	●	●	○	○	○	○
Metro (A)	●	○	●	●	●	●	●	●	●	●	○	○	●	●
Metro (B)	○	●	●	●	●	○	○	○	○	○	○	○	○	○
Morse Bros Inc	○	○	○	○	●	○	○	○	●	○	○	○	○	○
Newesco	○	●	●	●	●	○	○	○	○	○	○	○	○	○
No ownership data	○	○	○	○	●	○	●	●	○	●	○	○	●	●
Northwest Pipe & Casting	○	○	○	○	○	○	○	○	●	○	○	○	●	○
NW Natural Gas Co	○	○	○	○	○	○	○	○	●	○	○	○	●	●
NW Pipe Co	○	○	○	○	●	○	○	●	○	○	○	○	○	○
Oregon (K F Jacob)	○	○	●	●	●	○	○	●	○	○	○	○	●	●
Oregon Steel Mills Inc	○	○	○	○	○	○	○	○	●	○	○	○	○	○
Oregon Transfer Co	○	●	●	●	○	○	○	○	○	○	○	○	○	○
Oregon Washington Railroad (A)	○	●	●	●	●	●	○	●	○	●	○	○	○	●
Oregon Washington Railroad (B)	○	○	●	●	○	○	○	●	○	●	○	○	○	○
Oregon-Washington Railroad (C)	○	●	●	●	●	○	○	●	○	○	○	○	○	○
Owens-Corning (Trumbull Asphalt)	○	○	○	○	●	○	○	○	●	○	○	○	●	○
Owens-Corning (Trumbull Asphalt)	○	○	○	○	●	○	○	●	○	○	○	○	○	○
Owens-Corning (Trumbull Asphalt)	○	○	○	○	●	○	○	●	○	○	○	○	○	○
Owens-Corning (Trumbull Asphalt)	○	○	○	○	●	○	○	○	○	○	○	○	○	○
PGE (A)	○	○	○	○	●	○	○	●	○	○	○	○	○	○
PGE (B)	○	○	●	●	●	○	○	●	○	○	○	○	●	○
PGE (C)	○	○	○	○	●	○	○	○	○	○	○	○	○	○
PGE (D)	●/○	○	●	●	●	○	○	○	●	●	●	○	●	○
Port (A)	○	○	○	○	○	○	○	○	○	○	○	○	●	○
Port (Aeric)	○	○	○	○	●	○	○	○	○	○	○	○	○	○
Port (B)	○	○	○	○	●	○	○	●	○	○	○	○	●	○
Port (C)	○	○	●	●	●	○	●	●	○	○	○	○	●	●
Port (Chevron)	○	○	○	○	●	○	○	○	○	○	○	○	●	○
Port (D)	○	○	○	○	●	○	○	●	○	○	○	○	●	○

Property Owner/Lessee	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Port (E)	○	○	○	○	○	○	○	○	○	○	○	○	●	○
Port (F)	●	○	○	○	●	○	○	●	○	○	○	●	●	○
Port (Freightliner)	●	○	●	●	●	○	○	●	○	○	○	●	●	○
Port (Freightliner)	●	○	●	●	●	○	○	●	○	○	○	●	●	○
Port (Freightliner)	●	○	●	●	●	○	○	●	○	○	○	●	○	○
Port (G)	●	○	●	●	●	○	○	●	○	○	○	●	○	○
Port (Hyundai)	○	○	○	○	●	○	○	○	○	○	○	○	○	○
Port (McCall)	○	○	○	○	●	○	○	○	●	○	○	○	○	○
Port (McDon)	●	○	●	●	●	○	○	●	○	○	○	●	○	○
Port (Shell)	○	○	○	○	●	○	○	●	○	○	○	○	●	○
Port (Tosco)	○	○	○	○	●	○	○	○	○	○	○	○	●	○
Port T1	○	○	○	○	○	○	○	○	●	●	○	○	○	○
Port T2	○	○	○	○	●	○	○	○	○	○	○	○	●	○
Port T2	○	○	○	○	○	○	○	○	○	○	○	○	●	○
Port T4 (A)	○	○	●	●	●	○	○	○	○	○	○	○	○	○
Port T4 (B)	○	●	●	●	●	○	○	○	○	○	●	○	●	○
Port T4 (C)	○	○	○	○	○	○	○	○	●	○	○	○	○	○
Port T4 (Cargill Grain)	○	○	○	○	●	○	○	●	○	○	○	○	○	○
Port T4 (Intrna)	○	○	○	○	●	○	○	●	○	○	○	○	○	○
Port T4 (Intrna)	○	○	○	○	●	○	○	●	○	○	○	○	○	○
Port T4 (Intrna)	○	○	○	○	●	○	○	○	○	○	○	○	○	○
Port T4 (Kinder Morgan)	○	○	○	○	●	○	○	○	○	○	○	○	○	○
Port T4 (Toyota)	○	●	●	●	●	○	○	○	○	○	○	○	○	○
Port T4 (Toyota, A)	○	●	●	●	●	○	○	○	○	○	○	○	○	○
Port T4 (Toyota, B)	○	○	○	○	●	○	○	○	○	○	○	○	○	○
Port T5 (A)	○	●	●	●	●	○	○	○	○	○	○	○	○	○
Port T5 (B)	○	●	●	●	●	○	○	○	○	○	○	○	○	○
Port T5 (C)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Port T5 (Columbia Grain)	○	○	○	○	○	○	○	○	○	○	○	○	●	○
Port T5 (D)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Port T5 (Ft James)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Port T6 (A)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Port T6 (A)	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Property Owner/Lessee	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Port T6 (B)	●○	●	●	●	●	○	○	●	○	○	○	○	●	○
Port T6 (C)	○	●	●	●	○	○	○	○	○	○	○	○	○	○
Port T6 (Rodda Paint)	○	●	●	●	○	○	○	○	○	○	○	○	○	○
Portland Shipyard LLC/Cascade	○	○	○	○	●	○	○	○	●	○	○	○	●	○
R B Pamplin Corp	○	○	●	●	●	○	○	●	○	○	○	○	●	○
R Blickle	○	○	●	●	●	○	○	○	○	○	○	○	○	○
Rhone-Poulenc	○	●	●	●	●	○	○	●	○	○	○	○	○	○
Richfield Oil/ARCO (A)	○	○	○	○	●	○	●	○	●	●	○	○	○	●
Richfield Oil/ARCO (B)	○	●	●	●	●	○	●	●	○	●	○	○	○	●
Richfield Oil/ARCO (B)	○	●	●	●	●	○	●	●	○	●	○	○	○	○
RK Storage & Warehousing Inc.	○	○	●	●	●	○	○	●	○	●	○	○	●	○
RK Storage & Warehousing Inc.	○	○	●	●	●	○	○	●	○	●	○	○	○	○
RK Storage & Warehousing Inc.	○	○	●	●	●	○	○	●	○	●	○	○	○	○
RK Storage & Warehousing Inc.	○	○	●	●	●	○	○	●	○	●	○	○	○	○
Ro-Mar Realty of Oregon	○	○	○	○	●	○	○	○	○	○	○	○	○	○
Ryerson & Son	○	○	○	○	●	○	○	○	○	○	○	○	●	○
Sakrete of Pacific NW (Ross Is	○	○	●	●	●	○	●	●	○	○	○	○	●	●
Sause Bros Inc	○	○	○	○	●	○	○	●	○	○	○	○	●	○
Schnitzer (A)	○	○	○	○	○	○	○	○	●	○	○	○	●	○
Schnitzer (B)	○	●	●	●	●	○	○	●	○	○	○	○	○	○
Schnitzer Invest/Kittridge	○	○	●	●	●	○	○	○	○	○	○	○	○	○
Shaver Transportation Co	○	○	○	○	●	○	○	○	●	○	○	○	●	○
Shore Terminals LLC (A)	○	○	○	○	●	○	○	○	○	○	○	○	●	●
Shore Terminals LLC (B)	○	●	●	●	●	○	●	●	○	○	○	○	○	○
Southern Pacific Transportation	○	●	●	●	○	○	○	●	○	●	○	○	○	○
Steelmill Warehouse	○	●	●	●	●	○	○	●	○	○	○	○	○	○
The Marine Salvage Consortium	○	○	○	○	●	○	○	●	●	○	○	○	●	○
Time Oil Co	○	○	○	○	○	○	○	○	●	○	○	○	○	○
Tosco	○	○	○	○	●	○	○	○	○	○	○	○	○	○
Transloader International	○	○	●	●	●	○	○	●	○	○	○	○	●	●
Triangle Park LLC/Zidell (A)	○	○	○	○	●	●	●	●	●	○	○	○	●	○
Triangle Park LLC/Zidell (B)	○	●	●	●	●	●	●	●	○	●	●	○	○	○
Triangle Park LLC/Zidell (B)	○	●	●	●	●	●	●	●	○	●	●	○	○	○

Property Owner/Lessee	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Triangle Park LLC/Zidell (B)	○	●	●	●	●	●	●	●	○	●	●	○	○	○
Unkeles Family	○	●	●	●	●	●	○	●	○	○	○	○	○	○
USA	○	●	●	●	●	○	○	○	○	○	○	○	●	○
USA/Army Corps of Engineers	○	○	○	○	●	○	○	●	●	○	○	○	○	●
USA/Bonne	○	●	●	●	●	○	○	○	○	○	○	○	○	○
USA/Coast Guard, Navy, Marine	○	○	○	○	●	○	○	○	●	○	○	○	●	○
W&B Smith	○	●	●	●	●	○	○	●	○	○	○	○	○	○
W&C Harold	○	●	●	●	●	○	○	●	○	○	○	○	○	○
Wacker Siltronic Corp	○	○	●	●	●	○	○	○	●	○	○	○	○	○
Watumull Properties Corp	○	●	●	●	○	○	○	●	○	○	○	○	●	○
White/Hart Properties LLC	○	●	●	●	●	○	○	●	○	○	○	○	○	○
Willians Cindy &	○	○	○	○	●	○	○	●	○	○	○	○	○	○
WW Grainger	○	●	●	●	●	○	○	●	○	○	○	○	○	○
Yost Wallace H	○	●	●	●	●	○	○	●	○	○	○	○	○	○

Property owners not labeled on map (small properties)

City of Portland	○	●	●	●	●	○	○	●	○	○	○	○	○	○
Container Corp	○	●	●	●	●	○	○	●	○	○	○	○	○	○
Michael Bosch	○	●	●	●	●	○	○	●	○	○	○	○	○	○
Neil Feinstein	○	●	●	●	●	○	○	●	○	○	○	○	○	○
No ownership data	○	●	●	●	●	○	○	●	○	○	○	○	○	○
No ownership data	○	○	●	●	●	○	○	●	○	○	○	○	○	○
Ray Blackford	○	●	●	●	●	○	○	●	○	○	○	○	○	○
Webb Smith	○	●	●	●	●	○	○	●	○	○	○	○	○	○
Zidell	○	○	●	●	●	○	○	●	○	○	○	○	○	○

- Criteria Legend:
- | | |
|----------------------------------|---------------------------------------|
| 1. Appropriate Zoning | 8. Sufficient Lot Depth |
| 2. Barge Access | 9. Lack of Contamination |
| 3. Shoreside Barge Access | 10. Compatible Neighbors |
| 4. Ship Access | 11. Lack of Environmental Constraints |
| 5. Rail Access | 12. Lack of Public Easement |
| 6. Truck Access | 13. Low Flood Risk |
| 7. Appropriate Street Conditions | 14. Building Height Limitations |

ENDNOTES

- ⁱ E.D. Hovee & Company maintains proprietary software of the IMPLAN input-output economic model developed by the University of Minnesota and USDA Forest Service. Harbor-wide results may be extrapolated from survey findings matched to Bureau of Planning provided data (employment) for the harbor industrial area.
- ⁱⁱ Metro has forecast 10,460 more jobs within the Portland Harbor Area over the next 20 years. Rivergate is projected to become the largest employment center within the Portland Harbor area, adding 6,590 jobs – capturing nearly 65% of the harbor study area’s job growth. Guild’s Lake and Swan Island, the study area’s largest employment centers, are forecast to add only 880 and 670 jobs respectively.
- ⁱⁱⁱ Interviews with key petroleum industry businesses suggests a somewhat different trend which is discussed in a later section of this PHILS Part 2 report.
- ^{iv} Interviews should not be construed as representing a statistically valid sample due to the sample size of 80 firms and focus on industry leaders. The cross-section approach is useful to identify major trends and issues, with more emphasis on qualitative observations than quantitative or statistical sample reliability.
- ^v Assuring confidentiality of results has been pivotal in obtaining responses from a number of those interviewed for either (or both) of two reasons:
- Non-disclosure of proprietary information to potential competitors
 - Opinions that may be perceived as incompatible with those of sponsoring public agencies (e.g. Columbia channel deepening)
- ^{vi} There are additional firms that may rely on the river, for example, for water rights or use but that are classified in other sectors if they do not engage in on-site marine transportation. From this survey, firms not classified as river-dependent have indicated other important relationships to the river including water rights for process water/fire protection.
- ^{vii} Employment data utilized in this section includes proprietors and others not typically covered by unemployment insurance. Conversely, the City’s Part 1 analysis only included covered workers.
- ^{viii} IMPLAN is an economic model providing information that identifies the relationships between multiple economic sectors at the county level. The model was developed for the USDA Forest Service and draws on a national database from the U.S. Bureau of Economic Analysis and provides data for 528 economic sectors.
- ^{ix} The IMPLAN database provides information for 528 industries. These industries have been aggregated into employment sectors by two-digit SIC. Employment sectors are clustered into industries that have similar activities (i.e. produce-related goods, perform similar services, or naturally link to one another). The same definitions used for the Portland-Vancouver metro area have been applied to the U.S. in order to accurately assess the region’s performance against nationwide activities.
- ^x Value-added is important because it measures the amount of local processing (or value-added) to goods produced and/or services provided by the industry. The higher the level of value-added, the more wealth being created within the local economy.
- ^{xi} For this analysis, the threshold for a high employment multiplier is set at 2.00, that is, at least two jobs created directly and indirectly in the region for every direct new job in the sector considered.
- ^{xii} See Markusen, Ann, “Sticky Places in Slippery Space: A Typology of Industrial District,” *Economic Geography*, Volume 72, Issue 3 (Jul., 1996), 293-313.
- ^{xiii} These criteria have been reviewed with representatives of PDC, the Port of Portland, and City Bureau of Planning – and were further reviewed in two focus group sessions.
- ^{xiv} Tire A are tax lots greater than one acre that have no identified constraints. Tier B sites are tax lots greater than 2 acres constrained by “land banked” corporate ownership, access, or unstable soils.



RIVER PLAN / NORTH REACH RECOMMENDED DRAFT

VOLUME 1A: POLICIES, OBJECTIVES, AND RECOMMENDATIONS (available in print)

VOLUME 1B: CODE AMENDMENTS AND ZONING MAPS (available in print)

VOLUME 2: ECONOMIC PROSPERITY BACKGROUND INFORMATION

VOLUME 3A: NATURAL RESOURCES INVENTORY: RIPARIAN CORRIDORS AND WILDLIFE HABITAT

VOLUME 3B: NATURAL RESOURCES INVENTORY: RIPARIAN CORRIDORS AND WILDLIFE HABITAT - APPENDICES

VOLUME 3C: ECONOMIC, SOCIAL, ENVIRONMENTAL AND ENERGY ANALYSIS AND RECOMMENDATIONS FOR RIPARIAN CORRIDORS AND WILDLIFE HABITAT

VOLUME 4: ACCESS BACKGROUND INFORMATION

VOLUME 5: ORDINANCE AND RESOLUTION (available in print)

Volumes 2, 3 and 4 are available on CD or in print by special request. Please allow seven days for printing.

CITY COUNCIL PUBLIC HEARING

Wednesday, December 16, 2009 at 6:30 pm
1221 SW 4th Avenue, Council Chambers

Please submit written comments to:

Council Clerk
1221 SW 4th Avenue, Room 140
Portland, OR 97204
Fax: (503) 823-4571

Email: kmoore-love@ci.portland.or.us

Written comments must be received by the hearing date.