



SCHOOL OF PUBLIC HEALTH
UNIVERSITY of WASHINGTON



Health Impact Assessment
Proposed Cleanup Plan for the
Lower Duwamish Waterway Superfund Site

Technical Report

September, 2013

(Final version)

Assessment and Recommendations

***Effects of the proposed cleanup plan on health of workers
and employment in Lower Duwamish area industries***

Part B

(Evidence base and references for Part A)

Technical report

This technical report supports our HIA *Final Report*, published in September, 2013. An earlier version of this report supported our *Public Comment HIA Report*, which was submitted to EPA on June 13, 2013. Part A of this technical report was included within the *Public Comment Report*, and Part B was submitted as an accompanying appendix.

There were some changes in the technical report between June 13 and the *Final Report*. Most of the interim changes involved addition of material to the “context” section of the Assessment [section 5.A] and supporting sections in Part B of the report. There were no substantial changes to the assessment of potential health impacts or recommendations.[sections 5.C and 5.D] A track-changes version is available upon request.

Acknowledgment and disclaimer

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The views expressed are those of the authors and do not necessarily reflect the views of the Health Impact Project, The Pew Charitable Trusts, the Robert Wood Johnson Foundation, or the Rohm & Haas Company.

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Table of Contents

Readers are encouraged to focus on “Part A” of this report.

Part A is the actual “report, with text written by the report authors. Part B includes the evidence base for Part A, and consist of annotated references organized according to the research questions that guided this assessment. In many instances the annotations are substantial but consist almost exclusively of text, tables, and figures copied verbatim from the cited source, with nominal or no report-author comment. Substantial text by the report authors is generally confined to Part A. Reference citations in Part A [shown in square brackets] refer to chapter and section numbers in Part B.

PART A	7
1. Overview	7
2. Methods	8
A. Disclosure	8
B. Materials	8
C. Procedures	8
D. Definitions	9
3. Baseline community profile	13
A. Employment	13
B. Wages	15
C. Demographics	16
D. Economic connections	16
4. What are the major health outcomes of concern?	17
1. Health outcomes associated with employment.....	17
2. Health outcomes associated with unemployment or under-employment.....	18
3. Importance or “severity”.....	18
5. Assessment	19
A. Context	19
1. Economic conditions and business environment.....	19
2. International trade.....	19
3. Location, location, location.....	20
4. Industrial development.....	21
5. Industrial workforce.....	21
6. Commercial real estate.....	22
7. SODO area and stadiums.....	22
B. Experiences in other places	24
1. Portland, Oregon.....	24
2. Great Lakes restoration.....	25
3. Chicago.....	26
4. Manufacturing innovation centers.....	27
C. Potential health impacts of the proposed cleanup	28
1. Cleanup job creation.....	28
a) Magnitude and distribution of beneficial effect.....	29
2. Cleanup costs and business liability.....	29

a) ECONorthwest economic analysis	31
b) Magnitude and distribution of adverse effect	32
3. Business uncertainty	33
a) Magnitude and distribution of adverse or beneficial effect.....	35
4. Industry revitalization	35
a) Magnitude and distribution of effect.....	36
D. Recommendations	37
1. Hire local	37
2. Minimize uncertainty.....	37
3. Pursue opportunities for industry revitalization	38
PART B – Research questions and evidence foundation.....	39
6. What are the current status and trends for industry in the Duwamish Valley and Seattle?.....	39
A. Employment and economic activity.....	39
1. [Employment and economic activity: Duwamish MIC.....	39
2. Employment: Duwamish MIC and Duwamish “constructed” watershed	40
3. Economic activity: Duwamish MIC and Duwamish “constructed” watershed.....	45
4. Employment: Seattle MICs (Duwamish <i>and</i> Ballard-Interbay).....	46
5. Employment: Seattle “Basic Industries”	47
6. Economic Activity: Seattle manufacturing	50
B. International trade and port activity: Port of Seattle.....	51
1. Port development	51
2. Economic impact	52
C. Land use policies	53
1. Industrial land use	53
2. Seattle Comprehensive Plan	54
a) Urban village element.....	54
b) Land use element: Industrial areas.....	56
c) Amendments.....	58
3. Seattle generalized zoning map.....	59
4. Seattle industrial zoning.....	60
5. Seattle Comprehensive Plan: future land use map	61
6. Seattle’s existing industrial land uses map (2007)	62
7. Duwamish MIC map, showing Public and Port Owned Land (2006).....	63
D. Industrial land use in Duwamish MIC.....	64
1. Redevelopment potential	65
E. Industrial land use in Seattle.....	66
1. Survey of current and future outlook of industrial business	67
F. Industrial real estate in Seattle	68
G. King County commercial real estate appraisal	70
1. Appraisal map	70
2. Area 35 East Duwamish.....	71
3. Area 36 West Duwamish	75
4. Warehouses	81
7. What are relevant indicators for context and comparison?	83
A. Employment and economic activity.....	83
1. Employment: Seattle.....	83
2. Employment: King County	85

a)	Employment trends, 2002-2011	85
b)	Employment: King County, by age	86
c)	Employment and wages: King County, by industry	87
d)	Wages: Seattle-Bellevue-Everett, by occupation (in manufacturing)	89
e)	Wages: Seattle-Bellevue-Everett, by occupation; selected manufacturing, retail sales, food service, and other service occupations	90
3.	Employment: MICs in Central Puget Sound	91
4.	Employment: Puget Sound	93
5.	Employment: Washington state	94
6.	Employment: United States	95
8.	What are projections for...?	97
A.	Employment: Duwamish MIC and Duwamish Valley.....	97
B.	Economic outlook: Puget Sound region	97
C.	Puget Sound regional economic growth and development.....	98
9.	What factors have influenced or may influence trends?	101
A.	Location, location, location: Duwamish MIC	101
B.	Current and future outlook for industrial business in Seattle (2009 survey)	102
1.	Opportunities for growth.....	102
2.	Competitive advantages	102
3.	Challenges.....	103
C.	Benefits and challenges of business opportunities in Seattle’s industrial lands (2007 survey)	104
D.	Future of Seattle’s Industrial Lands (2007).....	104
E.	Industrial Development in Seattle	104
F.	Real estate: National and Seattle	106
G.	Street traffic.....	107
H.	SODO District and stadiums.....	108
1.	Seattle Stadium Transition Overlay District	108
2.	Development proposals.....	109
3.	Impacts of new stadium or SODO development.....	109
4.	Seattle studies: Duwamish Industrial Lands, Freight Access, and Stadium District.....	110
5.	Real estate speculation	112
6.	Adjacent development	112
I.	Port capacity and competition.....	114
1.	Port of Seattle: Annual Report 2012	114
2.	Port of Seattle: Century Agenda	118
3.	Port of Seattle: Gnostam LLC assessment	118
4.	Port of Seattle: Moody’s Investor Service rating action	119
5.	Port of Seattle: Seattle Comprehensive Plan.....	120
6.	Puget Sound ports	121
a)	Port of Tacoma	121
7.	North American ports	122
8.	British Columbia.....	124
J.	Population growth: Seattle	124
K.	Manufacturing in Washington state.....	125

10. How might the Lower Duwamish River Superfund cleanup influence Duwamish Valley industry and employment?.....	126
A. Cleanup costs and liability.....	126
B. MTCA toxics control account	127
C. Cleanup liability and uncertainty	128
D. Cleanup-related employment.....	132
E. Cleanup impact on industry economic output and employment	135
11. What can we learn from other experiences elsewhere?	140
A. Industrial lands	140
B. Portland, Oregon.....	140
C. Chicago.....	141
D. Manufacturing innovation.....	141
E. Urban waterfront revitalization and gentrification	143
1. Peer-reviewed publications	143
a) Brooklyn, NY	143
F. Urban waters initiatives.....	143
G. Great Lakes restoration.....	144
1. Industry partnership	145

PART A

Part A is the actual “report,” with text written by the report authors. Part B is the evidence base for Part A, and consists of annotated references organized according to the research questions that guided this assessment. Reference citations in Part A [in square brackets] refer to chapter and section numbers in Part B.

1. Overview

This portion of the HIA examined possible effects of the proposed cleanup plan on the health of workers and employment in Lower Duwamish area industries. This assessment was prompted by concerns expressed by people in business and labor communities that the costs of cleanup, or cleanup-associated uncertainties, could have a negative effect on business performance, resulting in loss of jobs and employment options. Many types of uncertainty are mentioned, but common concerns are uncertainty about the ultimate dollar cost of liability, fears of legal actions or litigation, and seeming endlessness of the situation and liability.

From a health perspective, the major concern is job loss or under-employment. Employment is one of the strongest favorable determinants of health and well-being.¹ Employment and skill development generate personal income and increase the likelihood of future employment and income stability. Steady employment with a decent wage allows individuals and families to live in safe home and safe neighborhood with access to basic services, purchase healthful food, ensure education for their children, and afford child-care services. Steady employment and a decent wage can provide disposable income and time to enjoy pleasures of life, exercise, and ensure adaptive capacity to deal with unanticipated life challenges. Good jobs with benefits may provide health insurance which, along with a decent wage, ensures regular and timely access to health care, preventive, and health promotion resources. Together, these factors can reduce the risk of major preventable health problems such as obesity, diabetes, high blood pressure, heart attack, and stroke. Employment and higher income are associated with longer lifespan.²

Traditional manufacturing, wholesale trade, transportation and warehousing businesses in the Lower Duwamish area face a variety of pressures that could influence their productivity and economic viability, and that could stimulate changes in land use analogous to ongoing residential gentrification in local neighborhoods. It is plausible that the proposed cleanup of the Lower Duwamish River and related decisions could add to existing unfavorable pressures on local industries, with net loss of jobs or reduction in hours of employment. Lower skilled and lower income workers might face disproportionate risk of being laid off. Alternatively, it is plausible that existing businesses and employment could benefit substantially if the cleanup reversed the constraints and stigma of a blighted river, and if this stimulated industry revitalization and economic robustness.

This assessment considered four major categories of possible cleanup-related effects: cleanup job creation, cleanup costs and business liability, business uncertainty, and industry revitalization. Any potential effects of the proposed cleanup plan on workers and employment in the Lower Duwamish area industries would not occur in a vacuum. Therefore, the assessment considered the context within which any cleanup-related effects would occur, recognizing that: cleanup-related effects could combine or interact with existing challenges faced by local industries; the priority of a problem or opportunity might appear more or less important, when viewed relative to other problems or opportunities; and possible future options or strategies may be more appealing to stakeholders if they can be tailored to address more than one problem or serve multiple needs.

1. Robert Wood Johnson Foundation. How Does Employment—or Unemployment—Affect Health? *Health Policy Snapshot: Public Health and Prevention*. March 2013.

2. Waldron H. Trends in Mortality Differentials and Life Expectancy for Male Social Security–Covered Workers, by Average Relative Earnings. *ORES Working Paper*, No. 108. US Social Security Administration. Oct. 2007.

PART B – Research questions and evidence foundation

Readers are encouraged to focus on “Part A” of this report.

As described earlier, Part A is the actual “report, with text written by the report authors. Part B includes the evidence base for Part A, and consist of annotated references organized according to the research questions that guided this assessment. In many instances the annotations are substantial but consist almost exclusively of text, tables, and figures copied verbatim from the cited source, with nominal or no report-author comment.

Substantial text by the report authors is generally confined to Part A. Reference citations in Part A [shown in square brackets] refer to chapter and section numbers in Part B.

6. What are the current status and trends for industry in the Duwamish Valley and Seattle?

Note, in this report, “Industry” generally refers to manufacturing and WTU (wholesale trade, transportation, utilities). This term, industry, and many other terms are defined differently in different sources. Most factual content is reproduced without change (i.e., quoted) from the original, cited source. Quoted text is denoted by bullet-point indentation and smaller font.

A. Employment and economic activity

1. [Employment and economic activity: Duwamish MIC]

SOURCE: Puget Sound Regional Council. *2002 Urban Centers Report: Duwamish Manufacturing/Industrial Center*. 2002.

- The Duwamish Manufacturing/Industrial Center is located just south of Downtown Seattle. The center is roughly bounded by South Jackson Street on the north, I-5 on the east, Boeing Access Road on the south (Seattle’s south city limit), and West Margin Way on the west. The center adjoins the south margin of Elliott Bay, includes Harbor Island, and extends about 5 miles southward, along the Duwamish River. The Duwamish Waterway is an important transportation corridor with regional and national significance, and serves as a major origin and destination for trade goods to and from Alaska. Domestic and international traffic via the waterway amounts to approximately 7.2 million tons each year, valued at approximately \$7.5 billion.
- At its south end the center takes in about 2/3 of King County International Airport/Boeing Field. The Duwamish manufacturing/industrial center is one of the largest and most intensely developed manufacturing/industrial areas in the Pacific Northwest. Covering nearly 5,000 acres, the Duwamish MIC represents 84 percent of the industrial lands within the city.
- The regional significance of the Greater Duwamish Manufacturing and Industrial Center to the City of Seattle and the Puget Sound Region cannot be overemphasized. Comprised of some 4,138 acres of marine and industrial lands (City of Seattle, 1998), the Greater Duwamish Manufacturing and Industrial Center (MIC) is a unique regional resource and economic engine. The Duwamish MIC provides the largest concentration of family wage jobs in the Puget Sound region, generating enormous tax and export revenues. In 1997 there were 3,300 businesses providing more than 60,000 jobs within its boundaries. The MIC is a vital international trade and transportation crossroads, receiving and distributing goods via roadway, water, rail and air. Its ability to provide multiple modes of transportation represents a unique asset to the region and an enhancement to the local business environment. The Duwamish MI Center has been in industrial use for nearly 100 years.

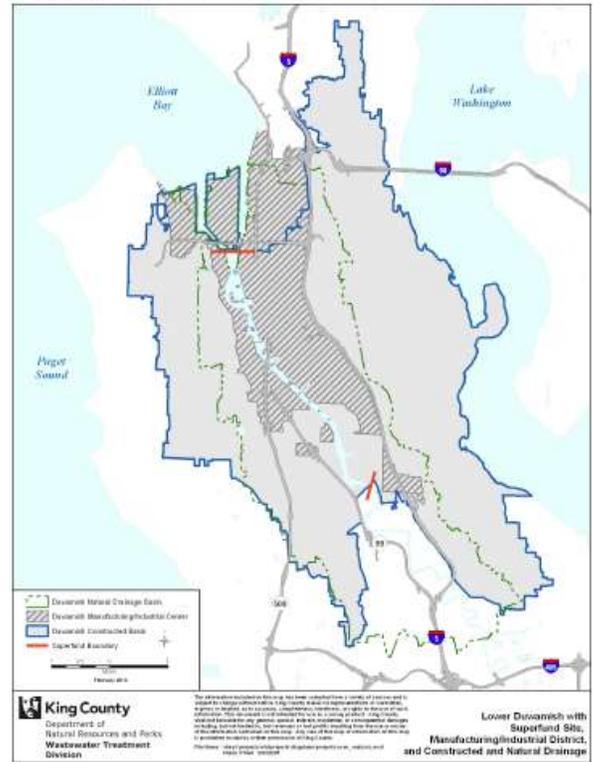
2. Employment: Duwamish MIC and Duwamish “constructed” watershed

SOURCE: *Lower Duwamish Economic Analysis* by Voight T, et al. ECONorthwest; produced for King County Dept. of Natural Resources and Parks. March 2010. [Abbreviated name, LDEA 2010].

LDEA 2010 defined “affected area” at two tiers:

- **[Tier 1: Constructed Watershed]** The larger Tier 1 area contains the broad area that drains to the Superfund site, including properties that may contribute to stormwater or combined sewer overflows directly flowing to the site. This relatively large, 34 square mile area accounts for almost 24 percent of Seattle’s total land area.
- Economic and demographic information on the FAZs [Forecast Analysis Zone; Puget Sound Regional Council] and the zip codes... were aggregated to provide proxies of the economic and demographic characteristics of the Tier 1 study area. The FAZ and zip code boundaries do not match up exactly with the Tier 1 boundaries but they provide a reasonable approximation of the study area. Note that only a small portion of zip code (98134) and the FAZ (3905) fall within the study area, however each contain manufacturing/industrial areas that do fall within the boundaries of the Tier 1 zone and so they were included in the analysis.
- **[Tier 2: Duwamish Manufacturing/Industrial Center]** The Tier 2 area, a sub-region of the Tier 1 area, is in closer proximity to the Superfund site. The Tier 2 area generally coincides with the concentration of manufacturing/ industrial activity adjacent to Superfund site, including the Duwamish manufacturing/industrial center, as well as some adjacent residential and commercial areas.
- The Tier 2 study area is a sub-set of the FAZs and zip codes contained in the Tier 1 study area.
- Tier 2 is much smaller than Tier 1, at approximately 8 square miles compared to 33.5 square miles in Tier1

Figure 1: Lower Duwamish Waterway Superfund Site



LDEA 2010 Executive Summary statements included:

- The Lower Duwamish area is of great economic significance to the City of Seattle and King County. It generates a large amount of City and County employment, wage earnings, and economic output.
- Even the more narrowly defined Tier 2 area directly contains over 100,000 jobs, many of which are in manufacturing and wholesale trade, transportation, and warehousing. The affected area contains substantial amount of the regional employment in these sectors.
- The area is a net job importer (there is a much higher jobs/resident ratio compared to the City of Seattle and other parts of the County).
- Although the area is a concentrated center of economic activity, there are a significant number of residents as well. Household incomes tend to be lower than in the rest of the County, however income levels are projected to increase over time, perhaps reflective of job opportunities in the area.
- Based on projections from the Puget Sound Regional Council, employment in the area anticipated to grow in the future, albeit at a slower overall rate than the rest of the County. The area’s share of manufacturing, industrial, and warehousing activity is anticipated to grow (perhaps reflecting limited availability of sites for these activities).
- Many of the jobs located in the Duwamish area are constrained by location – they require good transportation corridors (marine, rail, truck) and infrastructure that is difficult to locate elsewhere in the region. These businesses provide important diversity to the County economy.

- Many of the manufacturing jobs located in the area are relatively high paying (higher than the County median), and may not require advanced education or skills.
- Many of the jobs located in the area, particularly the manufacturing, transportation, and industrial sectors-- have significant secondary and induced impacts – in that other jobs (retail, government, other services) depend on them.

LDEA 2010 findings include:

[Note, percentages expressed as “percent” in the original LDEA-2010 report were usually replaced with %. The changes were not acknowledged at each site of change.]

- Some of the key findings of the economic and demographic characterization of the area are summarized in Table

Table 1: Geographic, Demographic, and Economic Characteristics of Tier 1 and Tier 2 Areas

Characterization*	Tier 1: Broader Area, Contributing Stormwater & Combined Sewer Overflows Reaching the Superfund Site	Tier 2: Narrower Zone, More immediately adjacent to the Area; Focused on Manufacturing/Industrial Zoning
Geography		
Characterization	Mixed uses; Mostly within Seattle; Many residential communities	Concentrated area of manufacturing & Industrial activity; Mostly within Seattle
Size / Percent of County**	33.5 square miles / 1.5%	8 square miles
Population & Demographics		
2010 Population / Percent of County	135,000 / 7%	60,000 / 3%
Percent of King County's Low Income HHs	9%	4%
Forecast Population Growth 2010-20	Moderate; slower than rest of County	Moderate; slower than rest of County
2010 Households / Percent of County	51,000 / 6%	24,000 / 3%
2010 Person Per Household***	2.6; Higher than County average	2.5; Higher than County average
Employment & Economic Output		
2010 Employment / Percent of County	129,000 (10% of County)	106,000 (8% of County)
Percent in Manufacturing	21% (County = 10%)	24% (County = 10%)
Percent in Wholesale Trade, Transportation, Warehousing	24% (County = 14%)	29% (County = 14%)
Jobs/Resident Ratio	0.96 - higher than rest of City and County	1.75 much higher than rest of City and County
Average Annual Wage (2008)	\$53,000 (County average = \$57,000)	\$56,000 (County average = \$57,000)
Total Wages / Percent of County (2008)	\$9 billion / 10%	\$4.4 billion / 5%
Total Economic Output / Percent of County (2008)	\$27.3 billion / 9%	\$13.5 billion / 4.3%
Total Value Added (2008)	\$15.6 billion / 9%	\$7.3 billion / 4.3%
Forecast Job Growth 2010-20	Slightly slower than rest of County; share of manufacturing/industrial forecast to increase	Slightly slower than rest of County; share of manufacturing/industrial forecast to increase

Source: ECONorthwest analysis of data from PSRC, IMPLAN, and other sources.

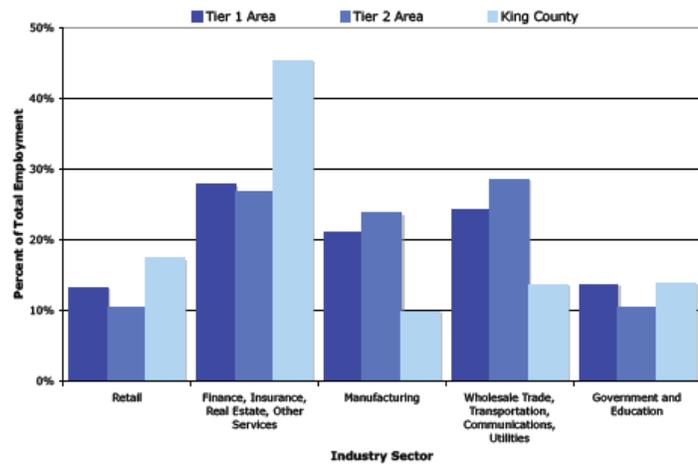
*All 2010 population, demographic, and economic information based on PSRC Population, Household, and Employment Forecast, 2006

**Due to overlap of the zip codes and FAZs used to represent the Tier 1 and Tier 2 areas, the size of the area analyzed is greater than the areas shown in Table 1. For Tier 1, the area analyzed is 45 square miles based on zip code data and 39 square miles based on FAZ data; For Tier 2 area, the size of the area analyzed is 16 square miles based on zip code data and 24.6 square miles based on FAZ data.

***Household population (not total population) used in denominator.

- The distribution of employment by industry sector for the Tier 1 and Tier 2 area, and King County are shown in Figure 2.

Figure 2: Distribution of Employment by Industry Sector, Tier 1 and Tier 2 Areas, and King County (2010)*



Source: ECONorthwest analysis of data from PSRC.
*Based on PSRC Population, Household, and Employment Forecast, 2006.

Tier 1: Constructed watershed [LDEA 2010]

- Relative to the County, Tier 1 has a lower concentration of employment in the retail sector (13% versus 17%), as well as the financial, and other services sectors (28% versus 47%).
 - The Tier 1 area, however, has a much greater concentration of employment in the manufacturing sector than does King County as a whole (21% versus 10%). This difference is attributable to the presence of the Duwamish MIC and the high proportion of employment within the MIC involved in the manufacturing.
 - In addition, because the Tier 1 area includes several Port of Seattle terminals and Boeing Field, this area has a much higher than County average concentration of employment in the wholesale trade, transportation, warehousing, communications, and utility sectors (24% versus 14%).
- While the Tier 1 area has a relatively high concentration of employment in these traditionally blue-collar industries, it also has a low concentration of white-collar employment, relative to King County as a whole (28% versus 45%).
- Total employment in Tier 1 is about 129,000, which is about 10% of total King County’s employment [Table 3].
 - Manufacturing employment in the Tier 1 area represent 21% of manufacturing employment for the County.
 - Likewise, employment in the wholesale trade, transportation, communications, and utilities sectors in Tier 1 represent 17% of King County employment in these sectors.
 - For King County, nearly half of all employment is in the finance, insurance, real estate, and other services sectors. For these sectors, however, only 6% of County employment is located in the Tier 1 area.

Table 3: Employment by Industry Sector, Tier 1 and King County, (2010 Projected)

Industry Sector	Tier 1 Employment	King County Employment	Tier 1 as a Percent of King County
Retail	16,988	227,295	7.5%
Finance, Insurance, Real Estate, Other Services	35,875	593,592	6.0%
Manufacturing	27,333	129,394	21.1%
Wholesale Trade, Trans, Communications, Utilities	31,176	179,524	17.4%
Government & Education	17,673	181,381	9.7%
Total	129,045	1,311,186	9.8%

Source: ECONorthwest analysis of PSRC FAZ data

- For Seattle, firms located in Tier 1 were responsible for 64% of wages paid for wholesale trade, 57% for transportation and warehousing, and 45% for manufacturing. [Table 4; next page]

Table 4: Wages and Business Income for Tier 1 Industry Sectors, 2008 (\$Million)

Industry Sector	Tier 1 Area		As a Percent of City of Seattle*		As a Percent of King County	
	Wages	Business Income	Wages	Business Income	Wages	Business Income
Manufacturing	\$930	\$520	45%	40%	9%	8%
Transportation & Warehousing	\$582	\$319	57%	50%	18%	20%
Wholesale trade	\$1,084	\$519	64%	64%	19%	19%
Other Private Industry	\$5,036	\$3,772	21%	18%	8%	7%
Government	\$1,385	\$197	31%	30%	12%	12%
Total	\$9,016	\$5,326	27%	22%	10%	8%

Source: ECONorthwest analysis of IMPLAN data (Note: totals may not sum exactly due to rounding)

* The Tier 1 area includes zip code 98168, which lies outside the City of Seattle

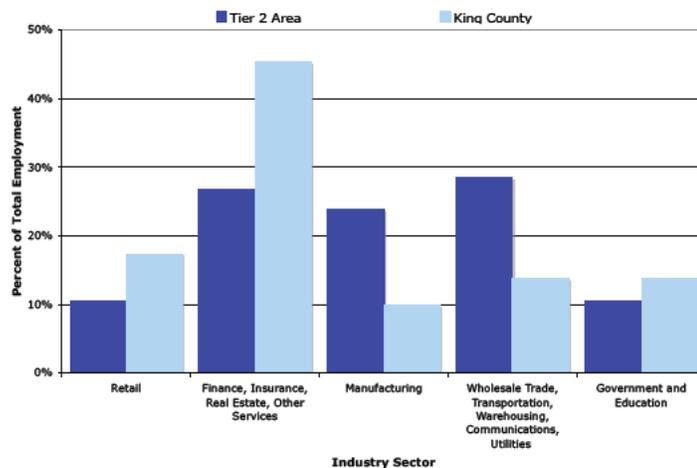
- However, while not represented in the table, the average wage earned per employee within these sectors was lower for employees in Tier 1 than in either the City or County. [italics added]
 - The average manufacturing wage paid to employees in Tier 1 was 33 percent below the County average for the manufacturing sector. This is because of the high concentration of manufacturing activities elsewhere in the County that pay higher wages than the county average, such as aerospace.
- Nevertheless, with an average wage of \$60,031 for the manufacturing sector and \$62,588 for the combined wholesale trade, transportation, and warehousing sectors, the Lower Duwamish region offers a higher-than-average wage for King County workers. [italics added]

Tier 2: Duwamish MIC [LDEA 2010]

- Currently, an estimated 106,000 people are employed in Tier 2.
 - Of these, 81,000 are employed within the portion of Tier 2 that lies within the City of Seattle—about 13% of Seattle’s total employment.
 - The significance of the area as a center of employment is even more pronounced for King County: although Tier 2 accounts for only [1%] of total King County land area, it provides nearly [9%] of total county employment.
- The eight square mile area that represents the Tier 2 geographic area provides a unique concentration of manufacturing and industrial activity, as well transportation infrastructure.

- As Figure 10 shows, Tier 2 has a much greater proportion of employment in the manufacturing and wholesale trade, transportation, and communication sectors than the County as a whole.
- In Tier 2, about one in four jobs are in manufacturing, compared a countywide average of one in ten jobs.
- Likewise, nearly 30% of Tier 2 employment is in the wholesale trade, transportation, warehousing, and communications sectors, compared to about 14% for the County as a whole.

Figure 10: Distribution of Employment by Industry Sector, Tier 2 Geographical Area and Rest of County (2010 Projected)



Source: ECONorthwest analysis of PSRC data

- Conversely, as Figure 10 shows, the Tier 2 area has a relatively low concentration of employment in the service and government sectors compared to the County as a whole.

- Total employment in Tier 2 is estimated at 106,000, accounting for about eight percent of total King County employment. [Table 7]

Table 7: Employment by Industry Sector, Tier 2 and King County, (2010 Projected)

Industry Sector	Tier 2 Employment	King County Employment	Tier 2 as a Percent of King County
Retail	11,050	227,295	4.9%
Finance, Insurance, Real Estate, Other Services	28,382	593,592	4.8%
Manufacturing	25,105	129,394	19.4%
Wholesale Trade, Trans, Communications, Utilities	30,106	179,524	16.8%
Government & Education	11,063	181,381	6.1%
Total	105,706	1,311,186	8.1%

Source: ECONorthwest analysis of PSRC FAZ data

- As discussed above [Tier 1], some industry sectors are highly concentrated in the Tier 2 area relative to the County as a whole. Manufacturing employment in the Tier 2 area represents 19% of manufacturing employment in the County. Employment in the wholesale trade, transportation, communications, and utilities sectors in Tier 2 accounts for about 17% of King County’s employment in these sectors.
- For King County as a whole, nearly half of all employment is in the finance, insurance, real estate, and other services sectors. By contrast, only about five percent of County employment in these sectors is located in the Tier 2 area. *The relative importance of Tier 2 is as a location for traditionally blue-collar industries, which provides economic diversity for a County that is primarily based on service sector employment. This employment is generally well-paid employment and does not require advanced education.* [italics added]
- For Tier 2, wages earned within the Lower Duwamish MIC area accounted for 13 percent of wages earned citywide [Table 8]. Tier 2 accounted for a third or more of city wages earned in manufacturing, wholesale trade, transportation and warehousing. Though occupying less than 1 percent of County land, employees working within Tier 2 earned about five percent of the County’s total earned wages.

Table 8: Wages and Business Income for Tier 2 Industry Sectors, 2008 (\$Million)

Industry Sector	Tier 1 Area		As a Percent of City of Seattle*		As a Percent of King County	
	Wages	Business Income	Wages	Business Income	Wages	Business Income
Manufacturing	\$678	\$392	33%	30%	7%	6%
Transportation & Warehousing	\$392	\$227	38%	36%	12%	14%
Wholesale trade	\$789	\$378	47%	47%	14%	14%
Other Private Industry	\$2,070	\$1,190	8%	6%	3%	2%
Government	\$480	\$70	11%	11%	4%	4%
Total	\$4,409	\$2,257	13%	9%	5%	3%

Source: ECONorthwest analysis of IMPLAN data

3. Economic activity: Duwamish MIC and Duwamish “constructed” watershed

SOURCE: *Lower Duwamish Economic Analysis* by Voight T, et al. ECONorthwest; produced for King County Dept. of Natural Resources and Parks. March 2010.

Tier 1: Constructed watershed

- As Table 5 shows, \$27.3 billion in economic output was produced in Tier 1 in 2008. Of this total, \$15.6 billion represented value added activities.
 - 9% of King County’s and 25% of the City of Seattle’s total value of output (and value added) originates in the Tier 1 area.
 - Tier 1 produces 8% and 41%, respectively, of the value of manufacturing output for King County and Seattle. For transportation and warehousing and wholesale trade, the proportions are even higher: Tier 1 accounts for approximately 51% of Seattle’s transportation and warehousing output and 64% of...output in wholesale trade.
 - Likewise, Tier 1 accounts for about 19 percent of the King County’s output for wholesale trade and 18 percent of output in transportation and warehousing.

Table 5: Value of Output and Total Value added for Tier 1 Industry Sectors, 2008 (\$Million)

Industry Sector	Tier 1 Area		As a Percent of City of Seattle*		As a Percent of King County	
	Value of Output	Value Added	Value of Output	Value Added	Value of Output	Value Added
Manufacturing	\$4,933	\$1,482	41%	43%	8%	9%
Transportation & Warehousing	\$1,736	\$960	51%	54%	18%	19%
Wholesale trade	\$3,087	\$2,034	64%	64%	19%	19%
Other Private Industry	\$15,718	\$9,546	19%	19%	8%	8%
Government	\$1,803	\$1,581	30%	31%	12%	12%
Total	\$27,276	\$15,605	25%	25%	9%	9%

Source: ECONorthwest analysis of IMPLAN data

* The Tier 1 area includes zip code 98168, which lies outside the City of Seattle

Tier 2: Duwamish MIC

- About \$13.5 billion in economic output was produced in Tier 2 in 2008 [Table 9]. Of this, \$7.3 billion represented value added activities.
 - 4% of King County’s and 13% of the City of Seattle’s total value of output (and 12% of value added) originates in the Tier 2 area.
 - Tier 2 represents 6% and 30%, respectively, of the value of manufacturing output for King County and Seattle.
 - For transportation and warehousing and wholesale trade, the proportions are even higher: Tier 2 accounts for approximately 33% of Seattle’s transportation and warehousing output and 47% of...output in wholesale trade.
 - Likewise, Tier 2 accounts for about 12% of the King County’s output for wholesale trade and 14% of output in transportation, and warehousing.

Table 9: Value of Output and Total Value Added for Tier 2 Industry Sectors, 2008 (\$Million)

Industry Sector	Tier 2 Area		As a Proportion of City of Seattle		As a Proportion of King County	
	Value of Output	Value Added	Value of Output	Value Added	Value of Output	Value Added
Manufacturing	\$3,620	\$1,095	30%	32%	6%	7%
Transportation & Warehousing	\$1,132	\$659	33%	37%	12%	13%
Wholesale trade	\$2,249	\$1,482	47%	47%	14%	14%
Other Private Industry	\$5,882	\$3,503	7%	7%	3%	3%
Government	\$646	\$550	11%	11%	4%	4%
Total	\$13,529	\$7,288	13%	12%	4%	4%

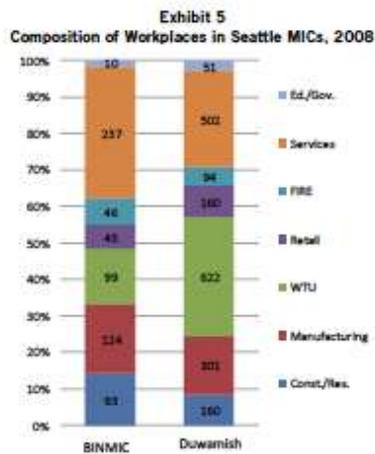
Source: ECONorthwest analysis of IMPLAN data

4. Employment: Seattle MICs (Duwamish and Ballard-Interbay)

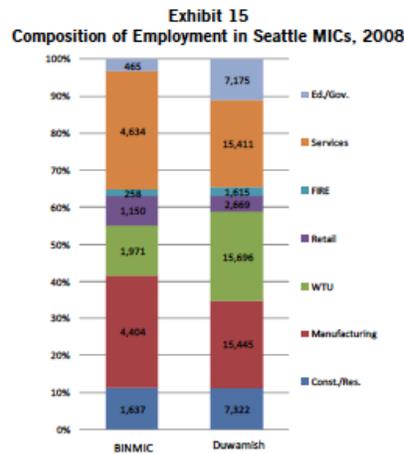
SOURCE: *Basic Industries Economic Analysis* by Medford C, et al. (Community Attributes; produced for Seattle Office of Economic Development). July 2009. [Abbreviated name, BI-2009].

Workplaces [BI-2009]

- In 2008, Seattle Manufacturing Industrial Centers were home to approximately 2,544 workplaces and approximately 10% of all firms within the City. Nearly 1,400 Basic Industry workplaces are located in the Duwamish MIC and BINMIC combined, which accounts for approximately 32% of all Basic Industry workplaces in Seattle. Since 2000, the number of workplaces in MICs has remained stable, increasing slightly from 2,493 workplaces to 2,544 in 2008.
- While the total number of workplaces has remained stable as a whole in MICs, the type of workplaces has changed. Non-basic industry workplaces increased in MICs while Basic Industry workplaces decreased in each MIC.... In the Duwamish MIC, Basic Industry workplaces decreased from 1,134 in 2001 (62%) to 1,083 (57%) in 2007.
- In the Duwamish, Basic Industry workplaces are dominated by the WTU sector, accounting for 60% of all Basic Industry workplaces. Manufacturing accounts for 30% of Basic Industry workplaces.... In both MICs, service firms account for a large percentage of the total workplaces; 36% in the BINMIC and 27% in the Duwamish respectively. The number of service workplaces increased from 2001 to 2008 by 32 in the BINMIC and 80 in the Duwamish MIC. During this time, retail uses have remained stable in the BINMIC and Duwamish (net loss of 1).



Source: Puget Sound Regional Council, Washington State Employment Security Department, 2008.



Source: Puget Sound Regional Council, Community Attributes.

Employment [BI-2009]

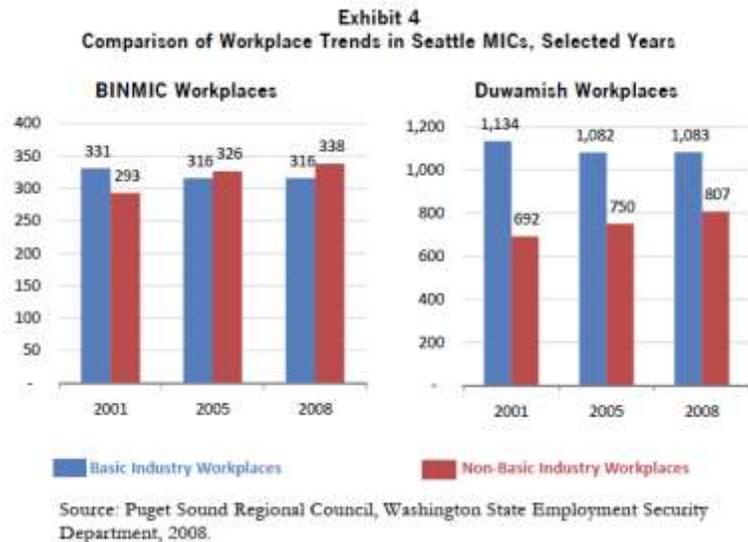
- The Duwamish MIC and BINMIC are home to half of Seattle’s industrial employment and 16% of total City employment in 2008. Seattle’s MICs employ six out of every ten citywide manufacturing jobs, over half of wholesale trade and transportation jobs, and one third of construction and resource jobs.
- Basic Industries account for 55% of all jobs in the BINMIC and 59% in the Duwamish MIC.
 - Manufacturing accounts for 30% of the employment base in the BINMIC and 24% in the Duwamish. From 2001 to 2008, manufacturing employment decreased in the BINMIC by 17% (900) and has remained stable in the Duwamish.
 - WTU is the largest employment sector in the Duwamish, accounting for nearly one quarter of the Duwamish job base compared to 14% of the BINMIC’s job base. WTU employment decreased in the Duwamish by 17% and -3,200 jobs from 2001 to 2007 with jobs loss split evenly between the wholesale and transportation sector.
 - Non-basic industry employment accounts for 45% of the job base in the BINMIC and 41% in the Duwamish.... The services sector accounts for 24% of total employment in the Duwamish MIC.

5. Employment: Seattle “Basic Industries”

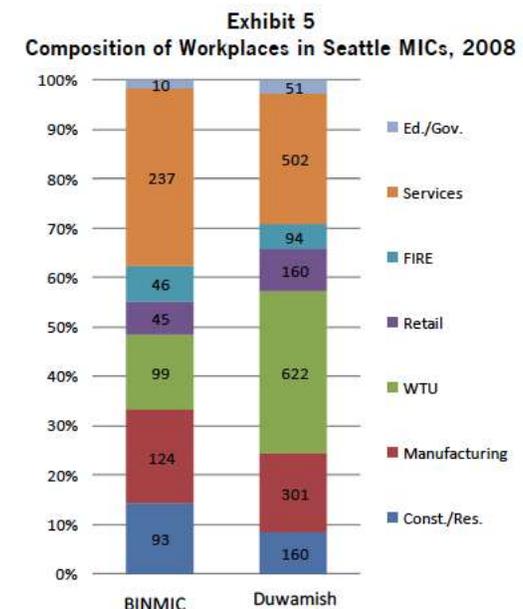
SOURCE: *Basic Industries Economic Analysis* by Medford C, et al. (Community Attributes; produced for Seattle Office of Economic Development). July 2009. [Abbreviated name, BI-2009].

Workplaces [BI-2009]

- Basic Industry workplaces in the City of Seattle remained relatively stable from 1995 to 2008.
 - Manufacturing firms decreased steadily during this period
 - WTU workplaces have also decreased
 - Construction and Resources workplaces increased
- The composition of Basic Industry firms in Seattle has changed from 1995 to 2008. Manufacturing firms accounted for 27% (1,209) of Basic Industry workplaces in 1995 and has decreased consistently every year to 20% in 2008.
- In 2008, Seattle Manufacturing Industrial Centers were home to approximately 2,544 workplaces and approximately 10% of all firms within the City. Nearly 1,400 Basic Industry workplaces are located in the Duwamish MIC and BINMIC combined, which accounts for approximately 32% of all Basic Industry workplaces in Seattle. Since 2000, the number of workplaces in MICs has remained stable, increasing slightly from 2,493 workplaces to 2,544 in 2008.



- While the total number of workplaces has remained stable as a whole in MICs, the type of workplaces has changed, shown in Exhibit 4. Non-basic industry workplaces increased in MICs while Basic Industry workplaces decreased in each MIC. Basic Industry workplaces in the BINMIC declined from 331 (53%) to 316 (48%) from 2001 to 2008. In the Duwamish MIC, Basic Industry workplaces decreased from 1,134 in 2001 (62%) to 1,083 (57%) in 2007.
- In 2008, Basic Industry workplaces represented 48% of the 654 workplaces in BINMIC (Exhibit 5) and 58% percent of 1,890 total firms in the Duwamish.
 - In the Duwamish, Basic Industry workplaces are dominated by the WTU sector, accounting for 60% of all Basic Industry workplaces. Manufacturing accounts for 30% of Basic Industry workplaces while construction and resources accounts for 13%.
 - In both MICs, service firms account for a large percentage of the total workplaces; 36% in the BINMIC and 27% in the Duwamish respectively. The number of service workplaces increased from 2001 to 2008 by 32 in the BINMIC and 80 in the Duwamish MIC. During this time, retail uses have remained stable in the BINMIC and Duwamish.



Source: Puget Sound Regional Council, Washington State Employment Security Department, 2008.

Employment [BI-2009]

- ...Basic Industry employment cycles. The City of Seattle had 9,000 more Basic Industry jobs in 2000 than in 1995 (a 10% increase). Jobs declined steadily from 2000 to 2005, and grew steadily from 2005 to 2008. After peaking in 2000, Basic Industry employment declined five consecutive years, losing 21,000 jobs and just over 20% of the workforce from 2000 - 2005. Since 2005, employment in Basic Industry sectors has been on the rise, adding 8,330 new jobs from 2005 to 2008.
- Citywide manufacturing jobs decreased steadily from 1995 to 2004, losing nearly 9,900 jobs, a 26% decrease. Since 2004, manufacturing employment has increased each year, adding a total of 2,900 jobs by 2008. Wholesale, Trade and Utilities (WTU) jobs decreased by nearly 7,300 jobs from 2006; a 17% decrease citywide. After seven years of job loss, WTU employment increased by a net total of 960 jobs in 2007 and 2008.

- Basic Industries account for 55% of all jobs in the BINMIC and 59% in the Duwamish MIC.
 - The construction and resource sector accounts for approximately 10 percent of the employment base in both MICs. Manufacturing accounts for 30% of the employment base in the BINMIC and 24% in the Duwamish. ... WTU is the largest employment sector in the Duwamish, accounting for nearly one quarter of the Duwamish job base compared to 14% of the BINMIC's job base.
 - Non-basic industry employment accounts for 45% of the job base in the BINMIC and 41% in the Duwamish

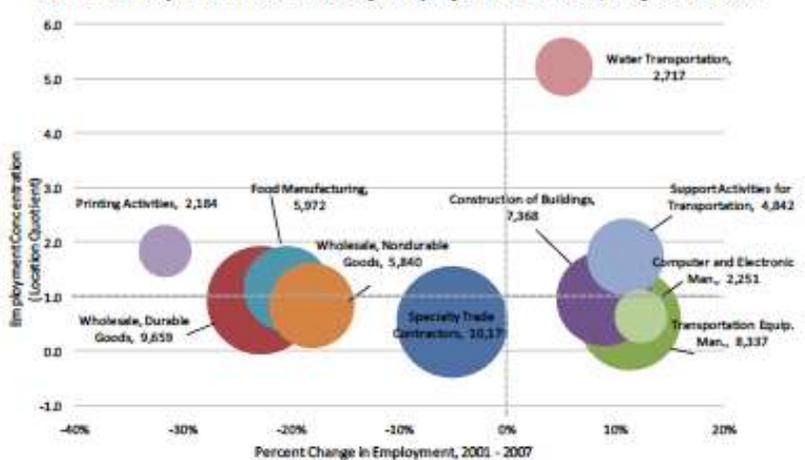
Exhibit 15
Composition of Employment in Seattle MICs, 2008



Source: Puget Sound Regional Council, Community Attributes.

- Employment trends in Seattle’s Basic Industry sector generally mimic trends of the greater Puget Sound region.
- Seattle’s largest Basic Industry employers have experienced both growth and decline in recent years. Exhibit 17 [below] shows growth trends in Seattle’s ten largest Basic Industry employment sectors defined by 3-digit NAICS codes.... A location quotient greater than one demonstrates that an industry is more concentrated in Seattle than in Washington State. Bubble size represents 2007 employment.

Exhibit 17
Trends in Top Ten Basic Industry Employment Sectors, City of Seattle

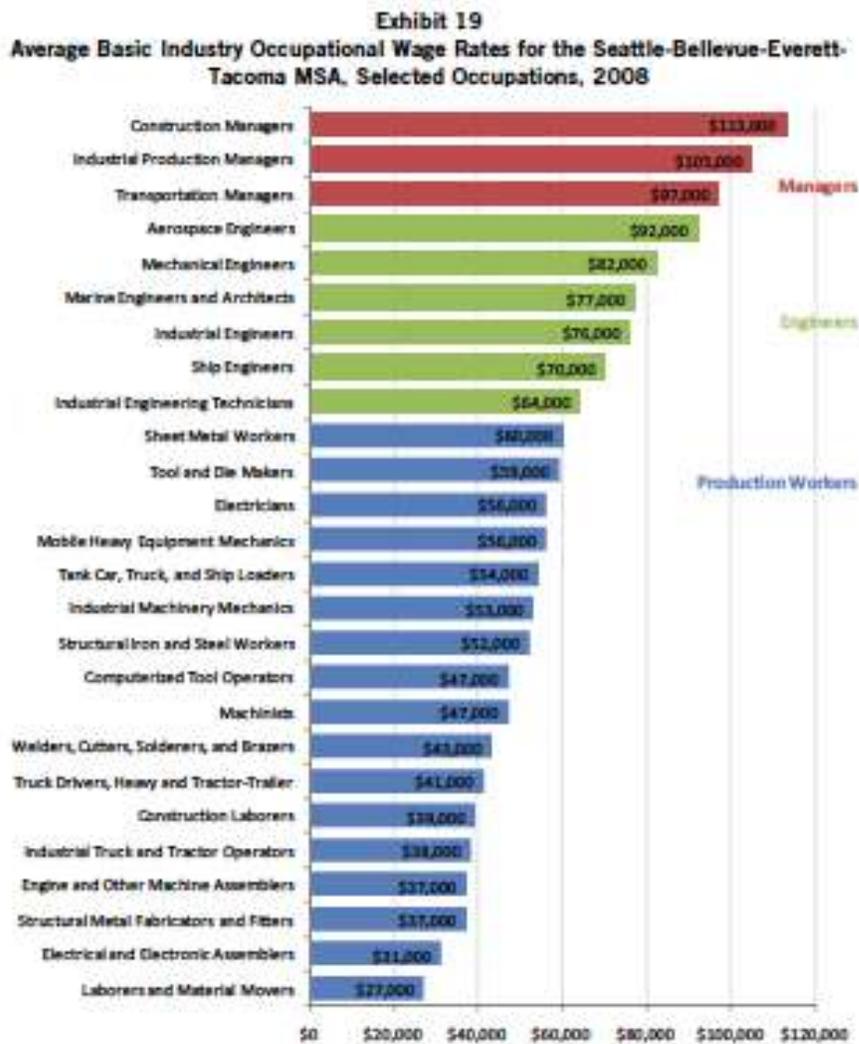


Source: PSRC, Community Attributes

- Basic Industry growth has been led by support activities for transportation (+478 jobs, 11%), transportation equipment manufacturing which includes aerospace and ship building sectors (+849 jobs, 11%), computer and electronic manufacturing (+248 jobs, 12%), water transportation (+135 jobs, 5%) and construction of buildings (+608 jobs, 9%).
- Five of the top ten Basic Industry employment sectors experienced job loss from 2001-2007 including specialty contractors (-544 jobs, -5%), wholesale durable (-2,850 jobs, -23%) and nondurable (-1,287 jobs, -18%) goods, food manufacturing (-1,525 jobs, -20%) and printing activities (-1,011 jobs, -32%).

Wages [BI-2009]

- Basic Industry jobs as a whole pay an average of approximately \$54,000 compared to an average city wage of \$52,800. Basic Industry wages are typically higher in Seattle than those earned across Washington State as a whole.
 - Seattle’s WTU (Wholesale, Transportation and Utilities) sector pays the most of any Basic Industry sector at \$61,000 per year, over \$9,000 more than the state average for that sector. The Construction and Resource sector in Seattle maintains an average wage of \$60,500 per year, compared to \$37,000 at the state level.
 - Manufacturing pays the lowest average wage of major Basic Industry sectors at \$53,000 annually, lower than the state average of just over \$58,000.
- *While Basic Industry jobs do provide higher than average wages in Seattle, not all jobs are created equal.* Exhibit 19 shows wages for selected Basic Industry occupations in the Seattle-Tacoma-Everett MSA in March of 2008. Basic Industries offer a diverse range of employment opportunities that span from white-collar to blue-collar professions, with different requirements for educational expertise and work experience. [italics added]
 - White-collar Basic Industry jobs including management and engineering occupations garner wages well above Seattle and statewide averages.
 - Production occupations, which represent the bulk of the Basic Industry workforce, receive competitive wages that may be above or below City and state averages.



Source: Washington State Employment Security Department, 2008.

Revenues [BI-2009]

- In 2008, Basic Industries produced an estimated \$18.2 billion dollars in gross business revenues, which accounts for nearly 30% of gross revenue generated by all business located in the City of Seattle.
- Basic Industries contribute significantly to the City of Seattle’s tax base. There are three primary types of tax revenues collected from Basic Industry economic activity which include sales taxes, B&O taxes, and utility taxes. There are also a number of additional taxes....
 - In 2008, Basic Industry retail sale tax receipts accounted for approximately 36% of all sales tax receipts collected in Seattle. In 2008, the Construction and Resource sector alone accounted for 25% of citywide sales tax revenues....
 - In 2008, local Basic Industry companies produced approximately \$37.8 million in B&O tax revenue, accounting for 38% of the \$99 million in B&O tax receipts produced by local businesses (Exhibit 25). The WTU sector contributed the most tax revenue of any Basic Industry sector (\$16.2 million, 43%), followed by Construction and Resources (\$14 million, 37%) and Manufacturing (\$7.6 million, 20%).
 - Basic Industries are major generators of utility taxes, specifically electricity taxes. Exhibit 26 shows that in 2007, the City of Seattle received nearly \$4.8 million dollars in electricity tax revenue from Basic Industries. Basic Industries accounted for approximately 30% of total electricity tax receipts received by commercial uses in the City in 2007. The biggest electricity users and tax contributors are the manufacturing sector (\$2.7 million) and the transportation, communications and utilities sector (\$1.5 million). Both industry sectors however use less than the finance, insurance and real estate sector and services

6. Economic Activity: Seattle manufacturing

SOURCE: Kotkin J. Cities Leading An American Manufacturing Revival. *Forbes*. May 24, 2012.

- In this still tepid recovery, the biggest feel-good story has been the resurgence of American manufacturing. As industrial production has fallen in Europe and growth has slowed in China, U.S. factories have continued an expansion that has stretched on for over 33 months. In April, manufacturing growth was the strongest in 10 months.
- Now rather than being pulled down by manufacturing, our Best Cities For Jobs survey, conducted by Pepperdine University’s Michael Shires, found that many industrial regions are benefiting from their prowess.
- From 2010 through March, manufacturers added 470,000 jobs and enjoyed a rate of job growth 10% faster than the rest of the private economy. In the past many areas suffered from having too many industrial workers. Now it looks like we will have too few skilled ones, even in hard-hit sectors like the auto industry. In 2011 there were 50,000 unfilled U.S. job openings in industrial engineering, welding, and computer-controlled machine tool operating, according to the forecasting firm EMSI. If the revival continues, this shortage could worsen.
- To determine the cities that are leading the manufacturing revival, we assessed manufacturing employment growth in the 65 largest metropolitan statistical areas. Rankings are based on recent growth trends, as well as job growth over the past five and 10 years, and the MSAs’ momentum.
- Nowhere is this linkage between technology and industry more evident than in the *Seattle-Bellevue-Everett area*, which ranks first on our list of the metropolitan areas leading the manufacturing revival. Over the past year the region was No. 2 in the nation in manufacturing growth, with employment expanding 7.9%. The aerospace sector, led by Boeing, accounted for roughly half this expansion. [italics added]

No. 10:	Milwaukee-Waukesha-West Allis, Wisc.	- Joel Kotkin New Geographer - Forbes
No. 9:	Fort Worth-Arlington, Texas Metropolitan Division	- Joel Kotkin New Geographer - Forbes
No. 8:	Austin-Round Rock-San Marcos, Texas	- Joel Kotkin New Geographer - Forbes
No. 7:	San Antonio-New Braunfels, Texas	- Joel Kotkin New Geographer - Forbes
No. 6:	Cincinnati-Middletown, OH-KY-IN	- Joel Kotkin New Geographer - Forbes
No. 5:	Warren-Troy-Farmington Hills, MI Metropolitan Division	- Joel Kotkin New Geographer - Forbes
No. 4:	Houston-Sugar Land-Baytown, Texas	- Joel Kotkin New Geographer - Forbes
No. 3:	Salt Lake City, Utah	- Joel Kotkin New Geographer - Forbes
No. 2:	Oklahoma City, Okla.	- Joel Kotkin New Geographer - Forbes
No. 1:	Seattle-Tacoma-Bellevue, Wash. Metropolitan Division	- Joel Kotkin New Geographer - Forbes
Methodology - Joel Kotkin New Geographer - Forbes		
No. 1:	Seattle-Tacoma-Bellevue, Wash. Metropolitan Division	- Joel Kotkin New Geographer - Forbes

B. International trade and port activity: Port of Seattle

SOURCE: US International Trade Assn. *Metropolitan Export Series: Seattle-Tacoma-Bellevue, WA*. Aug 2012. <http://www.trade.gov/mas/ian/metroreports/Seattle.pdf>

- In 2011, the Seattle metropolitan area was the 6th largest export market in the [U.S.], with merchandise shipments totaling \$41.1 billion. This is up \$5.7 billion (16.1 percent) from the \$35.4 billion in merchandise exported in 2010.
- The Seattle metropolitan area accounted for 75.3 percent of Washington’s merchandise exports in 2011.

SOURCE: US International Trade Assn. *2011 U.S. Metropolitan Statistical Area Exports to the World*. Date? http://www.trade.gov/mas/ian/build/groups/public/@tg_ian/documents/webcontent/tg_ian_003620.pdf

- In 2011, merchandise trade exports to the world for the 367 U.S. Metropolitan Statistical Areas (MSAs) billion. Since the initiation of the President’s National Export Initiative merchandise exports from MSAs have increased 39.5 percent over the 2009 U.S. export figure of \$936.3 billion.

	Top MSA Exporters In Billions, USD	2010	2011	'10-'11 \$ Chg	'10-'11 % Chg
1	New York-Northern New Jersey-Long Island; NY-NJ-PA	85.1	105.1	20.0	23.5%
2	Houston-Sugar Land-Baytown; TX	80.6	104.5	23.9	29.6%
3	Los Angeles-Long Beach-Santa Ana; CA	62.2	72.7	10.5	16.9%
4	Detroit-Warren-Livonia; MI	44.0	49.4	5.5	12.4%
5	Miami-Fort Lauderdale-Pompano Beach; FL	35.9	43.1	7.3	20.2%
6	Seattle-Tacoma-Bellevue; WA	35.4	41.1	5.7	16.1%
7	Chicago-Naperville-Joliet; IL-IN-WI	33.7	39.5	5.9	17.4%
8	San Jose-Sunnyvale-Santa Clara; CA	26.3	26.7	0.4	1.4%
9	Dallas-Fort Worth-Arlington; TX	22.5	26.6	4.1	18.4%
10	Minneapolis-St. Paul-Bloomington; MN-WI	23.2	26.2	3.0	12.9%

SOURCE: Talton J. On trade, unsettling news for Seattle area. *Seattle Times* blog. May 23, 2013. <http://blogs.seattletimes.com/jontalton/2013/05/23/on-trade-unsettling-news-for-seattle-area/>

- According to the U.S. International Trade Administration, Seattle-Tacoma-Bellevue ranked No. 6 nationally in export value, at more than \$41 billion. That compares with \$53.9 billion in 2007, before the recession. The bad news is that the other top metros, led by New York, recouped their recession losses and showed higher 2011 figures.

SOURCE: Kidder Matthews. *Real Estate Market Review: King, Snohomish, Pierce and Thurston Counties: Seattle Industrial*. 1st Quarter, 2013.

- Port activity is mixed. The Port of Seattle incurred a second straight year of a decline in container activity (down 8% in 2012) and early indications in 2013 is a continuation of this trend. Conversely, the Port of Tacoma’s volume increased 15.9% in 2012 and is up through February 2013.
- [Note, unable to identify original source.]

1. Port development

SOURCE: BST Associates; for Port of Seattle. *Economic Issues of Proposed Arena*. Aug. 6, 2012.

- The Port of Seattle Has Opportunities for Future Growth
 - The Port of Seattle has experienced sustained growth during the past 11 years across all trade routes and is expected to continue to grow in the future, reaching its Century Agenda goal of 3.5 million TEUs by 2039 (under the high forecast) to 2051 (under the low forecast).
 - Competition with container ports in British Columbia and Southern California is very strong. British Columbia ports currently hold 3.0 percent market share of the imports from Asia through the West Coast that

are bound for U.S. markets, which an increase of 1.5 percent in 2002. Approximately half of these containers move through the Port of Prince Rupert and half through Metro Port Vancouver.

- Port of Seattle has significant advantages in that competition:
 - Naturally deep harbors. Port of Seattle offers 11 container berths with depths of 45-50 feet below lowest water level, sufficient for the largest ships in transit today.
 - Fully-built terminals with state-of-the-art equipment. The Port’s four container terminals have 27 cranes, including 13 super post-Panamax cranes, 11 post-Panamax cranes, and three Panamax cranes. (“Panamax” indicates a ship that is the maximum width that can travel through the current configuration of the Panama Canal.) The Port of Seattle container terminals comprise 512 leased acres and expansion to 526 acres is possible.
- The Port of Seattle’s success depends largely on the size of the local market and the efficiency of the port and inland transportation systems for non-local destinations.

SOURCE: Wilhelm S. Three more extra-large cranes arrive at Port of Seattle. *Puget Sound Bus. J.* July 24, 2012.

- Three “super post Panamax” cranes arrived at the Port of Seattle Monday, bringing the port's total to 13. The "super post Panamax" phrase refers to cranes that can load and unload huge ships that will be able to transit the widened Panama Canal to be completed sometime in 2015. The current locks, 110 feet wide, allow ships up to 106 feet in width, the current “post Panamax” size. The new cranes will be operated by SSA Terminal at the Port of Seattle’s Terminal 18. They are 267 feet high, and can handle ships up to 210 feet in width and able to carry 18,000 containers.

[Note, see description of the Port of Seattle *Century Agenda* in a later section of this report].

2. Economic impact

[Note: The following resource was reviewed and selected as applicable to the research question; no resource text was replicated here].

SOURCE: Amlin J, et al.; for Sandia National Laboratories. *Economic Impact of a Pacific Northwest Port Shutdown.* May 21, 2003.

SOURCE: Martin Associates (for Port of Seattle). *The 2007 Economic Impact of the Port of Seattle.* Feb 10, 2009.

- **Marine cargo**

- **Induced jobs:** The induced jobs are generated as the result of purchases of goods and services by those 12,428 directly employed as a result of marine cargo and vessel activity at Port of Seattle marine cargo terminals. As the result of the local and regional purchases by these directly employed individuals, 16,639 induced jobs were supported in the State of Washington. The greatest number of induced jobs are supported in non-consumption driven sectors of the economy such as business services, state and local government agencies, social services and education services, followed by impacts with restaurants and grocery stores.

Table II-1
Economic Impacts of Port of Seattle Seaport Activity

	MARINE CARGO	FISHING	BARROWS	CRUISE	LIQUOR TOWERS	REAL ESTATE	TOTAL
JOBS							
DIRECT JOBS	12,428	5,607	123	1,825	190	1,322	21,695
INDUCED	10,038	8,028	129	1,125	126	689	20,736
INDIRECT	4,224	1,337	180	731	41	1,441	7,964
TOTAL	31,290	14,972	432	3,782	357	3,321	66,252
INCOME (\$1000)							
DIRECT	\$637,375	\$623,477	\$4,576	\$84,147	\$5,278	\$79,575	\$1,614,427
RE-SPENDING	\$1,672,676	\$666,879	\$14,181	\$62,764	\$7,694	\$40,034	\$3,099,948
INDIRECT	\$186,731	\$51,540	\$3,887	\$20,262	\$1,553	\$40,689	\$312,757
TOTAL	\$2,796,782	\$1,642,000	\$22,823	\$179,963	\$14,495	\$172,298	\$5,027,131
REVENUE (\$1000)	\$3,060,440	\$614,384	\$13,831	\$312,467	\$28,800	\$304,225	\$4,533,963
LOCAL PURCHASES (\$1000)	\$438,825	\$154,183	\$7,845	\$31,225	\$3,742	\$66,739	\$696,652
STATE AND LOCAL TAXES (\$1000)	\$254,857	\$167,822	\$2,059	\$15,104	\$1,496	\$15,660	\$467,472

Table II-3
Direct Jobs by Detailed Category

Category	Direct Jobs
Surface Transportation	
RAIL	1,621
TRUCK	1,931
Maritime Services	
TERMINAL EMPLOYEES	644
ILW/DOCKWORKERS	1,038
TOWING	56
PILOTS	25
AGENTS	165
SURVEYORS/OWNERS	460
FORWARDERS	422
WAREHOUSE	1,036
GOVERNMENT	1,775
SHIPYARDS/SHIPREPAIR	1,062
BARGE	1,017
BUNKERS	41
BANKING/INSURANCE/LAW	168
PORT OF SEATTLE	262
TOTALS	12,428

Table II-4
Direct Jobs by Commodity Group

Commodity	Direct Jobs	1,000 Metric Tons	Jobs/1,000 Tons
Containerized Cargo			
International	5,703	13,544.0	0.43
Domestic	1,332	1,900.1	0.70
Grain	465	5,333.0	0.09
Breakbulk	493	115.6	4.20
Petroleum	269	1,243.0	0.22
Liquid Bulk	26	46.7	0.56
Not Allocated	1,161		
Total	12,428	21,561.2	

- **Indirect jobs:** Indirect jobs are generated in the local economy as the result of local purchases by the firms directly dependent upon the Port of Seattle marine cargo activity. These purchases were identified from the surveys of directly dependent firms supplying services in support of the vessel and cargo activity at the Port of Seattle marine terminals. Based on the surveys, a total of \$438.8 million of local purchases were made in the local economy. Based on employment to purchase ratios in supplying firms, produced for the State of Washington by the U.S. Bureau of Economic Analysis, Regional Input-Output modeling system, these local purchases supported 4,224 indirect jobs in the state.
- **Related jobs:** In addition to the direct and induced jobs, an estimate of jobs in the State of Washington related to cargo moving via the Seattle seaport was developed. It is estimated that 135,084 jobs with regional manufacturing and distribution firms are related to cargo moving via the Port of Seattle marine cargo terminals. It is to be emphasized that these jobs are only related jobs, not jobs dependent upon the Port of Seattle. These jobs are with shippers/consignees and manufacturers located throughout the region who ship via the Port of Seattle terminals, as well as via other ports, including Tacoma, Los Angeles/Long Beach and Oakland. Therefore, jobs with these shippers and consignees cannot be classified as totally dependent upon the existence of the Seattle seaport.

C. Land use policies

1. Industrial land use

SOURCE: *Basic Industries Economic Analysis* by Medford C, et al. (Community Attributes; produced for Seattle Office of Economic Development). July 2009. Note, the study included interviews of >50 “basic industries” stakeholders about the current and future outlook of industrial business in Seattle.

- King County Countywide Planning Policies established Manufacturing Industrial Center (MIC) status for the BINMIC and Duwamish MIC. MIC status provides a strong policy foundation to promote the preservation of industrial lands and activities and discourage non-compatible uses.
- The City of Seattle has also established a holistic set of land use, transportation, and economic development policies that aim to preserve and support the industrial activities in MICs and industrial zoned lands, with the primary goal of supporting economic growth and retention of family wage jobs. Policies are set forth in the City’s Comprehensive Plan, as well as two Neighborhood plans established specifically to guide policy decisions in the BINMIC and Duwamish MIC.
- The City has established four zoning districts to implement planning policies which include: General Industrial 1 (IG1) and General Industrial 2 (IG2), Industrial [Buffer] (IB), and Industrial Commercial (IC). IG1 and IG2 encompass the vast majority of industrial land in Seattle and virtually all land in the BINMIC and Duwamish MIC [52% and 46%, respectively].
- In 2007, The City of Seattle passed Ordinance 122601 to reduce the size limits for certain non-industrial uses in industrial zones. The new ordinance was enacted to better support the City’s comprehensive planning policies “to preserve industrial land for industrial uses...” and limit the development of new retail and office uses within Manufacturing Industrial Centers which restrict the ability of industrial businesses to locate, remain or expand within Seattle.
 - Exhibit 36 presents square footage limits for new office and retail uses imposed by Ordinance 122601 compared to industrial zoning regulations prior to 2007.
 - Also, and perhaps more importantly, are changes to allowable Floor-Area Ratio (FAR). FAR limits the footprint of new buildings, and when combined with total square footage requirements, limit the size of new development. The allowable FAR is 2.5 in IG1, IG2 and IB zones.

Exhibit 36
Zoning Regulations for New Non-Industrial Development in Seattle MICs

Zoning Use and District	Non-industrial square footage limits imposed under previous zoning				Non-industrial square footage limits under Downzoning (Ord. 122601)			
	IG1	IG2	IB	IC	IG1	IG2	IB	IC
Office	50,000	100,000	100,000	No limit	10,000	25,000	100,000	No Limit
Retail Sales	30,000	75,000	75,000	75,000	10,000	25,000	75,000	75,000
Service	30,000	75,000	75,000	75,000	10,000	25,000	75,000	75,000

Source: City of Seattle, Community Attributes

- Industrial business and land owners expressed both support and opposition for recent down zoning actions. When explicitly mentioning the down zoning initiative, three respondents supported down zoning initiatives while five opposed recent zoning changes.
 - Proponents cited improved stability in Seattle’s economy, added certainty of business operations and lease rates, and improved effectiveness in preserving industrial in MICs from retail and residential conversions.
 - Opponents stated that new FAR and square footage restrictions limit expansion and feasibility of developing property at the highest and best use, decrease property values, and that zoning changes have confused interpretation and complicated permitting. Opponents call for a more market-oriented approach and long-term perspective

2. Seattle Comprehensive Plan

SOURCE: Seattle Dept. of Planning & Development. City of Seattle Comprehensive Plan: Toward a Sustainable Seattle: A Plan for Managing Growth, 2004-2024. January 2005.

- Seattle’s Comprehensive Plan must be consistent with the plan for the four-county region, Vision 2040, and with King County’s Countywide Planning Policies.

a) *Urban village element*

- Manufacturing/industrial centers goals
 - UVG22 Ensure that adequate accessible industrial land remains available to promote a diversified employment base and sustain Seattle’s contribution to regional high-wage job growth.
 - UVG23 Promote the use of industrial land for industrial purposes.
 - UVG24 Encourage economic activity and development in Seattle’s industrial areas by supporting the retention and expansion of existing industrial businesses and by providing opportunities for the creation of new businesses consistent with the character of industrial areas
- Manufacturing/industrial centers policies
 - UV19 Designate as manufacturing/industrial centers areas that are generally consistent with the following criteria and relevant Countywide Planning Policies: 1. Zoning that promotes manufacturing, industrial, and advanced technology uses and discourages uses that are not compatible with industrial areas. 2. Buffers protecting adjacent, less intensive land uses from the impacts associated with the industrial activity in these areas (such buffers shall be provided generally by maintaining existing buffers, including existing industrial buffer zones). 3. Sufficient zoned capacity to accommodate a minimum of 10,000 jobs. 4. Large, assembled parcels suitable for industrial activity. 5. Relatively flat terrain allowing efficient industrial processes. 6. Reasonable access to the regional highway, rail, air and/or waterway system for the movement of goods.
 - UV 20 Designate the following locations as manufacturing/industrial centers...: 1. The Ballard Interbay Northend Manufacturing/Industrial Center; and 2. The Duwamish Manufacturing/ Industrial Center.
 - UV 21 Promote manufacturing and industrial employment growth, including manufacturing uses, advanced technology industries, and a wide range of industrial-related commercial functions, such as warehouse and distribution activities, in manufacturing/industrial centers.
 - UV 22 Strive to retain and expand existing manufacturing and industrial activity.
 - UV 23 Maintain land that is uniquely accessible to water, rail, and regional highways for continued industrial use.
 - UV 24 Limit in manufacturing/industrial areas those commercial or residential uses that are unrelated to the industrial function, that occur at intensities posing short- and long-term conflicts for industrial uses, or that threaten to convert significant amounts of industrial land to non-industrial uses.
 - UV 24.1 The City should limit its own uses on land in the manufacturing/industrial centers to uses that are not appropriate in other zones and should discourage other public entities from siting non industrial uses in manufacturing/industrial centers. An exception for essential public facilities should be provided.
- Distribution of growth. UVG33 Encourage growth in Seattle between 2004-2024, to be generally distributed across the city as shown in Figure 8. [next page]

Urban Village Figure 8
Targets for the General Distribution of Growth 2004-2024

Location	% of Citywide Residential Growth	% of Citywide Employment Growth
In urban centers	58% (27,450 households)	73% (61,120 jobs)
In manufacturing/ industrial centers	No housing target	14% (11,900 jobs)
In hub and residential urban villages	25% (11,880 households)	No targets for residential urban villages; Hub urban villages only: 5% (4,450 jobs)
Remainder of city	16% (7,670 households)	No specific target
Total	47,000 households	84,000 jobs

- Economic development and the urban village strategy
 - ED5 Use plans adopted for the manufacturing/industrial centers to help guide investments and policy decisions that will continue to support the retention and growth of industrial activities in these areas. Continue collaboration with both geographically-focused and citywide organizations representing industrial interests so that the needs and perspectives of this sector can be recognized and incorporated, as appropriate, into the City’s actions and decisions.
- Neighborhood plan: Greater Duwamish Manufacturing/Industrial Center
 - Jobs & economics goals
 - GD-G1 The Duwamish Manufacturing/Industrial Center remains economically vital.
 - GD-G2 Public infrastructure adequate to serve business operations in the Duwamish Manufacturing/Industrial Center is provided.
 - GD-G3 Land in the Duwamish Manufacturing/ Industrial Center is maintained for industrial uses including the manufacture, assembly, storage, repair, distribution, research about or development of tangible materials and advanced technologies; as well as transportation, utilities and commercial fishing activities.
 - GD-G4 The City regulatory environment facilitates location and expansion of industrial businesses in the Duwamish Manufacturing/Industrial Center.
 - Jobs & economics policies
 - GD-P1 Recognize the significant contribution of the industries and businesses in the Duwamish Manufacturing/Industrial Center in terms of the jobs they create, and the export and tax revenues they generate.
 - GD-P2 Strive to retain existing businesses and promote their viability and growth, with particular emphasis on small businesses.
 - GD-P3 Encourage new industrial businesses that offer family-wage jobs to locate in the area.
 - GD-P4 Encourage site assembly that will permit expansion or new development of industrial uses.
 - GD-P5 Limit the location or expansion of non-industrial uses, including publicly sponsored non-industrial uses, in the Duwamish Manufacturing/Industrial Center.
 - GD-P6 Strive to separate areas that emphasize industrial activities from those that attract the general public.
 - GD-P7 Continue to promote timeliness, consistency, coordination and predictability in the permitting process.
 - Land use goals
 - GD-G5 Land in the Duwamish Manufacturing/ Industrial Center is sufficient to allow an increase in the number of family-wage industrial jobs that can be filled by workers with diverse levels of education and experience.
 - GD-G6 The Duwamish waterway continues as a working industrial waterfront that retains and expands in value as a vital resource providing family-wage jobs and trade revenue for the City, region and state.
 - GD-G7 The City and other government bodies recognize the limited industrial land resource and the high demand for that resource by private industrial businesses within the Duwamish Manufacturing/ Industrial Center when considering the siting of public uses there.
 - GD-G8 The Duwamish Manufacturing/Industrial Center remains a Manufacturing/ Industrial Center promoting the growth of industrial jobs and businesses and strictly limiting incompatible commercial and residential activities.

- Land use policies
 - GD-P8 Strive to protect the limited and non-renewable regional resource of industrial, particularly waterfront industrial, land from encroachment by non-industrial uses.
 - GD-P9 Distinguish between the industrial zones in the Duwamish Manufacturing/Industrial Center by the amount and types of uses permitted in them.
 - GD-P10 If industrial land south of South Park is annexed to the City, include much of it in the Duwamish Manufacturing/Industrial Center, with appropriate land use controls to encourage industrial uses and discourage non-industrial uses.
 - GD-P11 Strive to maintain sufficient capacity in the shoreline areas for anticipated water-dependent industrial uses.
 - GD-P12 Seek to preserve the Duwamish Waterway’s ability to function as the City’s gateway to the Pacific and to provide adequate nearby land for warehousing and distribution that serve the shipping industry.
 - GD-P13 Especially along the waterway, discourage conversion of industrial land to nonindustrial uses.
 - GD-P14 Maintain shoreside freight access to and from the waterway.
 - GD-P15 Strive to increase the trade revenues generated by Seattle’s waterdependent industries.
 - GD-P16 Consider a variety of strategies, including possible financial incentives, to retain and attract marine businesses.
 - GD-P17 Encourage other jurisdictions to: 1. avoid locating non-industrial uses in the Duwamish Manufacturing/ Industrial Center; 2. consolidate public facilities to minimize the amount of land consumed by the public sector; and 3. pursue joint operations and co-location so that facilities can serve more than one jurisdiction.
 - GD-P18 Encourage public agencies, including City agencies, to explore ways of making property available for private industrial uses when disposing of property in the Duwamish Manufacturing/Industrial Center.
 - GD-P19 Prohibit certain commercial uses and regulate the location and size of other commercial uses in the Manufacturing/ Industrial Center.
 - GD-P20 Seek to integrate stadium and stadium-related uses into the Duwamish Manufacturing/Industrial Center by creating an overlay district limited to the area near the stadiums that discourages encroachment on nearby industrial uses, creates a pedestrian connection from the stadiums north to downtown, and creates a streetscape compatible with Pioneer Square.
- Environmental remediation goal
 - GD-G18 Sufficient incentives exist in the industrial area so that the private sector can remedy environmental contamination and contribute to the expansion of the industrial job base.

b) Land use element: Industrial areas

- Goals
 - LUG22 Provide opportunities for industrial activity to thrive in Seattle.
 - LUG23 Accommodate the expansion of existing businesses within Seattle, thereby stabilizing the city’s existing industrial areas. Promote opportunities for new businesses that are supportive of the goals for industrial areas.
 - LUG24 Preserve industrial land for industrial uses and protect viable marine and rail-related industries from competing with non-industrial uses for scarce industrial land. Give special attention to preserving industrial land adjacent to rail or water-dependent transportation facilities.
 - LUG25 Promote high-value-added economic development by supporting growth in the industrial and manufacturing employment base.
 - LUG26 Give adequate attention to the needs of industrial activity while reducing major land use conflicts between industrial development and abutting residential or pedestrian-oriented commercial areas, and avoid placing unnecessary restrictions on manufacturing uses.
 - LUG27 Restrict or prohibit uses that may negatively affect the availability of land for industrial activity, or that conflict with the character and function of industrial areas.
 - LUG28 Prevent incompatible activities from locating in close proximity to each other.
 - LUG29 Accommodate a mix of diverse, yet compatible, employment activities in Seattle’s industrial areas.

- [Policy]
- Uses policies
 - LU141 Consider manufacturing uses, advanced technology industries and a wide range of industrial-related commercial functions, such as warehouse and distribution activities, appropriate for industrial areas.
 - LU142 Consider high value-added, living wage industrial activities to be a high priority.
 - LU143 Permit commercial uses in industrial areas to the extent that they reinforce the industrial character, and limit specified nonindustrial uses, including office and retail development, in order to preserve these areas for industrial development.
 - LU144 Subject to regulations for nonconforming uses, allow existing businesses to expand, in order to stabilize existing industrial areas, and encourage the siting of new businesses which are supportive of the goals for industrial areas.
 - LU145 Prohibit new residential uses in industrial zones, except for special types of dwellings that are related to the industrial area and that would not restrict or disrupt industrial activity.
 - LU146 Restrict to appropriate locations within industrial areas those industrial uses which, by the nature of materials involved or processes employed, have a potential of being dangerous or very noxious.
 - LU147 Prohibit park and pool lots within 3,000 feet of a downtown zone in order to prevent the use of industrial land for commuter parking for downtown workers.
 - LU147.1 IG zones are most appropriately located in the designated manufacturing/industrial centers, where impacts from the types of industrial uses these zones permit are less likely to affect residential or commercial uses. Outside of manufacturing/industrial centers, IG zones may be appropriate along waterways in order to provide land for maritime uses.
 - LU147.2 Industrial zones are generally not appropriate within urban centers or urban villages, since these are places where the City encourages concentrations of residential uses. However, in locations where a center or village abuts a manufacturing/industrial center, the IC zone within the center or village may provide an appropriate transition to help separate residential uses from heavier industrial activities.
- Development standards policies: Density
 - LU148 Limit the density of development through a floor area ratio (FAR) to ensure a level of activity compatible with industrial activity. The FAR is also intended to ensure that new development can be accommodated without major redevelopment of transportation and utility systems, and without creating other substantial negative impacts.
 - LU149 Restrict the density or floor area of commercial uses not directly related to industrial activity to preserve industrial shorelines for industrial marine activity and to preserve access to major rail corridors. Vary the restrictions by industrial zone. Landscaping & Street Standards
 - LU150 Recognize the special working character of industrial areas by keeping landscaping and street standards to a minimum to allow as much flexibility as possible for industrial development except along selected arterials and where there is a specific need to mitigate impacts of new development.
 - LU151 On sites that are highly visible to the public because of their location on selected major arterials, require new development to provide street trees and landscape screening in order to promote a positive impression of the city's industrial areas. Streets appropriate for this special treatment are: 1. Streets that provide major routes through the city and/or serve as principal entrances to downtown; 2. Streets that provide the principal circulation route within an industrial area; and 3. Streets where right-of-way conditions will permit required landscaping without conflicting with industrial activity.
- Development standards policies: Noise
 - LU155 Permit noise levels that would not be allowed in other parts of the city in industrial areas, except for buffer areas, in recognition of the special nature of industrial activities and the restrictions on residential uses that are in place in industrial areas.
- [Development standards policies: Landscaping & Street Standards; Shoreline View Corridor; Parking and loading]
- General industrial zones policies
 - LU156 Use the General Industrial zones to promote the full range of industrial activities and related support uses. Distinguish among general industrial zones based on the density permitted for commercial uses not related to industrial activity. Include among the General Industrial zones:
 - Zones that protect marine and rail-related industrial areas from an inappropriate level of unrelated commercial uses and limit those unrelated uses through density or size limits lower than that allowed for industrial uses; and

- • Zones that allow a broader range of uses, where the industrial function of the area is less established, and where additional commercial activity could improve employment opportunities and the physical condition of the area.
- LU157 Include under the General Industrial designation those areas most suited to industrial activity, where the separation from residential and pedestrian-oriented commercial areas is sufficient to mitigate the impacts associated with industrial uses.
- LU158 Seek to protect industrial activity by differentiating among General Industrial zones according to permitted densities for commercial uses not directly related to industrial activity and by limiting the size of certain permitted uses.
- General industrial zones policies: Uses
 - LU159 Require conditional use review for certain uses to ensure compatibility with the primary industrial function of the zone. Require mitigation of any impacts on industrial activity, the immediate surroundings, and the environment in general. Because of the nature of industrial uses, classify certain non-industrial uses as conditional uses in order to protect public safety and welfare on non-industrial sites.
 - LU160 Prohibit certain uses to preserve land for industrial activity or to minimize conflicts that may occur between the use and industrial activity because the use attracts large numbers of people to the area for non-industrial purposes, or because the use would be incompatible with typical industrial area impacts (noise, truck movement, etc.).

c) Amendments

- [Amendments not available online and not reviewed, 2006-2011]

SOURCE: Seattle Dept. of Planning & Development [DPD]. *City of Seattle Comprehensive Plan: What's New in 2012*. June 2012.

- In March of 2012, City Council adopted Ordinance 123854, which amended the Comprehensive Plan in response to amendments proposed in 2011. The amendments include: Container Port Element. Adoption of this Element (chapter) satisfies a 2009 requirement in the state Growth Management Act. That requirement calls for cities that have container port facilities of a certain size within their borders to include policies in their comprehensive plans that address land use conflicts and transportation access to those facilities.

SOURCE: Seattle DPD. *DPD Comp Plan Amendments 2013 ORD* (version #2). Nov 29, 2012.

<http://www.seattle.gov/dpd/cityplanning/completenesslist/comprehensiveplan/whatwhy/>

- City Council is now [May 2013] reviewing the Mayor's recommendations for the 2012 - 2013 amendments to the Comprehensive Plan. G. Container Port: Add the following language as a Discussion in the Container Port Element:
 - The Port of Seattle is one of the largest cargo centers in the United States, serving as the entry and exit point for marine cargo to and from the Pacific Rim and Alaska. The Port of Seattle container operations are unique among West Coast ports because they are adjacent to the urban core, abutting the busy downtown, a tourist-friendly waterfront and two sports stadiums that attract millions of visitors each year.
 - The Port of Seattle's marine cargo terminal plays a vital role in the Seattle economy. The Port of Seattle includes approximately 1,400 acres of waterfront land and nearby properties. Nearly 800 acres of that land are dedicated to container terminal operations and cargo handling. Most of the freight shipped through the Port travels in intermodal containers that are transferred to or from railcars or trucks on the dock. Some of the containers are shuttled by truck between BNSF and UP railroad yards. Marine cargo accounts for thousands of jobs, millions of dollars of state and local taxes and billions of dollars in business and personal income for Seattle and the region.
 - As vital as the marine cargo economic sector is, it is also vulnerable to changes in nearby land uses, traffic infrastructure and congestion, and larger economic conditions. In 2007, the City strengthened protection for industrial uses in industrial zones by limiting the maximum size of office and retail uses. This Element advances the same policy intention while responding to the state mandate.
 - The state legislation that requires the inclusion of this Container Port Element in this Plan also identifies approaches that the City may consider using in the future. These include creating a "port overlay" district to

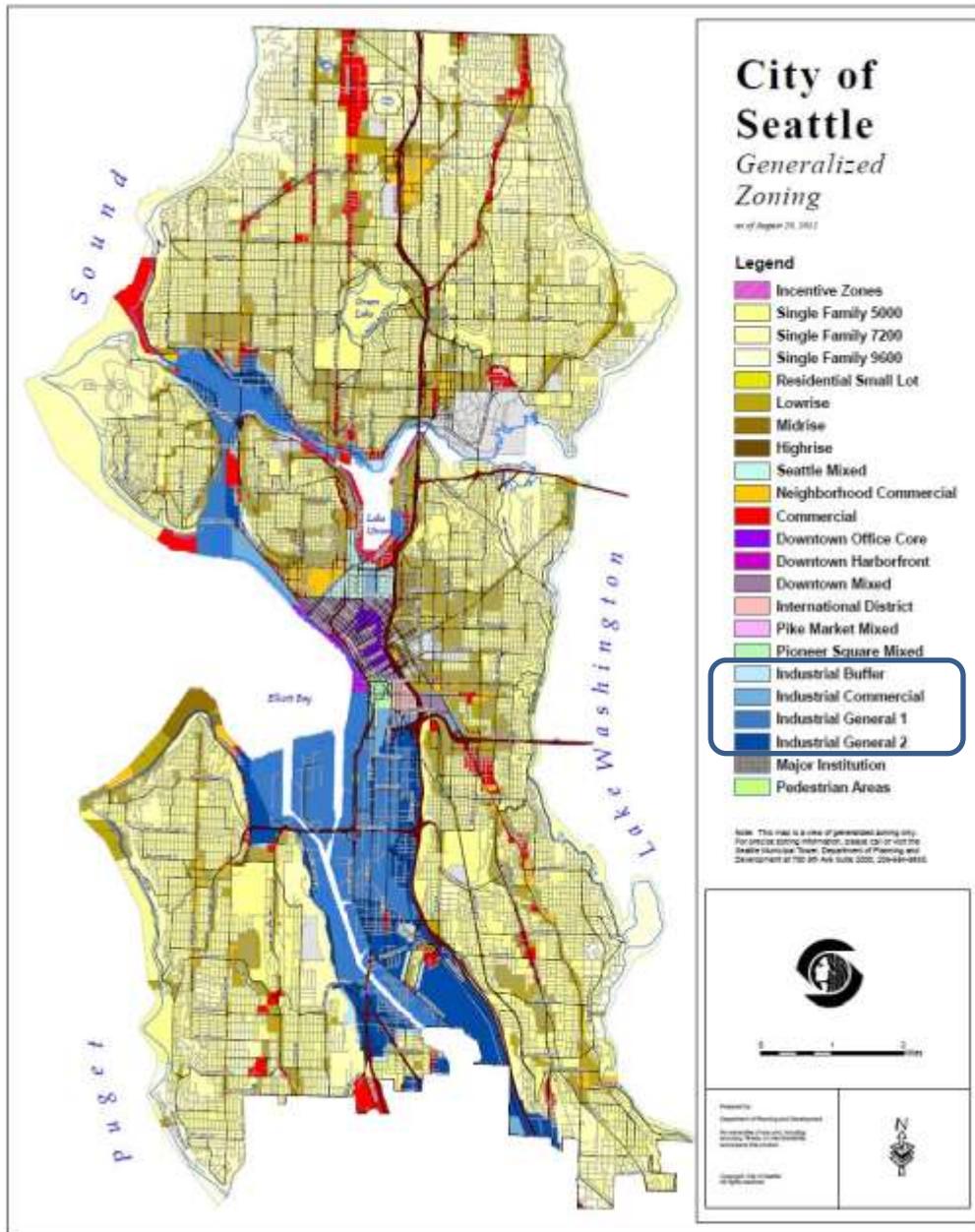
specifically protect container port uses; industrial land banking; applying land use buffers or transition zones between incompatible land uses; limiting the location, size, or both, of non-industrial uses in the core area and surrounding areas; policies to encourage the retention of valuable warehouse and storage facilities; and joint transportation funding agreements. The core area is defined as co-terminus with the Duwamish Manufacturing/ Industrial Center. The state law also adds key freight transportation corridors that serve marine port facilities to the state’s list of transportation facilities of statewide significance.

3. Seattle generalized zoning map

SOURCE: City of Seattle; Department of Planning and Development

http://www.cityofseattle.net/dpd/Research/Zoning_Maps/default.asp

<http://www.seattle.gov/dclu/Research/gis/webplots/smallzonemap.pdf>



4. Seattle industrial zoning

SOURCE: Seattle Dept. of Planning and Development. *Seattle's Industrial Zones* [chart]. Oct. 2012.
http://www.seattle.gov/dpd/cms/groups/pan/@pan/documents/web_informational/dpds021569.pdf

- IG1: General Industrial 1. The intent of the IG1 zone is to protect marine and rail-related industrial areas from an inappropriate level of unrelated retail and commercial uses by limiting these uses to a density or size limit lower than that allowed for industrial uses.
- IG2: General Industrial 2. The intent of the IG2 zone is to allow a broad range of uses where the industrial function of an area is less established than in IG1 zones, and where additional commercial activity could improve employment opportunities and the physical condition of the area, without conflicting with industrial activity.
- IB: Industrial Buffer. The intent of the Industrial Buffer is to provide an appropriate transition between industrial areas and adjacent residential zones, or commercial zones having a residential orientation and/or a pedestrian character.
- IC: Industrial Commercial. The intent of the Industrial Commercial zone is to promote development of businesses which incorporate a mix of industrial and commercial activities, including light manufacturing and research and development, while accommodating a wide range of other employment activities. Typical land uses: Light and general manufacturing, commercial uses, transportation facilities, entertainment other than adult, institutions generally in existing buildings, utilities, and salvage and recycling uses.

5. Seattle Comprehensive Plan: future land use map

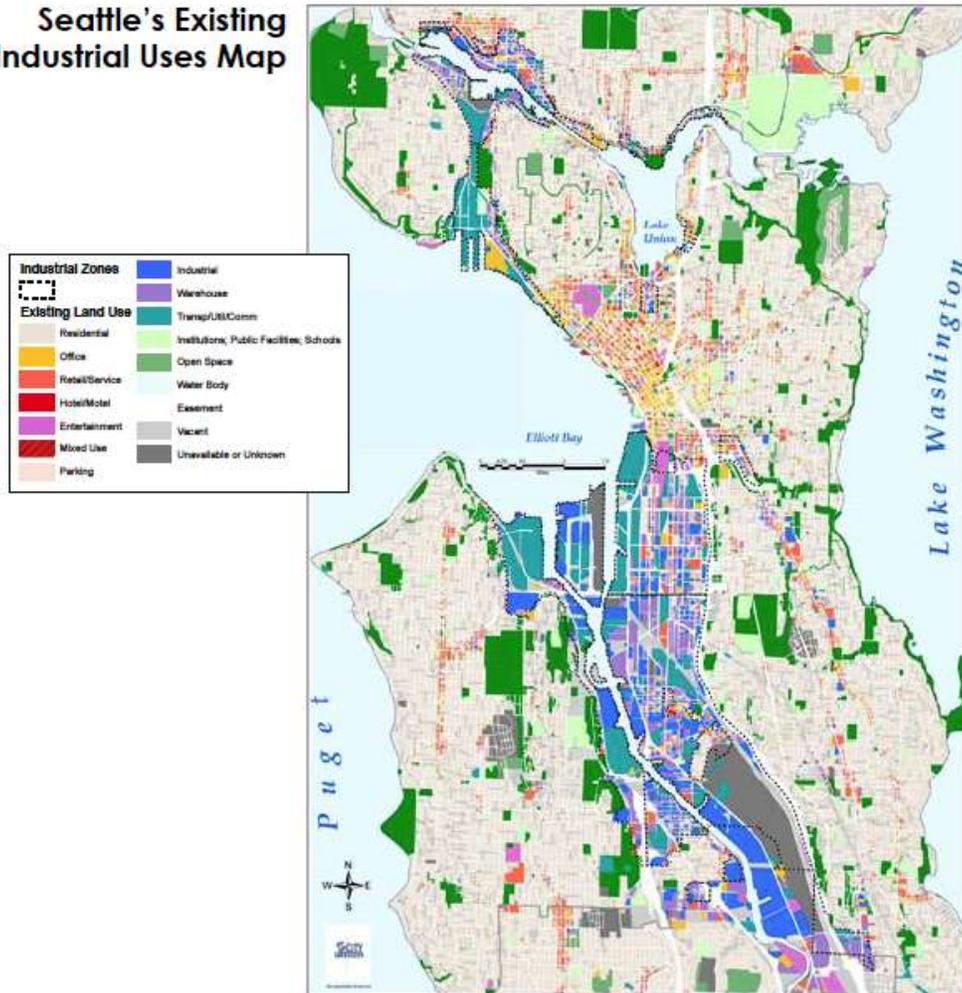
Seattle Comprehensive Plan: Future Land Use. City of Seattle; Department of Development and Planning
http://www.seattle.gov/dpd/Planning/Seattle_s_Comprehensive_Plan/ComprehensivePlan/
http://www.seattle.gov/dpd/cms/groups/pan/@pan/@plan/@proj/documents/web_informational/dpdp019239.pdf



6. Seattle's existing industrial land uses map (2007)

SOURCE: Seattle Planning Commission. The Future of Seattle's Industrial Lands. July 2007.

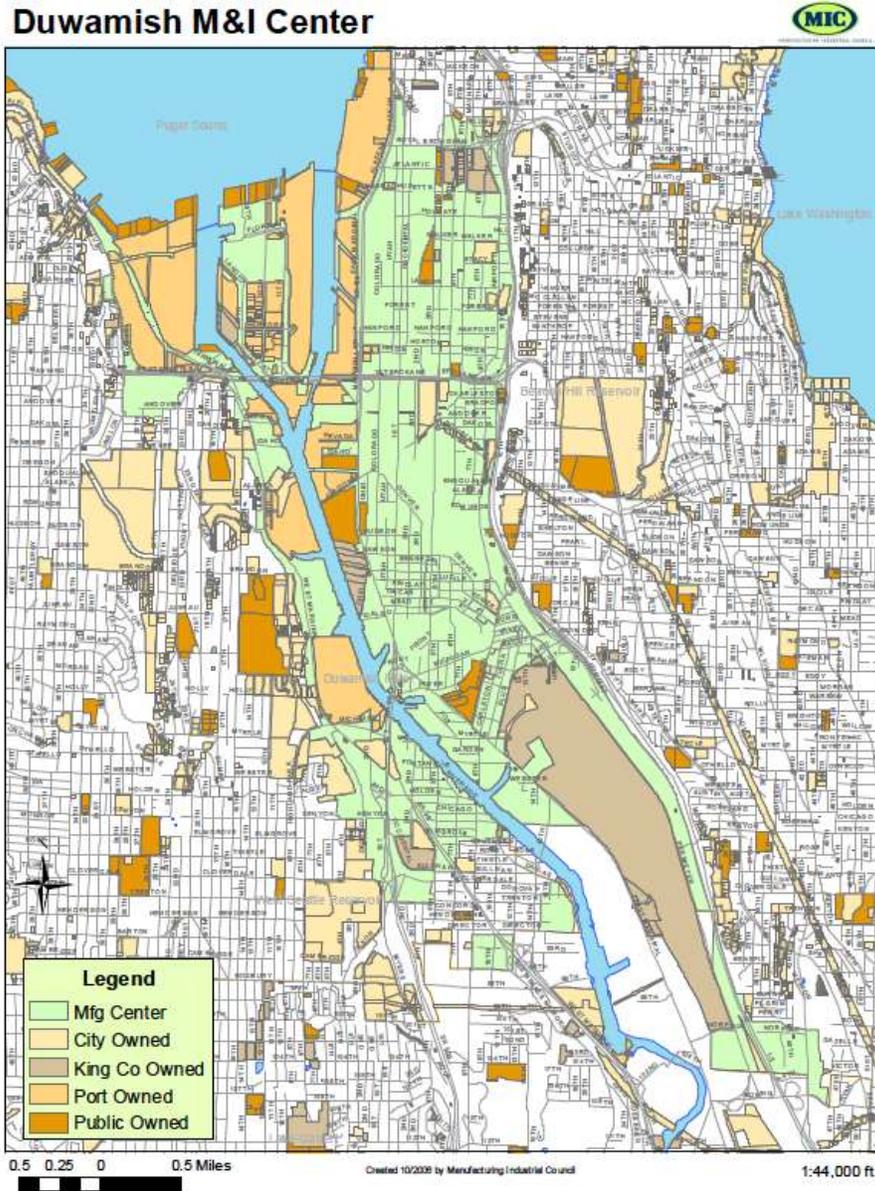
Seattle's Existing Industrial Uses Map



7. Duwamish MIC map, showing Public and Port Owned Land (2006)

SOURCE: Manufacturing Industrial Council. *Duwamish M&I Center*. Oct. 2006.

http://www.micouncil.org/maps/DuwamishM_I.pdf



D. Industrial land use in Duwamish MIC

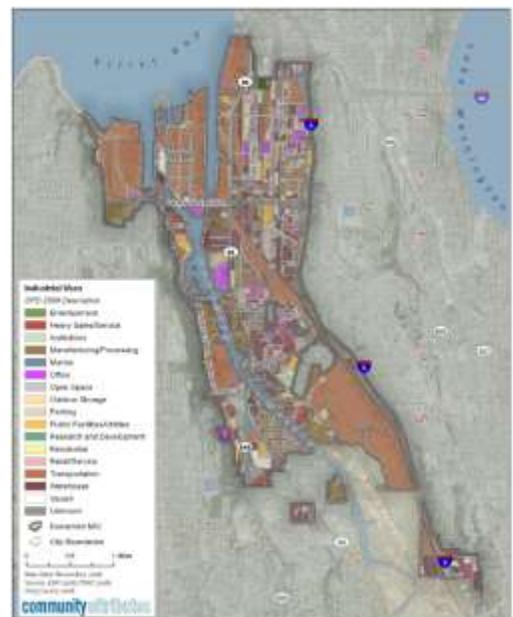
SOURCE: *Basic Industries Economic Analysis* by Medford C, et al. (Community Attributes; produced for Seattle Office of Economic Development). July 2009. [Abbreviated name, BI-2009].

- The Duwamish MIC encompasses over 4,200 acres. Industrial uses occupy nearly 80% (3,370 acres) of Duwamish land area (Exhibit 44).
 - There are over 1,800 acres used for transportation functions, accounting for nearly 45% of all land in the Duwamish. Warehouse (540 acres, 13%) and manufacturing (450 acres, 11%) are the other primary industrial uses.
 - There is a total of 47 million square feet of building space, of which approximately 74% is occupied by industrial users. Warehouse (13.4 million s.f., 28%), manufacturing (9.6 million s.f., 20%), heavy sales and service (5.7 million s.f., 12%) and office (5.4 million s.f., 11%) account for the largest users of Duwamish building space.
 - Approximately half of all parcels in the Duwamish (975 of 1990 parcels...) are less than 0.5 acres (Exhibit 45). Lot sizes between one half and one acre account for 20% of Duwamish parcels, lots between one and five acres 24% of parcels and lots greater than five acres less than 8% of total parcels.

- Exhibit 1 [partially reproduced here, see right; shows four major subareas of the Duwamish MIC], and Exhibit 46 [lower right]...shows land uses in the Duwamish MIC.
 - Northeast Duwamish, commonly referred to as SODO, shows a diverse range of industrial and non-industrial uses.
 - Southeast Duwamish MIC shows clusters of warehousing and manufacturing uses around the Duwamish River and rail lines while Boeing Field forms the southern boundary.
 - Port land comprises the majority of property in Duwamish West and Harbor Island, showing a strong emphasis on transportation.
 - South Park, the southernmost industrial neighborhood in southwest Duwamish, shows high density clusters of manufacturing uses and heavy sales and services.



- **SODO (East and North Duwamish) Subarea**
 - Nearly 75% of SODO’s land area is occupied by industrial uses. Over 40% (335 acres) of SODO land area is currently used for transportation and an additional 12.5% (100 acres) for warehousing uses.
 - While SODO’s landscape is predominantly industrial in nature, the building stock accommodates a diverse range of industrial and non-industrial uses.
 - Office uses fill over 20% of the building space (3.1 million s.f.), the most of any land use.
 - Warehousing also occupies approximately 20% of the building space in SODO.
 - Non-industrial uses are much more intensely developed in SODO, with FARs averaging 0.9 while industrial FARs range from 0.8 to 0.1.
 - Several major public facilities were constructed in SODO over the past two decades, impacting industrial lands and activities.



- Development of two professional sports stadiums occupy 43 acres of land within and adjacent to northern SODO. Location of these venues has resulted in higher demand for non-industrial uses and has greatly impacted traffic patterns.
- Additionally, new public transportation facilities for Sound Transit, Amtrak, and King County Metro also occupy significant land area.
- **South of Spokane (Duwamish South and East) Subarea**
...dominated by transportation, warehousing and manufacturing uses and is anchored by Boeing Field on the south. Within the southeastern portion of the Duwamish MIC, the Georgetown industrial neighborhood demonstrates a rich mix of land uses including manufacturing and processing, office, heavy sales and service, warehousing and some retail and service uses.
- **Duwamish West Subarea**
The Duwamish West subarea, which includes Harbor Island, is bounded on the west by Marginal Way and the east by the Duwamish waterway.
 - Transportation uses occupy half of western Duwamish land area, which are primarily dedicated to Port activity.
 - Manufacturing, transportation and warehousing are the three largest occupiers of building space, representing nearly 75% of all building stock in Duwamish West.
 - Duwamish west is the least intensely developed industrial neighborhood in Seattle MICs, with FAR averaging 0.1 for both industrial and non-industrial uses.
- **South Park Subarea**
The South Park area is the smallest of all Duwamish subareas at 250 acres; only 6% of the Duwamish land area. While smaller in size, the South Park industrial area maintains one of the highest concentrations of manufacturing and processing uses, and maintains a diverse mix of warehouse and heavy sales.
 - Manufacturing, heavy sales and services and warehousing occupy a combined total of 60% of land area and nearly 90% of building space in South Park.
 - In total industrial uses occupy 96% of building space in South Park, the highest percentage of any industrial neighborhood.

1. Redevelopment potential

SOURCE: *Basic Industries Economic Analysis* by Medford C, et al. (Community Attributes; produced for Seattle Office of Economic Development). July 2009. [Abbreviated name, BI-2009].

- Redevelopment potential is measured by the ratio of building improvement value to land value. This analysis defines three measures of redevelopment potential defined as follows:
 - *Likely* to redevelop. Building improvement values are less than 80% of the land value, suggesting that an alternative or more densely developed uses may increase property value.
 - *Possible* to redevelop. Building values that are between 80% and 125% of land value.
 - *Unlikely* to redevelop. Building values that are at least 125% of land values, suggesting that current uses provide adequate property value.
- **Duwamish MIC**
 - [Building values] ...approximately 60% of all parcels in Duwamish MIC are likely to face redevelopment pressure in coming years.
 - An estimated 630 industrial parcels (55% of industrial parcels) have building values less than or equal to 80% of land value, indicating redevelopment potential. An additional 120 industrial parcels (11%) are possible to redevelop.
 - Nearly 60% of non-industrial parcels in the Duwamish will likely face redevelopment pressures.
 - Parcels that are unlikely to redevelop are much more concentrated in the Duwamish than the BINMIC. Approximately 34% of industrial parcels have building values in excess of 1.25 times land value, compared less than 30 parcels (8%) in the BINMIC.

- [Property values] In the Duwamish,
 - the SODO area (Duwamish East and North) maintains the highest property values for both industrial (\$44/sf) and non-industrial uses (\$130/sf).
 - Industrial property values in Duwamish East and South, South Park and West Duwamish range between \$21 and \$33 per square foot while nonindustrial values range between \$14 and \$71 per square foot.
- [Property ownership] The largest land area is owned by the Port of Seattle at 796 acres valued at nearly \$900 million. Six of the top ten land owners in the Duwamish are public or quasi-public agencies including the Port of Seattle, King County, City of Seattle, Seattle City Light department and Seattle Parks Department. Of the top ten land holders, these agencies own a combined 1,461 acres or nearly 40% of the total Duwamish land area (3,800 acres).

Exhibit 57
Top Ten Largest Duwamish MIC Land Owners, Ranked by Land Area, 2008

Rank	Largest Duwamish MIC Land Owners	Total Assessed		
		Parcels	Acres	Value
1.	Port of Seattle	106	796	\$ 897,525,200
2.	King County	52	513	\$ 656,844,900
3.	BNSF	98	194	\$ 191,990,100
4.	Union Pacific Railroad Co	86	157	\$ 134,644,500
5.	Boeing Company The	12	88	\$ 184,361,100
6.	City of Seattle	17	47	\$ 83,242,000
7.	Nucor Steel Seattle Inc	2	44	\$ 63,724,900
8.	Seattle City Light	14	40	\$ 51,622,000
9.	United States	3	39	\$ 57,727,300
10.	City of Seattle Parks Dept	42	28	\$ 53,380,700

E. Industrial land use in Seattle

SOURCE: *Basic Industries Economic Analysis* by Medford C, et al. (Community Attributes; produced for Seattle Office of Economic Development). July 2009.

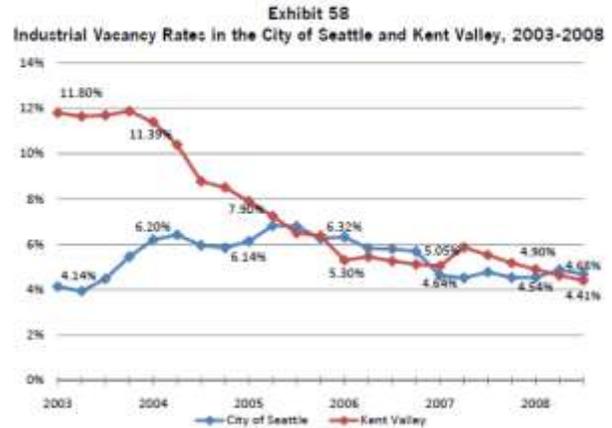
- Analysis of data and research conducted by the City’s Department of Planning and Development (DPD) reveals a broad mix of uses on industrial land, citywide (Exhibit 37). DPD found that the majority of land uses in industrial areas are industrial (73%), on a total of 5,631 acres of land.
- Of those industrial uses, marine terminals account for approximately 28% (1,140 acres), warehouses 20% (854 acres), heavy and general industrial uses together approximately 17% (701 acres), and air terminals 14% (639 acres). Vacant industrial land accounted for approximately 9%, with other uses making up the remainder.
- Transportation uses occupy 37% of industrial land in Seattle; the most of any land use. When combined with warehousing and manufacturing uses, these industrial land uses occupy 60% of industrially zoned land in Seattle.
- Exhibit 38 demonstrates that buildings less than 15,000 square feet account for nearly 60% of the building stock in Seattle, providing a *strong infrastructure to support small industrial business expansions and changing business needs*. Larger buildings, greater than 60,000 square feet, account for approximately 10% of the existing building stock in Seattle’s MIC’s.
- Functionality of existing building stock coupled with limited industrial redevelopment feasibility creates both pros and cons for Seattle’s industrial community. While several small industrial spaces can support industrial business incubation, innovation and flexibility, the capacity to expand business operations is highly limited, fostering relocation to other industrial areas within the Puget Sound region that offer lower rental rates, land and building costs.

1. Survey of current and future outlook of industrial business

SOURCE: *Basic Industries Economic Analysis* by Medford C, et al. (Community Attributes; produced for Seattle Office of Economic Development). July 2009. [Abbreviated name, BI-2009]. The study included interviews of >50 “basic industries” stakeholders about the current and future outlook of industrial business in Seattle.

Vacancy [BI-2009]

- Exhibit 58 demonstrates that industrial properties remain in high demand in the Seattle area demonstrated by very low vacancy rates of 4.7% in Seattle and 4.4% in Kent Valley in quarter three of 2008. Vacancy rates have remained relatively stable the City of Seattle since 2003, ranging from a low of 4.14% in quarter one of 2003 to a high of 6.82% in the quarter two of 2005.
- Vacancy rates for industrial subareas emphasize high demand for industrial lands throughout the city.
 - Vacancy rates for the highly demanded SODO district (North of Spokane Street) have historically been less than 5% and reached a low of 2% in 2007.
 - Vacancy rates are generally the highest south of Spokane street in the east and south Duwamish MIC, ranging from a high of over 9% in 2005 to 6.25% in 2008.



Rents [BI-2009]

- Local Basic Industry business owners expressed a common distain over high and rising lease rates of industrial property. *Availability and cost of industrial buildings and land ranked as the number one impediment to expanding business operations in Seattle* and was cited by nearly 60% of industrial stakeholders interviewed. [italics added]
- current rental prices are generally lower in Kent Valley, compared to Seattle industrial submarkets but not in all cases.... Average sales prices are typically much higher in Seattle with the exception of Auburn.

Building stock [BI-2009]

- *Industrial business owners stated that the existing industrial building stock in Seattle’s MICs is outdated and quickly becoming functionally obsolete.* Owners frequently cited challenges of on-site mobility, truck access, parking, age, and a dysfunctional building layout as major challenges to day to day operations. Several business owners stated that their buildings were “outdated” for “today’s industrial needs.” Business owners that recently moved, expressed difficulty in finding a building that could meet there needs or one that didn’t require significant investment. Others state that new buildings with larger footprints and cheaper rents along with ample development potential (vacant land) are tempting Seattle’s existing industrial business to move to neighboring suburban locations. [italics added]

F. Industrial real estate in Seattle

SOURCE: Kidder Matthews. *Real Estate Market Review: King, Snohomish, Pierce and Thurston Counties: Seattle Industrial*. 1st Quarter, 2013.

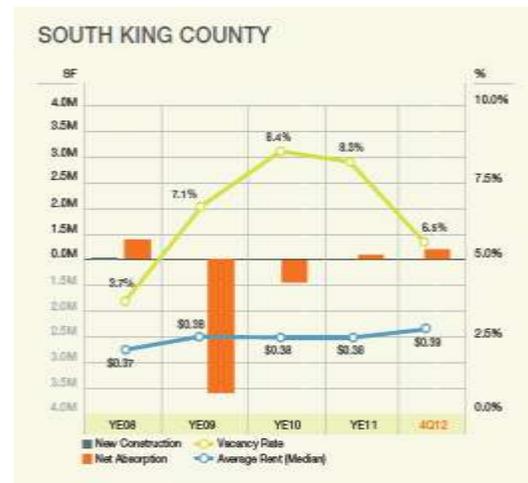
- Seattle Close-in continues to have the lowest overall vacancy, inching down to 3.53% after achieving 181,254 s.f. of positive net absorption.

Kidder Mathews 1st Quarter 2013 Industrial Submarket Statistics

Market Size	Seattle Close-In In sq. ft.	South King County In sq. ft.	East King County In sq. ft.	Snohomish County In sq. ft.	Pierce County In sq. ft.	Thurston County In sq. ft.	Overall Seattle Industrial Market
1Q 2013	53,405,134	111,369,519	20,922,934	56,107,844	60,497,017	11,333,757	313,636,205
All of 2012	53,405,134	111,369,519	20,787,934	56,079,996	60,507,817	11,333,757	313,484,157
All of 2011	53,658,284	111,558,423	20,890,547	55,940,916	61,501,612	10,796,893	314,346,875
All of 2010	54,594,728	111,686,651	20,893,747	55,934,072	61,822,255	10,501,981	315,433,434
All of 2009	55,872,398	111,773,523	20,893,747	55,901,804	61,764,383	10,505,481	316,711,336
Vacant Space							
1Q 2013	1,883,020	6,600,304	1,376,455	3,789,799	3,004,021	1,001,832	17,635,431
All of 2012	2,064,274	6,864,700	1,402,249	3,916,196	3,306,147	912,135	18,485,701
All of 2011	2,564,291	9,211,906	2,195,424	4,240,249	4,238,016	954,273	23,404,159
All of 2010	3,773,112	9,400,928	1,933,300	4,613,250	6,066,527	941,823	26,726,940
All of 2009	4,143,564	8,143,578	1,972,739	4,826,041	6,177,438	881,156	26,146,516
Vacancy Rate							
1Q 2013	3.53%	5.93%	6.58%	6.72%	4.97%	8.84%	5.62%
All of 2012	3.87%	6.16%	6.75%	6.98%	5.46%	8.05%	5.89%
All of 2011	4.78%	8.26%	10.51%	7.58%	6.89%	9.09%	7.45%
All of 2010	6.91%	8.42%	9.25%	8.25%	9.81%	8.97%	8.47%
All of 2009	7.42%	7.29%	9.44%	8.64%	10.00%	8.39%	8.26%

SOURCE: Kidder Matthews. *Real Estate Market Review: King, Snohomish, Pierce and Thurston Counties: Seattle Industrial*. 4th Quarter, 2012.

- Seattle Close-In: The Seattle Close-in industrial market continues its long trend of stability and low vacancy rates [see figures; comparison with South King County]. At 3.44%, its occupancy bests all other markets by significant margins. The vacancy rate in this market peaked at 5.73% at the end of 2010. However, with no new product added since then, along with 390,815 s.f. of net absorption, the vacancy rate has dropped.



SOURCE: Colliers International. *Steady As She Goes. Puget Sound Region Research & Forecast Report: Industrial. Q1 2013.*

- The current [industrial market] vacancy rate for the entire region sits at 5.65%.
- The vacancy rate in the Seattle Close-in industrial market ended the quarter at 3.70%.... After discussing the coming rental rate growth in previous reports, landlords appear to be taking notice. Basic warehouse rates in the close-in market are seeing a steady rise in prices, in some cases by as much as 10%. With vacancy remaining below 5.00% over the past two years and increased activity in the area, the Seattle close-in market will continue to see rents trend upward. Though constrained by available space, demolished buildings will allow additional non-traditional tenants to move into the area: for example, car dealerships along Airport Way south of Holgate.... Seattle’s position as a tight market is unlikely to change in the near future.

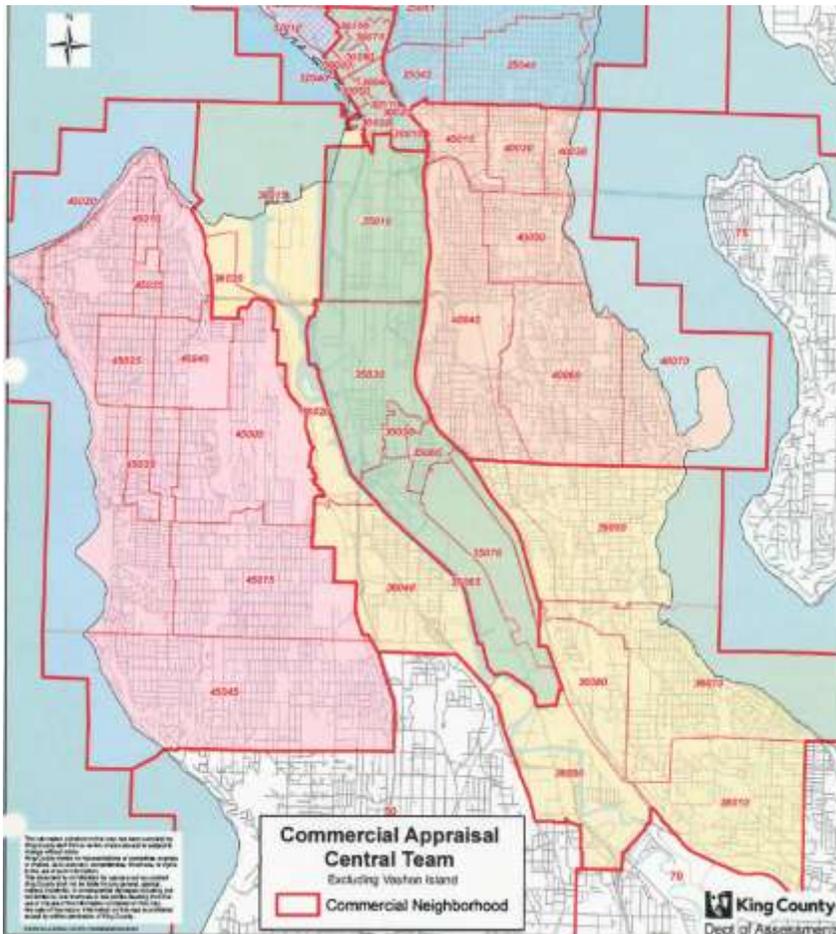
Existing Properties										
Class	# of Buildings	Total Inventory (square feet)	Direct Vacant (square feet)	Direct Vacancy Rate	Sublease Vacant (square feet)	Sublease Vacancy Rate	Total Vacant (square feet)	Occupied Space (square feet)	Vacancy Rate Current Period	Vacancy Rate Prior Period
Seattle Close-In:										
Warehouse	316	11,689,968	336,931	2.88%	7,737	0.07%	344,668	11,345,300	2.95%	2.88%
Manufacturing	710	25,002,580	950,281	3.80%	27,831	0.11%	978,112	24,024,468	3.91%	4.53%
Flex	96	5,730,206	248,793	4.34%	-	0.00%	248,793	5,481,413	4.34%	4.45%
Total	1,122	42,422,754	1,536,005	3.62%	35,568	0.08%	1,571,573	40,851,181	3.70%	4.06%
Eastside Industrial:										
Warehouse	216	8,010,000	406,868	5.08%	-	0.00%	406,868	7,603,132	5.08%	4.99%
Manufacturing	60	3,378,569	258,173	7.64%	-	0.00%	258,173	3,120,396	7.64%	7.54%
Flex	252	7,867,178	668,785	8.50%	64,596	0.82%	733,381	7,133,797	9.32%	9.57%
Total	528	19,255,747	1,333,826	6.93%	64,596	0.34%	1,398,422	17,857,325	7.26%	7.31%
Northend Industrial:										
Warehouse	567	20,016,874	1,797,679	8.98%	56,283	0.28%	1,853,962	18,162,912	9.26%	9.96%
Manufacturing	198	21,724,338	561,717	2.59%	108,729	0.50%	670,446	21,053,892	3.09%	3.33%
Flex	183	7,358,994	807,512	10.97%	126,326	1.72%	933,838	6,425,156	12.69%	12.78%
Total	948	49,100,206	3,166,908	6.45%	291,338	0.59%	3,458,246	45,641,960	7.04%	7.45%
Kent Valley Industrial:										
Warehouse	236	25,407,880	392,056	1.54%	176,187	0.69%	568,243	24,839,637	2.24%	2.69%
Manufacturing	1,003	68,515,157	4,463,566	6.51%	57,441	0.08%	4,521,007	63,994,150	6.60%	6.81%
Flex	125	4,792,042	681,627	14.22%	5,702	0.12%	687,329	4,104,713	14.34%	16.42%
Total	1,364	98,715,079	5,537,249	5.61%	239,330	0.24%	5,776,579	92,938,500	5.85%	6.21%
Pierce County Industrial:										
Warehouse	205	9,327,605	645,250	6.92%	-	0.00%	645,250	8,682,355	6.92%	7.11%
Manufacturing	660	41,726,858	1,650,314	3.96%	175,313	0.42%	1,825,627	39,901,231	4.38%	5.11%
Flex	44	1,231,597	110,852	9.00%	-	0.00%	110,852	1,120,745	9.00%	10.03%
Total	909	52,286,060	2,406,416	4.60%	175,313	0.34%	2,581,729	49,704,331	4.94%	5.58%
QUARTERLY TOTALS										
Q1-13	4,871	261,779,846	13,980,404	5.34%	806,145	0.31%	14,786,549	246,993,297	5.65%	6.05%

G. King County commercial real estate appraisal

1. Appraisal map

SOURCE: King County Dept. of Assessments. *Appraisal Date 1/1/2011 – 2011 Assessment Year. Area 35: SODO/Duwamish Industrial District* [Executive Summary Report]. May 24, 2011.

Map of Central commercial appraisal areas; note Duwamish area 35 (green) and area 36 (yellow).



2. Area 35 East Duwamish

SOURCE: King County Dept. of Assessments. *Appraisal Date 1/1/2012 – 2012 Assessment Year: East Duwamish MIC-Commercial Area 35; Physical Inspection: Neighborhood- Remaining portion of Neighborhood 10 for 6 year cycle* [Executive Summary Report]. April 26, 2012.

Population - Parcel Summary Data:

	Land	Imps	Total
2011 Value	\$3,145,875,400	\$2,352,936,631	\$5,498,812,031
2012 Value	\$3,550,184,900	\$2,306,664,631	\$5,840,769,131
Percent Change	+12.85%	-1.97%	+6.22%

Area Description:

Area 35 is situated primarily inside the city limits of Seattle, with a small section falling within the northeastern portion of city limits of Tukwila. Area 35 is comprised of the portion of the Greater Duwamish MIC along the eastern bank of the Duwamish River south of the downtown Seattle central business district. The East Duwamish Manufacturing Industrial Center (MIC), more specifically the SODO subarea of the East Duwamish MIC, forms the northeastern most portion of an industrial corridor that extends from downtown Seattle southward toward Kent and adjacent industrial areas in southeast King county. The original meaning for acronym SODO was *South of the (King)dome*; however, with the demolition of the Kingdome stadium in 2000, the

connotation has been adapted to mean the *South of Downtown Area*. The East Duwamish MIC, including the SODO subarea, is commonly referred to as the Seattle “Close-In” Industrial Market.

Area 35 represents the oldest industrial location in the Puget Sound region, and is located adjacent to the southern portions of historic Pioneer Square (the original section of downtown Seattle) and the International District, both of which harken back to the 1800’s. Industrial development in SODO started close to downtown Seattle near the turn of the twentieth century and over the years expanded to the south, incorporating what are now the Port of Seattle and the areas surrounding the Duwamish Waterway. Consequently, in the northern portion of this industrial district, many older properties are in need of renovation and redevelopment. Moving southbound, the properties consist of more recently constructed manufacturing and warehouse facilities ranging in age from new to 60 years old.

Several factors have influenced the growth of industrial development in the SODO/Duwamish MIC market:

- The area's location between downtown Seattle and the Sea-Tac Airport;
- The Boeing Company, Seattle's largest industrial employer, plus the presence of the King County Airport (convenient access to airfreight;)
- The Duwamish Waterway and the Port of Seattle (benefits of deep water marine access;)
- The presence of two major railroad lines;
- A highly developed system of ground transportation with excellent access to rail (including spur lines with direct access to marine terminals) and freeway networks (I-5, SR-99, and SR-509.) An efficient transportation system within the Duwamish MIC plays a crucial role in the movement of goods and services, as well as holding economic implications not only for the Pacific Northwest Region but Washington State as a whole.

The city of Seattle policies for the portion of the East Duwamish MIC, which falls within the city limits, call for clearly defined geographic boundaries, buffers around industrial centers, assembly of parcels suitable for industrial activity, and provision of access to regional highway, rail, air and waterway systems for the movement of goods.

Seattle's "Basic Industries" are composed of a wide range of established business activities that occur within the Area 35 industrial district, including manufacturing (such as metal fabrication,) warehousing, wholesaling (non-durable goods such as paper products, apparel, alcoholic beverages, and petroleum products,) and transportation (such as trucking firms.) The area also houses communication and utility companies. These industries have consistently offered job growth potential; provide accessible, family wage jobs; fit with Seattle's comparative advantages; and contribute significantly to the City's tax base.

According to the Puget Sound Regional Council, the Duwamish MIC maintains the role of a major regional employment center by providing the largest concentration of family wage jobs in the Puget Sound region, and is second only to downtown Seattle in regards to total employment figures. Per the most recent PSRC study, employment in Basic Industry sectors has been on the rise, growing by 10% in Seattle from 2005 to 2008, outpacing citywide employment growth. In comparison, the net decline of basic industry industrial employment nationwide during the same period was 0.6%.

The city of Seattle zoning has attempted to address the ever-growing desire to develop non-industrial uses adjacent to industrial lands, which in turn can create adverse economic pressures. In 2007, The City of Seattle passed Ordinance 122601 to reduce the size limits for particular non-industrial uses in industrial zones to preserve the integrity of industrial zoning (IG1 and IG2.) Seattle added Ordinance 123266 to allow limited adaptive reuse of existing buildings on industrially zoned land in 2009. A stadium overlay district in the immediate vicinity of the large sports facilities in the northern portion of SODO district was created to discourage encroachment or shifting the boundary further into the nearby industrial uses to the south.

The Stadium Transition Area, centering around the large sports facilities, allows provisions for complementary uses and development standards designed to create a pedestrian connection with downtown, including transit service. The intention is to contribute to a safer pedestrian environment for those attending events and permit a mix of uses to support the pedestrian-oriented character of the area as well as the surrounding industrial zone, while minimizing conflicts and discouraging encroachment with nearby industrial uses. By allowing a mix of uses as permitted under Industrial Commercial zoning, including office development, the intention is to encourage redevelopment and to maintain the health and vibrancy of the area during times when the sports facilities are not in operation. The stadium area is surrounded by land with widely varying development patterns and land use characteristics, including the mixed-use urban development of the south downtown areas of Pioneer Square, the working waterfront, and the industrial area. One of the desired relationships of the Stadium Transition Area is with Pioneer Square and First Avenue, permitting strong pedestrian and transit links to the north. There should be well-defined edges between the pedestrian activity of the Stadium Transition Area and industrial activity surrounding the area.

Many of the factors that first attracted industrial development to Area 35, and continue to sustain the area's advantage for industrial activity, are also responsible for some of the problems the area now faces. The reclaimed flat lands, which were well suited to industrial development, have drainage problems making it difficult to maintain streets in good condition. While the waterway, airports, rail lines, and major arterials provide excellent linkage to the region, they also impede movement within the area and tend to isolate locations from each other. The unguided expansion in the past of industrial development into areas not specifically platted for industrial needs has also resulted in inefficient land use, poor traffic circulation and conflicts with non-industrial property uses within the area. Changes in the nature of industrial activity itself have also rendered certain facilities and locations obsolete according to current demands for space and access. Despite the constraints, the area remains a vital part of this region's industrial activity. Potential for economic growth exists through replacement of obsolete buildings, the efficient use of available land with expansion of existing facilities, and the introduction of new manufacturing and industrial technology.

- **Area 35-10**

Area 35-10 is the oldest, most northerly neighborhood of area 35, and is located just south of two neighborhoods historic in nature, the Pioneer Square and International District neighborhoods of downtown Seattle. The neighborhood character is defined by two ends of the spectrum, some of the oldest buildings in SODO/ North and East Duwamish MIC, including turn of the twentieth century, multi-story, masonry warehouses, and the newer development of modern football and baseball stadiums. A significant amount of publically owned property allocated for Port of Seattle use and Railroad Operating property is located in area 35-10. Due to the age of many of the structures in this neighborhood, much of the economic growth is occurring through replacement and/or renovation of obsolete industrial properties.

- **Area 35-30**

Area 35-30 is located to the south of 35-10. Historically, the pattern of industrial development began closest to downtown Seattle in 35-10 and traveled southbound to 35-30. Approximately 85% of the buildings in Area 35-30 were constructed after 1960. The neighborhood is characterized by heavy industrial activity along the Duwamish Waterway, as well as a significant presence of railroad operating property. Additionally, commercial development exists between 1st Ave South and 4th Ave South in the northeastern portion of the Georgetown area.

- **Area 35-50**

Area 35-50 is the smallest neighborhood within the Area 35 industrial district. The old ‘Benaroya Business Park’ development was a catalyst to the low-rise warehouse, warehouse showroom, and warehouse office developments in this neighborhood. The buildings were primarily constructed between the 1950s and the 1970s and the area overall has improvements closest to being considered “Institutional Grade” industrial properties.

- **Area 35-60**

This neighborhood is characterized by the relatively new ‘Georgetown Center’ in its northwest section, the old downtown Georgetown area (which originated at the turn of the 20th Century) in its northeast section, and the residential area to the south, which is intermingled with commercial/industrial properties. This neighborhood has recently seen a few signs of new construction and property renovation after years of little growth.

- **Area 35-65**

This neighborhood is characterized by commercial property, to the north, along South Michigan Street, the Boeing plants to the south along the Duwamish Waterway, the railroad operating property to the south along I-5, and the commercial/industrial properties in the south around the Boeing Access Road. This neighborhood virtually surrounds the King County Airport.

- **Area 35-70**

The neighborhood is comprised of publically and privately owned airfield hangars and airfield administrative offices on the east side of the Airport, and Boeing buildings, as well as additional public hangars along the west side of the Airport.

3. Area 36 West Duwamish

SOURCE: King County Dept. of Assessments. *Appraisal Date 1/1/2012 – 2012 Assessment Year: Area 36 West Duwamish; Physical Inspection: Neighborhood 36-70* [Executive Summary Report]. April 3, 2012.

Population - Parcel Summary Data:

	Land	Imps	Total
2011 Value	\$1,793,381,550	\$910,684,377	\$2,704,065,927
2012 Value	\$1,801,000,600	\$914,050,700	\$2,715,051,300
Percent Change	+ 0.42%	+ 0.37%	+ 0.41%

Area 36, or West Duwamish is considered to fall within the close-in industrial market of Seattle, and several of its neighborhoods comprise part of the Duwamish Manufacturing Industrial Center (MIC), or Duwamish Corridor. This manufacturing corridor is considered a finite and limited resource, and a major contributor to the Seattle/Metro economic base. Broadly defined, activities include all types of manufacturing, wholesale, warehousing, construction support, communications, utilities, and transportation. The area is considered to be transitional, as a majority of the facilities reflect an obsolesced manufacturing infrastructure and the area steadily evolves through redevelopment of industrial activity. The Port of Seattle has been and continues to be a significant influence in driving this redevelopment. Buildings tend toward older age, with many over 40 years old, compared to other industrial areas of the region which have higher proportions of more modern tilt-up structures. Specialized facilities are common, due to harbor/port proximity (Port of Seattle), aircraft production (Boeing), and rail infrastructure. Challenges to area redevelopment include ongoing environmental contamination with associated cleanup efforts, transportation conflicts as increased container shipping activity impacts truck and rail traffic, fragmented ownership which has created numerous small parcels making assemblage more difficult for large development, and the continued pressure of encroachment from competing interests upon this industrial sector as the region’s economy steadily grows. The West Duwamish Commercial Geographical Area is divided into eight neighborhoods spanning three municipalities as well as Unincorporated King County, and is generally distinguished by zoning jurisdictions and geographic characteristics. Within this broad geographic area are included 1,889 tax parcels assigned for commercial valuation under this report. The following is a brief description of each neighborhood with a general reference to zoning breakdown.

Neighborhood 36-15 – Harbor Island

Parcel Count: 151

Zoning: All parcels are industrially zoned

Harbor Island is classified as a Federal “Superfund” site. Predominant use continues to change from heavy industrial to container shipping, the Port being the only participant with the Port’s largest and newest facility - APL’s Terminal 5, Terminal 18, and 102. Terminals 5 and 18 are major container shipping terminals, and terminal 102 is developed with marina and office/warehouse facilities. The Port is the major land owner, with the remaining controlled by rail right-of-way, petroleum tank farms, and Vigor Shipyards. Most all parcels within this neighborhood experience contamination associated liability and/or stigma, which negatively affect land and improvement values. Improvement age ranges from seven to 110 years, with a median age of 44 years. Harbor Island proper is man made fill from the Jackson and Dearborn Street regrades as well as the Duwamish River as it was dredged and straightened to accommodate Seattle industrial growth in the early 1900s.

Land sales within this neighborhood typically involve the Port of Seattle, and are not considered reflective of market value due to compensation for intangible services. This may reflect relocation expense, improvements to a new property and/or site, the purchase of business goodwill, premiums paid for takings, indemnification for contamination liability, or compensation for hardship. Financial value of these services cannot be easily isolated, so resulting sales are not typically considered reliable as market indications of value. The Port is also the only active participant in this neighborhood. Except for Todd Shipyards, a business park and petroleum tank farms, Harbor Island is almost completely owned by the Port. The land is comparable to that along the Duwamish Waterway in that industrial and shipping uses are similar. Large parcels are common in this area and deep water frontage is typically required. Nearby waterway and water access sales in neighborhoods 36-40 and 36-20 and Area 35 are also considered for purposes of valuation. No market sales in support of land value have occurred over the past three years in this area. One sale occurred in 2009 for purposes of plottage, but was not considered a market level value indication.

Neighborhood 36-20

Parcel Count: 179

**Zoning: 95% Industrial
5% Residential/Multi-Family**

This is an industrial area near Harbor Island reflecting non-“Superfund” land value. Proximity to Harbor Island and the Duwamish Waterway stigmatized these surrounding properties for many years, depressing their value. Improvement age ranges from one to 110 years, with a median age of 44 years. West Marginal Way S. is the primary transportation corridor through this neighborhood, and most heavy industrial uses are located to the east along the Duwamish River and its associated access. The hillside immediately west of Marginal Way is subject to slide instability, but is also backfilled with small manufacturing businesses, many of which are owner occupied. The Port is also a major influence here as land use changes from heavy industrial to Port related container shipping. The neighborhood contains rail infrastructure supporting APL Terminal 5 at the north, and Terminal 115 at the southern end, where Lineage Logistics has its Sea Freeze processing facility. It is home to Alaska Marine Lines with its associated container shipping activities, a Gray Line bus maintenance facility, a large scrap metal recycling operation owned by General Recycling, and the LaFarge concrete manufacturing plant. It is also home to the Duwamish Longhouse and Cultural Center, a newly completed facility in 2009.

<p>Neighborhood 36-40: South Park</p> <p>Parcel Count: 494</p> <p>Zoning: 74% Industrial 14% Residential/Multi-Family 12% Commercial</p>

South Park has a wide variety of industrial and warehouse use with some commercial. It has a distinct identity similar to that of Georgetown with an active residential community, lies within the municipalities of Seattle, Tukwila, and unincorporated King County, and includes the South Park Residential Urban Village. The neighborhood made a rapid transition to industrial use from farming with development along the Duwamish River. Boeing plants are a significant influence here, as is proximity to Boeing Field. The neighborhood is home to Delta Marine Industries, MacDonald Miller Facility Solutions, SeaMar Community Care Centers, and the Sea King, Kenyon, and Cloverdale industrial/business parks. Other significant land users include City Light (major substation), the US post office complex at the Oxbow Corporate Park as well as many small owner-occupied businesses throughout this neighborhood.

Significant traffic corridors are SR 99, SR 509, S Cloverdale St, W Marginal Way S, and 14th Ave S. 14th Ave S is considered a particularly critical route in this area, as it links East Marginal Way and SR 99, two important north-south arterials within the Duwamish industrial transportation network. This street also runs through the South Park business district, and has recently been repaved to include sidewalks. The South Park Bridge at 14th Ave S and East Marginal Way S. was closed over this past year, closing one end of this traffic corridor. Nearing the end of its physical life (79 years), the structure was in poor condition. New construction for replacement is estimated at \$167 Million, which includes a new design and removal of the existing bridge. Construction is moving forward as scheduled with projected completion by the end of 2013. The City of Seattle is nearing completion of the South Transfer Station, a new 140,500 square foot facility for waste disposal and recycling, a with scheduled opening in May of 2012.

Neighborhood 40 had five land sales in support of South Park industrial and residential uses. Four of these sales occurred in 2011, and one occurred in 2010. Three sales had industrial zoning, one had commercial zoning, and one had residential zoning. Three additional sales occurred which were not considered market transactions, as they involved related parties, or a Quit Claim transfer of property rights. Values tend to be higher towards the north due to closer proximity to the Seattle CBD.

Neighborhood 36-80
Parcel Count: 87
Zoning: 55% Industrial
23% Commercial
22% Residential/Multi-Family

This neighborhood is comprised of a small pocket of industrial properties not contiguous with other industrial areas, but located within the Duwamish MIC just east of the I-5 Freeway and north of the Boeing Access Road . Major transportation corridors include the I-5 Freeway, the newly improved Martin Luther King Jr Way S and the Boeing Access Road, which connects this neighborhood with I-5 and the rest of the Duwamish MIC. The properties are predominantly owner-occupied, and considered comparable to the broader South Seattle industrial market. Uses are primarily warehouse and light manufacturing, along with associated equipment storage. Prominent users include Coluccio Construction, the Northwest Kidney Center, Raisbeck Engineering, Pape' Material Handling, the Lindal Corporate Park, and Nelson Trucking. Improvement age ranges from five to 82 years, with a median age of 36 years. Valuation is supported with South Park, South Seattle and Tukwila, which are considered similar and competing areas.

Neighborhoods 36-50, 36-70, and 36-80 continue to see development activity resulting from the Central Puget Sound Regional Transit Authority now that construction is complete along this light rail route. With completion of this system, light rail service is provided between the Seattle CBD retail core and the Seattle Tacoma International Airport. Two stations along this line – one at S. Othello St. (Othello Station/Neighborhood 36-50), and one at S. Henderson St. (Rainier Beach Station/Neighborhood 36-70) fall within the Rainier Valley Segment of this line and provide rail access from within this Geographic Area. Seven historical sales have occurred in these neighborhoods in support of land values applied along the light rail line. Valuation was adjusted upward for the 2009 assessment around Othello Station, and has been maintained at that level for the 2010 thru 2012 Assessment Years. No other changes were applied along this corridor, as additional market adjustment appears unsupported at this time.

Neighborhood 36-90
Parcel Count: 230
Zoning: 55% Industrial
37% Commercial
8% Residential/Multi-Family

Characteristics of this neighborhood are more specifically defined by the Duwamish River, as the northern boundary of 36-90 marks the end point of the River’s deep water access and contribution to industrial use. From this point southward, the River meanders back and forth across the east/west boundaries of this neighborhood and splits it into two distinct industrial areas as it flows from South Park into Tukwila.

The northern area is served by the Boeing Access Road/I-5, East Marginal Way S, and the Tukwila International Blvd. Predominant users include the Intergate III High Tech Office/Industrial Park which now occupies the old Boeing military complex. Newer office buildings have been built on the site, which has expanded west, to Tukwila International Blvd and north to 128th St. Group Health operations center is in this area as well as newly constructed offices for the Office of Homeland Security. Metro’s maintenance and training facility, the Seattle Police training complex, Gateway North’s warehouse/office park, as well as Burlington Northern’s railroad staging area are also located here.

The southern portion is served by SR 599 which runs into SR 99 and the South Park neighborhood, Interurban Ave S, and I-5. Located here is the City of Tukwila’s community center, the Gateway Corporate Center, Boeing Credit Union offices, and the Tukwila Commerce Park.

Overall, predominant uses include all types of warehouse space (office, distribution, storage, and transit) with some light manufacturing. Improvement age ranges from 3 to 110 years, with a median age of 35 years.

This area includes a high-end industrial park with class “A” office space, a newer refurbished high tech park, a newly constructed Group Health Office Campus, and recent construction of DSHS and Federal Homeland Security office buildings. All are a reflection of continued market interest in support of development within relatively close proximity to the Seattle CBD. One sale of an industrial property occurred during 2011 in support of land valuation. Two sales occurred over the 2010 – 2011 period which involved leasehold interests, and a Quit Claim transfer, and were not considered for purposes of land valuation.

4. Warehouses

SOURCE: King County Dept. of Assessments. *Commercial Revalue, 2012 Assessment roll: Area 500 - Warehouses 100,000 square feet or larger.* June 11, 2012.

- Specialty Area 500 encompasses all distribution, transit and storage buildings as well as light industrial facilities with a building area greater than or equal to 100,000 net rentable square feet located in King County.
- The largest industrial warehouses with at least 100,000 square feet in King County have been segmented into five neighborhood regions. These regions are described by their geographic location. Significant concentrations (75%) are located in the South End of the county in Kent, Auburn, Renton, and Tukwila.
- **Seattle/Close-In:** (Approximately 18% of the warehouse specialty population is located here)



- This area is located primarily south of Safeco Field in the Sodo district, and along both sides of the Duwamish Waterway and makes up the heart of Seattle’s historic industrial area. This area contains a mixture of industrial processing facilities, distribution warehouses, and truck terminals. The close-in market of Seattle is the most established submarket and seems to be the most stable market. The buildings in this area are generally 50 to 100 years old. These buildings also typically have lower ceilings and limited truck loading facilities because the sites are smaller and land is very expensive. Despite some of the buildings obsolescence due to age, the close proximity to freeways and waterways has helped this area thrive even during difficult economic times. Demand for industrial space in this area has remained high with influence from the Port of Seattle and the proximity to the I-5 freeway, Safeco Field, and Qwest Field. Due to the lack of available land in this neighborhood, there has been little new warehouse development, and as a result, vacancies are the lowest here (presently 5%) and it appears it may even decline more in the future.
- *The Sodo-Seattle district has seen extensive redevelopment in recent years. The industrial owners are watching this area sharply with the prospect of more new development by the stadiums. Land values have risen near the stadiums which have caused a couple larger warehouses to be obsolesced. A very recent proposal by a wellfunded consortium of investors (headed by a San Francisco hedge fund manager with ties to the local area) to construct a third sports arena just south of Safeco Field is also fueling further interest in this area.* The propose arena will house a NBA basketball franchise and possible NHL franchise The recent redevelopments and proposals in this area combined with the demolition of the Alaskan Way Viaduct and subsequent tunnel construction are expected to have an impact on the traffic patterns and congestion in this area which may also affect the timing and extent of further development. [italics added]
- This area has higher lease rates due to the locality to the Port, trains and freeway. There were no industrial market sales of warehouses over 100,000 square feet in area 500-60 in the last three years.... Many property owners are sitting back and waiting to see what develops in this area.

- **Puget Sound warehouse economic conditions**

- The regional industrial market has experienced declining vacancy rates through 2011. King and Pierce County are both becoming core industrial areas and are out-performing the national economy. The vacancy decline has also encouraged large-parcel land speculation. A six acre site in Kent was acquired by Also and HCSA closed on another six acre site in Auburn. The last few years have seen no new construction.
- Many lenders have recently returned to the commercial real estate market. However, the most credit worthy borrowers are still desired. The warehouse market includes a variety of tenants and owner/users but is approximately 65% institutionally owned. Institutional investors are still favoring industrial warehouses because they produce a steady cash flow. The banks, life insurance companies, and finance companies are looking at a loan to value averaging of 70 percent compared to 80-85 percent before the market hit the bottom. The King County industrial market has less than 5% distress sales. The Small Business Administration is waiving business fees to spur the economy.
- Grubb & Ellis in their 2012 Forecast Edition quoted an “Emerging Trends in Real Estate” report awarding Seattle the top “buy” rating in the entire nation for industrial/distribution investment. Sales activity has been steady for two years now. Sales prices are now starting to go up slowly. There were 11 sales in 2010 and 2011. It is predicted that 2012 will be a robust year for sales according to the commercial realtors in King County. As new for-sale listings of larger warehouses become available there have been new investment firms competing with the better known institutions, such as Prologis, La Salle, Principal, RREEF, Clarion Partners, and TIAA-CREF. Some additional firms are Morgan Stanley, Dexus Property Group, Industry Income Trust, and KTR Capital.
- According to Kidder Mathews, typical warehouse sales fall into the following ranges:
 - Seattle \$80-\$150 per square foot
 - Kent Valley \$45-\$80 per square foot
 - Eastside \$70-\$1301 per square foot
- The industrial market saw rents remain stagnant or essentially flat in 2011. However, there were fewer concessions given to renters compared to previous years. Since there is limited inventory and falling vacancy rates net effective rents will gradually start to rise. Next year, 2012, should see increases.

7. *What are relevant indicators for context and comparison?*

Most factual content is reproduced without change (i.e., quoted) from the original, cited source. Quoted text is denoted by bullet-point indentation and smaller font.

A. Employment and economic activity

1. Employment: Seattle

SOURCE: Talton J. Seattle area reaches ‘full employment’ milestone. *Seattle Times* blog. May 23, 2013.

- Nearly four years after the end of the recession, King County unemployment hit 4.4 percent in April. That's a level economists would traditionally consider full employment. That's down from an average of 8.6 percent in 2009. It doesn't mean there's no suffering here due to job losses, but it's an important milestone nonetheless, especially when nationally 11 million are officially unemployed and the unemployment rate was 7.5 percent in April.
- It's an outlier in Washington, too: Pierce County's jobless rate was 8.1 percent; Gray's Harbor, 12.1 percent; Snohomish County did better at 4.9 percent.
- In the big divergence of recovery, Seattle is definitely on the winning side. Oklahoma City, a big energy center, turned in 4.6 percent in April. On the other side, April unemployment was 9.9 percent in Los Angeles; 9.6 percent in Miami; 9.4 percent in Chicago; 9.5 percent in Detroit; 8.4 percent in New York City, and 9.8 percent in Las Vegas. We shouldn't assume our good fortune is the norm.

SOURCE: Seattle Dept. of Planning and Development. *Change in Covered Employment - City of Seattle*. Nov 21, 2012. http://www.seattle.gov/dpd/cms/groups/pan/@pan/documents/web_informational/dpds021329.pdf

Change in Covered Employment - City of Seattle

Employee Sector/2-Digit NAICS/3-Digit NAICS	City Total 1995	City Total 2005	Change 1995-2005	% Change	City Total 2005	City Total 2006	City Total 2007	City Total 2008	City Total 2009	City Total 2010	City Total 2011	Change 2010-2011	% Change	Change 2005-2011	% Change
Total Covered Employment	426,729	502,835	76,106	18%	454,429	470,661	479,351	467,047	473,280	482,480	473,521	11,741	3%	6,482	2%
Construction/Resources	15,262	22,645	7,383	48%	18,495	20,127	21,972	25,174	21,286	16,748	16,277	-471	-3%	-2,188	-12%
Manufacturing	39,050	37,104	-1,946	-5%	28,869	30,222	30,236	31,146	28,426	26,817	27,151	734	3%	-1,716	-6%
Manufacturing (31)	14,357	11,549	-2,808	-20%	5,748	8,349	7,946	8,374	7,653	7,642	7,655	213	3%	2,907	37%
Food Manufacturing (311)	10,193	7,540	-2,653	-26%	6,995	6,271	6,027	6,479	5,821	5,979	6,165	186	3%	70	1%
Beverage and Tobacco Product Manufacturing (312)	849	1,373	524	62%	447	454	444	399	*	342	339	-3	-1%	-108	-24%
Textile Mills (313)	174	140	-34	-20%	22	21	29	32	*	37	31	-6	-16%	9	41%
Textile Product Mills (314)	988	801	-187	-19%	522	515	525	534	479	459	455	-4	-1%	-67	-13%
Apparel Manufacturing (315)	2,002	1,611	-391	-20%	550	1,033	901	900	886	794	835	41	5%	285	52%
Leather and Allied Product Manufacturing (316)	152	84	-68	-45%	67	60	20	30	20	31	28	-3	-10%	-30	-56%
Manufacturing (32)	8,222	8,077	-145	-2%	15,417	5,773	5,634	5,021	4,323	3,455	3,585	140	4%	-11,822	-77%
Wood Product Manufacturing (321)	490	472	-18	-4%	266	256	206	188	160	184	153	-11	-7%	-113	-42%
Paper Manufacturing (322)	521	445	-76	-15%	218	224	228	216	167	136	142	16	13%	-76	-35%
Printing and Related Support Activities (323)	3,684	3,261	-423	-11%	2,996	2,239	2,175	1,803	1,484	1,340	1,406	66	5%	-690	-33%
Petroleum and Coal Products Manufacturing (324)	49	70	21	43%	85	94	112	106	63	66	66	0	0%	-19	-22%
Chemical Manufacturing (325)	950	1,435	485	51%	1,175	954	1,091	934	864	229	240	19	8%	-927	-79%
Plastics and Rubber Products Manufacturing (326)	802	761	-41	-5%	365	369	190	186	193	200	185	-15	-8%	-180	-49%
Nonmetallic Mineral Product Manufacturing (327)	1,726	1,632	-94	-5%	1,544	1,633	1,626	1,756	1,342	1,328	1,364	66	5%	-150	-10%
Manufacturing (33)	15,471	17,478	2,007	13%	38	16,101	16,657	17,751	16,453	15,320	15,702	382	2%	15,664	41221%
Primary Metal Manufacturing (331)	923	874	-49	-5%	723	734	726	654	564	531	579	48	9%	-144	-20%
Fabricated Metal Product Manufacturing (332)	2,176	2,495	317	15%	1,873	1,999	1,967	2,104	1,641	1,748	1,543	-165	-9%	-380	-15%
Machinery Manufacturing (333)	1,951	1,726	-225	-12%	886	871	873	905	724	699	710	27	4%	-170	-19%
Computer and Electronic Product Manufacturing (334)	1,581	1,884	123	8%	1,945	2,098	2,272	2,439	2,292	1,577	1,711	134	8%	-334	-17%
Electrical Equipment, Appliance and Component Manufacturing (335)	354	313	-41	-12%	301	367	365	714	603	567	637	70	12%	336	112%
Transportation Equipment Manufacturing (336)	6,457	6,166	-1,709	-26%	7,589	7,991	8,414	9,026	8,725	8,624	8,602	178	2%	1,215	16%
Furniture and Related Product Manufacturing (337)	690	704	14	2%	583	555	561	544	379	358	327	-31	-9%	-266	-44%
Miscellaneous Manufacturing (338)	1,347	1,516	169	13%	1,516	1,475	1,440	1,374	1,304	1,226	1,346	120	10%	-170	-11%
Wholesale Trade/Transportation/Utilities (WTU)	40,545	43,638	3,093	8%	34,936	33,137	33,250	34,124	31,342	29,228	29,658	452	2%	-5,272	-15%
Utilities (22)	*	*	*	*	17,010	*	*	*	177	171	171	-6	-3%	-16,839	-99%
Wholesale Trade (42)	22,096	22,839	744	3%	18,764	18,658	18,167	16,655	16,766	15,642	15,713	71	0%	-3,051	-16%
Merchant Wholesalers, Durable Goods (423)	12,611	13,614	1,003	8%	10,367	10,068	10,230	10,628	9,702	8,522	8,468	-56	-1%	-1,901	-18%
Merchant Wholesalers, Nondurable Goods (424)	7,824	8,069	245	3%	6,950	7,241	6,176	6,099	4,979	4,940	4,848	-92	-2%	-2,102	-30%
Wholesale Electronic Markets and Agents and Brokers (425)	1,560	1,156	-404	-26%	1,447	1,549	1,760	1,938	2,085	2,181	2,309	218	10%	952	66%
Transportation and Warehousing (44)	10,766	13,210	2,444	23%	23,785	10,370	11,376	11,653	11,106	10,866	11,624	758	7%	-12,161	-51%
Air Transportation (441)	234	367	133	52%	*	233	169	221	184	130	125	-5	-4%	*	*
Rail Transportation (442)	0	0	0	#Error	*	*	*	*	*	*	*	*	*	*	*
Water Transportation (443)	2,116	2,647	531	25%	3,098	2,926	2,672	3,094	3,013	2,820	2,890	-30	-1%	-179	-6%
Truck Transportation (444)	2,524	1,993	-531	-21%	871	709	758	779	749	824	797	-27	-4%	-84	-10%
Transit and Ground Passenger Transportation (445)	1,844	3,169	1,325	72%	1,708	1,828	1,780	2,146	2,022	1,842	1,933	91	5%	225	13%
Scenic and Sightseeing Transportation (447)	206	434	228	111%	310	*	*	*	*	*	397	*	*	87	28%
Support Activities for Transportation (448)	3,759	4,940	1,181	31%	5,050	4,907	5,001	5,126	4,744	4,794	5,483	689	14%	433	9%
Transportation and Warehousing (44)	6,860	*	*	*	13,501	*	*	*	*	2,520	2,150	-370	-15%	-11,351	-84%
Postal Service (449)	*	0	*	*	*	0	0	0	0	0	0	0	0	#Error	*
Couriers and Messengers (492)	2,966	*	*	*	2,579	*	*	*	*	2,061	1,696	-375	-18%	-693	-35%
Warehousing and Storage (493)	3,871	*	*	*	*	*	*	*	*	459	465	6	1%	*	*
Finance/Insurance/Real Estate (FIRE)	35,253	42,471	7,218	20%	38,450	38,414	39,526	40,250	35,351	31,070	32,066	1,228	4%	-6,352	-17%
Services	195,899	235,336	49,437	25%	225,103	231,452	235,441	244,184	238,910	237,880	246,703	5,821	4%	21,600	10%
Retail	31,504	41,964	10,460	33%	37,296	37,033	38,798	40,276	37,462	36,921	39,318	2,397	6%	2,032	5%
Government	51,571	47,565	-4,006	-8%	46,450	44,911	45,174	47,126	46,758	48,608	47,738	-740	-2%	1,275	3%
Education	26,825	32,394	5,569	21%	34,372	34,485	34,156	34,584	34,384	34,576	34,960	418	1%	116	0%

Source: Washington State Employment Security Department (ESD) and Puget Sound Regional Council (PSRC).

These employment estimates are based on the Washington State Employment Security Department's (ESD) Quarterly Census of Employment and Wages (QCEW) series, First Quarter. This series consists of employment for those firms, organizations and individuals whose employees are covered by the Washington Unemployment Insurance Act. Covered employment excludes self-employed workers, proprietors, CEOs, and other non-insured workers. Typically, covered employment has represented 85-90% of total employment. The employment data represents the number of jobs during March of the given year. Note that this includes part-time and temporary employment, and if a worker holds more than one job, each job would appear in the database.

By agreement, ESD sends individual business records from the four county region to PSRC. PSRC also uses a survey of its own to yield greater locational detail for public sector jobs (including public school data obtained from the Washington State Office of the Superintendent of Public Instruction) and for the Boeing Company. The summary tables included here are aggregate values from the database, with slight adjustments to match ESD totals by county.

2. Employment: King County

SOURCE: US Bureau of Labor Statistics. County employment and wages in Washington – Third quarter 2012. *BLS News Release*. May 1, 2013.

- Employment rose in 8 of the 10 large counties in Washington from September 2011 to September 2012, the U.S. Bureau of Labor Statistics reported today. (Large counties are defined as those with employment of 75,000 or more as measured by 2011 annual average employment.) Regional Commissioner Richard J. Holden noted that Yakima County posted the largest employment increase, 3.4 percent, followed by Snohomish County (2.8 percent) and King County (2.4 percent). Nationally, employment grew 1.6 percent during this 12-month period, as 276 of the 328 large U.S. counties gained jobs.
- Average weekly wages increased over the year in three Washington counties. King County recorded the largest gain, 2.3 percent, and had the highest average weekly wage in the state (\$1,354). Nationally, in the third quarter of 2012 the average weekly wage declined 1.1 percent over the year to \$906.... King County's 2.3-percent wage gain ranked 4th nationally...among the 328 large counties nationwide.

SOURCE: WA Employment Security Department. *2012 Labor Market and Economic Report*. January 2013.

- King and Snohomish counties experiencing strongest recovery. As shown in Figure 2-10, nonfarm employment in the King and Snohomish counties in October 2012 was up 100,700 relative to February 2010, the trough of the recession. This marks an 83 percent recovery in the level of employment since February 2010, three times the rate of recovery in the rest of the state. The key driver for the growth is the aerospace industry in which employment is up 15,900, dramatically offsetting the loss of 4,400 jobs during the recession.

Figure 2-10. Total nonfarm employment change through recession and recovery
Washington state, King and Snohomish counties and balance of state, February 2008 to February 2010 and February 2010 to October 2012
Source: Employment Security Department/LMEA; U.S. Bureau of Labor Statistics, Current Employment Statistics

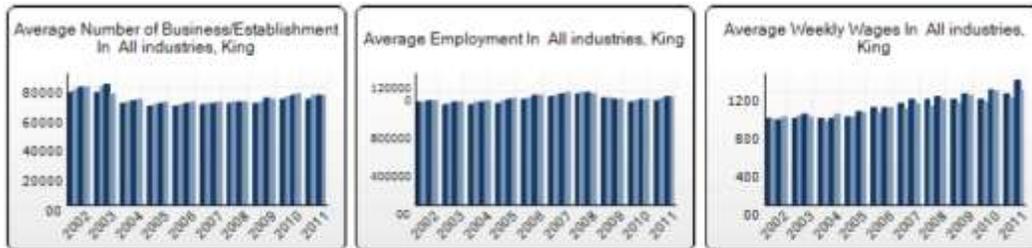
	Employment change February 2008 to February 2010	Employment change February 2010 to October 2012	Percentage recovery in jobs lost
King and Snohomish counties	-121,500	100,700	83%
Balance of state	-83,500	23,300	28%
Total for state	-205,000	124,000	60%

King and Snohomish counties benefiting from growth in a number of industries.

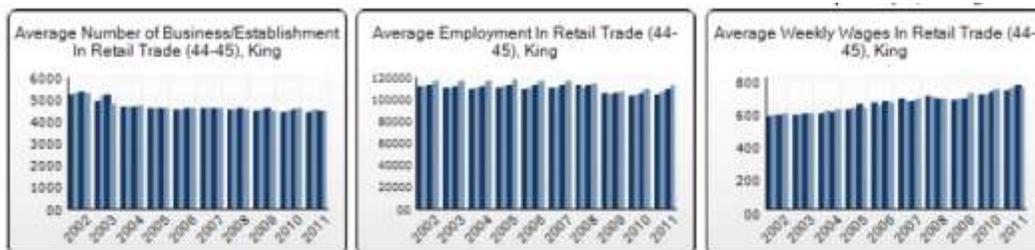
a) Employment trends, 2002-2011

SOURCE: WA Employment Security Department; Reports, data & tools: Industry trends [ESD; Accessed May 11, 2013] <https://fortress.wa.gov/esd/employmentdata/reports-publications/industry-reports/industry-trends>

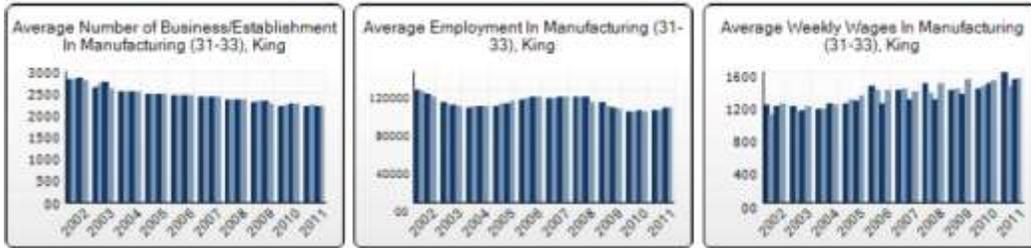
- ALL Industries



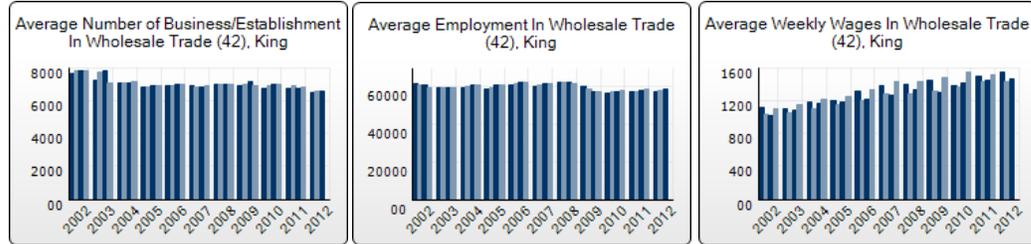
- Retail sales [NAICS 44-45]



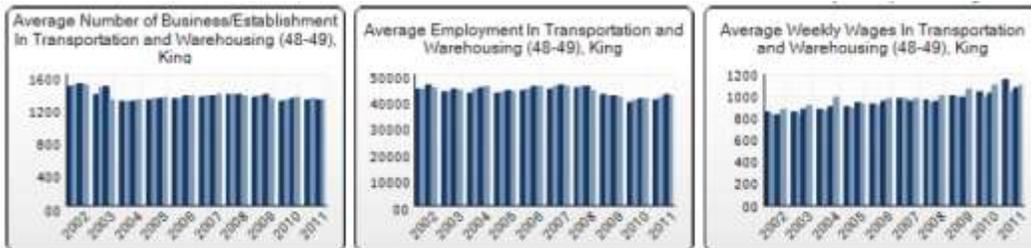
- Manufacturing [NAICS 31-33]



- Wholesale trade [NAICS 42]



- Transportation and warehousing [NAICS 48-49]



b) Employment: King County, by age

SOURCE: ESD 2013 [see above] Note, higher age distribution in Manufacturing and WTU



c) Employment and wages: King County, by industry

SOURCE: WA Employment Security Department; Reports, data & tools: Quarterly Census of Employment and Wages. 2011-Revised [ESD; Queried May 11, 2013]

<https://fortress.wa.gov/esd/employmentdata/reports-publications/industry-reports/quarterly-census-of-employment-and-wages>

Labor Market and Economic Analysis Branch Washington State Employment Security Department										
King County										
Covered Employment Classified By Industry										
Annual Averages 2011 (Revised)										
NAICS Code	Industry	Average Firms		Total Wages Paid		Average Employment		Avg. Annual Wage		
	TOTAL	74,461		\$71,955,797,755		1,137,311		\$63,268		
31-33	Manufacturing	2,201	3%	\$7,791,789,006	11%	99,547	9%	\$78,272	124%	
332	Fabricated metal product manufacturing	306		\$280,907,328		5,596		\$50,198		64%
311	Food manufacturing	297		\$577,437,796		10,978		\$52,600		67%
339	Miscellaneous manufacturing	273		\$356,893,774		5,662		\$63,033		81%
323	Printing and related support activities	224		\$160,977,818		3,217		\$50,040		64%
334	Computer and electronic product manufacturing	166		\$698,806,828		8,125		\$86,007		110%
336	Transportation equipment manufacturing	135		\$4,559,851,824		45,725		\$99,723		127%
333	Machinery manufacturing	117		\$313,745,724		4,745		\$66,121		84%
337	Furniture and related product manufacturing	112		\$49,062,058		1,213		\$40,447		52%
327	Nonmetallic mineral product manufacturing	100		\$142,626,333		2,715		\$52,533		67%
314	Textile product mills	72		\$41,822,850		994		\$42,075		54%
312	Beverage and tobacco product manufacturing	70		\$89,209,528		1,629		\$54,763		70%
325	Chemical manufacturing	69		\$108,505,007		1,177		\$92,188		118%
326	Plastics and rubber products manufacturing	55		\$99,776,469		2,200		\$45,353		58%
315	Apparel manufacturing	54		\$44,460,696		1,130		\$39,346		50%
321	Wood product manufacturing	48		\$38,084,048		756		\$50,376		64%
335	Electrical equipment and appliance mfg.	42		\$88,499,547		1,298		\$68,181		87%
322	Paper manufacturing	23		\$73,379,788		1,331		\$55,131		70%
331	Primary metal manufacturing	18		\$55,419,995		811		\$68,335		87%
316	Leather and allied product manufacturing	11		\$5,083,503		122		\$41,668		53%
313	Textile mills	7		\$1,919,040		46		\$41,718		53%
324	Petroleum and coal products manufacturing	5		\$5,319,052		76		\$69,988		89%
42	Wholesale trade	6,824	9%	\$4,467,095,836	6%	58,207	5%	\$76,745	121%	
423	Merchant wholesalers, durable goods	2,255		\$2,298,333,203		29,238		\$78,608		102%
425	Electronic markets and agents and broker	3,482		\$1,010,474,859		11,045		\$91,487		119%
424	Merchant wholesalers, nondurable goods	1,087		\$1,158,287,774		17,924		\$64,622		84%
48-49	Transportation and warehousing	1,294	2%	\$2,343,746,298	3%	41,373	4%	\$56,649	90%	
488	Support activities for transportation	491		\$616,593,994		9,739		\$63,312		112%
484	Truck transportation	370		\$280,462,422		6,462		\$43,402		77%
492	Couriers and messengers	129		\$208,591,832		5,145		\$40,543		72%
493	Warehousing and storage	87		\$179,793,826		3,442		\$52,235		92%
485	Transit and ground passenger transportation	86		\$94,453,930		3,223		\$29,306		52%
481	Air transportation	64		\$716,799,489		9,771		\$73,360		129%
483	Water transportation	40		\$213,196,688		2,854		\$74,701		132%
487	Scenic and sightseeing transportation	18		\$18,492,781		499		\$37,060		65%
491	Postal service	5		\$3,703,066		126		\$29,389		52%
	Other industries	5		\$11,658,270		114		\$102,266		181%
482	Rail transportation	*		*		*		*		
486	Pipeline transportation	*		*		*		*		
22	Utilities	*		*		*		*		
23	Construction	5,455	7%	\$2,808,452,889	4%	46,069	4%	\$60,962	96%	

* Employment and wages not shown to avoid disclosure of data for individual employer.

King County					
Covered Employment Classified By Industry. Annual Averages 2011 (Revised)					
Sorted by average wage, within industry categories **					
NAICS Code	Industry	Average Firms	Total Wages Paid	Average Employment	Avg. Annual Wage
	TOTAL	74,461	\$71,955,797,755	1,137,311	\$63,268
11	Agriculture, forestry, fishing and hunting	317	\$183,124,841	2,381	\$76,911
21	Mining	*	*	*	*
22	Utilities	*	*	*	*
23	Construction	5,455	\$2,808,452,889	46,069	\$60,962
31-33	Manufacturing	2,201	\$7,791,789,006	99,547	\$78,272
	336 Transportation equipment manufacturing	135	\$4,559,851,824	45,725	\$99,723
	325 Chemical manufacturing	69	\$108,505,007	1,177	\$92,188
	334 Computer and electronic product manufacturing	166	\$698,806,828	8,125	\$86,007
	324 Petroleum and coal products manufacturing	5	\$5,319,052	76	\$69,988
	331 Primary metal manufacturing	18	\$55,419,995	811	\$68,335
	335 Electrical equipment and appliance mfg.	42	\$88,499,547	1,298	\$68,181
	333 Machinery manufacturing	117	\$313,745,724	4,745	\$66,121
	339 Miscellaneous manufacturing	273	\$356,893,774	5,662	\$63,033
	322 Paper manufacturing	23	\$73,379,788	1,331	\$55,131
	312 Beverage and tobacco product manufacturing	70	\$89,209,528	1,629	\$54,763
	311 Food manufacturing	297	\$577,437,796	10,978	\$52,600
	327 Nonmetallic mineral product manufacturing	100	\$142,626,333	2,715	\$52,533
	321 Wood product manufacturing	48	\$38,084,048	756	\$50,376
	332 Fabricated metal product manufacturing	306	\$280,907,328	5,596	\$50,198
	323 Printing and related support activities	224	\$160,977,818	3,217	\$50,040
	326 Plastics and rubber products manufacturing	55	\$99,776,469	2,200	\$45,353
	314 Textile product mills	72	\$41,822,850	994	\$42,075
	313 Textile mills	7	\$1,919,040	46	\$41,718
	316 Leather and allied product manufacturing	11	\$5,083,503	122	\$41,668
	337 Furniture and related product manufacturing	112	\$49,062,058	1,213	\$40,447
	315 Apparel manufacturing	54	\$44,460,696	1,130	\$39,346
	Other industries	0	\$0	0	\$0
42	Wholesale trade	6,824	\$4,467,095,836	58,207	\$76,745
	425 Electronic markets and agents and broker	3,482	\$1,010,474,859	11,045	\$91,487
	423 Merchant wholesalers, durable goods	2,255	\$2,298,333,203	29,238	\$78,608
	424 Merchant wholesalers, nondurable goods	1,087	\$1,158,287,774	17,924	\$64,622
	Other industries	0	\$0	0	\$0
48-49	Transportation and warehousing	1,294	\$2,343,746,298	41,373	\$56,649
	482 Rail transportation	*	*	*	*
	486 Pipeline transportation	*	*	*	*
	Other industries	5	\$11,658,270	114	\$102,266
	483 Water transportation	40	\$213,196,688	2,854	\$74,701
	481 Air transportation	64	\$716,799,489	9,771	\$73,360
	488 Support activities for transportation	491	\$616,593,994	9,739	\$63,312
	493 Warehousing and storage	87	\$179,793,826	3,442	\$52,235
	484 Truck transportation	370	\$280,462,422	6,462	\$43,402
	492 Couriers and messengers	129	\$208,591,832	5,145	\$40,543
	487 Scenic and sightseeing transportation	18	\$18,492,781	499	\$37,060
	491 Postal service	5	\$3,703,066	126	\$29,389
	485 Transit and ground passenger transportation	86	\$94,453,930	3,223	\$29,306
51	Information	1,460	\$11,158,646,483	79,862	\$139,724
55	Management of companies and enterprises	304	\$2,554,222,514	23,426	\$109,034
52	Finance and insurance	2,411	\$3,830,732,518	42,134	\$90,918
54	Professional and technical services	9,564	\$8,353,270,183	96,405	\$86,648
62	Health care and social assistance	5,187	\$6,026,599,188	117,345	\$51,358
53	Real estate and rental and leasing	2,282	\$1,110,055,962	22,311	\$49,754
56	Administrative and waste services	3,591	\$2,941,787,256	62,177	\$47,313
44-45	Retail trade	4,464	\$4,117,982,594	107,787	\$38,205
61	Educational services	1,178	\$652,806,880	17,948	\$36,372
71	Arts, entertainment, and recreation	861	\$720,545,646	21,642	\$33,294
81	Other services, except public administration	22,260	\$1,610,720,974	52,592	\$30,627
72	Accommodation and food services	4,464	\$1,888,113,845	88,430	\$21,352
	GOVERNMENT	292	\$9,267,855,695	156,047	\$59,391
	NOT ELSEWHERE CLASSIFIED	55	\$128,249,147	1,630	\$78,680

* Employment and wages not shown to avoid disclosure of data for individual employer.

** Sorted within categories outlined with solid or dashed-line box

Washington State Employment Security Department; Labor Market and Economic Analysis Branch

d) Wages: Seattle-Bellevue-Everett, by occupation (in manufacturing)

TABLE Number of people employed in manufacturing in Seattle , sorted by occupation and median salary													
Color formats: Yellow, n= 500-999; Orange, n= 1,000-2,499; Red, n >2,499													
SOC	Occupation	Median salary											
		Exec *	>\$100K	\$90-99K	\$80-89K	\$70-79K	\$60-69K	\$50-59K	\$40-49K	\$30-39K	\$20-29K	<\$20K	Total
11	Management	48	4,425	389	0	0	0	0	0	0	0	0	4,862
13	Business and Financial Operations		0	0	1,646	2,114	5,746	127	25	0	0	0	9,658
15	Computer and Mathematical		117	3,289	4,195	0	0	0	522	0	0	0	8,123
17	Architecture and Engineering		239	5,239	3,741	72	1,493	665	35	0	0	0	11,484
19	Life, Physical, and Social Science		0	581	0	92	83	20	79	52	0	0	907
21	Community and Social Service		0	0	0	0	0	0	0	0	0	0	0
23	Legal		71	0	0	0	0	35	0	0	0	0	106
25	Education, Training, and Library		0	0	0	0	39	150	15	0	0	0	204
27	Arts, Design, Entertainment, Sports, and Media		0	0	164	0	255	615	0	16	0	0	1,050
29	Healthcare Practitioners and Technical		0	0	0	59	103	34	0	0	0	0	196
31	Healthcare Support		0	0	0	0	0	0	0	0	0	0	0
33	Protective Service		0	10	0	62	0	21	0	274	0	0	367
35	Food Preparation and Serving Related		0	0	0	0	0	0	0	65	302	272	639
37	Building and Grounds Cleaning and Maintenance		0	0	0	0	0	0	0	0	488	0	488
39	Personal Care and Service		0	0	0	0	0	0	0	0	0	0	0
41	Sales and Related		0	107	0	768	0	1,720	19	135	1,209	29	3,987
43	Office and Administrative Support		0	0	0	0	0	561	1,570	6,853	1,143	0	10,127
45	Farming, Fishing, and Forestry		0	0	0	0	0	12	0	14	513	0	539
47	Construction and Extraction		0	0	0	77	323	468	234	23	0	0	1,125
49	Installation, Maintenance, and Repair		0	0	0	626	980	1,053	1,143	72	0	0	3,874
51	Production		0	0	0	318	3,209	49	9,066	12,553	6,929	511	32,635
53	Transportation and Material Moving		0	0	107	129	212	27	877	1,398	2,722	0	5,472
		48	4,852	9,615	9,853	4,317	12,443	5,557	13,585	21,455	13,306	812	95,843
Data from WA Employment Security Dept: estimated employment 2nd quarter 2009; median annual wage 2010. Excluding occupations with <10 employees.													
Industry Trends: King County; accessed May 31, 2013. https://fortress.wa.gov/esd/employmentdata/reports-publications/industry-reports/industry-trends													
* Mean salary not stated for 48 executives													

*e) Wages: Seattle-Bellevue-Everett, by occupation;
selected manufacturing, retail sales, food service, and other service occupations*

**Seattle-Bellevue-Everett, WA MSA
2011 Occupational Employment
and Wage Estimates
Includes King and Snohomish Counties**



Occupational Employment and Wage Estimates
From: WA ESD. Accessed Aug 4, 2013

<https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>
[2011 data: occupational-employment-wage-data-2011.xlsx]

The occupational employment and wage estimates presented here are based on the spring 2010 Occupational Employment Statistics survey of more than 4,800 employers

SOC Code	Seattle-Bellevue-Everett, WA MSA Occupational Title	Estimated Employment	Average Wage	Percentiles			Annual Wage
				25th	50th	75th	
53-7062	Laborers & Freight, Stock, & Material Movers, Hand	18,793	\$13.92	\$10.42	\$12.76	\$16.22	\$28,952
51-2092	Team Assemblers	5,047	\$16.17	\$12.50	\$15.22	\$19.03	\$33,643
51-2022	Electrical & Electronic Equipment Assemblers	2,218	\$16.23	\$13.03	\$15.69	\$18.89	\$33,757
51-2099	Assemblers & Fabricators, All Other	3,086	\$15.11	\$11.68	\$14.45	\$17.72	\$31,420
51-2041	Structural Metal Fabricators & Fitters	860	\$22.18	\$15.54	\$20.49	\$28.42	\$46,130
41-2031	Retail Salespersons	44,599	\$13.91	\$9.87	\$11.77	\$15.15	\$28,948
41-2011	Cashiers	26,857	\$12.22	\$9.34	\$10.85	\$13.90	\$25,404
35-3021	Food Preparation & Serving Workers, Inc Fast Food	23,025	\$10.62	\$9.15	\$9.76	\$11.46	\$22,085
35-3031	Waiters & Waitresses	20,274	\$13.84	\$9.88	\$12.98	\$14.56	\$28,799
35-1012	Food Preparation & Serving Wkrs, 1st-Line SUPERVISORS of	6,485	\$18.50	\$14.47	\$18.16	\$22.31	\$38,489
35-2021	Food Preparation Workers	6,313	\$11.61	\$9.74	\$11.14	\$12.82	\$24,160
35-3011	Bartenders	5,671	\$13.69	\$9.86	\$13.15	\$15.88	\$28,480
35-3041	Food Servers, Nonrestaurant	3,035	\$12.59	\$9.31	\$11.36	\$14.54	\$26,187
37-2011	Janitors & Cleaners, Not Maids & Housekeeping Cleaners	16,096	\$14.26	\$11.01	\$13.44	\$16.92	\$29,649
37-2012	Maids & Housekeeping Cleaners	7,005	\$11.98	\$9.62	\$11.22	\$13.75	\$24,919

3. Employment: MICs in Central Puget Sound

SOURCE: Puget Sound Regional Council. Employment in Manufacturing-Industrial Centers, 2000-2008. *Puget Sound Trends*. No. E17. April 2010.

- Manufacturing-Industrial Centers (MICs) are designated areas in which regional leaders aim to preserve and enhance concentrated manufacturing and industrial activity. To be eligible, the area must meet a set of formal criteria, and the respective city or county commits to discourage incompatible land uses within MIC boundaries, such as housing, retail, and non-related office. Once designated, MICs receive priority for regional infrastructure and economic development funding. To date, eight such centers have been designated.
- Regional employment during this period reflects the impact of the 2001 recession. (Net job loss stopped regionally in 2003, but continued within MICs until 2004. Broad regional impact of the 2008 recession had yet to be felt in March, when this data was collected.)
 - Aerospace manufacturing was among the sectors with dramatic employment declines early in the decade, and also led in terms of subsequent job recovery.
 - The level of job change across MICs was less pronounced for other industries.
 - The service sector was responsible for the majority of job growth from 2000-08, although less so in MICs as a whole than elsewhere in the region. The sector grew by more than 30% in all but two MICs
 - In summary, industrial employment remains strong in the region’s designated MICs. They have also avoided incompatible retail expansion during the past eight years, but growth in the Services sector may indicate a role for continued monitoring

Table 1. PSRC Covered Employment Estimates, Manufacturing-Industrial Centers

	Jobs 2000	Jobs 2001	Jobs 2004	Jobs 2008	Change 2001-04	Change 2004-08	Change 2000-08	Annualized Change
Ballard-Interbay	13,700	15,100	14,450	14,500	-4.3%	0.3%	5.8%	0.8%
Duwamish	64,400	63,150	57,250	65,350	-9.3%	14.1%	1.5%	0.2%
Fredenckson	1,650	2,150	1,900	3,450	-10.7%	79.9%	106.9%	10.9%
Kent	15,300	14,600	13,750	16,850	-5.8%	22.7%	10.0%	1.4%
North Tukwila	13,450	13,400	12,650	14,750	-5.7%	16.6%	9.6%	1.3%
Paine Field	35,000	36,300	29,150	42,500	-19.6%	45.6%	21.3%	2.8%
Port of Tacoma	14,100	14,250	14,800	12,400	3.6%	-16.2%	-12.3%	-1.9%
South Kitsap Industrial Area	650	650	800	1,000	30.4%	19.5%	53.8%	6.3%
MIC Total	158,300	159,600	144,800	170,700	-9.3%	17.9%	7.8%	1.1%
Elsewhere in Region	1,414,600	1,433,350	1,397,250	1,559,200	-2.5%	11.6%	10.2%	1.4%
Regional Total	1,574,600	1,592,950	1,542,100	1,729,950	-3.2%	12.25%	9.9%	1.4%

Note: Numbers rounded to multiples of 50.

Figure 2. Jobs in MICs

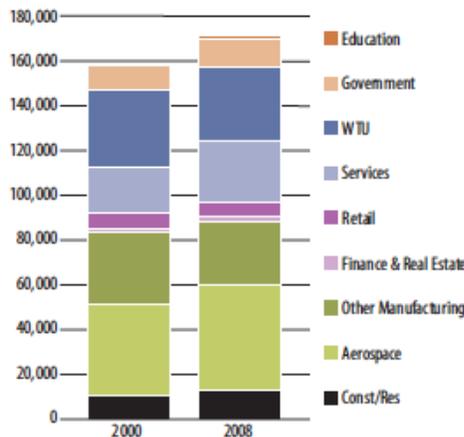
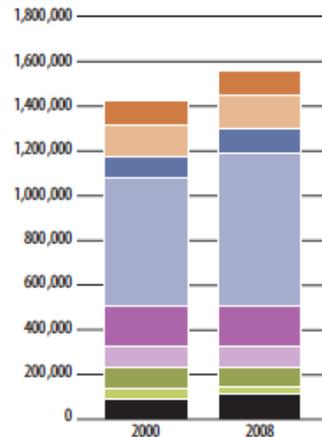


Figure 3. Jobs Elsewhere in the Region



[Note: The published table contained errors in the Total column; PSRC provided a replacement data via email]

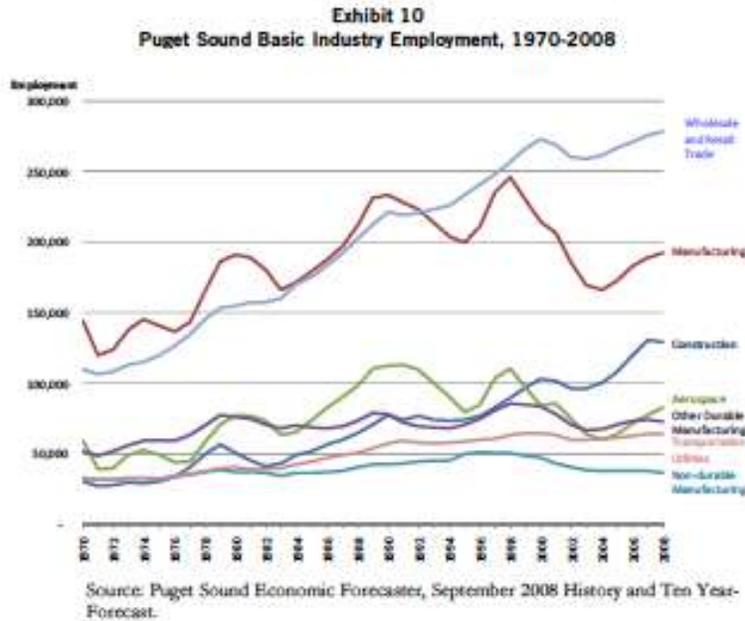
PSRC Covered Employment Estimates (unscaled), Manufacturing-Industrial Centers (boundaries as of 2008)

	Ballard-Interbay	Duwamish	Frederickson	Kent	North Tukwila	Paine Field	Port of Tacoma	SKIA	Elsewhere in Region	Correct Total	
2000 Employment	Const/Res	1,472	5,570	*	1,210	200	725	580	*	86,214	96,199
	Manufacturing	4,705	16,755	1,432	5,516	8,795	30,058	6,088	159	141,858	215,366
	FIRE	350	1,357	-	226	*	19	332	*	95,028	97,354
	Retail	955	3,789	*	553	*	203	417	*	169,136	175,284
	Services	3,524	11,518	30	941	542	1,868	2,333	230	582,265	603,251
	WTU	2,323	19,893	*	6,865	925	633	3,732	*	98,342	132,801
	Government	390	5,513	-	2	2,763	1,462	638	86	136,163	147,018
	Education	-	-	-	-	-	43	-	-	105,599	105,642
Total	13,719	64,395	1,659	15,313	13,458	35,011	14,120	634	1,414,605	1,572,915	
2004 Employment	Const/Res	2,149	4,736	222	1,415	*	513	453	*	84,189	93,884
	Manufacturing	4,358	14,184	1,404	4,164	7,460	22,530	5,405	278	102,632	162,415
	FIRE	307	1,263	*	197	*	64	599	*	98,674	101,150
	Retail	1,051	3,204	*	620	*	531	239	-	162,364	168,264
	Services	4,329	13,352	45	1,282	901	2,219	1,616	242	594,298	618,284
	WTU	1,913	14,371	200	6,056	1,093	1,821	4,110	125	96,375	125,864
	Government	363	5,654	-	2	2,799	1,478	2,353	94	141,487	154,230
	Education	-	501	-	-	-	214	-	-	117,253	117,970
Total	14,470	57,285	1,908	13,736	12,647	29,171	14,775	816	1,397,272	1,542,078	
2008 Employment	Const/Res	1,637	7,322	340	1,822	282	875	629	75	108,860	121,842
	Manufacturing	4,404	15,445	2,595	5,847	7,379	34,399	4,484	420	114,134	189,107
	FIRE	258	1,615	*	266	90	24	172	*	100,498	102,935
	Retail	1,150	2,669	*	513	308	271	335	*	180,289	185,578
	Services	4,634	15,411	41	1,281	2,887	2,639	1,791	223	686,105	715,012
	WTU	1,971	15,696	419	7,043	1,365	2,543	4,086	126	105,862	139,131
	Government	465	6,605	-	78	2,434	1,585	890	114	148,966	161,136
	Education	-	570	-	-	-	144	-	-	114,490	115,204
Total	14,519	65,333	3,433	16,850	14,744	42,480	12,387	975	1,559,224	1,729,945	

4. Employment: Puget Sound

SOURCE: *Basic Industries Economic Analysis* by Medford C, et al. (Community Attributes; produced for Seattle Office of Economic Development). July 2009.

- Exhibit 10 shows that Basic Industry sectors have grown overall since 1970, often experiencing employment losses and gains along the way. Regional manufacturing employment has experienced the most extreme employment fluctuations, closely related to employment trends in the aerospace industry.

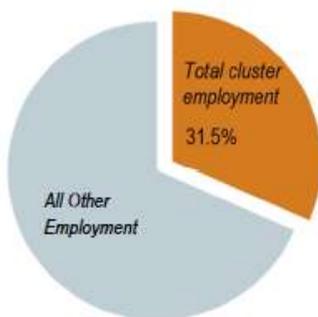


SOURCE: Puget Sound Regional Council. *Regional Economic Strategy for the Central Puget Sound Region: Strategy*. July 25, 2012.

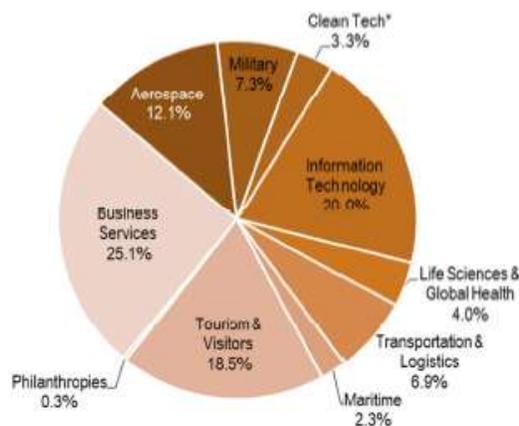
- Industry clusters**

Figure 9: Industry Cluster Employment Breakdown in the Puget Sound Region, 2011

Distribution of total employment



Individual clusters as share of total cluster employment



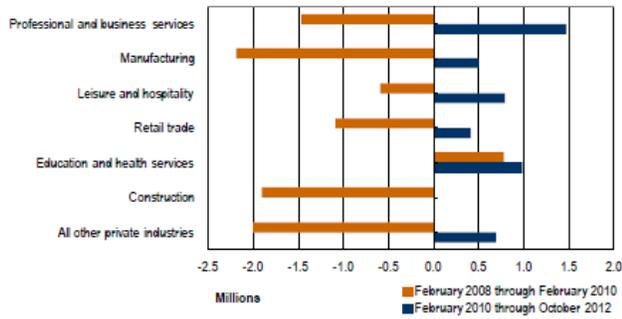
5. Employment: Washington state

SOURCE: WA Employment Security Department. *2012 Labor Market and Economic Report*. January 2013.

- Changes in private-sector employment (2008-2012): US and Washington State

Figure 1-9. Change in private-sector employment by selected industries

United States, February 2008 through February 2010 and February 2010 through October 2012
Source: U.S. Bureau of Labor Statistics, Current Employment Statistics

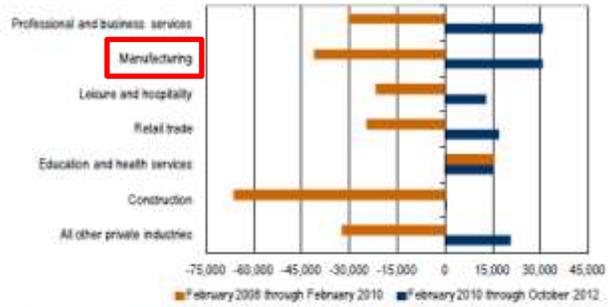


No growth in construction employment during recovery.

Figure 2-3. Change in private-sector employment by selected industries

Washington state, February 2008 through February 2010 and February 2010 through October 2012

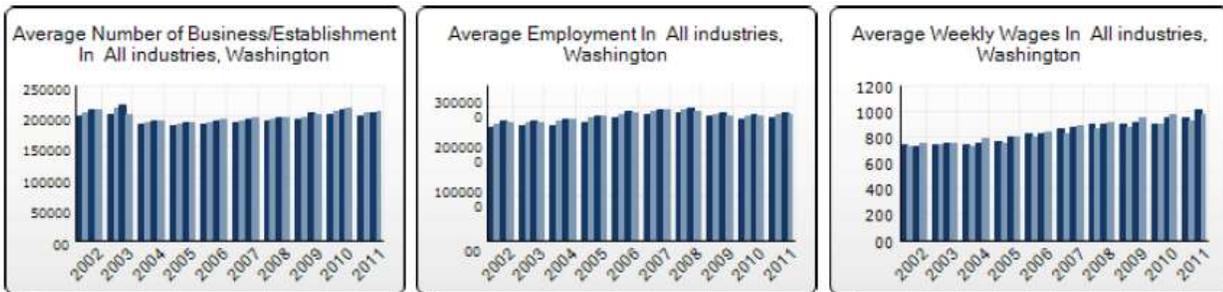
Source: Employment Security Department (LMEA), U.S. Bureau of Labor Statistics, Current Employment Statistics



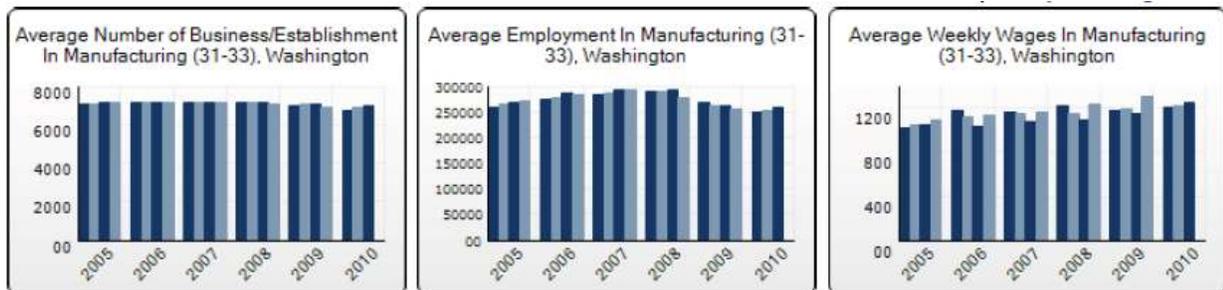
Professional and business-services employment exceeds pre-recession level.

SOURCE: WA Employment Security Department; Reports, data & tools: Industry trends [ESD; Accessed May 11, 2013] <https://fortress.wa.gov/esd/employmentdata/reports-publications/industry-reports/industry-trends>

- ALL Industries



- Manufacturing [NAICS 31-33]



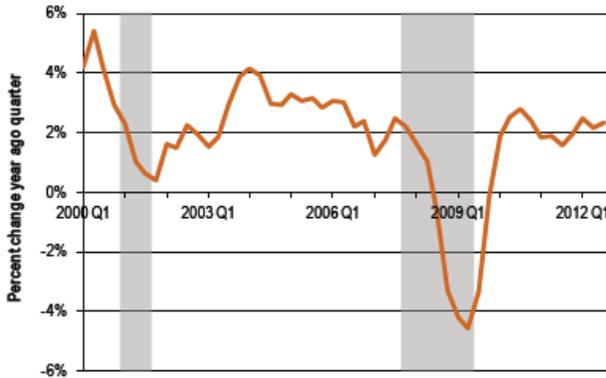
6. Employment: United States

SOURCE: WA Employment Security Department. *2012 Labor Market and Economic Report*. January 2013.

- GDP – Gross Domestic Product (illustrating recession, beginning in 2008)

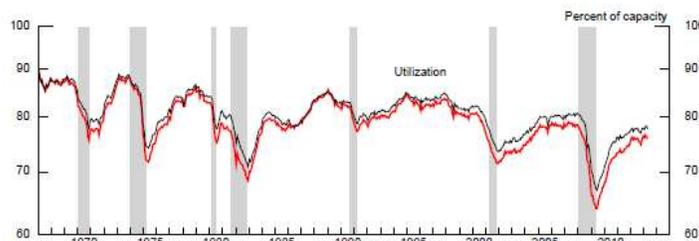
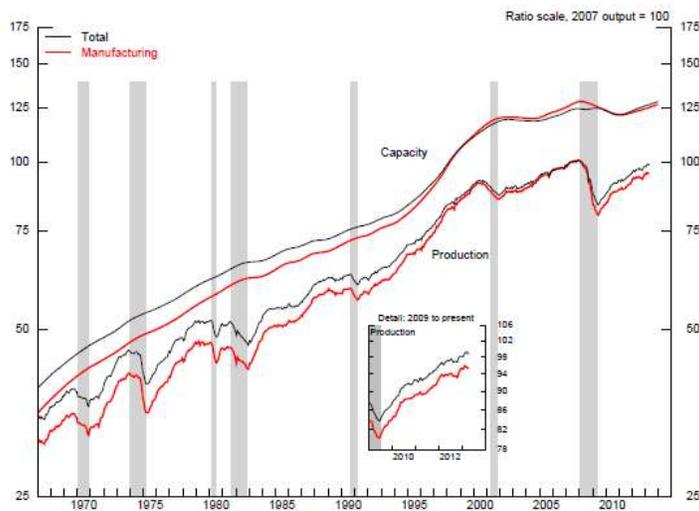
Figure 1-1. Real gross domestic product, percent change year ago quarter

United States, 2000 Q1 through 2012 Q3, recession periods shaded in gray
 Source: U.S. Bureau of Economic Analysis, National Bureau of Economic Research



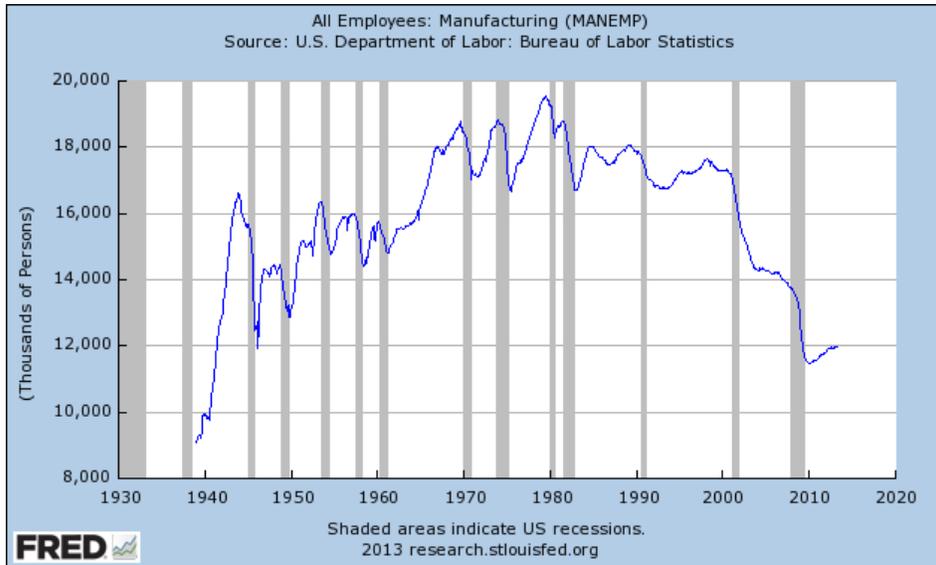
SOURCE: Board of Governors of the Federal Reserve System. *Industrial Production and Capacity Utilization - G.17*. May 15, 2013. <http://www.federalreserve.gov/releases/g17/current/>

- Industrial production, capacity and utilization.
 Note: The shaded areas are periods of business recession as defined by the National Bureau of Economic Research.



SOURCE: Federal Reserve Bank of St. Louis. Economic Research. Manufacturing.
<http://research.stlouisfed.org/fred2/categories/32311>

- All Employees: Manufacturing. Seasonally adjusted. 1939-01 to 2013-04 (May 3).



8. What are projections for...?

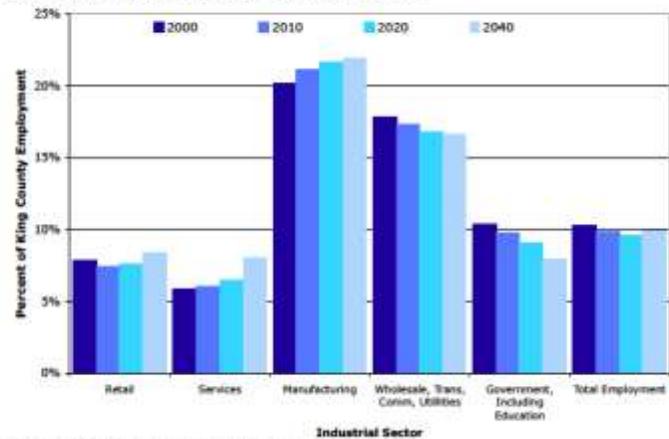
Note, in this report, “Industry” generally refers to manufacturing and WTU (wholesale trade, transportation, utilities). This term, industry, and many other terms are defined differently in different sources. Most factual content is reproduced without change (i.e., quoted) from the original, cited source. Quoted text is denoted by bullet-point indentation and smaller font.

A. Employment: Duwamish MIC and Duwamish Valley

SOURCE: *Lower Duwamish Economic Analysis* by Voight T, et al. ECONorthwest; produced for King County Dept. of Natural Resources and Parks. March 2010.

- As Figure 8 shows, the PSRC projects the proportion of King County manufacturing employment within the Tier 1 area will grow over the next 30 years, even as total manufacturing employment in King County (and Tier 1) declines.
 - Overall, about 1 in 10 persons employed in King County works in the Tier 1 area. This proportion is expected to stay relatively constant through 2040, with employment in King County projected to grow by 40 percent.
 - ... absent any unanticipated developments, the Tier 1 area is expected to continue to be an important center of economic activity for the next thirty years, and its relative importance as a center of manufacturing activity will grow.

Figure 8: Historic and Projected Employment by Sector in Tier 1 Region as a Percent of Employment in King County by Sector



Source: ECONorthwest analysis of PSRC data

B. Economic outlook: Puget Sound region

SOURCE: Conway D. 2013 Economic Outlook. *Seattle Business Magazine*. Jan. 2013.

- With job growth again advancing at twice the national rate, the Puget Sound region is well positioned for the recession’s endgame....

SOURCE: Balk G. Seattle ranked #2 among global cities for economic development. *Seattle Times*. Aug 17, 2013.

- According to a new report from the University of Toronto’s Martin Prosperity Institute, Seattle is the second-best performing urban area in the world for economic development.
- Researchers scored 61 global cities on a wide range of criteria which were divided into four categories: talent, technology, tolerance, and quality of place. Seattle was one of just eight cities to receive an A grade, and our overall score of 87.5 was second only to Ottawa-Gatineau, Canada.
- Seattle scored best in the technology and quality of place categories, receiving an A+ grade overall for both. Our worst category was tolerance, with a B+ overall grade — while we aced civil rights, we got dinged with a C in religious diversity.

SOURCE: Martin Prosperity Institute. *Insight – Creative and Diverse: Ranking Global Cities*. Aug 14, 2013. <http://martinprosperity.org/2013/08/14/insight-creative-and-diverse-ranking-global-cities/>

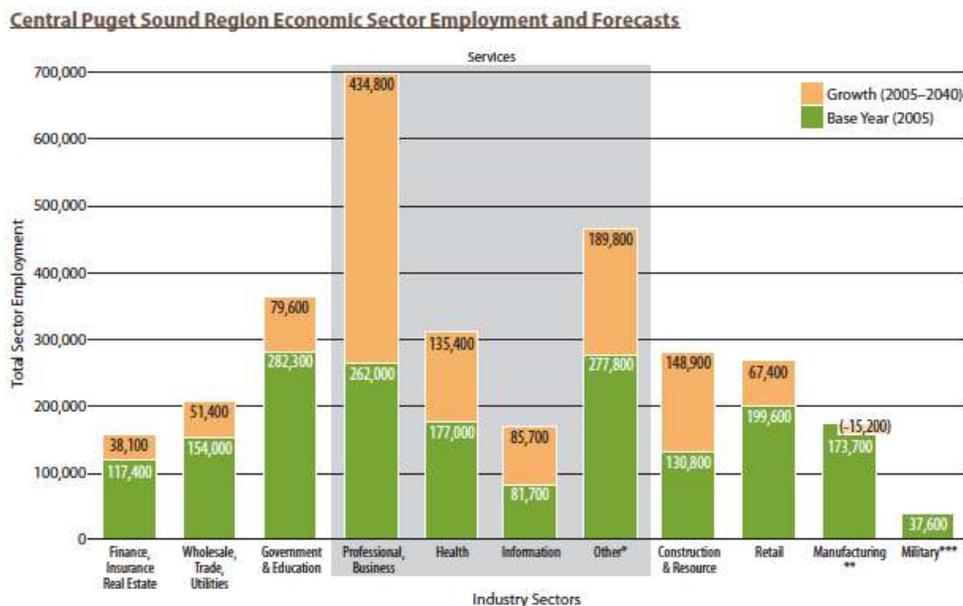
- The Martin Prosperity Institute recently embarked on a project to determine how cities throughout the world are performing based on the three T’s of economic development (along with the fourth dimension of quality of place) as outlined in Rise of the Creative Class. The project, entitled Global Cities, resulted in a scorecard for a variety of world cities that provides a detailed examination of how each city is performing in the creative economy. We took the top cities, based on GDP worldwide and analysed them based upon the Three T’s (Talent, Technology, and Tolerance) and a fourth measure of Amenities and Quality of Place. For a detailed explanation of these categories, follow this link. For each of these four categories, individual Grades were assigned for numerous metrics within each category to provide a detailed breakdown of how each city is performing in regards to each Index and in relation to each other, followed by an overall grade for each category. For example Patents, Innovation, Job Growth, and High-Tech Index are some of the metrics that make up the Technology Grade. The four main categories were then combined to create an overall score and rank for each city.

Overall Rank	Urban Agglomeration	Overall Grade	Overall Score	Talent Score	Technology Score	Tolerance Score	Amenities & Quality of Place Score
1	Ottawa-Gatineau	A	87.8	95	82	87	87
2	Seattle	A	87.5	82	95	78	95
3	Oslo	A	86.8	87	95	78	87
4	District of Columbia	A	85.8	82	87	87	87
4	Amsterdam	A	85.8	82	87	87	87
6	Tel Aviv-Yafo (Tel Aviv-Jaffa)	A	85.5	82	95	78	87
6	København (Copenhagen)	A	85.5	82	95	78	87
8	London	A	85.5	87	82	78	95
9	Calgary	A-	84.8	87	87	87	78
9	New York-Newark	A-	84.8	87	78	87	87

C. Puget Sound regional economic growth and development

SOURCE: Puget Sound Regional Council. *Vision 2040*. Dec. 2009.

- **Economy**
 - The central Puget Sound region’s economy is a complex system of business, trade, and individual relationships. The region is the major center in the Pacific Northwest for information technology, aerospace, finance, insurance, health care, business and professional services, recreation, and tourism. It is also one of the most technologically advanced regions in the United States for turning cutting-edge research into products and services. These sectors are forecast to play an increasingly important role in the region’s job growth.



* Other includes a wide range of occupations, such as food and drink establishments, private education, and nonprofit organizations.

** Manufacturing is forecast to decrease by 15,200 between 2005 and 2040.

*** PSRC forecasts do not include figures for the Military sector.

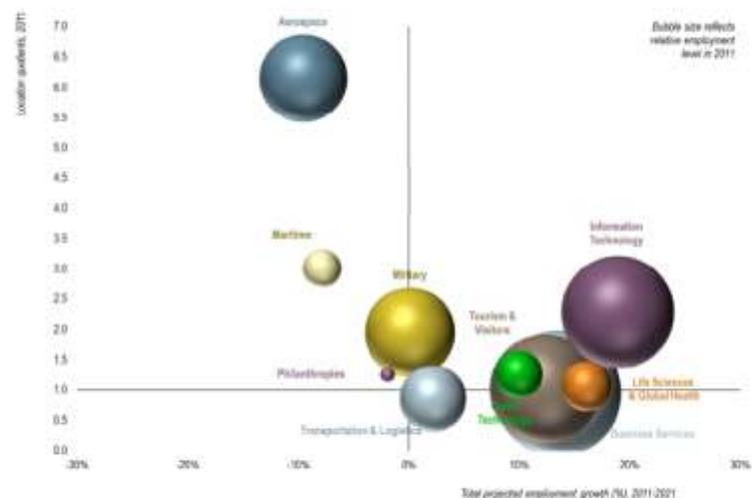
- In-migration is important to the region’s economy and contributes to innovation, the development of new technologies, the creation of startup companies, and related job growth. In-migration also enriches the region’s communities with a growing diversity of cultures, languages, and knowledge. These diverse communities serve as a competitive asset in an increasingly connected global economy, creating potential trade linkages and other economic opportunities that would not otherwise exist.
- More than any other state in the nation, Washington’s economy depends on foreign trade — and the central Puget Sound region is vital to the majority of the state’s trade activity. The presence of internationally known and successful companies (such as Amazon, Boeing, Costco, Microsoft, Paccar, Starbucks, and Weyerhaeuser), our internationally competitive ports, and the state’s natural resources, make information technology, aerospace, and agricultural products major international exports.
- Historically, the region’s rate of economic growth has fluctuated greatly due to national and international business cycles and the strong regional influence of aerospace and natural resource based industries. The growth of information technology, life sciences, tourism, clean technology, healthcare, and other trade and service sector businesses helps to diversify the region’s economy and moderates severe fluctuations. However, the region’s continued economic prosperity in an increasingly competitive global economy is not ensured.
- **A Global Economy.** In today’s economy, information technology and the mobility of goods and services means that many businesses can choose to locate anywhere. New centers of the global creative economy — which increasingly are urban regions rather than states or nations — are emerging quickly, and established players can lose position easily.... New, emerging economic sectors, particularly those related to the environment and clean technology, can help us meet the challenges of the coming decades.
- **BUSINESS: VISION 2040** emphasizes supporting business and job creation through retention, expansion, and diversification of the region’s employment base. It calls for fostering a positive business climate through coordination among public institutions, private businesses, and the nonprofit sector. This coordination helps us to recognize and address the diverse needs of the region’s economy and to support key employment sectors. These sectors include established and emerging industry clusters, industries involved in trade-related activities, startups, and new businesses. Industry clusters are concentrated sets of competing and complementary industries that create wealth in a region by selling products or services to outside markets, generating income that fuels the rest of the economy.... Without these economic drivers, a region would only circulate money already in the local economy and risk losing economic momentum over time.
- VISION 2040 places an emphasis on small and locally owned businesses, recognizing their importance in both job growth and promoting sustainable economic development. Supporting clusters and sectors that provide family-wage jobs involves leveraging the region’s position as an international gateway to ensure an efficient flow of people, goods, services, and information throughout the region — particularly in and between designated growth centers.

SOURCE: Puget Sound Regional Council. *Regional Economic Strategy for the Central Puget Sound Region: Economy*. July 25, 2012.

- **Industry clusters**

- Industry clusters are geographically concentrated cooperative networks of interdependent firms, research and development institutions, and other intermediary actors where the close contacts of the members and the continuous, fast knowledge exchange between them contribute to the competitive increase of both the members and the whole region. Industry clustering is a powerful framework for regional economic development because it captures economic relationships among

Figure 2.2: Central Puget Sound Cluster Employment Dynamics
Relative concentration (2011) & growth trends (2011-2021)



SOURCE: EMSI – Complete Employment. More information about EMSI is available in the Appendix.

Note: Historical data (2001-2010); projections (2011-2021). Location quotients (LQs) show the concentration of employment in the region relative to the U.S.

specific industry sub-sectors, and it provides a set of tools to help define economic development strategies. In a cluster, firms and others within a concentrated geographical area cooperate toward common goals, and establish close linkages and working alliances to improve their collective competitiveness.

- For the current regional economic analysis, 10 clusters were identified. Identification of clusters was based upon a combination of factors including a significant level of employment, higher than average location quotient (LQ) and projected growth. The current set of industry clusters are listed in Figure 2.1.
- Figure 2.2 depicts regional cluster dynamics on three levels. The horizontal X axis shows total projected employment percentage growth from 2011 to 2021. The vertical Y axis shows employment location quotients for 2011. The size of the bubble reflects relative employment levels in 2011.

9. *What factors have influenced or may influence trends?*

Note, in this report, “Industry” generally refers to manufacturing and WTU (wholesale trade, transportation, utilities). This term, industry, and many other terms are defined differently in different sources. Most factual content is reproduced without change (i.e., quoted) from the original, cited source. Quoted text is denoted by bullet-point indentation and smaller font.

A. Location, location, location: Duwamish MIC

SOURCE: *Lower Duwamish Economic Analysis* by Voight T, et al. ECONorthwest; produced for King County Dept. of Natural Resources and Parks. March 2010.

Tier 1: Constructed watershed

- The concentration of these industries [manufacturing, wholesale trade, and transportation & warehousing] within the Lower Duwamish Watershed is not by chance.
 - The proximity to Port of Seattle terminals, Seattle Boeing Field, Seattle International Gateway Rail Yard, Interstate 5, and other important arterials are critically important to the businesses that comprise these industry sectors.
 - *For many or even most of these businesses, relocation to another part of the County is not an option. The transportation infrastructure that these businesses rely on is not available at nearly the same scale in other parts of the county as it is within the Lower Duwamish Waterway region. [italics added]*

Tier 2: Duwamish MIC

- The sub-sectors of manufacturing located in Tier 2 vary greatly, and differ from the manufacturing in the rest of the County. *For many of these sub-sectors, the Lower Duwamish is the most appropriate (or perhaps only) location within King County where they can efficiently operate because of the access to multiple modes of transportation. [italics added]*
 - The two most obvious sub-sectors that gain advantage from their location in Tier 2 are seafood processing, the largest of the manufacturing sub-sector based on both employment and value of output, and ship building and repair, the second largest sub-sector based on value of output and third largest based on employment.
 - There are, however, numerous other manufacturing sub-sectors that also rely on access to seaport terminals, Boeing Field and the International Gateway Rail Yard to efficiently receive inputs to their manufacturing processes and export their final products. The infrastructure associated with the transportation sector cannot be moved or rebuilt elsewhere in the County.
 - The warehousing sector, as well as the wholesale trade sector, are closely allied to the transportation and manufacturing sectors and cannot efficiently relocate elsewhere in the County.

B. Current and future outlook for industrial business in Seattle (2009 survey)

SOURCE: *Basic Industries Economic Analysis* by Medford C, et al. (Community Attributes; produced for Seattle Office of Economic Development). July 2009. Note, the study included interviews of >50 “basic industries” stakeholders about the current and future outlook of industrial business in Seattle.

1. Opportunities for growth

- Regional growth benefits local Basic Industries
 - Basic Industry business owners and industry leaders point to the health of the overall regional economy as a key driver behind recent and future Basic Industry success. [See Exhibit 11]....
- Diversification and innovation are driving growth in Seattle’s industrial community.
- Manufacturing demand growing abroad and still strong in the US.
- The greening of Basic Industries. Basic Industry business owners are taking advantage of opportunities to foster a greater degree of sustainability within day to day operations while boosting their bottom lines.

2. Competitive advantages

- **Location and logistics**
 - Over half of interview respondents emphasized that proximity to clients is the primary competitive advantage of being located in the Seattle.
 - Half of interview respondents also cited port, highway and rail infrastructure as critical industrial assets that support superior logistics and shipping in Seattle’s MICs.
 - Local businesses, especially those that own property, emphasize the benefits of being located close to clients and transportation infrastructure outweigh the cost savings associated with suburban locations.
- **Industrial interdependence** – 20% of industrial business owners pointed to local cooperation, specialization, and quality as primary factors contributing to the vibrancy of Seattle’s Basic Industry core as a whole.
 - Interview respondents express a common sense of desire and responsibility to “buy local,” stating that local products and services are superior.
 - Many small business in Seattle’s MICs maintain a niche market, and in some cases subcontract work to each other. Several business owners stated their competitors are also clients.
 - Some business owners, from various sectors, small and large businesses alike, expressed the great importance of examining the interconnectedness of Basic Industries businesses. Interview participants state that as some small support businesses move out of the city, large companies will be forced to leave as well and vice versa.
- **Quality of life** – The majority of interview respondents cited quality of life as the number one best thing about doing business in Seattle. Local heritage and family ties maintain strong connections to the longevity of Seattle’s industrial community.
- Benefits of location and existing workforce are keeping Basic Industries in Seattle. Businesses owners that recently moved or expanded cited:
 - **proximity to clients** (10/16) and
 - retaining their **existing workforce** (9/16) as the top reasons for staying in Seattle.
 - Logistics (8/16), identity (3/16) and the diversity of Seattle’s business community (3/16) were other reasons for choosing Seattle over alternative locations.

3. Challenges

- When asked to identify challenges that would limit future Basic Industry growth, 40% of business owners mentioned declining **national economic conditions**.

Exhibit 11
Metropolitan Comparison of Basic Industry Employment Trends, 2005 - 2008

Metropolitan Statistical Area	Basic Industry		Total Private Employment	
	% Change	Total Change	% Change	Total Change
Seattle-Tacoma-Bellevue, WA	8.8%	51,870	9.1%	125,460
Portland-Vancouver-Beaverton, OR-WA	3.5%	13,340	2.9%	47,740
Denver-Aurora, CO	2.1%	8,460	5.3%	54,590
Phoenix-Mesa-Scottsdale, AZ	0.3%	1,800	5.0%	77,880
San Francisco-Oakland-Fremont, CA	-0.8%	(4,910)	2.3%	38,900
Los Angeles-Long Beach-Santa Ana, CA	-1.1%	(21,130)	0.9%	44,910
San Diego-Carlsbad-San Marcos, CA	-2.9%	(12,130)	1.2%	12,700
Nation	-0.6%	(267,556)	2.8%	3,137,556

Source: Bureau of Labor Statistics, Community Attributes²

- From 2005 to 2008, manufacturing employment in the Seattle MSA grew by 11%, compared to a 5% decrease nationwide. Virtually all major MSAs on the Pacific Coast have experienced a decline in manufacturing employment in the past three years, while the nation as a whole has lost nearly 700,000 manufacturing jobs. Meanwhile, manufacturing jobs in the City of Seattle grew by 9% from 2005 to 2008.
- Industrial business owners interviewed cited the **need for talented workers** as the number one factor limiting growth in Seattle’s Basic Industries (53% of business owners).
 - Basic trade skills such as welding, machine operation, and transportation as well as work ethic are in high demand, as contractors, and regional companies compete for talent in a dwindling regional labor pool.
 - Business owners emphasize that there are fewer young professionals pursuing blue collar jobs today than in the past. Educational deficiencies in trade skills, mathematics, and attitude within local K-12 public schools and community colleges are commonly referenced causes for a lack of new Basic Industry talent.
- When discussing the outlook of the Basic Industries, several business owners stated that an **aging workforce**, ranging from production workers to top level executives, will play a key role in determining the future of their company. [Exhibit 20]
 - Basic Industries typically employ an older than average workforce. This trend is especially true in manufacturing and transportation sectors.
 - Approximately half of the region’s manufacturing and transportation workforce is over the age of 45, compared to 40% across all industries. One third of all regional manufacturing workers are between the ages of 45 and 55.
 - There are much fewer younger workers in Basic Industry sectors compared to the regional economy as a whole. Workers less than 35 years of age account for 23% of the manufacturing workforce, 28% of transportation workforce and 31% of the wholesale sector, compared to a sector wide average of nearly 40%.
- **Cost of business** – Respondents cited the cost of business, including timely permitting processes and regulations (43%) as well as taxes and fees (33%) as major challenges to growth and day-to-day business operations. In the vast majority of these cases, the value of time and effort rather than direct costs of business permits and fees were cited.
- **Cost of living limiting the labor pool.**—11% of business owners stated that the high cost of living limited their ability to pay employees a “living wage.” Long commutes and a lack of affordable housing are common issues for many Basic Industry employees that live in locations outside Seattle proper.
- **Traffic and real estate** remain long-term challenges to the industrial community. Over one quarter of the interview respondents mentioned traffic or transportation related restraints or the price and availability of land and buildings as primary impediments to future growth.
- Availability and price of **real estate** limit Basic Industry growth in MICs.
 - Over half of industrial business owners stated that the availability and price of industrial real estate are the primary impediments to business expansion in Seattle.
 - In all, one third of interview respondents state that industrial space in Seattle is inadequate for expansion or is decreasing due to non-industrial encroachment.
 - Many business owners (20%) pointed to **encroaching** non-industrial uses and conversions of industrial land as a primary impediment to everyday business and a primary cause of rising land and lease prices.

C. Benefits and challenges of business opportunities in Seattle's industrial lands (2007 survey)

[Note: The following resource was reviewed and selected as applicable to the research question; no resource text was replicated here, other than the summary description.]

SOURCE: Seattle Dept. of Planning and Development. *Industrial Lands Survey: Perspectives on the Benefits and Challenges of Business Opportunities in Seattle's Industrial Lands*. (by Community Attributes; for Seattle DPD). April 2007.

- This report presents key findings from surveys conducted as part of the City of Seattle's Industrial Lands Survey. The findings are based on 50 in-depth interviews conducted between January 13th and March 10th, 2007....

D. Future of Seattle's Industrial Lands (2007)

[Note: The following two resources were reviewed and selected as applicable to the research question; no resource text was replicated here]

SOURCE: Seattle Planning Commission. *The Future of Seattle's Industrial Lands*. July 2007.

SOURCE: Mayor Greg Nickels; Seattle Dept. of Planning and Development. *Seattle's Industrial Lands: Mayor's Recommendations*. August 2007.

E. Industrial Development in Seattle

[Note: The two following resources were reviewed and selected as applicable to the research question; no or limited resource text was replicated here. Daniell attended one Q&A meeting about the Industrial Development Pilot Program on Oct. 4, 2013, at the Seattle Municipal Tower.]

SOURCE: Seattle Office of Economic Development. *Industrial Development Pilot Program* (memo: May 1, 2012). And: *Request for Concepts: Industrial Development Pilot Projects* (Aug. 22, 2012).

SOURCE: Public Works, LLC. *Pioneer Industrial Development District Projects: Policy and Code Change*. Feb. 6, 2012.

- A series of eleven interviews was conducted with representatives of various affected industries identified by the Seattle Office of Economic Development. These interviews provide the basis for the following qualitative discussion of the broad regulatory environment faced by industrial firms, specifically, those issues identified by the respondents as presenting the greatest challenges to the development and growth of the Seattle area's manufacturing and maritime sectors.

SOURCE: Seattle Office of Economic Development. *Seattle Jobs Plan*. Aug. 25, 2011.

- Investing in Seattle's Economic Strengths
 - KEY BUSINESS SECTOR AGENDAS – IMPROVING REGIONAL AND GLOBAL COMPETITIVENESS: Seattle's economic competitiveness is bolstered by a strong entrepreneurial ethic, robust manufacturing and maritime base and leading businesses in innovative and creative sectors. These key economic sectors are the foundation from which we derive our growth in jobs and income.
 - Manufacturing and Maritime: OED is partnering with King County to develop a regional program to incentivize new, sustainable investment in our industrial sector.

- With King County, we are creating a countywide inventory of industrial firms in the form of a web-based GIS mapping system in order to provide better customer service and facilitate collaborative partnerships.
 - OED is cataloging the regulatory issues and constraints that most directly impact the growth of manufacturing and maritime firms.
- LOOKING AHEAD
- Manufacturing: Solicit “pioneer” industrial development projects that result in increased economic benefit and improved environmental performance within our Manufacturing and Industrial Centers.

F. Real estate: National and Seattle

SOURCE: Urban Land Institute. *2013 Emerging Trends in Real Estate*. Oct. 17, 2012.

- ...over 900 individuals who completed surveys or were interviewed as a part of the research process for this report. Interviewees and survey participants represent a wide range of industry experts, including investors, fund managers, developers, property companies, lenders, brokers, advisers, and consultants. ULI and PwC researchers personally interviewed more than 325 individuals and survey responses were received from over 575 individuals.
- The enduring low-gear real estate recovery should advance further in 2013: Emerging Trends surveys suggest that modest gains in leasing, rents, and pricing will extend across U.S. markets from coast to coast and improve prospects for all property sectors, including housing, which finally begins to recover.
- Investors still show strong interest in top properties in primary coastal markets, as San Francisco, New York City, Boston, and Washington, D.C., remain in the top ten. However, inflated prices remain a top concern in those areas, with many investors starting to adjust their market investment strategies, showing increased interest in secondary markets as many chase tenants.
- Some of the top secondary cities mentioned include Austin, Houston, *Seattle*, Dallas, and Orange County, all in the top ten and most with significant increases in ratings. Improving prospects in cities like these are mostly driven by consistent job growth in strong, sustainable industries such as technology, health care, education, and energy.
- Seattle
 - As the global center for the software industry, Seattle continues to be the focus of many domestic and global investors.
 - Rankings for investment and homebuilding remain at the sixth and seventh spot, respectively.
 - With this employment and office absorption, 47 percent of survey respondents recommend the purchase of office space in 2013, while those recommending sales fall below 38 percent.
 - Interest is also very strong in *industrial space*, with over 51 percent indicating now is the time to buy. Investors favor Seattle industrial space for a few reasons, including the “*industrial-to-mixed use transition taking place for many suburban industrial and business park sites,*” as well as the city’s position “*servicing as the main corridor to Asia.*” [italics added]

EXHIBIT 3-1

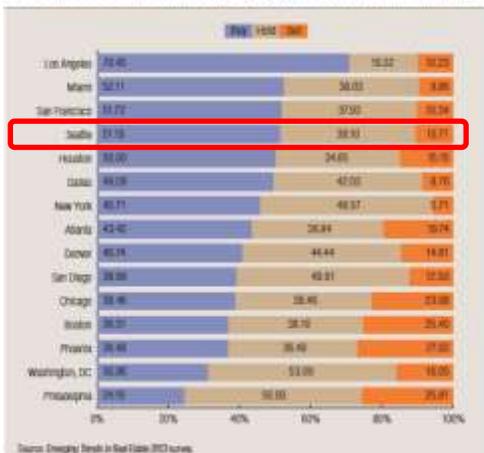
U.S. Markets to Watch: Overall Real Estate Prospects

	Investment	Development	Homebuilding
1 San Francisco (1/1/1)	7.21	6.67	6.90
2 New York City (2/2/3)	7.14	6.76	6.42
3 San Jose (3/3/2)	6.80	6.58	6.98
4 Austin (7/4/5)	6.71	6.40	6.28
5 Houston (5/5/6)	6.64	6.36	6.16
6 Boston (4/6/8)	6.65	6.31	6.09
7 Seattle (6/8/7)	6.72	6.16	6.14
8 Washington, DC (12/9/4)	6.43	6.11	6.30
9 Dallas/Fort Worth (10/7/10)	6.47	6.20	5.88
10 Orange County, CA (9/19/9)	6.48	5.97	5.91
11 Raleigh/Durham (15/10/11)	6.27	5.90	5.72
12 Miami (11/11/16)	6.47	5.89	5.44
13 Northern New Jersey (16/12/12)	6.26	5.99	5.69
14 Denver (8/14/15)	6.49	5.77	5.45
15 San Diego (13/17/13)	6.37	5.80	5.81
16 Los Angeles (14/15/14)	6.35	5.89	5.49
17 Charlotte (18/16/19)	6.17	5.67	5.26
18 Nashville (21/13/21)	6.03	5.79	5.16
19 San Antonio (22/18/17)	6.07	5.50	5.40
20 Portland, OR (17/20/23)	6.19	5.42	5.09
21 Salt Lake City (19/21/20)	6.06	5.39	5.20
22 Honolulu/Hawaii (24/22/18)	5.78	5.37	5.33
23 Minneapolis/St. Paul (23/25/25)	6.00	5.06	4.82
24 Chicago (20/24/31)	6.05	5.12	4.54
25 Westchester, NY/Fairfield, CT (28/23/26)	5.50	5.14	4.78
26 Virginia Beach/Norfolk (31/27/22)	5.36	5.00	5.14
27 Philadelphia (27/26/24)	5.61	5.05	4.83
28 Orlando (26/28/27)	5.64	4.97	4.77
29 Tampa/St. Petersburg (25/29/29)	5.66	4.90	4.64
30 Pittsburgh (33/32/28)	5.32	4.86	4.66
31 Baltimore (32/30/33)	5.36	4.78	4.40
32 Oklahoma City (36/31/30)	4.98	4.76	4.55
33 Phoenix (29/37/34)	5.56	4.24	4.39
34 Kansas City (34/33/32)	5.27	4.37	4.42
35 Atlanta (30/34/38)	5.40	4.32	3.90
36 Inland Empire, CA (35/36/36)	5.20	4.26	4.05
37 Indianapolis (38/35/35)	4.83	4.31	4.20
38 Cincinnati (37/38/40)	4.96	4.19	3.88
39 Jacksonville (39/39/41)	4.80	4.16	3.88
40 Columbus (42/41/37)	4.56	4.04	4.00
41 Milwaukee (41/40/42)	4.59	4.04	3.88
42 Albuquerque (44/44/39)	4.48	3.88	3.90
43 St. Louis (40/42/46)	4.61	4.00	3.85
44 Tucson (43/47/44)	4.53	3.71	3.83
45 Memphis (47/43/45)	4.23	3.94	3.80
46 Providence, RI (48/46/43)	4.23	3.77	3.83
47 New Orleans (50/45/47)	4.16	3.85	3.86
48 Cleveland (49/48/48)	4.19	3.39	3.69
49 Sacramento (45/49/49)	4.31	3.39	3.43
50 Las Vegas (46/50/50)	4.30	3.00	2.94
51 Detroit (51/51/51)	3.38	2.18	2.23

Source: Emerging Trends in Real Estate 2013 survey.
 Note: Numbers in parentheses are rankings for, in order, investment, development, and homebuilding.

EXHIBIT 3-2

U.S. Industrial/Distribution Property Buy/Hold/Sell Recommendations



Source: Emerging Trends in Real Estate 2013 survey.

G. Street traffic

SOURCE: Heffron Transportation; for Port of Seattle. *Impact of a SoDo Arena on Port of Seattle Operations*. Aug. 7, 2012.

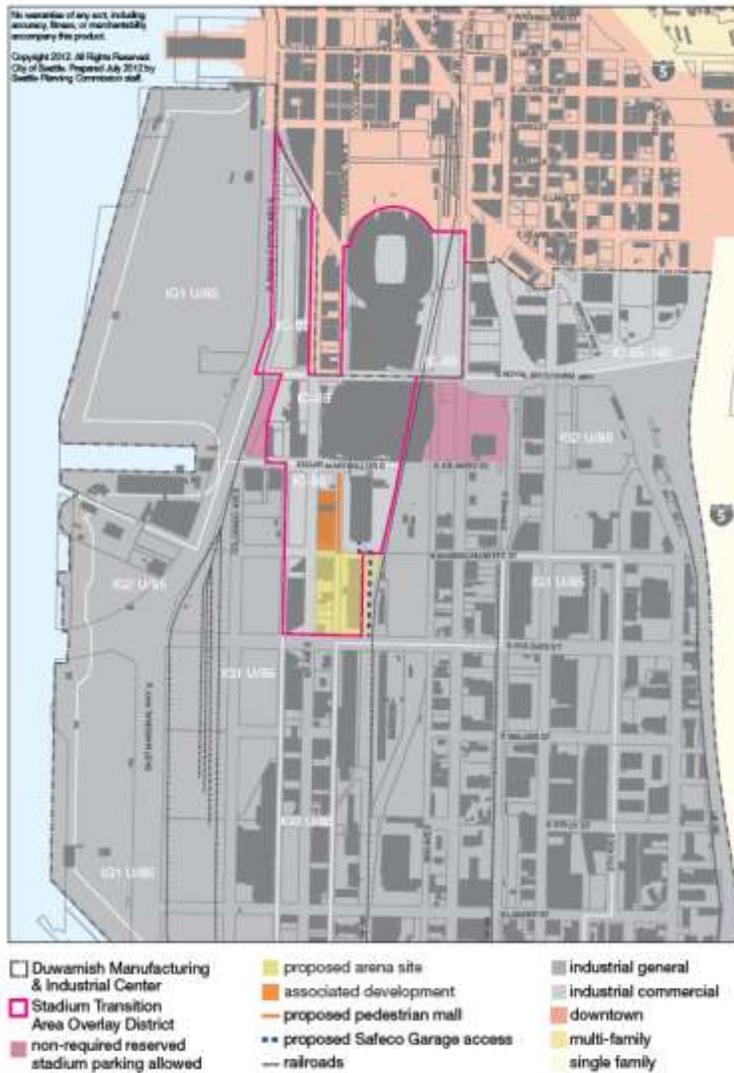
- Transportation issues; Where are the local bottlenecks?
 - The last comprehensive analysis for traffic operations in the SoDo area was performed as part of the Alaskan Way Viaduct Replacement Project Supplemental EIS. That analysis accounted for all of the new infrastructure investments that have or are being made in the area: the new I-90 ramps to SR-519, the grade-separated roadway at Royal Brougham Way, the Holgate-to-King Street project with “Little h” that separates Atlantic Street traffic from the railroad tail track, and improvements to Spokane Street. It also included the new SR-99 Bored Tunnel and new ramps in the SoDo area. Even with all of those projects, the analysis showed that the intersection at 1st Avenue S/S Atlantic Street would continue to experience severe congestion on non-event days reflected by the level of service (LOS) F rating.* Several intersections along the Fourth Avenue S corridor would also operate at LOS F conditions including those at S Holgate Street and S Royal Brougham Way. The analysis did not account for the diversion impact of tolling on SR-520, which is evident today. Nor did the analysis account for the effects of tolling SR-99, which is expected to add traffic to arterials through SoDo as well as to the streets around the South Portal of the Bored Tunnel.

* Level of service is a qualitative measure used to characterize traffic operating conditions. Six letter designations, “A” through “F,” are used to define level of service. LOS A is the best and represents good traffic operations with little or no delay to motorists. LOS F is the worst and indicates poor traffic operations with long delays.
- ...most import containers for which 60% to 70% are “intermodal”—destined to travel via rail to the Midwest. These containers are trucked to the nearby rail yards.
- However, over half of all export cargo—most of which arrives from Washington State and the Pacific Northwest—is trucked to the terminal. This means that roughly 30% of import containers and 50% of export containers are trucked east of 1st Avenue S. Some is traveling to or from freight stations throughout the Duwamish (such as MacMillan-Piper, NW Container, Pacer and PCC Logistics) and some is destined to the highway system, directly accessed via Edgar Martinez Drive, Spokane Street or south on East Marginal Way. Further, existing event traffic does not stay on or east of 1st Avenue S, but frequently uses East Marginal Way, Hanford, Spokane, Atlantic and other Duwamish routes adding congestion on freight routes.

H. SODO District and stadiums

1. Seattle Stadium Transition Overlay District

SOURCE: Seattle Planning Commission: *Review of the Proposed Sports Arena in the Duwamish Manufacturing and Industrial Center* [report]. July 27, 2012; page 7.



2. Development proposals

SOURCE: MEMORANDUM OF UNDERSTANDING SEATTLE SPORTS AND ENTERTAINMENT FACILITY [City of Seattle, King County, WSA Properties (ArenaCo)]. Oct. 8, 2012.
<http://www.seattle.gov/arena/docs/121008mou.pdf>

[Note: The following resources were reviewed and selected as applicable to the research question; no resource text was replicated here.]

SOURCE: Stiles M. New panel is studying big changes for Seattle’s Stadium District. *Puget Sound Business Journal*. Nov. 16, 2012.

SOURCE: Stiles M. Change is coming to Sodo, and it’s not just basketball arena backers who are pushing it. *Puget Sound Business Journal*. Mar 1, 2013

SOURCE: Washington State Major League Baseball Stadium Public Facilities District Washington State Public Stadium Authority. *Stadium District Concept Plan*. Dec. 2012.

3. Impacts of new stadium or SODO development

SOURCE: Virgin B. On Reflection: Seattle’s Basketball Arena and SODO. *Seattle Business Magazine*. Mar. 2013.

- Chris Hansen’s proposed home for an NBA franchise (and maybe a hockey team, too) is still in the arguing phase, but already there is considerable speculation and concern about the impact of the arena’s construction, according to a recent research report issued by the real estate services firm Kidder Mathews Segner.
- It’s not just the arena, for which Hansen has already spent nearly \$54 million in assembling properties, the report notes. It’s also the push for more hotel rooms, more apartments, more nonindustrial uses in what is one of Seattle’s last large concentrations of manufacturing and warehouse operations.
- What Kidder Mathews is predicting, and what the port and some industrial tenants of the area fear, is a tight local real estate market getting even tighter—and more expensive. Kidder Mathews says the 3.44 percent vacancy rate easily bests other markets in the Puget Sound region. By comparison, South King County, the state’s largest industrial market, had a 6.5 percent vacancy rate in the fourth quarter of 2012.
- The long-term impact, according to Kidder Mathews, will be “a loss of industrial supply.” That echoes an assertion made in a Seattle Planning Commission report last summer: “The proposed arena is likely to put further conversion pressure on nearby manufacturing and industrial business.”

[Note: The following resources were reviewed and selected as applicable to the research question; no resource text was replicated here.]

SOURCE: Seattle Planning Commission. *Review of the Proposed Sports Arena in the Duwamish Manufacturing and Industrial Center*. July 27, 2012.

SOURCE: BST Associates; for Port of Seattle. *Economic Issues of Proposed Arena*. Aug. 6, 2012.

SOURCE: Heffron Transportation; for Port of Seattle. *Impact of a SoDo Arena on Port of Seattle Operations*. Aug. 7, 2012.

SOURCE: Steinbrueck P (Steinbrueck Urban Strategies); for Port of Seattle. *SODO Arena Proposal; Seattle Duwamish Manufacturing and Industrial Center: Land Use and Planning Issues*. Aug. 7, 2012.

4. Seattle studies: Duwamish Industrial Lands, Freight Access, and Stadium District

SOURCE: Seattle Dept. of Planning and Development. *Duwamish Industrial Lands Study*. [Accessed June 2013]. <http://www.seattle.gov/dpd/cityplanning/completeprojectslist/industrialands/whatwhy/default.htm>

- What’s Happening Now?
 - We have begun a study of the Greater Duwamish Manufacturing and Industrial Center (MIC) to reevaluate our policies to make sure we can protect industry and port operations in light of the proposed basketball arena and other nearby changes.
 - We are analyzing existing conditions and past studies related to industrial lands. We have put together a stakeholder advisory group of industrial businesses and landowners. These stakeholders are advising us during a series of meetings from February to August 2013. We are also available to speak to interested organizations about the project.
 - At the same time, we are studying the stadium district. The Stadium District Study will have its own stakeholder advisory group and will work closely with the Duwamish Industrial Lands Study.
- Project Goals
 - Strengthen the long-term viability of the MIC
 - Protect industry and port operations
 - Reinforce the MIC as a place designated for industry
 - Coordinate with the Seattle Industrial Areas Freight Access Project being conducted by the Seattle Department of Transportation
- The End Result: City Council will adopt our proposed amendments to Seattle's Comprehensive Plan and to the Land Use Code.
- Project Timeline
 - Mid-February 2013: First meeting of the stakeholder advisory group
 - Mid-June 2013: We finish the study with input from the stakeholders, our own team, and the Seattle Planning Commission
 - Mid-July 2013: We publish our draft recommendations
 - Mid-July - September 2013: Public outreach and review of draft recommendations
 - Mid-November 2013: We submit our recommendations to City Council
 - Mid-March 2014: City Council considers and acts on our recommendations

SOURCE: Seattle Dept. of Planning and Development. *Industrial Lands Study: existing conditions*. January 2013. Presented at meeting #1 (Feb 13, 2013) of Duwamish Industrial Lands Advisory Group. <http://www.seattle.gov/dpd/cityplanning/completeprojectslist/industrialands/getinvolved/default.htm>

SOURCE: Seattle Dept. of Planning and Development. *DPD’s Draft Land Use Recommendations*. Presented at meeting #4 (May 28, 2013) of Duwamish Industrial Lands Advisory Group. <http://www.seattle.gov/dpd/cityplanning/completeprojectslist/industrialands/getinvolved/default.htm>

1. Strengthen guidelines and establish criteria for removing land from the Duwamish M/IC or for allowing non-industrial uses in the Duwamish M/IC
2. Retain existing M/IC boundaries, with the possible exception of the stadium area north of Holgate
3. Do not establish a new Port Overlay District; treat the entire Duwamish MI/C the same given the range of industrial and industrial-related uses throughout the MI/C
4. Do not allow any new Industrial Commercial (IC) zoning in the Duwamish M/IC
5. Increase effectiveness of regulations limiting the size of non-industrial uses in the Duwamish M/IC
6. Explore ways to focus retail uses on 1st Ave. S. or 4th Ave. S.
7. Explore options to delineate an ‘Auto Row,’ possibly along Airport Way, to allow this retail sector to continue to locate in the city while limiting impacts to industrial uses

SOURCE: City of Seattle. Seattle Industrial Areas Freight Access Project – Overview.
<http://www.seattle.gov/sfab/docs/Freight%20Access%20Project%20Overview.pdf>

SOURCE: Burke D (Port of Seattle), Borowski R (Seattle Dept. of Transportation). Industrial Areas Freight Access Project [presentation slides]. Seattle Freight Advisory Board. March 19, 2013.

- Schedule Estimate
 - Finalize Scope March, 2013
 - Request for Qualifications April
 - Consultant Open House April 7
 - Consultant Negotiations May
 - Public Open House(s) Summer
 - Recommendations January, 2014
 - Final Report February, 2014

SOURCE: Seattle Dept. of Planning and Development. Version 2 of draft Stadium District Vision and Guiding Principles. Presented at Land Use Scenarios Meeting (July 9, 2013) of the Stadium District Study advisory group. <http://www.seattle.gov/dpd/cityplanning/completenesslist/stadiumstudy/getinvolved/default.htm>

- STADIUM DISTRICT VISION: A destination sports and entertainment district for all that includes a range of complementary uses, is a seven day a week neighborhood, complements the character and uses in adjacent Pioneer Square, Chinatown/International District and the Duwamish manufacturing industrial center.

- GUIDING PRINCIPLES

Land Use & Urban Form

- Create a balanced mix of uses that supports regional sports and entertainment, and includes complementary activities that encourage patrons to enjoy the district beyond the event itself and contribute to a 24/7 neighborhood during non-event times.
- Recognize close proximity to significant port, rail and industrial activities in the Duwamish Manufacturing Industrial Center, and encourage land uses that achieve the district's goals while complementing industrial activities to the south - providing a strong district edge at S. Holgate Street.
- Provide inviting faces to the district that engage and embrace the adjacent Pioneer Square and Chinatown/International District neighborhoods.
- Cultivate a distinctive urban form by considering iconic views to and from the district, the city's skyline, historic character, and infrastructure elements when determining scale, height, massing, placement and design of new buildings.

Stadiums

- Preserve and enhance the public investment in stadium infrastructure and operations by ensuring continued long term viability of stadium facilities within the district.
- Support unique operational needs of stadiums and event centers, such as: event staging, traffic management, nighttime operation, bus and freight access, signage and wayfinding.

Catalyst Sites

- Recognize a limited number of key sites available for infill development in, adjacent to, or near the district, and encourage new uses and configurations on these sites to optimize their contribution to the district vision.
- Support incentives, public/private partnerships and other proactive tools to achieve preferred outcomes and public benefits on catalyst sites.

Sustainability

- Encourage a district that will serve as a national leader for sustainability among neighborhoods with professional sports facilities.
- Encourage innovative green infrastructure strategies, including handling of stormwater, waste heat recovery, and transportation.

Mobility

- Capitalize on, and support improvements to, the transportation network in and near the District by enhancing connections to, and through the area, and optimizing the convenience and safety of all modes of moving people and freight.
- Encourage collaborative and integrated transportation management among major sports and entertainment uses and other uses in and near the district.
- Support preservation and enhancement of freight mobility through the district especially to port and rail facilities.
- Address event and day-to-day parking needs in the district.

Public Realm

- Create a network of active and safe streets and public spaces that support the life of the district and adjacent neighborhoods, are flexible to accommodate event day gathering and wayfinding, promote activity seven days a week, and do not adversely impact neighboring industrial activity or stadium operations.

5. Real estate speculation

SOURCE: Kidder Matthews. *Real Estate Market Review: King, Snohomish, Pierce and Thurston Counties: Seattle Industrial*. 2nd Quarter, 2012

- Seattle Close-in: ...this market remains one that caters to small industrial users in older buildings that require proximity to the Puget Sound region's economic center. The two largest sale transactions, Brady, Inc. and the Budget Equipment properties at \$9.45 million and \$4.25 million, respectively, *were both driven by NBA and NHL sports franchise speculation*. [italics added]

SOURCE: Kidder Matthews. *Real Estate Market Review: King, Snohomish, Pierce and Thurston Counties: Seattle Industrial*. 4th Quarter, 2012.

- *There is an interesting development currently playing out in the Sodo District and if successful, will result in the loss of industrial-related supply*. Chris Hansen, a Seattle native and a hedge-fund manager out of San Francisco, has spent nearly \$54 million buying properties in Sodo, hoping to build a new arena and bring the NBA and potentially the NHL to Seattle. *Along with the proposed new arena, there are calls for sweeping changes in land use that will include up to 2,000 new housing units and hotels*. This is being met with concern and opposition by the Port of Seattle that believes this transformation could hurt port related shipping and cargo activities. This call for change also goes against the City of Seattle's maximum size restriction on non-industrial uses implemented in 2010. [italics added]

SOURCE: Colliers International. Cliff Avoided but Winding Road Ahead. *Puget Sound Region Research & Forecast Report: Industrial*. Q4 2012

- *The purchase of warehouse buildings south of Safeco Field for the newly proposed NBA/NHL arena, which was approved by both city and county council review, is leading to speculation that property values in the SODO area will increase*. The parcels that the proposed arena would be located on sold for much higher than market value but before construction can begin, an NBA team must be secured. [italics added]

6. Adjacent development

SOURCE: Daniels Real Estate [note different spelling from Daniell; no relationship]. *Stadium Place* [web page]. <http://www.northlotdevelopment.com/index.html>

- Facts and Figures [<http://www.northlotdevelopment.com/facts.html>].
 - Property totals 3.85 acres and was the largest contiguous piece of undeveloped land in the Seattle urban core.
 - Property is located adjacent to the region's transit hub at King Street Station, and next door to CenturyLink Field and the Pioneer Square national historic district.
 - The project's Master Use Permit (MUP) was filed with the City in May of 2008 and reflected a mixed use development totaling approximately 1.5 million square feet. Included in the original MUP was approximately 426,000 sf of office, 668 residential units, 33,000 sf of retail and approximately 900 parking stalls.

- An up-zone of the property was approved by the City of Seattle in 2009 that raises maximum height limits from the former limits of 85' for commercial and 120' for residential to 240' for both uses with specified protected view corridors required.
- Includes 30 units of affordable housing located on-site. An additional 85 units of affordable housing connected with the project will be located at the Hirabayashi Place at Fourth and Main.
- The actual total project square footage has continued to evolve as the project proceeds through the design phase. Current project design features three residential towers with 740 units, plus 180,000 SF of office, a 300 room hotel and conference center, retail and parking components.
- Master Use Permit was issued by the City in February 2010. Permit has 15 year term allowing for development in phases.
- First phase will feature the west block development (called Stadium Place West) and commenced in late 2011. East block development (called Stadium Place East) is expected to commence in the summer of 2013.

SOURCE: BERK. Community and Economic Value of the North Lot Project. March 24, 2011.

- The North Lot development will generate economic activity associated with the construction and occupancy of the housing, office, and retail components of the project.
 - The \$34 million investment in the planning and construction of the podium would generate an additional \$32 million in indirect/induced activity, bringing the total economic value to approximately \$66 million. The full buildout of the project places a total of \$290 million in economic activity into the local economy. The spending of those dollars by employees and firms contracted to build the project would in turn support an additional \$268 million in economic activity in the state, bringing the total economic value to approximately \$558 million.
 - The 19,000 square feet of retail space in the podium phase would provide approximately 38 jobs with the additional 21 jobs coming from employee and business spending.
 - The entire project would provide space for approximately 1,430 jobs with over 90% of the jobs in the professional and service industries. The “ripple” effect of these direct jobs would generate demand for an additional 3,540 jobs in the state.

SOURCE: Nitze-Stagen. Properties: Starbucks Center [web page; accessed Aug 4, 2013]. <http://www.nitze-stagen.com/starbucks.html>

- Starbucks Center is a nationally recognized example of the successful redevelopment of a large functionally obsolescent warehouse building, as well as serving as the catalyst for the revitalization of an entire neighborhood (SODO District).
- At just over 2,100,000 square feet on 17 acres of urban industrial land, Starbucks Center is a one-of-a-kind mixed-used facility, which blends retail, office, warehousing, manufacturing and distribution functions. Nitze-Stagen manages the -to-day operations.
- Built in 1912 by the Union Pacific Railroad to lure Sears, Roebuck & Co. to Seattle, the original building was constructed from heavy timbers from the historic Yesler Mill. With building additions in [1914 and] 1945, 1956, 1965, 1974 and 2001, the complex may be the largest multi-tenanted building west of the Mississippi. Nitze-Stagen renovated the building and preserved its historical heritage, but added modern technology.
- The building is currently home to numerous tenants, and serves as the world headquarters for the Starbucks Coffee Company.

I. Port capacity and competition

1. Port of Seattle: Annual Report 2012

SOURCE: Port of Seattle. Comprehensive Annual Financial Report for the Year Ended December 31, 2012. http://www.portseattle.org/About/Financial-Info/Documents/CAFR_2012.pdf

- Local economy and outlook

Despite the slow economic recovery, the Port continued to achieve positive results operationally and financially. At the Airport, more than 33.2 million passengers passed through in 2012, exceeding the all-time record for the second consecutive year. International passenger traffic increased 8.8% while overall traffic grew 1.2% over 2011 levels. At the Seaport, the 2012 cruise season hosted 202 vessel calls and hit a record high of 935,000 passengers, an increase of 5.5% in passengers from 2011. Largely due to the departure of the Grand Alliance during the year, container volumes were 1.9 million TEUs (twenty-foot equivalent units – a measure of container volume), a decrease of 8.1% compared to 2011. Grain volumes were 3.2 million metric tons, a decline of 37.1% from 2011 due to market conditions. For the Real Estate Division, occupancy levels at commercial properties were at 91%, higher than the 88% Seattle market average.

- Long-term financial planning

As the Port begins its second century, the Commissioners adopted the Century Agenda, a strategic plan that sets aspirational goals to the Port for the next twenty five years – starting with an overarching goal of generating 100,000 new jobs in the region by 2036. As the economy slowly rebounds, the Port continues to take a prudent and conservative approach for the 2013 budget. The Port expects cost increases related to the implementation of the Century Agenda strategic plan, the full-year impact of the newly opened Consolidated Rental Car Facility at the Airport, and other new initiatives within the operating divisions to retain and attract customers, create jobs, and help position the Port for future growth.

The Seaport Division expects its 2013 operating revenue to be 2.2% higher than the 2012 budget level, primarily due to higher container lease revenue as well as higher occupancy at industrial properties. Container lease revenues will increase due to the accounting effect of refunding of the Terminal 18 Special Facility Bonds in late 2011 that was not reflected in the 2012 budget. This will be partially offset by lower lease revenues resulting from a change in the structure and escalation provisions of container terminal lease payments starting in 2013. Revenues driven by grain volumes are expected to be down as a result of mixed grain harvest conditions in the Midwest, container terminal crane rent will be down due to fewer Port-owned cranes, and Security grant revenue will be down due to the completion/expiration of grants in 2012. Seaport's 2013 goals include retaining container, cargo and passenger volumes, focusing on potential opportunities for new growth, implementing the asset stewardship program for key division assets, and continuing implementation of The Green Gateway strategy which provides a lower carbon footprint for goods shipped from Asia to the United States Midwest and a competitive edge among West Coast ports.

- Major initiatives

As the Port pursues its Century Agenda, the following major initiatives were accomplished in 2012. The Port was selected as one of only 15 employers across the country to receive the 2012 Secretary of Defense Employer Support Freedom Award. The Consolidated Rental Car Facility, a LEED® Silver Certified project, was opened in May. A Memorandum of Agreement with Sound Transit was executed for extension of light rail from the south end of the Airport. Emirates Airlines began daily non-stop service to Dubai. All Nippon Airways of Japan launched service to Tokyo. A new lease with the Washington State Department of Transportation at Terminal 46 and Terminal 106 in support of the State Route 99 Bored Tunnel Project was executed, which is critical in maintaining the efficient movement of freight and passengers along the Seattle waterfront. A seven-year lease extension was executed for the operation of the Port's cruise terminals. Shilshole Bay Marina celebrated its 50th anniversary in September. Portions of the Eastside Rail Corridor were sold to Sound Transit and the City of Kirkland in April 2012.

In addition, exciting new investments will enable the Port to serve its customers and the general public better and improve the environment in the community and region. Delta Air Lines announced expanded international service routes in 2013. The remaining portions of the Eastside Rail Corridor were sold to King County in February 2013.

The Seaport Division’s initiatives include the rehabilitation of docks at Terminal 46; creation of a dedicated truck roadway from Harbor Island to the Union Pacific Argo Yard; various street vacation related projects resulting from previous terminal expansions at Terminals 5, 18 and 30; a roof replacement for the cold storage building on Pier 90, drainage and paving upgrades related to a lease extension at Terminals 106 and 108; an electrical substation upgrade at Terminal 91; Pier 66 Apron Pile-Wrap project; and the upgrade of security cameras at Pier 66 from analog to digital.

- Long-term liabilities [p. 48]

The following is a summary of the environmental remediation liability, other postemployment benefits obligation, accrued election expenses, bond interest payable, unearned revenue, and other activities which make up the Port’s long-term obligation balances for the years ended December 31, 2012 and 2011 (in thousands):

	Beginning Balance	Additions	Reductions	Ending Balance	Current Portion	Long-Term Portion
2012						
Environmental remediation liability	\$ 53,359	\$ 28,624	\$ (17,155)	\$ 64,828	\$ 21,424	\$ 43,404
Other postemployment benefits obligation	9,106	796	(758)	9,144		9,144
Accrued election expense	1,262	1,069	(1,110)	1,221		1,221
Bond interest payable	4,307	1,983		6,290		6,290
Unearned revenue	20,678	5,218	(19,669)	6,227	6,227	
Others	882	151	(127)	906		906
Total	\$ 89,594	\$ 37,841	\$ (38,819)	\$ 88,616		
2011						
Environmental remediation liability	\$ 56,724	\$ 17,694	\$ (21,059)	\$ 53,359	\$ 11,404	\$ 41,955
Other postemployment benefits obligation	8,359	1,495	(748)	9,106		9,106
Accrued election expense	1,148	114		1,262	1,262	
Bond interest payable	2,463	1,844		4,307		4,307
Unearned revenue	19,275	14,337	(12,934)	20,678	19,559	1,119
Others	830	55	(3)	882		882
Total	\$ 88,799	\$ 35,539	\$ (34,744)	\$ 89,594		

- Environmental remediation liabilities [p. 54]

The Port has identified a number of contaminated sites on Aviation, Seaport, and Real Estate properties and facilities that must be investigated for the presence of hazardous substances and remediated in compliance with Federal and State environmental laws and regulations. Some Port facilities may require asbestos abatement, and some properties owned or operated by the Port may have unacceptable levels of contaminants in soil, sediments and/or groundwater. In some cases, the Port has been designated by the Federal government as a "Potentially Responsible Party", and/or by the State government as a "Potentially Liable Person" for the investigation and cleanup of properties owned by the Port or where the Port may have contributed to site contamination. Although the Port may not bear ultimate liability for the contamination, under Federal and State law, the Port is presumptively liable as the property owner, and it is often practically and financially beneficial for the Port to take initial responsibility to manage and pay for the cleanup.

As of December 31, 2012 and 2011, the Port’s environmental remediation liability was \$64,828,000 and \$53,359,000, respectively, based on reasonable and supportable assumptions, measured at current value using the expected cash flow technique. The Port’s environmental remediation liability does not include cost components that are not yet reasonably measurable. The Port’s environmental remediation liability will change over time due to changes in costs of goods and services, changes in remediation technology, and changes in governing laws and regulations.

In many cases, the Port has successfully recovered Port-incurred investigation and cleanup costs from other responsible parties. The Port will continue to seek appropriate recoveries in the future. As of December 31, 2012 and 2011, the environmental remediation liability was reduced by \$15,020,000 and \$17,911,000, respectively, for estimated unrealized recoveries.

- Seattle Harbor volumes [p.81]

SCHEDULE 20

SEATTLE HARBOR CONTAINERS VOLUMES

Last Ten Fiscal Years

(in twenty-foot equivalent units, "TEUs", a measure of container volume)

Fiscal Year	International Containers			Total	Total Domestic	Grand Total
	Import Full	Export Full	Empty			
2012	728,557	525,913	275,397	1,529,867	339,625	1,869,492
2011	788,964	612,450	331,259	1,712,673	320,862	2,033,535
2010	897,224	558,237	380,114	1,835,575	304,002	2,139,577
2009	612,236	459,557	212,748	1,284,541	300,055	1,584,596
2008	664,472	434,546	277,478	1,376,496	327,996	1,704,492
2007	810,453	503,690	314,351	1,628,494	345,010	1,973,504
2006	799,138	438,806	398,317	1,636,261	351,099	1,987,360
2005	846,311	484,997	414,490	1,745,798	342,131	2,087,929
2004	704,664	387,503	374,084	1,466,251	309,607	1,775,858
2003	542,863	348,773	293,062	1,184,698	301,684	1,486,382

Source: Port of Seattle Marine Terminal Information System

SCHEDULE 21

SEATTLE HARBOR DOCKS VOLUMES

Last Ten Fiscal Years

(in metric tons)

Fiscal Year	Non-	Grain	Petroleum	Molasses	Grand Total
	containerized break bulk				
2012	67,784	3,161,013	620,587	74,831	3,924,215
2011	63,642	5,026,868	862,780	48,300	6,001,590
2010	66,140	5,491,360	802,843	40,173	6,400,516
2009	63,868	5,512,164	783,618	36,936	6,396,586
2008	106,854	6,400,778	938,463	65,019	7,511,114
2007	116,571	5,333,018	1,064,744	38,434	6,552,767
2006	131,984	5,901,821	976,526	45,103	7,055,434
2005	144,280	5,049,107	874,475	36,874	6,104,736
2004	149,750	3,898,491	853,756	43,541	4,945,538
2003	117,925	3,107,732	909,879	46,814	4,182,350

Source: Port of Seattle Marine Terminal Information System

- Capital assets information: Seaport and real estate operations [pp. 83-84; complete tables on next page]

Last Eight Fiscal Years

Fiscal Year ^(a)	2012	2011	2010	2009	2008
Total Property (in acres)	1,335	1,335	1,335	1,335	1,500
No. of Container Terminals (Terminal 5, 18, 30, 46)	4	4	4	4	4
Size (in acres)	526	526	526	535	498
Number of berths (1,200—4,450 feet)	11	11	11	11	10
Number of container cranes ^(c)	30	24	24	24	25
Storage facilities (in square foot)	177,000	177,000	177,000	177,000	177,000
Maintenance facilities (in square foot)	112,000	112,000	112,000	112,000	112,000
On-Dock intermodal yard					
Maximum capacity—in full train	14	14	14	14	7
Refrigerated capacity (in reefer plugs)	2,816	2,704	2,704	2,704	2,560

(c) Three of the container cranes were owned by SSA Terminals in 2005 while seven of the container cranes were owned by SSA Terminals during 2006 to 2011. Thirteen of the container cranes were owned by SSA Terminals in 2012.

**SCHEDULE 24
CAPITAL ASSETS INFORMATION—SEAPORT AND REAL ESTATE FACILITIES**
Last Eight Fiscal Years

Fiscal Year ^(a)	2012	2011	2010	2009	2008
Total Property (In acres)	1,335	1,335	1,335	1,335	1,500
No. of Container Terminals (Terminal 5, 18, 30, 46)	4	4	4	4	4
Size (In acres)	526	526	526	535	498
Number of berths (1,200—4,450 feet)	11	11	11	11	10
Number of container cranes ^(b)	30	24	24	24	25
Storage facilities (In square foot)	177,000	177,000	177,000	177,000	177,000
Maintenance facilities (In square foot)	112,000	112,000	112,000	112,000	112,000
On-Dock Intermodal yard					
Maximum capacity—in full train	14	14	14	14	7
Refrigerated capacity (In reefer plugs)	2,816	2,704	2,704	2,704	2,560
No. of Multi-Use Terminal (Terminal 91) ^(b)	1	1	1	1	n/a
Size (In acres)	212	212	212	212	n/a
Linear feet of berths (8,502 feet)	17	17	17	17	n/a
Storage facilities:					
Cold storage (In million cubic foot)	5	5	5	5	n/a
Dry warehouse (In square foot)	100,000	100,000	100,000	100,000	n/a
No. of Barge Terminal (Terminal 115) ^(b)	1	1	1	1	n/a
Size (In acres)	70	70	70	70	n/a
Number of berths (1,600 feet)	4	4	4	4	n/a
Warehouse capacity (In square foot)	35,000	35,000	35,000	35,000	n/a
Refrigerated capacity (In reefer plugs)	400	400	400	400	n/a
No. of Grain Terminal (Terminal 86) ^(b)	1	1	1	1	n/a
Size (In acres)	40	40	40	40	n/a
Number of berths (1,400 feet)	1	1	1	1	n/a
Storage capacity (In million bushels)	4	4	4	4	n/a
No. of Breakbulk Terminals ^(b)	n/a	n/a	n/a	n/a	3
Size (In acres)	n/a	n/a	n/a	n/a	260
Number of berths (400—2,100 feet)	n/a	n/a	n/a	n/a	9
Storage facilities (In acres)	n/a	n/a	n/a	n/a	86
No. of Cruise Terminals	2	2	2	2	2
Bell Street Cruise Terminal (Terminal 66)					
Size (In acres)	4	4	4	4	4
Number of berths (1,545—1,600 feet)	1	1	1	1	1
Smith Cove Cruise Terminal (Terminal 91) ^(b)					
Size (In acres)	23	23	23	23	n/a
Number of berths (2,400 feet)	2	2	2	2	n/a
Terminal 30 Cruise Facility ^(b)					
Size (In acres)	n/a	n/a	n/a	n/a	26
Number of berths (2,000 feet)	n/a	n/a	n/a	n/a	2

(Continued)

**SCHEDULE 24
CAPITAL ASSETS INFORMATION—SEAPORT AND REAL ESTATE FACILITIES**
Last Eight Fiscal Years

Fiscal Year ^(a)	2007	2006	2005
Total Property (In acres)	1,500	1,500	1,500
No. of Container Terminals (Terminal 5, 18, 30, 46)	4	4	4
Size (In acres)	498	497	497
Number of berths (1,200—4,450 feet)	10	10	10
Number of container cranes ^(b)	26	26	22
Storage facilities (In square foot)	177,000	177,000	177,000
Maintenance facilities (In square foot)	112,000	112,000	112,000
On-Dock Intermodal yard			
Maximum capacity—in full train	7	7	7
Refrigerated capacity (In reefer plugs)	2,560	2,560	2,560
No. of Multi-Use Terminal (Terminal 91) ^(b)	n/a	n/a	n/a
Size (In acres)	n/a	n/a	n/a
Linear feet of berths (8,502 feet)	n/a	n/a	n/a
Storage facilities:			
Cold storage (In million cubic foot)	n/a	n/a	n/a
Dry warehouse (In square foot)	n/a	n/a	n/a
No. of Barge Terminal (Terminal 115) ^(b)	n/a	n/a	n/a
Size (In acres)	n/a	n/a	n/a
Number of berths (1,600 feet)	n/a	n/a	n/a
Warehouse capacity (In square foot)	n/a	n/a	n/a
Refrigerated capacity (In reefer plugs)	n/a	n/a	n/a
No. of Grain Terminal (Terminal 86) ^(b)	n/a	n/a	n/a
Size (In acres)	n/a	n/a	n/a
Number of berths (1,400 feet)	n/a	n/a	n/a
Storage capacity (In million bushels)	n/a	n/a	n/a
No. of Breakbulk Terminals ^(b)	3	3	3
Size (In acres)	260	260	260
Number of berths (400—2,100 feet)	9	9	9
Storage facilities (In acres)	86	86	86
No. of Cruise Terminals	2	2	2
Bell Street Cruise Terminal (Terminal 66)			
Size (In acres)	4	4	4
Number of berths (1,545—1,600 feet)	1	1	1
Smith Cove Cruise Terminal (Terminal 91) ^(b)			
Size (In acres)	n/a	n/a	n/a
Number of berths (2,400 feet)	n/a	n/a	n/a
Terminal 30 Cruise Facility ^(b)			
Size (In acres)	26	26	26
Number of berths (2,000 feet)	2	2	2

(Concluded)

2. Port of Seattle: Century Agenda

SOURCE: Port of Seattle. *Seattle Port Commission motion approving the Century Agenda*. Dec. 4, 2012.

- [Press release] “Blueprint for Economic Growth, Environmental Leadership”
- [Brochure] “Strategic Planning for a Sustainable Future”
- Beginning in 2008, Commissioners engaged the broader community through Expert Panels that helped to define how the Port can serve the public interest in the next 25 years. That first stage of the Century Agenda’s work was completed in August 2009, with the publication of the report “Century Agenda: Expert Panels’ Recommended Guiding Principles.” After conferring with Port staff extensively in 2010, the Commission formed a Century Agenda Committee to guide the Port’s long-range vision. During 2011, the Commission convened monthly public roundtables to discuss strategic issues related to the Port’s mission. In January 2012, the Commission adopted Preliminary Strategic Goals, which now are known as Strategies and Objectives, along with a proposed Mission and Commitment. Through extensive public outreach in 2012, that included over a thousand people, and more than 60 events and engagements., the Port’s partners affirmed this preliminary work. Port staff identified action plans that are incorporated in the 2013 business plans and budget, and advance progress towards achieving the Century Agenda Vision, Strategies, Objectives, and Regional Initiatives.
- Vision: Over the next 25 years, we will add 100,000 jobs through economic growth led by the Port of Seattle, for a total of 300,000 Port-related jobs in the region, while reducing our environmental footprint.
- Strategies and Objectives
 - Position the Puget Sound region as a premier international logistics hub
 - Grow seaport annual container volume to more than 3.5 million TEUs.
 - Structure our relationship with Washington ports to optimize infrastructure investments and financial returns.
 - Triple air cargo volume to 750,000 metric tons.
 - Triple the value of our outbound cargo to over \$50 billion.
 - Double the economic value of the fishing and maritime cluster.
 - Advance this region as a leading tourism destination and business gateway
 - Make Seattle-Tacoma International Airport the West Coast “Gateway of Choice” for international travel.
 - Double the number of international flights and destinations.
 - Meet the region’s air transportation needs at Seattle-Tacoma International Airport for the next 25 years and encourage the cost-effective expansion of domestic and international passenger and cargo service.
 - Double the economic value of cruise traffic to Washington state.
 - Use our influence as an institution to promote small business growth and workforce development
 - Increase the proportion of funds spent by the Port with qualified small business firms on construction, goods and services to 40 percent of the eligible dollars spent.
 - Increase workforce training, job and business opportunities for local communities in maritime, trade, travel and logistics.
 - Be the greenest, and most energy efficient port in North America
 - Meet all increased energy needs through conservation and renewable sources.
 - Meet or exceed agency requirements for storm water leaving Port-owned or operated facilities.
 - Reduce air pollutants and carbon emissions, specifically:
 - Reduce air pollutant emissions by 50 percent from 2005 levels.
 - Reduce carbon emissions from all Port operations by 50 percent from 2005 levels and reduce aircraft-related carbon emissions at Seattle-Tacoma International Airport by 25 percent.
 - Anchor the Puget Sound urban industrial land use to prevent sprawl in less developed areas.
 - Restore, create, and enhance 40 additional acres of habitat in the Green/Duwamish watershed and Elliott Bay.

3. Port of Seattle: Gnostam LLC assessment

SOURCE: Anon. Seattle’s Port: White Paper on How to Increase the Economic Traction the Port has on the Local Economy. *Gnostam LLC Newsletter*. Feb. 15, 2012.

- The Pacific Northwest – a Global Traffic Hub

- The greatest global logistics corridor in the world is the “Great Circle” route from Northeast Asia to the US West Coast and onto the big population markets of the US East Coast. Shippers have a choice. They can transship on the West Coast...or ship through the Panama Canal. The Canal route takes a lot longer, [7-10 days] but requires less handling and is more reliable in terms of certainty of delivery date. The alternative is to transship and move containers in particular onto the US freight rail system.
 - While the Asian Trade is expected to continue to expand, the infrastructure of the LA/LB Port is almost at capacity [operating at 88% capacity]. Seattle and Tacoma both operate well below 55% capacity.
 - Prince Rupert in British Columbia has invested in a state of the art Container Port that adds to the bulk commodity capabilities of Prince Rupert, and has a fully integrated modal transport system with Canadian Railroads as a long distance rail carrier of containers to Chicago. This new entry into the “Container Trade” by Prince Rupert is a very serious threat to the viability of Seattle as an alternative to LA/LB, especially because the rail land route to Chicago from Prince Rupert has far less elevation gain than the route to Chicago from Seattle.
 - The main driver to the huge Container ports 6 that have sprung up in China and Asia has been the economies of scale of going from the Current “Panamax” container ships with a maximum capacity of 4,500 TEU to the “Post Panamax” giants that will not be able to transit through the Panama Canal until 2014. Even then, ships with greater length than 366 meters, 49 breadth and 15 meters depth will not be able to transit the Canal. Because the economies of scale in shipping on a 20,000 TEU ship are so great, this makes the North American land-bridge competitive again.
 - The incentive to use larger of 10,000 TEU containerships that were introduced in 2007, was that fuel and port charges account respectively for 50% and 21% of annual operating costs, while manning costs remains constant. However, annual operating costs per TEU drop by more than one half to \$1,449.... Given this industry is very price sensitive, the pressure is on for operators to build ever bigger ships that will reach 20,000 TEU.... This will bring more pressure on Port infrastructure.
 - In early 2012 several new cranes will be delivered to Terminal 18 and Terminal 5, care of SSA, a Goldman Sachs owned company that will spend \$27 million on buying the new Post Panamax cranes necessary to unload the bigger ships. In return for making this investment, SSA will no longer pay the port an \$11.60/container fee, and will be able to charge its own fees to unload larger ships, and more containers. Essentially SSA is betting that it will be able to recover its costs and make serious profits if it is able to unload > 500,000 containers in 5 years.
 - Taxpayers in the State of Washington support the Port of Seattle. The loss of the Port’s revenue source is a serious matter, as reducing funding flexibility will impact the Puget Sound taxpayers.
- SOURCE: Wilhelm S. Three more extra-large cranes arrive at Port of Seattle. *Puget Sound Bus. J.* July 24, 2012.
- Three “super post Panamax” cranes arrived at the Port of Seattle Monday, bringing the port's total to 13. The “super post Panamax” phrase refers to cranes that can load and unload huge ships that will be able to transit the widened Panama Canal to be completed sometime in 2015. The current locks, 110 feet wide, allow ships up to 106 feet in width, the current “post Panamax” size. The new cranes will be operated by SSA Terminal at the Port of Seattle’s Terminal 18. They are 267 feet high, and can handle ships up to 210 feet in width and able to carry 18,000 containers.
- There appears to be a business case for investment in upgrading the Port of Seattle infrastructure to a world class level. The main investment concerns of this otherwise very strong business case are: 1) The unbalanced nature of the East West trade that has been evidenced by the global financial crisis. There has been a significant slump in the West to East trade, with an increase of “empties” as demand from Asia has waned post 2008, even as intra Asia and North South trade has increased; 2) The rise of the West Coast of Canada as a hub for container bulk commodity exports to North Asia does pose a threat to Seattle as a viable hub, especially as the infrastructure [rail and crane] in Prince Rupert is superior to that of Seattle; 3) Seattle is a transport hub for the coastal trade to Alaska, but this has been a declining industry; 4) North of Seattle there is substantial opportunity to integrate liquified natural gas and pipeline complex that could be the source of export to Asia.

4. Port of Seattle: Moody’s Investor Service rating action

SOURCE: Krummenacker KJ. *Moody's revises to negative the outlook on the Port of Seattle's revenue bonds; Ratings on all liens affirmed.* NY: Moody’s Global Credit Research; 19 Jun 2013.

- Summary:
 - The negative outlook is based on the growing negative pressures on the port's finances through the combination of weakened rate flexibility across the Port's main operating functions.
 - The Port's failure to reach an agreement with the airlines to renew the airline use and lease agreement indicates a weakening in the Port's market position. This may limit its rate raising ability or reduce its ability to implement needed capital programs while maintaining historic financial margins.
 - The market position of the seaport has been markedly impacted by the Grand Alliance's decision to move to the Port of Tacoma and the Port of Seattle's decision to change the terminal lease rate structure to a per acre volume basis with minimum annual guarantees that will provide substantially lower revenues.
 - The combination of these two stresses, in particular, will suppress the Port's ability to continue its recovery from the economic downturn as quickly as expected. These stresses are exacerbated by industry trends of airline consolidation that has led to an increased concentration of enplanements by Alaska Airlines at the airport and of shipping overcapacity that pressure seaport rates lower.
 - Economic conditions in the area remain strong and the rating outlook could stabilize if the growth continues to drive growth in airport and seaport revenues.
- Challenges
 - Decline of debt service coverage levels over the past five-years pressures the ratings of all bonds; coverage for the senior lien is expected to rebound quickly due to debt restructuring, but coverage on the other liens, and particularly the subordinate lien, will not see the same rebound due to lower operating revenue growth
 - Container cargo levels have declined for the past seven years, except for strong growth in 2010 when Maersk increased operations at the port; throughput levels in 2013 are down 21.6% through April 2013 and are expected to remain lower due to the move of the Grand Alliance to the Port of Tacoma
 - A portion of the DSRF supporting the general revenue bonds are filled by surety policies from bond insurers with low or unstable credit quality; though the Port has taken active steps to reduce this exposure
 - Decline in the shipping industry and excess terminal capacity create more competitive environment that puts pressure on future port revenues; this is coming to fruition through the port's reduced container lease rates
 - Exposure to dominant carrier Alaska/Horizon at the airport has increased in recent years to 50.6% in FY 2012

5. Port of Seattle: Seattle Comprehensive Plan

SOURCE: Steinbrueck P (Steinbrueck Urban Strategies); for Port of Seattle. *SODO Arena Proposal; Seattle Duwamish Manufacturing and Industrial Center: Land Use and Planning Issues*. Aug. 7, 2012.

- In 2009, the legislature amended the GMA to require cities with container ports, like the City of Seattle, to add a container port element to their GMA comprehensive plans to protect maritime industrial areas from incompatible land uses and to protect vital freight corridors. The City is required under state law to engage in the collaborative planning approach (as described in the container port element, RCW 36.70A.085 (3). This approach requires that port elements adopted under subsections (1) and (2) of this section be developed collaboratively between the city and the applicable port, and must establish policies and programs that:
 - 3. (a) Define and protect the core areas of port and port related industrial uses within the city; (b) Provide reasonably efficient access to the core area through freight corridors within the city limits; and (c) Identify and resolve key land use conflicts along the edge of the core area, and minimize and mitigate, to the extent practicable, incompatible uses along the edge of the core area.
 - 4. Port elements adopted under subsections (1) and (2) of this section must be: (a) Completed and approved by the city according to the schedule specified in RCW36.70A.130; and (b) Consistent with the economic development, transportation, and land use elements of the city's comprehensive plan, and consistent with the city's capital facilities plan.
- To date, while the required container port element has been incorporated by the city into the comprehensive plan, I am not aware of programs or regulatory protections that have been developed collaboratively between the Port and City for the Duwamish MIC, as required under the new state law.

[Note: The following resource was reviewed and selected as applicable to the research question; no resource text was replicated here]

SOURCE: [Author: City of Seattle?]. *Addressing Marine Container Terminals in Seattle's Comprehensive Plan*. Date 2011. http://clerk.seattle.gov/~public/meetingrecords/2011/cobe20110223_7o.pdf

6. Puget Sound ports

[Note: The following resources were reviewed and selected as applicable to the research question; no resource text was replicated here]

SOURCE: Creighton J. (Seattle Port Commission member). Three Trends that Will Impact the Future of Puget Sound Ports. *Transportation Issues Daily*. March 27, 2013.

SOURCE: Wash. State Office of Financial Management. *Governor's Container Ports Initiative: Recommendations of the Container Ports and Land Use Work Group* [Work Group Report]. January 2009.

a) Port of Tacoma

SOURCE: Port of Tacoma. *Strategic Plan 2012-2022 People. Partnership. Performance. 2013 Update*. <http://www.portoftacoma.com/strategic-plan>

SOURCE: Gillie J. Port of Seattle brags about keeping former Port of Tacoma customer. *The Biz Buzz* [blog]; *The News Tribune* [Tacoma]. July 18, 2012. <http://blog.thenewstribune.com/business/2012/07/18/port-of-seattle-brags-about-keeping-former-port-of-tacoma-customer/>

- The Port of Seattle today is bragging about a renewed agreement that will keep former Port of Tacoma containership customer Maersk Line calling in the Emerald City. The Seattle port's press release is part of the growing competition between the two ports for containership line customers.
- The re-signing of Maersk comes three weeks after three shipping lines moved their operations from Seattle's Terminal 18 to Tacoma's Washington United Terminals. Those shipping lines, NYK, OOCL and Hapag-Lloyd, are part of a partnership called the Grand Alliance that share shipping capacity between Asia and the West Coast. Along with that new Asian business, the Grand Alliance also brought new connections between the Mediterranean and the South Pacific to Tacoma.
- Maersk Line was the Port of Tacoma's biggest containership client until three years ago when it shifted its business to the Port of Seattle. That shift was caused by Maersk's new alliance with French containership line CMA-CGM. CMA-CGM was already calling at the Port of Seattle's Terminal 18. The Port of Tacoma reportedly had been hoping to entice Maersk to return here, but the Port of Seattle and its terminal operator, SSA, convinced the two shipping lines to remain in Seattle.

SOURCE: Pryne E, DeSilver D. Seattle's port losing big customer to Tacoma. *Seattle Times*. March 8, 2012.

- A consortium of three shipping lines that accounts for about 20 percent of the Port of Seattle's container traffic is moving to Tacoma — the latest shift in the long-running rivalry between the two seaports. The "Grand Alliance" consortium of Germany's Hapag-Lloyd, Japan's NYK Line and OOCL of Hong Kong, which now operates at Terminal 18 on Harbor Island, will relocate in July to Tacoma's Washington United Terminal, the Port of Tacoma said in a statement. The three lines primarily import containerized cargo from Asia, Port of Seattle spokeswoman Charla Skaggs said.
- The News Tribune of Tacoma estimated that the Grand Alliance shippers could increase that port's container business by as much as 400,000 units. Should that happen, Tacoma would become the region's largest seaport by cargo volume, a position it last held in 2008.

SOURCE: Talton J. Rivalry between Seattle and Tacoma ports historic, detrimental. *Seattle Times*. May 5, 2012.

- In March, the Grand Alliance shipping lines decided to move from Seattle to Tacoma. When that happens in July, it will take about 20 percent of the container business from the Port of Seattle, more if lines associated with the alliance, Zim and Hamburg Sud, decide to go, too.

- The good news is that the Grand Alliance will still call in Washington. The bad: The state's two biggest ports are largely fighting each other for existing business rather than adding much. For example, in 2009, Maersk Lines moved from Tacoma to Seattle.
- Beneath this rivalry is one harsh reality: Puget Sound ports have been slowly losing market share against most of their West Coast rivals since the mid-2000s.
- Tacoma's ambitions have been sharpened by the victory.
 - Last month, the port released its new strategic plan with very specific initiatives to build business, make investments and retain its existing customers.
 - "Our terminal operators have constructed terminals that have much higher capability of volumes than we see today," he said. "We intend to ensure there's profits in this new business. They will create jobs and economic wealth through terminal activity and remain profitable."
 - Excess capacity is not Tacoma's only advantage. Another is that much of the port has dockside rail service, eliminating the nonunion, short-haul trucking of Seattle — which became a source of loud protests by organized labor when the Grand Alliance was making its decision. "We believe (dockside rail) is an advantage," Wolfe said. "It's a less expensive, more efficient move. It's more environmentally friendly. Reducing the carbon footprint is paramount to success of the business. Shipping lines are focused on that."
- See FIGURE ON NEXT PAGE from this article, comparing five regional seaports (original source: Nowlin M, *Seattle Times*; based on 2011 annual port reports)

7. North American ports

SOURCE: Conway KC; Collier’s International. *North American Port Analysis*. April 2013.
https://landingpages-doc-optify.s3.amazonaws.com/0XTM6P8G/Colliers_NA_Port_20131H_FINAL.pdf

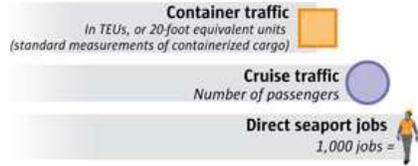
- [Capital Expenditure] Who are the CapEx leaders? Here are the top five ports in North America for port-centric CapEx in 2013 (i.e., spending at least \$100 million during CY 2013 on post-Panamax readiness, terminal upgrades or expansions, and rail or cargo loading facility enhancements).
- As a result of the budgeted 2013 CapEx spending by CA, NY, TX, SC, GA and FL port authorities and state legislatures, Colliers recognizes each as “Making the Grade” for port CapEx spending—led by the ports of Los Angeles and Long Beach, which get an A.
- But we do know that five of America’s ten busiest container ports are spending heavily on port infrastructure in 2013 to remain globally competitive. Norfolk, *Seattle*, and Miami have already spent in excess of \$100 million in CapEx from 2010–2012, or have appropriated project funding after 2013 that will likely place them among in top five in 2014, as ports like Charleston and Savannah conclude their upgrade projects. [italics/bold added]
- Only the ports of New York, *Seattle* and Portland experienced less TEU container traffic in 2012 than in 2011. New York’s decrease was attributable to Hurricane Sandy (some cargo was re-routed to Virginia). However, Portland’s and Seattle’s declines were due to port labor strife (Portland) and increasing competition (*Seattle*) from nearby Port Prince Rupert. [italics/bold added]

NORTH AMERICAN PORTS LEADING IN CAPEX SPENDING TOP 5 SPENDING AT LEAST \$100 MILLION IN 2013		
RANK	PORT	2013 BUDGETED CAPEX
1	Los Angeles & Long Beach	\$1.0 billion (30% LA & 70% L.B). Approximately half just on port terminal and rail projects.
2	New York	\$345 million Allocation from \$3.0 billion budget just to the port and not airports and World Trade Center construction
3	Houston	\$220 million
4	Charleston, SC	\$157 million
5	Georgia Ports-Savannah	\$100 million

Figure: Features of five regional seaports

From: Talton J. *Seattle Times*. May 5, 2012. [original source: Nowlin M, *Seattle Times*]

REGION'S LARGEST PORTS AT A GLANCE



RUSS KENDALL / BELLINGHAM HERALD

BELLINGHAM

FOUNDED: 1920
ANNUAL SEAPORT REVENUES: \$9 million
LINES OF BUSINESS: Marinas, Bellingham Cruise Terminal (bus, ferry, rail); Bellingham Shipping Terminal (marine cargo); Bellingham International Airport; real estate



GREG GILBERT / THE SEATTLE TIMES

EVERETT

FOUNDED: 1918
ANNUAL SEAPORT REVENUES: \$40 million
LINES OF BUSINESS: Containers, break-bulk, bulk and roll-on/roll-off; operates marina and boating facilities (the largest public marina on the West Coast), and undertakes property-development effort.



MIKE SIEGEL / THE SEATTLE TIMES

SEATTLE

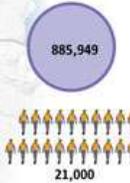
FOUNDED: 1911
ANNUAL SEAPORT REVENUES: \$159 million
LINES OF BUSINESS: Containers, grain, cruise terminals; aviation (Sea-Tac Airport); real estate (Fishermen's Terminal, recreational marinas, Bell Harbor International Conference Center)



ELLEN M. BANNER / THE SEATTLE TIMES

TACOMA

FOUNDED: 1918
ANNUAL SEAPORT REVENUES: \$114 million
LINES OF BUSINESS: Containers, autos, grain, logs, break-bulk, heavy lift; industrial and commercial real estate



OLYMPIA

FOUNDED: 1922
ANNUAL SEAPORT REVENUES: \$9 million
LINES OF BUSINESS: Forest products, break-bulk, specialty cargos, Olympia International Airport; Swantown Marina and Boatworks; real estate



Sources: ESRI, TeleAtlas, USGS, 2011 annual port reports
Graphic by MARK NOWLIN / THE SEATTLE TIMES

8. British Columbia

SOURCE: Wilhelm S. B.C. ports’ plans could grab more U.S. cargo. *Puget Sound Bus. Journal*. Nov. 30, 2012.

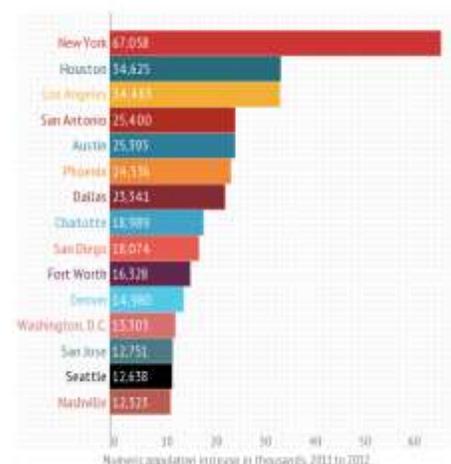
- Canada’s Port Metro Vancouver has launched an expansion project that will give it more capacity than the current container volumes of Seattle and Tacoma combined, and that’s making leaders of Puget Sound’s two largest ports wary. “It means a lot more competition, and they’re very close to us. I think it’s a very serious threat,” said Tay Yoshitani, CEO of the Port of Seattle.
- Plus, farther north in British Columbia, the Prince Rupert Port Authority is getting ready to embark on its own expansion, which could nearly double its ability to draw U.S.-bound cargo that could otherwise be moving through Puget Sound. Already, the two B.C. ports handle hundreds of thousands of shipping containers full of toys, TVs and other Asia-made goods headed for the U.S.
- Hampering Puget Sound ports in the competition for that business, port leaders say, is a federal Harbor Maintenance Tax that shippers have to pay when using U.S. ports but not Canadian ones. The combination of Canadian port expansion and the U.S. tax adds to the challenges facing Washington’s two largest ports, whose combined share of the U.S. West Coast market has remained relatively static over the past five years.
- Already, the two B.C. ports move huge quantities of freight bound for the U.S. — last year, they handled about 263,000 TEUs of U.S.-bound import cargo. And what the Canadians are planning next ramps up the competitive threat considerably.
 - The \$2 billion Vancouver project, called Roberts Bank Terminal 2, would add a 284-acre container terminal adjacent to the container and coal terminals south of Vancouver, on an artificial island connected to the mainland with a causeway. The addition would add capacity for 2.4 million TEUs, for a total of 6.5 million for the port, said Cliff Stewart, Port Metro Vancouver acting vice president of infrastructure development.
 - Much more imminent is the Prince Rupert project, which is to start construction in the middle of next year to make room for the northern port’s 20 percent annual growth rate. There, the plan is to add 450,000 TEUs of capacity to a port that moved 410,000 TEUs last year, said Michael Gurney, the port’s head of corporate communications.

J. Population growth: Seattle

SOURCE: Balk G. Census: Seattle among top cities for population growth. *The Today File*; *Seattle Times* blog. May 23, 2013.

- According to just-released Census data, Seattle had the 14th largest population jump among all U.S. cities between 2011 and 2012. In that one year time frame, Seattle added 12,638 people, bringing the city’s total population to 634,535.... Seattle is more populous now than at any point in its history. The city has added about 25,000 people since the 2010 Census, and more than 100,000 since 1990.
- [Confirmed at US Census: Texas Cities Lead Nation in Population Growth, Census Bureau Reports. May 23, 2013. See Table 2. <http://www.census.gov/newsroom/releases/archives/population/cb13-94.html>]

Cities with largest 1-year population increase



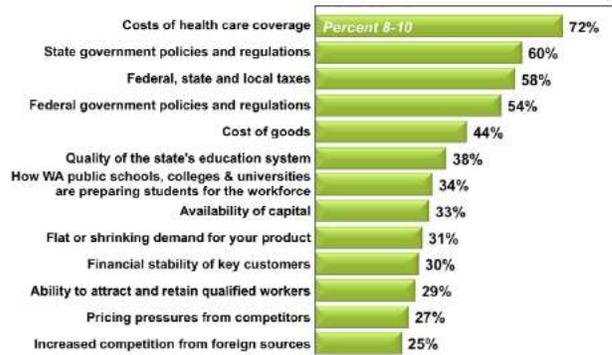
Source: U.S. Census Bureau

Graphic: Green Ball/The Seattle Times

K. Manufacturing in Washington state

SOURCE: Impact Washington. *2011 State of Manufacturing in Washington*.
<http://impactwashington.org/impact-washington-manufacturers-study>

- This year’s survey looked at the mood of manufacturers in the state, asking CEOs about the climate for business here in Washington and about the future of their own companies. Once again, we found that while manufacturers think the state’s business environment is on the wrong track, they are optimistic about their own prospects for the future.
- The survey was completed in August and September of 2011 among 400 manufacturing executives distributed representatively across geography, industry and company size. This year, we expanded our questions around health care and looked at the differences in attitude between companies that produce finished goods vs. those that are part of a supply chain.
- Two thirds of manufacturing executives in Washington continue to think the state’s business environment is headed down the wrong track.
- As we did in 2010, we asked respondents to rate a series of potential concerns for businesses in Washington that could affect their success. They were asked to rate each concern on a scale of 1 to 10, where 1 means you are NOT AT ALL CONCERNED and 10 means you are VERY CONCERNED. We ranked those that were rated from 8 to 10 – a serious concern – by the most respondents .
 - Similar to last year, the top three were: cost of health care, regulations and taxes. Interestingly, though, state regulations were rated as a higher concern this year, number two on the list, and ahead of federal regulations, which were ranked second in 2010.
 - Once again, increased competition from foreign sources ended up at the bottom of the list as did pricing pressures from competitors, which decreased to 27 percent from 33 percent in 2010.



10. How might the Lower Duwamish River Superfund cleanup influence Duwamish Valley industry and employment?

Note, in this report, “Industry” generally refers to manufacturing and WTU (wholesale trade, transportation, utilities). This term, industry, and many other terms are defined differently in different sources. Most factual content is reproduced without change (i.e., quoted) from the original, cited source. Quoted text is denoted by bullet-point indentation and smaller font.

A. Cleanup costs and liability

SOURCE: EPA. Overview of CERCLA and PRP Searches. Ch. 1 in: *PRP Search Manual*. Sept. 2009.
<http://www.epa.gov/compliance/cleanup/superfund/prpmanual.html>

SOURCE: EPA Region 10. *Frequently Asked Questions about Information Request Letters and Identifying Potentially Responsible Parties: Lower Duwamish Waterway Superfund Site*. Nov. 2012.

- Why does EPA send out information request letters? These letters are part of EPA’s information gathering process and search for potentially responsible parties (PRP) under the authority provided by Section 104(e) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the Superfund law. Issuing information request letters provides EPA with important information about a Superfund site and is a basic component of nearly all PRP searches.
- Does receiving an information request letter mean the government has decided that I am a potentially responsible party? No. It means that EPA has reason to believe that you have information about past or current property use. The information received in response to an information request letter is one of the sources EPA uses to identify potentially responsible parties.
- Does receiving a general notice letter mean the government has decided that I am a Potentially Responsible Party? If a general notice letter accompanies an information request letter it means that EPA has reason to believe that you may be a potentially responsible party.

SOURCE: EPA Region 10.

[http://www.epa.gov/region10/pdf/sites/ldw/104\(e\)_entities_11_20_2012_Public.pdf](http://www.epa.gov/region10/pdf/sites/ldw/104(e)_entities_11_20_2012_Public.pdf)

- List of Entities Receiving 104(e) Information Requests as of November 20, 2012. **N= 325.**

SOURCE: EPA Region 10.

http://www.epa.gov/region10/pdf/sites/ldw/GNL_Entity_List_11_20_2012.pdf

- List of General Notice Letter Entity Recipients (November 20, 2012). **N= 111.**

SOURCE: EPA Region 10. Lower Duwamish Waterway Superfund Site.

<http://yosemite.epa.gov/r10/cleanup.nsf/sites/lduwamish>

- Who pays for the cleanup?
 - EPA’s policy is to have the polluters pay for cleaning up pollution they created. Since pollution has been entering the Duwamish River for over 100 years from many different sources, it can be difficult to determine who is responsible for paying for the cleanup.
 - Lower Duwamish Waterway Group - In the interim, four organizations have stepped forward to pay for the Remedial Investigation and Feasibility Study: City of Seattle, King County, Port of Seattle, and the Boeing Company, collectively known as the Lower Duwamish Waterway Group.
 - General notice letters inform recipients that they are identified as PRPs at Superfund sites, that they may be liable for cleanup costs at the site, and explains the process for negotiating the cleanup with EPA [Letters were sent to 111 recipients regarding LDW cleanup on Nov. 20, 2012] .

SOURCE: Lower Duwamish Waterway Group. *Duwamish Database Project RFP*. Feb. 25, 2013.

- The LDWG is an informal working group consisting of King County, the City of Seattle, the Port of Seattle, and The Boeing Company. *The LDWG plans to invite about forty other parties to participate with them in a non-judicial proceeding designed to allocate the costs associated with the environmental clean-up of the Lower Duwamish Waterway.* [italics added]

SOURCE: EPA Region 10. Slip 4 Early Action Area.

<http://yosemite.epa.gov/r10/cleanup.nsf/ldw/slip+4+early+action+area>

- Total project costs were about \$8 million. The cleanup was funded by The Boeing Company and the City of Seattle, and used *Model Toxics Control Act matching grant funds* from the Washington Department of Ecology. [italics added]

B. MTCA toxics control account

SOURCE: WA Dept. of Ecology. *Model Toxics Control Act: Toxics Control Account Expenditures Report, 2009–11 Biennium*. Aug. 2012. Publication No. 11-09-047.

Toxics Control Account Revenue Deposits – 2009-11 Biennium

Revenue Source	2010 Amount	2011 Amount	Biennium Total
STATE TOXICS CONTROL ACCOUNT			
Hazardous Substance Tax	\$ 79,054,208	\$ 74,029,373	\$ 153,083,582
Mixed Waste Fees	\$ 7,165,305	\$ 4,872,739	\$ 12,038,044
Cost Recovery	\$ 24,512,197	\$ 5,120,434	\$ 29,632,631
Voluntary Cleanup Charges	\$ 936,174	\$ 872,455	\$ 1,808,628
Fines & Penalties	\$ 259,848	\$ 76,422	\$ 336,269
Miscellaneous	\$ 18,117	\$ 4,281	\$ 22,399
Transfers & Tax Refunds	(\$15,340,000)	(\$37,780,000)	(\$53,120,000)
Total STATE TOXICS CONTROL Funds	\$ 96,605,849	\$ 47,195,704	\$ 143,801,553
LOCAL TOXICS CONTROL ACCOUNT			
Hazardous Substance Tax	\$ 89,044,786	\$ 83,471,812	\$ 172,516,598
Transfers & Tax Refunds	(\$37,060,000)	(\$65,759,000)	(\$102,819,000)
Total LOCAL TOXICS CONTROL Funds	\$ 51,984,786	\$ 17,712,812	\$ 69,697,598

Ecology's MTCA Appropriations Transfer History 2009–2011 Biennium

STCA Fiscal Year 2010 Transfer to General Fund	\$15.34 Million
STCA Fiscal Year 2011 Transfer to General Fund	\$37.78 Million
Total State Toxics Control Funds Transferred:	\$53.12 Million
LTCA fiscal year 2010 transfer to the State General Fund	\$ 37.06 Million
LTCA fiscal year 2011 transfer to the State General Fund	\$ 65.76 Million
Total Local Toxics Control Account Funds Transferred	\$102.82 Million

2009-11 Biennium Department of Ecology's State Toxics Control Account Expenditures

Ecology's Program Operations Budget Expense	Expenditure Summary
AAFC – Agency Admin., Facilities, Communications	Provided administrative, communications, and facilities services statewide.
	\$ 12,461,966
EAP – Environmental Assessment Program	Provided objective, scientifically valid information about existing environmental conditions.
	\$ 5,064,724
HWTR – Hazardous Waste & Toxics Reduction	Fostered sustainable practices, and ensured safe management of hazardous substances.
	\$13,028,396
NWP – Nuclear Waste Program	Oversaw nuclear waste cleanup at the greater U.S. Hanford Site, and regulated mixed waste.
	\$ 9,839,195
SEA – Shorelands and Environmental Assistance	Reviewed plans and published dredging projects guidance to avoid creating new contamination.
	\$ 730,996
SPPR – Spill Prevention, Preparedness & Response	Maintained response capability, equipment, and training; emphasized prevention.
	\$ 7,337,501
TCP – Toxics Cleanup Program	Management and oversight of contaminated site cleanup statewide.
	\$34,505,573
W2R – Waste 2 Resources Program	Continued projects to reduce uses of/exposures to Persistent Bioaccumulative Toxics (PBTs).
	\$ 6,841,315
WQP – Water Quality Program	The programs and activities reduced toxic stormwater flow into our state's fresh and marine water resources.
	\$ 7,525,015
Ecology's Capital Budget Projects	\$ 22,216,069
Ecology's State Toxics Control Account	
Subtotal of 2009–11 Biennium Expenditures	\$119,550,750

SOURCE: WA Dept. of Ecology. *Remedial Action Grants & Loans: Program Guidelines*. May 2010. Publication No. 10-07-012.

- Who Can Receive an Oversight Remedial Action Grant? To receive an oversight remedial action grant, the applicant must be a local government that is a potentially liable person (PLP) under state law or a potentially responsible party (PRP) under federal law at a site that has been contaminated with hazardous substances, or is the owner of a site but has not been named a PLP or PRP.
- What Activities Can Oversight Remedial Action Grants Fund? Oversight remedial action grants provide funds to help local government conduct remedial investigations and cleanup actions.
- Financial Match Requirements for Oversight Remedial Action Grants. Typical oversight remedial action grants require a 50 percent match.... Local governments using an innovative cleanup technology as part or all of the cleanup action may be eligible for an additional 15 percent funding. This additional funding is a match reduction.

C. Cleanup liability and uncertainty

SOURCE: Wilhelm S. Businesses brace for Duwamish cleanup bills — without knowing the final amount. *Puget Sound Business Journal*. April 27, 2012.

- More than 100 owners of businesses along Seattle’s Lower Duwamish waterway— home to a quarter of King County’s manufacturing — are nervously watching the unfolding of the Superfund cleanup plan for the river. They’re wondering how much it will cost them. “As a small business owner, it is super difficult to plan our future,” said Kevin Sutherland, president of Commercial Floor Distributors Inc., a flooring company with a 13,000-square-foot facility a block from the river.
- Whatever the total bill, it will be shared among government entities including the city, county and Port of Seattle, as well as companies along the waterway ranging in size from Boeing to small companies such as Sutherland’s.
- The prospect of shouldering a cleanup burden for a mess they did not necessarily create is worrying small businesses and property owners along the Duwamish, many of whom contend they had nothing to do with creating the problem. Sutherland, the flooring company president, said he’s done nothing to pollute the Duwamish since he bought the building in 1999. He called the possibility of a big cleanup bill “a huge concern, especially for somebody that wasn’t involved in creating the problem.”
- Also concerned about the uncertainties is Pete Stoltz, manager of permitting and government affairs for Cal-Portland Co. The company operates three sites on the lower Duwamish where sand, gravel, cement and concrete are loaded and unloaded. “It’s a huge business risk factor for people to manage. It’s hard for them to strategize and know what the future looks like, when you have overriding questions about cleanup and what it will mean,” Stoltz said. “I get concerned (that) as these issues become very, very political and very, very emotional, it becomes very difficult to have a technical, open conversation about the trade-off of various alternatives.”

SOURCE: U.S. Government Accountability Office. *SUPERFUND Litigation Has Decreased and EPA Needs Better Information on Site Cleanup and Cost Issues to Estimate Future Program Funding Requirements*. [Report to Congressional Requesters]. July 2009. GAO-09-656.

- Courts have held responsible party liability under CERCLA to be strict, joint and several, and retroactive. Under strict liability, a party may be liable for cleanup even though its actions were not considered negligent. Because liability is joint and several, when the harm done is indivisible, one party can be held responsible for the full cost of the remedy even though other parties may have contributed to the release of hazardous substances at the site. Retroactive liability means that liability applies to actions that took place before CERCLA was enacted
- From fiscal years 1994 through 2007, Superfund litigation—as measured by the number, duration, and complexity of CERCLA cases—decreased for several reasons, according to experts, including a decline in the number of sites being cleaned up, changes in EPA’s enforcement process that have encouraged settlements, and court decisions that have clarified legal uncertainties
- Over the life of the Superfund program, according to EPA data, the agency has completed at least one enforcement action at 1,160 sites, or 71 percent of all proposed, final, or deleted NPL sites
- From fiscal years 1979 through 2007, EPA completed 4,642 enforcement actions at NPL sites, of which 3,682, or 80 percent, were consensual. Moreover, EPA resolved negotiations with responsible parties through administrative—rather than judicial—actions more than 60 percent of the time.
- [Statutes of limitations] For costs associated with removal actions, cases generally must be brought within 3 years of the completion of the action. For costs associated with remedial actions, cases must be brought within 6 years from the start of construction of the action.
- EPA enforcement begins with the identification of potentially responsible parties, usually early in the cleanup process; continues throughout site cleanup; and often does not conclude until after the site is declared construction complete, such as when the agency pursues parties to recover its costs for implementing the site cleanup.
- CERCLA also provides “contribution protection” to parties that settle with EPA. That is, other parties cannot sue the settling parties for the costs affiliated with the matters addressed by the settlement

- [From EPA web site: Incentives for Negotiating Superfund Settlements.]
<http://www.epa.gov/compliance/cleanup/superfund/neg-incentive.html>
 - Contribution Protection: Settling parties receive protection from contribution claims made by non-settling parties. The scope of the contribution protection is discussed in the consent decree or administrative settlement.
 - Covenants Not to Sue: A settling party's present and future liability is limited according to the terms of the consent decree or administrative settlements.
 - “Reopener” provision in negotiated settlement allows EPA to take new enforcement action if it discovers new evidence of liability or contamination after the initial settlement.
- DOJ officials and attorneys we spoke with both identified the number and type of responsible parties implicated at a site as important considerations in how they approach negotiations on Superfund site liability. For example, one attorney explained that the number of parties identified is important because, at sites with few responsible parties, each party will be responsible for a greater share of site cleanup costs and higher expected costs could make it more difficult to resolve liability. On the other hand, DOJ officials noted that it can be difficult for a large number of responsible parties to organize themselves to reach agreement with EPA. To assist in organization, EPA encourages responsible parties to form steering committees to expedite negotiations. In some instances, responsible parties will form multiple groups of similar parties, such as those who contributed large amounts of waste to a site and those who contributed only a small amount
- The involvement of certain types of responsible parties at a site can also make a difference in negotiations with EPA. For example, some experts noted that *de minimis* parties may have little experience with Superfund, and early settlements to remove such parties from the discussions can simplify future negotiations. In addition, DOJ officials said parties facing bankruptcy may complicate negotiations because it may be harder to negotiate with the remaining parties.
- Several experts also noted that uncertainty about the costs or scope of the cleanup could lead to more difficult negotiations.
 - According to attorneys at one law firm, sites with long-term operation and maintenance requirements create “open-ended” liability for their clients. Additionally, these attorneys said that disagreements about the level of cleanup necessary—such as whether the site will be used as an industrial park or a residential neighborhood, which can affect the cleanup standards—create uncertainty.
 - One state official we spoke with agreed that responsible parties are less likely to litigate over Superfund liability when they are certain about the costs of cleanup at a site.
- Attorneys who represent responsible parties explained that, in deciding whether to settle with EPA, these parties also evaluate whether they will be able to recover some of their costs from parties not settling with the agency.
- DOJ officials noted that it can be difficult for a large number of responsible parties to organize themselves to reach agreement with EPA. To assist in organization, EPA encourages responsible parties to form steering committees to expedite negotiations. In some instances, responsible parties will form multiple groups of similar parties, such as those who contributed large amounts of waste to a site and those who contributed only a small amount
- The involvement of certain types of responsible parties at a site can also make a difference in negotiations with EPA.
 - For example, some experts noted that *de minimis* parties may have little experience with Superfund, and early settlements to remove such parties from the discussions can simplify future negotiations.
 - In addition, DOJ officials said parties facing bankruptcy may complicate negotiations because it may be harder to negotiate with the remaining parties
- A few attorneys also raised concerns about the scope of contribution protection under CERCLA, and the extent to which CERCLA settlements protect parties from liability under certain CERCLA provisions, as well as other laws. While EPA settlements establish contribution protection as a way to encourage parties to settle, parties may have less incentive to settle if they have doubts about the effectiveness of the protection
- Superfund reforms:
 - Orphan share compensation. When a responsible party cannot be found or is insolvent, that share of the site cost is known as an orphan share. In some instances, EPA offers settling parties compensation for a portion of this share, which the parties would otherwise have to pay, so that they are more willing to settle.
 - *De minimis* settlements. These settlements provide protection from additional liability for small waste contributors. EPA promoted the early use of these settlements so that such parties could quickly resolve their

liability and avoid further involvement in site cleanup or litigation. Eliminating these parties facilitates settlements among the remaining parties at the site, according to EPA guidance and attorneys representing responsible parties.

- Ability to pay settlements. EPA promoted the early use of these settlements, which resolve the financial liability of responsible parties at a reduced amount for those who demonstrate that they cannot pay their full share of cleanup costs.

SOURCE: Slutzky D, Frey AJ. Brownfields Uncertainty: A Proposal To Reform Superfund. *Cityscape: J Policy Development Research*. 2010;12(3):85-100.

- Scattered within and among some of the most commercially desirable urban centers in the country, brownfield sites are suspended in a sort of regulatory limbo; although not specifically designated as Superfund sites and listed by EPA on the National Priority List (NPL), they are nonetheless tarred by their potential—real or perceived—for costly environmental regulatory and third-party tort liability.
- Uncertainty is the enemy of economic activity. Urban redevelopment activities are stymied in the face of uncertainty, and CERCLA liability represents great uncertainty. Before a developer will move forward with a project, he or she must be convinced that the effort will provide a favorable financial outcome. The potential for hazardous waste cleanup or third-party tort liability represents a significant uncertainty for a brownfields redeveloper. Because most development requires significant debt capital, and because lenders are notoriously risk adverse, it is no wonder that brownfield sites regularly fall victim to the uncertainties associated with CERCLA liability. Although many sites are only nominally contaminated, or indeed contamination free, the perceived stigma and uncertainty over regulatory and third-party tort liability attached to ownership of such sites keep otherwise desirable redevelopment opportunities off the market or off the radar of potential purchasers
- CERCLA imposes extraordinary liability, in the form of joint and several as well as strict liability on PRPs. If a PRP meets the statutory standard for responsibility, it is potentially responsible for the entire cleanup by itself. Because this liability is retroactive, developers who purchase the property after all contaminating activities have ceased can still be held responsible for cleanup costs. Further, potential liability is not a function of negligence on the part of the PRP.
- With the threat of liability hanging over these properties, developers are reluctant to buy them, even at discounted rates, and risk-averse lenders are even more reluctant to fund such projects for fear of losing their collateral in the event of major environmental liability. The disincentives created by federal and state cleanup liability affect both municipalities and private industry. Cities are rendered powerless to curtail sprawling greenfield development because they cannot offer cost effective urban alternatives. They are forced to watch their tax bases languish as urban properties sit unused and development flees to the countryside. The otherwise willing private sector, which would seem to favor developing brownfields due to their proximity to existing infrastructure such as access to utilities and transportation corridors, is kept from injecting needed capital into urban development because of uncertainty over harsh environmental cleanup and tort liability

SOURCE: Campbell K, et al. Site uncertainty, allocation uncertainty, and superfund liability valuation. *Journal of Accounting and Public Policy* 1998; 17:331-366.

- Abstract
 - The amount and timing of a firm's ultimate financial obligation for contingent liabilities is uncertain and subject to the outcome of future events. *We decompose uncertainty about Superfund contingent liabilities into two sources: (1) uncertainty regarding site clean-up cost (site uncertainty); and (2) uncertainty regarding allocation of total site-clean-up cost across multiple parties associated with the site (allocation uncertainty).* [italics added]
 - We hypothesize that when a firm's contingent Superfund liabilities are subject to relatively more site and allocation uncertainty, these liabilities will be viewed as relatively risky. This risk will affect the firm's cost of capital. Thus, market valuation of contingent Superfund liabilities will be negatively affected. To empirically test our hypotheses we employ a cross-sectional model of the relation between firm market value and book value of assets, book value of liabilities, and a contingent Superfund liability proxy interacted with proxies for our uncertainty constructs.
 - We find differential results across industries. In the chemical industry, both site and allocation uncertainty are associated with differential valuation of contingent Superfund liabilities. The greater the uncertainty, the more

negatively the contingent Superfund liability is valued. Results are insignificant, however, in the paper and machinery industries.

- Our results provide evidence, at least in the most heavily involved industry, that site-level information of a non-financial nature can be relevant to financial statement users. This is consistent with accounting regulators' incorporation of site-level Superfund enforcement data in guidance regarding financial reporting for contingent Superfund liabilities. The concepts of site and allocation uncertainty, however, may provide a useful way for organizing and evaluating alternative site-level data when considering financial reporting alternatives.
- ...accounting for Superfund liabilities remains a contentious issue. Estimation of contingent Superfund liability lies at the heart of issues surrounding financial statement disclosure and accrual practices. The ability of firms to reasonably estimate contingent Superfund liabilities is hindered by substantial sources of uncertainty that are inherent in the institutional context of Superfund. Through a series of surveys, Price Waterhouse (1991, 1992,) has solicited information about corporate America's views and accounting practices related to environmental issues. The 1992 and 1994 surveys asked participants to rank the importance of a variety of factors in estimating site remediation costs. The nature of the site is consistently ranked as the most important factor in estimating clean-up costs. Survey results indicate other important factors are: uncertainty regarding remediation methods and technology; extent of regulatory involvement; past experience; and the number and viability of other PRPs (Price Waterhouse, 1992, p. 14; 1994, p. 13).
- The factors reported in the Price Waterhouse surveys relate to two basic challenges underlying estimation of firm-specific Superfund contingent liability. First, the cost of cleaning-up a Superfund site is, in itself, difficult to estimate. RODs describe a remediation action and present an initial cost estimate for site clean-up. Unfortunately, RODs are often vague in their expression of remedies, and the actual cost of clean-up can substantially deviate from ROD estimates. Church and Nakamura (1993), for example, present case studies of sites where actual clean-up costs were less than the ROD estimates (p. 103) as well as cases where costs substantially exceeded estimates (p. 61). We refer to uncertainty regarding the total cost of site cleanup as *site uncertainty*.
- Even if the cost of cleaning up a site could be known with certainty, the share of the total cost that any individual firm will ultimately pay would still be difficult to assess. Multiple PRPs are typically identified with Superfund sites. The joint and several nature of Superfund liability creates substantial uncertainty regarding the allocation of clean-up costs at multi-party sites. One could argue that even after a ROD cost estimate is available, a PRP's contingent Superfund liability remains inestimable (and thus not subject to accrual under SFAS No. 5) since the total cost of site remediation provides no information about how much any individual firm will eventually pay. Ultimately, cost allocation is negotiated and evolves over time (through agreements and legal proceedings between PRPs and government entities, among PRPs identified with a site, and between PRPs and other third parties). We refer to uncertainty regarding the allocation of total site clean-up costs across PRPs as *allocation uncertainty*.

SOURCE: Campbell K, et al. Disclosure of Private Information and Reduction of Uncertainty: Environmental Liabilities in the Chemical Industry. *Review of Quantitative Finance and Accounting* 2003; 21: 349–378.

- Abstract.
 - We investigate the potential uncertainty-reducing role of accounting information in the context of contingent Superfund liability valuation. We first develop theoretical arguments for the way reduction of uncertainty regarding these contingent liabilities is expected to affect security prices. Empirical proxies are developed for two types of uncertainty surrounding contingent Superfund liabilities: site uncertainty and allocation uncertainty.
 - In a valuation framework, we then investigate whether financial statement disclosures and accruals reduce uncertainty and thereby affect security valuation. Specifically, we analyze the interaction of private information contained in firm disclosures and accruals with inherent uncertainty surrounding contingent Superfund liabilities.
 - Results suggest that in a regulatory environment allowing substantial reporting discretion, firm-provided financial statement information affects valuation of contingent Superfund liabilities by reducing uncertainty. Further, we find that information revealed through accruals versus disclosures is differentially effective at reducing site and allocation uncertainty.
- We provide evidence that accounting information affects contingent Superfund liability valuation, but find that accrual and disclosure information are differentially effective at reducing the two types of uncertainty considered. We find that private information revealed through accruals more effectively reduces allocation than site

uncertainty. Alternatively, private information communicated through footnote disclosures more effectively reduces site uncertainty.

- Early research on contingent environmental liabilities (e.g., Barth and McNichols, 1994; Campbell, Sefcik and Soderstrom, 1998) examined the (first-order) impact of these liabilities on stock market valuation. This study incorporates an omitted dimension of the information environment that likely exerts a significant influence on firm value. It explicitly brings into the valuation equation two aspects of financial reporting: accrual and disclosure. In the accounting literature, disclosure and accrual have both been found to be valuation-relevant, however no distinction has been typically drawn between these two forms of revealing information. It is this actual reporting choice, to accrue or disclose, that is examined in our study. We find that the two types of reporting play very different roles in uncertainty reduction.
- Contingent Superfund liabilities exist in a complex information environment. Site-level EPA data are relevant for determining a firm's exposure to potential Superfund liabilities, but represent only a subset of the information that potentially may be available to managers. Firms frequently conduct or commission extensive investigations to support their negotiation positions regarding allocation of site clean-up costs.
- Investors and other external stakeholders can access public EPA information, whether or not firms provide it in their financial statements. Under current financial reporting standards, firms exercise considerable discretion over the extent to which they disclose information related to contingent Superfund liabilities, particularly their private information. In the context of contingent Superfund liabilities, the relation between information that a firm chooses to disclose in its financial statements and that accessible from EPA sources is interesting. A firm may choose to disclose only a subset of available EPA data. Alternatively, a firm may choose to supplement public EPA data by disclosing some of its private information. The disclosed private information would represent information that is uniquely provided to investors via financial statements.
- Because disclosure of private information can reduce uncertainty surrounding contingent Superfund liabilities, we expect it to attenuate the impact that EPA data might otherwise have on valuation of these liabilities. Thus, we hypothesize that firm-provided private information about environmental liability reduces site and allocation uncertainty and their negative impact on valuation of contingent Superfund liabilities.

SOURCE: Garber S, Hammitt JK. Risk Premiums for Environmental Liability: Does Superfund Increase the Cost of Capital? *J Environ Econ Mgmt* 1998; 36:267-94.

- Superfund liability may impose financial risk on investors and thereby increase firms' costs of capital. We analyze monthly stock returns for 73 chemical companies using several measures of Superfund exposure. Additional exposure appears to increase costs of capital for larger firms, but perhaps not for smaller firms. From 1988 to 1992, we estimate an average increase in cost of capital for 23 larger firms of between 0.25 to 0.40 percentage points per year. The social cost of Superfund-related financial risk in the chemical industry may be as high as \$800 million annually or enough to clean up about 20 sites

D. Cleanup-related employment

SOURCE: *Estimates of Economic Impacts of Clean-up Activities Associated with the Lower Duwamish Superfund*, by Voight T, et al. (ECONorthwest; produced for King County). Nov 29, 2010.

- On behalf of the LDWG, King County engaged ECONorthwest to develop estimates of the economic activity associated with each alternative clean-up scenario of the Superfund site.
- This study only examined economic activity associated with spending resulting from the clean-up of the Lower Duwamish Waterway. It did not examine at potential negative economic impacts of cleanup on businesses and other entities that will pay the costs of clean-up. The study also did not consider the disruption likely to result from clean-up (e.g., construction noise or traffic delays). While potentially significant, such impacts are very difficult to estimate until the clean-up scenario is selected. [Note, Alternative 5C "plus" was later selected for the Proposed Plan].
- The primary analytical tool used in the evaluation of the economic and employment impacts of the Lower Duwamish Superfund site clean-up is an input-output model [IMPLAN: Impact analysis for PLANning]. Input-output models are static models that measure the flow of inputs and outputs in an economy at a point in time.
- The analysis of the impact of clean-up of the LDW Area considers three primary impacts of clean-up activities:

- Economic output is the broadest measure of economic activity and represents the value of finished goods. Economic output includes the costs of intermediated goods and other material inputs, as well as all value added activity as represented by the cost of labor, net business income (profits), and indirect business taxes.
- Personal income consists of compensation to employees and business owners (proprietor and corporate income).
- Jobs represent the number of additional jobs gained or lost as a result of clean-up of the Superfund site. Job impacts are the most popular measure of economic impacts because they are easy to understand.
- The analysis considers different impacts from spending on clean-up of the LDW Area. The types of impacts considered in the analysis are:
 - Direct Impacts are changes in economic activity associated with the cleanup activity itself; they are the initial effects on the local economy associated with the cleanup activities.
 - Indirect Impacts are the secondary economic effects caused by the increased demand for inputs by the directly affected industries.
 - Induced Impacts are the economic effects caused by changes in household spending that are the result of the additional employment generated by both the direct and indirect impacts.
 - Total Impacts are the sum of direct, indirect, and induced impacts.
- until the project begins and firms are hired to do the work, it is not clear how much of the project work will be done by firms located in King County, the City of Seattle, or the LDW Area. This will depend on numerous factors, including the availability of firms with skilled labor and specialized equipment in King County, as well as the project bidding process. In this analysis, we assumed that firms located in King County would do the work, where possible.

● Table 1 shows a summary of the estimated costs (millions of dollars), total economic outputs, personal income, and jobs for the entire duration of the project for each of the alternative clean-up scenarios for the Lower Duwamish Superfund Site at three geographic levels: King County, Seattle, and the Lower Duwamish Waterway (LDW) Area. [Note: Alternative 5C “plus” was later selected for the Proposed Plan; Alt. 5C is highlighted]

Table 1: Cost and Total Economic Outputs of Clean-up Activities Associated with the Lower Duwamish Superfund Site over the Entire Construction and Restoration Periods, King County, Seattle, and the LDW Area

Scenario	Cost* (millions of dollars)	Total Economic Outputs (millions of dollars)			Total Personal Income (millions of dollars)		
		King County	Seattle	LDW Area	King County	Seattle	LDW Area
Alt. 2 Removal with CAD	\$213.2	\$251	\$202	\$64	\$99	\$83	\$24
Alt. 2 Removal	\$196.6	\$266	\$208	\$62	\$104	\$86	\$24
Alt. 3 Combined	\$202.9	\$254	\$200	\$60	\$100	\$83	\$23
Alt. 3 Removal	\$276.1	\$344	\$269	\$83	\$134	\$110	\$31
Alt. 4 Combined	\$280.5	\$352	\$277	\$87	\$138	\$114	\$33
Alt. 4 Removal	\$441.7	\$550	\$430	\$138	\$214	\$176	\$52
Alt. 5 Combined	\$299.3	\$377	\$297	\$93	\$148	\$122	\$36
Alt. 5 Removal	\$560.2	\$697	\$545	\$176	\$270	\$222	\$66
Alt. 5 Removal Treatment	\$614.6	\$817	\$626	\$270	\$312	\$252	\$97
Alt. 6 Combined	\$620.9	\$777	\$611	\$195	\$303	\$250	\$74
Alt. 6 Removal	\$1,284.2	\$1,593	\$1,241	\$403	\$616	\$505	\$151

Source: ECONorthwest analysis of data from the IMPLAN modeling system and Tables I-39 to I-49, as described in "Appendix I (v.2) Detailed Cost Estimates, Feasibility Study," August 20, 2010, prepared by AECOM Environment
 *Note: Approximate costs does not include the cost of an \$80,000 barge liner.
 *Note: The October 2010 "Draft Final Feasibility Study" presents revised cost estimates for each scenario. The largest increase was for Alternative 3 Combined (a 9% increase to \$18.5 million) and the largest decrease was Alternative 6 Removal (a 1% decrease of \$14.0 million).
 Note: Amounts are presented in 2010 dollars.

● Table 3 shows an estimate of full-year jobs, both for the entire project period and on an annual basis during the construction period. [Note, Alt. 5C is highlighted]

Table 3: Total Full-Year Jobs and Annual Full-Year Jobs from Clean-up Activities Associated with the Lower Duwamish Superfund Site, King County, Seattle, and the LDW Area

Scenario	Time (Years)		Estimated Total Full-Year Jobs (Entire Project)			Average Annual Full-Year Jobs (During Construction)		
	Constr-uction	Rest-oration	King County	Seattle	LDW Area	King County	Seattle	LDW Area
Alt. 2 Removal with CAD	3.9	25	1,446	1,208	375	362	302	94
Alt. 2 Removal	3.9	25	1,516	1,242	364	379	311	91
Alt. 3 Combined	3.7	25	1,458	1,198	352	364	300	88
Alt. 3 Removal	6.5	25	1,956	1,600	484	279	229	69
Alt. 4 Combined	7.1	20	2,017	1,657	511	288	237	73
Alt. 4 Removal	13	20	3,119	2,548	804	240	196	62
Alt. 5 Combined	7.7	20	2,157	1,775	551	270	222	69
Alt. 5 Removal	19	20	3,946	3,221	1,028	208	170	54
Alt. 5 Removal Treatment	19	20	4,551	3,640	1,471	240	192	77
Alt. 6 Combined	22	20	4,429	3,632	1,149	201	165	52
Alt. 6 Removal	45	20	8,984	7,314	2,350	200	163	52

Source: ECONorthwest analysis of data from the IMPLAN modeling system and Tables I-39 to I-49, as described in "Appendix I (v.2) Detailed Cost Estimates, Feasibility Study," August 20, 2010, prepared by AECOM Environment

- One way to evaluate the impact of spending on job creation is to evaluate the amount spent per job created. The clean-up of the LDW Area is an example of non-residential construction. In King County, every \$1 million spent on non-residential construction (e.g., road and bridge construction or office building construction) creates 5.9 jobs. The cost per job is \$170,000, including costs for labor (e.g., wages), equipment, and materials.

- Table 5 shows clean-up spending per job created from clean-up activities. The amount spent on clean-up activities in King County averages about \$140,000 per job (7.1 jobs per \$1 million spent). [next page; Alt. 5C highlighted]

Table 5: Spending per Job Created from Clean-up Activities Associated with the Lower Duwamish Superfund Site over the 4 to 45 year construction period, King County, Seattle, and the LDW Area

Scenario	Total Jobs over the construction period			Spending per Full-Year Job Created		
	King County	Seattle	LDW Area	King County	Seattle	LDW Area
Alt. 2 Removal with CAD	1,446	1,208	375	\$136,000	\$163,000	\$525,000
Alt. 2 Removal	1,516	1,242	364	\$141,000	\$172,000	\$585,000
Alt. 3 Combined	1,458	1,198	352	\$139,000	\$169,000	\$576,000
Alt. 3 Removal	1,956	1,600	484	\$141,000	\$172,000	\$570,000
Alt. 4 Combined	2,017	1,657	511	\$139,000	\$169,000	\$549,000
Alt. 4 Removal	3,119	2,548	804	\$142,000	\$173,000	\$549,000
Alt. 5 Combined	2,157	1,775	551	\$139,000	\$169,000	\$543,000
Alt. 5 Removal	3,946	3,221	1,028	\$142,000	\$174,000	\$545,000
Alt. 5 Removal Treatment	4,551	3,640	1,471	\$135,000	\$169,000	\$418,000
Alt. 6 Combined	4,429	3,632	1,149	\$140,000	\$171,000	\$540,000
Alt. 6 Removal	8,984	7,314	2,350	\$143,000	\$176,000	\$547,000

Source: ECONorthwest analysis of data from the IMPLAN modeling system and Tables I-39 to I-49, as described in "Appendix I (v.2) Detailed Cost Estimates, Feasibility Study," August 20, 2010, prepared by AECOM Environment

- Table A-25 shows spending assumptions by industry sector for "Alternative 5 Combined" [note, not identical to the selected 5C "Plus"] for three geographic areas: King County, the City of Seattle, and the LDW Area.

Table A-25: Estimated Spending by Industry Sector for Clean-up Activities Associated with the Lower Duwamish Superfund Site, King County, Seattle, and the LDW Area for Alternative 5 Combined

Industry Sector and Description	Total Direct Spending	Regional Spending		
		King County	City of Seattle	LDW Area
Construction	\$102,000,000	\$92,000,000	\$82,000,000	\$32,000,000
Rail transportation	\$22,000,000	\$17,000,000	\$11,000,000	\$0
Water transportation	\$15,000,000	\$10,000,000	\$8,000,000	\$3,000,000
Motor transportation	\$15,000,000	\$15,000,000	\$15,000,000	\$4,000,000
Architectural and engineering services	\$12,000,000	\$12,000,000	\$9,000,000	\$1,000,000
Environmental services	\$68,000,000	\$38,000,000	\$38,000,000	\$7,000,000
Public relations	\$5,000,000	\$4,000,000	\$3,000,000	\$0
Waste management and remediation services	\$44,000,000	\$25,000,000	\$4,000,000	\$4,000,000
State and local govt (noneducation)	\$16,000,000	\$16,000,000	\$16,000,000	\$0
Total	\$299,000,000	\$229,000,000	\$187,000,000	\$52,000,000

Source: ECONorthwest analysis of data from the IMPLAN modeling system and Tables I-39 to I-49, as described in "Appendix I (v.2) Detailed Cost Estimates, Feasibility Study," August 20, 2010, prepared by AECOM Environment
 Note: The October 2010 "Draft Feasibility Study" estimate of total direct spending increased to \$314 million, an increase of \$14 million or 5%.

Note: Rounding errors may cause the "Total" to be slightly higher or lower than sum of the spending.

- [selected from Summary; bold in original text].
 - **Job creation and generating economic activity is a secondary argument for cleaning up the Lower Duwamish Waterway.** A relatively short-term effect of the clean-up is creation of local jobs and generation of local economic output associated with cleaning up the Superfund site. However, these relatively short-term economic activities do not represent a compelling economic argument for action in and of themselves. The primary reasons for cleaning up the Superfund site are to restore the environment and to encourage future investment in the LDW Area. Failure to act efficiently and effectively to clean-up the Superfund site could result in a decline in economic activity within the affected area and throughout the County, as seen in other areas with a Superfund site.
 - **In the short-run, clean-up activities at the Superfund site will impose costs and negative impacts on businesses and residents of the LDW Area and surrounding areas.** Businesses and residents of the LDW Area, as well as nearby parts of Seattle, will shoulder some of the costs of clean-up and may be inconvenienced by construction (e.g., noise, transportation delays, etc.). The costs and inconveniences may

cause businesses to delay making investments, move out of the LDW Area, or (in a few extreme cases) go out of business. This analysis does not attempt to quantify the potential negative impacts....

- **Much of the clean-up spending may be allocated to firms located in King County.** Based on our analysis and the current economic composition, as much as three-quarters of spending may be allocated to firms located within King County and 60% allocated to firms in the City of Seattle. Less than 20% of total spending will occur at firms located within the LDW Area (which includes the boundaries of the Duwamish Manufacturing/Industrial Center). Spending on some clean-up activities, especially landfill costs, will take place outside of King County.
- **Many of the jobs will be full-time part-year jobs.**
- **The number of jobs resulting from spending on the LDW Area clean-up is slightly higher than the average for other non-residential construction projects.** For every \$1 million spent on non-residential construction (e.g., road and bridge construction or office building construction) in King County, 5.9 jobs are created. The cost per job is \$170,000, which includes costs for labor (e.g., wages), equipment, and materials. In comparison, the amount spent on clean-up activities in King County averages about \$140,000 per job (7.1 jobs per \$1 million spent). One reason that spending per job is lower for clean-up of the LDW is that the materials used in the clean-up are less costly than for other non-residential construction. Typical non-residential construction uses a combination of low cost materials (e.g., gravel, sand, or dry wall) and higher cost materials (e.g., windows or carpets). The principal materials in the clean-up are largely low cost items, such as gravel or sand.

E. Cleanup impact on industry economic output and employment

SOURCE: *Lower Duwamish Economic Analysis* by Voight T, et al. (ECONorthwest; produced for King County Dept. of Natural Resources and Parks). March 2010.

- Studies have shown that commercial properties with known or suspected hazardous contamination can experience substantial reductions in property value, and that transaction rates for commercial properties adjacent to known contamination sites are statistically significantly lower than for commercial properties in areas without contamination.
 - To our knowledge, the literature does not include any studies quantifying the magnitude of the decrease in economic output of commercial properties resulting from the designation of a Superfund site, particularly during the time period following designation but before action is taken and it is cleaned up.
 - However, there have been numerous studies that examine the impacts on property values for land located within or near a Superfund site. Most of these studies, however, focused on residential property because of the greater availability of sales data and the far greater homogeneity of amenities and attributes among residential properties compared with commercial and industrial properties.
- Businesses may be affected both directly and indirectly by the designation of a Superfund site, as well as by the effectiveness and timeliness of the cleanup of the site.
 - Given the uncertainty about liability and what will happen, businesses may be directly impacted in the following ways: (1) they are reluctant to invest in their facilities located within the affected area; (2) outside investors are reluctant to invest in businesses operating in the affected area; or (3) banks or other financial institutions either refuse to lend to businesses within the affected area or will do so only at higher interest rates. These potential direct impacts affect only those firms within the Superfund site and possibly those firms identified as contributing to the contamination of the site. These firms represent a geographically contained portion of the Seattle and King County economies.
 - Other businesses may be affected indirectly by the “economic stigma” and uncertainty surrounding the designation of the Superfund area described above. If investment in the principal businesses sectors located within (or closely adjacent) to the Superfund site is redirected to other sites elsewhere in the region or outside of the region, many other businesses within the Superfund site and in the greater regional economy will be indirectly and adversely affected.

- Likewise, increased investment in the principal business sectors in the Superfund site resulting from the completion of the cleanup or perception that the cleanup will ultimately be successful, other businesses within the Superfund site or in the regional economy will be indirectly and positively affected.
- Building on the descriptive analysis..., the report considers two alternative scenarios with respect to business investment in the affected area and resulting impact on economic activity within the affected area, as well as in the remainder of the City of Seattle and King County. The purpose of the analysis is to show the importance of implementing cleanup expeditiously, in a manner that maintains and enhances the economic vitality of the area.
 - It was felt appropriate to select Tier 2 for this analysis rather than Tier 1 because Tier 2 represents a smaller area, more likely to be impacted to a greater extent than the larger Tier 1 area.
 - For the purposes of the impact analysis, we refer to these three sectors—manufacturing, wholesale trade, and transportation and warehousing—as the principal industry sectors of the Tier 2 area because of their relative importance to the City and County economies.
 - We focus on these three sectors of the economy when analyzing the potential impacts to the Seattle and King County economies resulting from cleaning-up or not cleaning-up toxic materials within the Lower Duwamish Waterway Superfund site.
 - The buildup of toxic materials in the Superfund site occurred over many decades and was largely a negative externality of economic activity by businesses and government entities within the Duwamish Manufacturing/Industrial Center and the greater Duwamish Constructed Watershed.
 - The benefits associated with this economic activity accrued (and continues to accrue) to businesses and residents located within the affected areas, as well as to businesses, residents, and governments throughout Seattle and King County. [Report footnote: In fact, of course, benefits accrued to entities far beyond King County, however, the focus of this analysis does not go beyond King County.]
 - The analysis is comprised of two alternative scenarios related to the *perception* of efficacy of cleanup efforts at the Superfund site. [italics in original]
 - We use the qualifier “perception” because we are not qualified to judge the actual efficacy of the clean-up effort and because, *regardless of the actual efficacy of the cleanup, it is the perception of businesses and other investors that the site has been or is being effectively cleaned up that will ultimately guide investment decisions.* [italics added]
 - **“Pessimistic” Scenario A:** For the Scenario A, we assume that...
 - businesses perceive the clean-up effort is not going well and
 - there is a reasonably high likelihood of negative surprises, such as not-yet-identified contamination and/or the possibility of inheriting liability for contamination by a past polluters.One or more of the following occur:
 - Firms operating in the principal industries decide to decrease spending on updating and maintaining current capital and put on hold any investments in additional capital
 - The operating lines of credit of firms operating in the affected area are decreased or financing costs increased due to banks’ perceptions of increased risk associated with the Superfund cleanup
 - Firms once considering moving into the affected area, look to other sites outside of Seattle and King County because of these concerns[Scenario A, continued; italics added]
 - *Because no definitive figure was available from a literature review, the analysis examines the regional impacts resulting from a 10 percent decrease in economic output in the principal industry sectors in the affected area from current levels.* This decrease in economic activity by the principal industries will persist into the future as long as businesses and investors perceive that the clean-up effort is not going well.
 - **“Optimistic” Scenario B:** For the Scenario B, we assume that...
 - businesses perceive the clean-up effort is going well and

- there is a low likelihood of any negative surprises, such as not-yet-identified contamination and/or the possibility of inheriting liability for contamination by a past polluters.
- Firms operating in the principal industries decide to increase investments and/or additional firms in these industries move into the affected area. The converse of scenario A, this *assumes that economic output in these sectors in the affected area increases by 10 percent from current levels*. This increase in output by the principal industries will persist into the future as the new baseline of economic activity.
- It is important to note that, while both scenarios appear well within the realm of possibilities given the potential magnitude and complexity of the Duwamish Superfund cleanup, *neither scenario represents a projection of anticipated outcome*. We affix no likelihood to occurrence or outcome of either scenario. Rather, the two scenarios are intended to be illustrative of what could happen given the perceptions of businesses and investors regarding cleanup of the site. They demonstrate the regional economic significance of the Lower Duwamish area.
- Table 10 [next page] shows the impacts associated with a 10 change in the economic output of the principal industry sectors (manufacturing, transportation and warehousing, and wholesale trade) located in the Tier 1 area [Tables 11-13, by industry; following pages; only “Within Affected Area” section of tables is shown]
 - Direct impacts are those affecting the principal industries in the affected area. Indirect impacts are those affecting the businesses that provide inputs to the primary industries (located throughout the County). Induced impacts associated with reduced spending by workers and businesses owners directly or indirectly impacted (located throughout the County).
 - The impacts...represent the change in economic activity, and are the same for either scenario (but are in the opposite direction). For (pessimistic) Scenario A, the impacts shown represent decreases in economic activity; for (optimistic) Scenario B, the impacts represent increases in economic activity.
 - The results of the analysis...represent annual impacts, using the current year (2010) as a base. The results represent one-year impacts, without consideration of a transition period. [Report footnote: In all likelihood, impacts under such a scenario would not be immediate, but rather would occur gradually, and persist for several years. The specifics of such a scenario are difficult to predict, and beyond the scope and purpose of this analysis. Presenting results in annual terms serves to demonstrate the potential magnitude of such impacts and the overall regional economic significance of the Lower Duwamish.]

Table 10: Impacts of a 10 Percent Change in Economic Output by the Principal Industry Sector Located in the Tier 2 Lower Duwamish Manufacturing/Industrial Center (Estimated for 2010)

Impact Measure	Direct	Indirect	Induced	Total
Within Affected Area (Tier 2: Industrial/Manufacturing Center)				
Output	\$727,460,892	\$171,168,657	\$40,849,524	\$939,485,736
Total Value Added	\$335,877,996	\$92,734,475	\$25,033,510	\$453,656,140
Wages	\$192,929,347	\$51,271,825	\$11,881,980	\$256,081,272
Business & Other Income	\$103,561,800	\$32,892,330	\$10,324,400	\$146,786,056
Indirect Business Taxes	\$39,386,849	\$8,570,321	\$2,827,130	\$50,788,812
Jobs	3,052	883	277	4,214
Elsewhere in Seattle				
Output	\$0	\$48,743,559	\$136,287,361	\$181,641,939
Total Value Added	\$0	\$25,169,509	\$86,023,179	\$109,405,188
Wages	\$0	\$12,157,051	\$43,580,160	\$54,708,814
Business & Other Income	\$0	\$11,939,832	\$34,508,683	\$45,830,637
Indirect Business Taxes	\$0	\$1,072,626	\$7,934,338	\$8,865,738
Jobs	0	219	962	1,158
Elsewhere in King County				
Output	\$0	\$131,947,686	\$113,380,927	\$246,909,812
Total Value Added	\$0	\$69,362,789	\$63,975,170	\$133,999,872
Wages	\$0	\$36,094,765	\$30,065,698	\$66,662,269
Business & Other Income	\$0	\$29,219,577	\$27,907,063	\$57,231,525
Indirect Business Taxes	\$0	\$4,048,447	\$6,002,409	\$10,106,079
Jobs	0	612	601	1,227
Total Countywide Impacts				
Output	\$727,460,892	\$351,859,902	\$290,517,812	\$1,369,838,606
Total Value Added	\$335,877,996	\$187,266,773	\$175,031,859	\$698,176,628
Wages	\$192,929,347	\$99,523,641	\$85,527,838	\$378,080,826
Business & Other Income	\$103,561,800	\$74,051,739	\$72,740,146	\$249,848,218
Indirect Business Taxes	\$39,386,849	\$13,691,394	\$16,763,877	\$69,766,299
Jobs	3,052	1,714	1,840	6,599

Source: ECONorthwest analysis of data from 2008 IMPLAN modeling system

- As Table 10 shows, most of the impacts (either negative as in Scenario A or positive as in Scenario B) are confined to the Tier 2 affected area and most of the impacts within the affected area are direct impacts to the principal industries.
 - We estimate annual output in the affected area would change by about \$940 million, nearly half of this being value added.
 - Changes in wages for workers in the affected area would be \$256 million and would impact just over 4,200 jobs.
 - Business and other incomes would change by about \$147 million and indirect business taxes would change by about \$51 million.

Table 11: Impacts of a 10 Percent Change in Economic Output of Manufacturing Sector Located in the Tier 2 Manufacturing/Industrial Center (Estimated for 2010)

Impact Measure	Direct	Indirect	Induced	Total
Affected Area (Tier 2: Industrial/Manufacturing Center)				
Output	\$376,166,723	\$97,585,547	\$16,807,882	\$490,566,923
Total Value Added	\$112,760,113	\$50,280,701	\$10,292,298	\$173,343,269
Wages	\$69,745,448	\$27,414,278	\$4,886,782	\$102,044,628
Business & Other Income	\$40,415,729	\$17,998,073	\$4,244,665	\$62,665,991
Indirect Business Taxes	\$2,598,936	\$4,868,350	\$1,160,851	\$8,632,650
Jobs	1,091	446	114	1,652

Table 12: Impacts of a 10 Percent Change in Economic Output of Transportation & Warehousing Sector Located in the Tier 2 Manufacturing/Industrial Center (Estimated for 2010)

Impact Measure	Direct	Indirect	Induced	Total
Affected Area (Tier 2: Industrial/Manufacturing Center)				
Output	\$117,639,301	\$25,715,072	\$8,410,999	\$151,765,257
Total Value Added	\$69,552,217	\$13,647,115	\$5,157,570	\$88,356,900
Wages	\$41,379,811	\$7,934,419	\$2,446,681	\$51,760,909
Business & Other Income	\$23,991,183	\$4,622,577	\$2,127,606	\$30,741,366
Indirect Business Taxes	\$4,181,223	\$1,090,119	\$583,283	\$5,854,625
Jobs	981	145	57	1,184

Table 13: Impacts of a 10 Percent Change in Economic Output of Wholesale Trade Sector in Tier 2 Manufacturing/Industrial Center (Estimated for 2010).

Impact Measure	Direct	Indirect	Induced	Total
Affected Area (Tier 2: Industrial/Manufacturing Center)				
Output	\$233,654,868	\$47,868,038	\$15,630,643	\$297,153,556
Total Value Added	\$153,565,666	\$28,806,659	\$9,583,642	\$191,955,971
Wages	\$81,804,088	\$15,923,128	\$4,548,517	\$102,275,735
Business & Other Income	\$39,154,888	\$10,271,680	\$3,952,129	\$53,378,699
Indirect Business Taxes	\$32,606,690	\$2,611,852	\$1,082,996	\$36,301,537
Jobs	980	292	106	1,378

- Impacts elsewhere in Seattle and elsewhere in King County would be smaller than in the area affected by the Superfund designation, but would still be substantial.
 - Change in annual economic output elsewhere in Seattle and King County is estimated to total about \$428;
 - changes in wages are estimated to total \$121 million and there would be an estimated 2,385 change in the number of jobs.
- Overall, the potential impact to the region from delayed action could be significant. The regional (Countywide) economic impacts would likely dissipate over time to some extent, though the impacts on the affected area could be felt for years to come.
 - The direct impacts on the principal industries associated with Scenario A, the “pessimistic” scenario, are assumed to *persist into the future as long as businesses and investors perceive that the clean-up effort is not going well*. Thus, as long as businesses and investors hold a negative perception of the clean-up effort, the direct impacts are assumed to persist. As defined in Scenario B, the “optimistic” scenario, the direct and positive impacts on the principal industries are assumed to *persist into the future as the new baseline of economic activity. This future holds as long as the perception by businesses of the efficacy of the clean-up activity holds*. [italics in original text]

- The indirect impacts are a measure of the economic activity by businesses (and government) to provide goods and services to the businesses directly impacted by the change in output. The magnitude of negative indirect impacts estimated for 2010 (associated with Scenario A) would certainly decrease over time as businesses in King County that are not directly affected by the Superfund cleanup make adjustments to their operations or are replaced by new enterprises as the regional economy adjusts.
- Induced impacts are a measure of the economic activity associated with workers spending their wages for food, housing, and other goods and services. The magnitude of negative induced impacts estimated for 2010 (associated with Scenario A2) would also decrease over time as workers (either directly or indirectly affected) seek similar employment in other businesses not affected by Superfund site, or obtain additional training or education in order to pursue new opportunities within the King County economy.
- [from Executive Summary]
 - A 10% decrease in economic output by the principal sectors located in the affected area (Scenario A) could result in:
 - A reduction of 6,600 jobs annually in King County, corresponding to a 0.57 percent change in employment for King County (an increase in the unemployment rate of 0.57 percentage points)
 - A reduction in economic output \$1.4 billion for King County, off of a base of about \$310 billion
 - A reduction in wages and business income in King County of \$627 million, off of an estimated base of \$157 billion
 - A reduction of \$70 million in sales, property, and other taxes paid by businesses, as well any reduction in taxes paid by individuals due to lower consumptions associated with job loss
 - Most of the job losses and reductions in economic activity would occur within the affected area. However, many other businesses in King County, but outside of the affected area would also be negatively impacted. Approximately one in three of the estimated 6,600 lost jobs would occur outside of the affected area. Likewise, about 30 percent of the estimated \$1.4 billion in reduced economic output in the County would occur outside of the affected area.
 - In sum, the designation of the Lower Duwamish Waterway Superfund site affects a relatively small part of King County. However, this small area contains infrastructure and economic activity critical to the overall economic well being of the citizens, businesses, and local governments of King County.
 - Efforts to clean-up the Superfund site that businesses perceive as timely and as having a high probability of success will likely be rewarded with increased investment in the affected area, resulting in increased economic output and jobs.
 - Failure to act efficiently and effectively to clean up the Superfund site could result in a decline in economic activity within the affected area and throughout the County.

11. What can we learn from other experiences elsewhere?

Most factual content is reproduced without change (i.e., quoted) from the original, cited source. Quoted text is denoted by bullet-point indentation and smaller font.

A. Industrial lands

SOURCE: Seattle Dept. of Planning and Development. *Industrial Lands Survey: Investigation of Comparable Cities*. March 3, 2007.

B. Portland, Oregon

SOURCE: City of Portland; Bureau of Planning. *River Renaissance Vision*. Jan. 26, 2001.

SOURCE: City of Portland; Bureau of Planning. *Portland Harbor Industrial Lands Study; Part One: Inventories, Trends and Geographic Context*. Feb. 2003.

SOURCE: City of Portland; Bureau of Planning. *Portland Harbor Industrial Lands Study; Part Two: Interviews and Analysis*. Feb. 2003.

SOURCE: City of Portland. *River Renaissance Strategy*. Dec. 2004. [adopted unanimously by the City Council on December 8, 2004].

SOURCE: City of Portland; Bureau of Planning. *The River Plan: River Concept*. [endorsed April 26, 2006].

SOURCE: Hagerman C. *Shaping neighborhoods and nature: Urban political ecologies of urban waterfront transformations in Portland, Oregon*. *Cities* 2007; 24:285-97.

SOURCE: Abbot C; for Working Waterfront Coalition. *Portland's Working Rivers: The Heritage and Future of Portland's Industrial Heartland*. Jan. 2008.

SOURCE: City of Portland. *River Renaissance: State of the River, 2007-08*. Fall 2008.

SOURCE: Schmidt B. *Portland has authority to regulate waterfront, Oregon Supreme Court rules, but River Plan still on hiatus*. *The Oregonian*. Nov. 8, 2012.

- The city of Portland picked up a victory Thursday from the Oregon Supreme Court but its long-delayed River Plan still isn't moving forward anytime soon.
- Industrial groups originally scored a huge win in January 2011, when the state Land Use Board of Appeals sent the River Plan back to the city over insufficient calculations of industrial land. That meant the city couldn't implement new regulations along the Willamette River, north of the Fremont Bridge.
- But those industrial groups weren't satisfied and appealed, hoping to earn wins on more legal points. The Working Waterfront Coalition, barge-builder Gunderson and Schnitzer Steel Industries argued that the city shouldn't be able to regulate waterfront industrial land, other than for new development, because of a statewide planning goal.
- That argument lost at LUBA and then at the Court of Appeals. And on Thursday, the Supreme Court also shot it down. "In short, nothing in the text of Goal 15, its relevant context, or its adoption history supports the conclusion that the goal unambiguously expresses an intention to preclude local governments from regulating developments of industrial and other urban uses that do not constitute 'intensifications' of or 'changes' to those uses," the Supreme Court wrote.
- Even so, the decision doesn't have any impact on the city's inability to move forward on its River Plan. Officials have said they plan to take another stab at it in a few years, in coordination with a broader update of the city's comprehensive plan governing zoning.

SOURCE: *Lower Duwamish Economic Analysis* by Voight T, et al. (ECONorthwest; produced for King County Dept. of Natural Resources and Parks). March 2010.

- Like Seattle, Portland is dealing with a major Superfund cleanup of one its primary industrial areas.
 - The Portland Harbor Superfund site is located in the midst of Portland’s industrial harbor. Like the Lower Duwamish Superfund site in Seattle, the Portland Harbor Superfund site contains a deepwater port and rail access to move freight to and receive freight from destinations throughout the U.S.
 - But according to media reports, concerns about liability are contributing to a lack of investment in the area.
 - While the area has lost jobs since 2000, a substantial number (approximately 38,000) of people currently work in Portland Harbor. Many of these jobs are relatively well paying for workers without a college education, with manufacturing-for-export firms that have a high economic impact for the City (i.e., they bring in money from outside the region).
 - While it is not known how long it will take or how much it will cost to complete the cleanup of the Portland Harbor, there are concerns that cleanup will take decades and that the costs will run in the hundreds of millions. Given that this is a key part of Portland’s manufacturing land base and its center for shipping to and from destinations throughout the world, there are significant concerns among local officials that uncertainty about cleanup will discourage redevelopment and investment in the site, resulting in job losses and other negative regional economic impacts.

C. Chicago

SOURCE: Wial H. *Locating Chicago Manufacturing: The Geography of Production in Metropolitan Chicago*. Center for Urban Economic Development, University of Illinois at Chicago. Feb. 2013.

SOURCE: Wial H. Chicago’s promise as a manufacturing policy leader. *UpFront* [Brookings Institute blog]. Feb. 26, 2013.

SOURCE: Chambers G. *The LEED Council: Three Decades of Industrial Preservation*. LISC Chicago. June 20, 2012. <http://www.lisc-chicago.org/news/1898>

SOURCE: City of Chicago, Dept. of Housing and Economic Development. *Chicago Sustainable Industries: Phase one: A Manufacturing Work Plan for the 21st century*. 2011. http://www.cityofchicago.org/dam/city/depts/zlup/Sustainable_Development/Publications/Chicago_Sustainable_Industries/CSI_1.pdf

SOURCE: University of Wisconsin-Milwaukee Center for Economic Development. *Curbing Industrial Decline or Thwarting Redevelopment? An Evaluation of Chicago's Clybourn Corridor, Goose Island, and Elston Corridor Planned Manufacturing Districts*. Nov. 2005. <http://www4.uwm.edu/ced/publications/pmdstudy1.pdf>

D. Manufacturing innovation

SOURCE: White House, Office of the Secretary. *The President’s Plan to Make America a Magnet for Jobs by Investing in Manufacturing* [fact sheet]. Feb. 13, 2013.

SOURCE: Office of the President; National Science and Technology Council. *National Network for Manufacturing Innovation: A Preliminary Design*. Jan. 2013.

- The Federal investment in the National Network for Manufacturing Innovation (NNMI) serves to create an effective manufacturing research infrastructure for U.S. industry and academia to solve industry-relevant problems. The NNMI will consist of linked Institutes for Manufacturing Innovation (IMIs) with common goals, but unique concentrations. In an IMI, industry, academia, and government partners leverage existing resources, collaborate, and co-invest to nurture manufacturing innovation and accelerate commercialization.

- As sustainable manufacturing innovation hubs, IMIs will create, showcase, and deploy new capabilities, new products, and new processes that can impact commercial production. They will build workforce skills at all levels and enhance manufacturing capabilities in companies large and small. Institutes will draw together the best talents and capabilities from all the partners to build the proving grounds where innovations flourish and to help advance American domestic manufacturing.

SOURCE: White House, Office of the Secretary. *We Can't Wait: Obama Administration Announces New Public-Private Partnership to Support [...] Manufacturing Innovation* [press release]. Aug. 16, 2012.

- Following through on our We Can't Wait efforts, the Obama Administration today announced the launch of a new public-private institute for manufacturing innovation in Youngstown, Ohio as part of its ongoing efforts to help revitalize American manufacturing and encourage companies to invest in the United States. This new partnership, the National Additive Manufacturing Innovation Institute (NAMII), was selected through a competitive process, led by the Department of Defense, to award an initial \$30 million in federal funding, matched by \$40 million from the winning consortium, which includes manufacturing firms, universities, community colleges, and non-profit organizations from the Ohio-Pennsylvania-West Virginia 'Tech Belt.'
- On March 9, 2012, President Obama announced his plan to invest \$1 billion to catalyze a national network of up to 15 manufacturing innovation institutes around the country that would serve as regional hubs of manufacturing excellence that will help to make our manufacturers more competitive and encourage investment in the United States. The President called on Congress to act on this proposal and create the National Network of Manufacturing Innovation (NNMI).

SOURCE: Office of the President; President's Council of Advisors on Science and Technology. *Report to the President on Capturing Domestic Competitive Advantage in Advanced Manufacturing*. July 2012.

- Advanced manufacturing is not limited to emerging technologies; rather, it is composed of efficient, productive, highly integrated, tightly controlled processes across a spectrum of globally competitive U.S. manufacturers and suppliers. For advanced manufacturing to accelerate and thrive in the United States, it will require the active participation of communities, educators, workers, and businesses, as well as Federal, State, and local governments.
- The Advanced Manufacturing Partnership (AMP) Steering Committee proposes that the Nation establish a national advanced manufacturing strategy. This strategy will serve as a national framework that, when implemented by states and local communities, will bring about a sustainable resurgence in advanced manufacturing in the United States.
- The AMP Steering Committee developed a set of 16 recommendations around three pillars: Enabling innovation; Securing the talent pipeline; Improving the business climate.
- These recommendations are aimed at reinventing manufacturing in a way that ensures U.S. competitiveness, feeds into the Nation's innovation economy, and invigorates the domestic manufacturing base.
- The objective is to position the Nation to lead the world in new disruptive advanced manufacturing technologies that are changing the face of manufacturing.
- The AMP Steering Committee believes that a number of important steps taken now will be critical to strengthen the Nation's innovation system for advanced manufacturing. While some of the largest U.S. firms have the depth and resources to be ready for this challenge, a significant number of small and medium-sized U.S. firms operate largely outside the present innovation system. The United States will only lead in advanced manufacturing if all companies are able to participate in the transformations made possible through innovations in manufacturing.
- The AMP Steering Committee proposes 16 recommendations that will set the stage for advanced manufacturing to thrive in the United States

E. Urban waterfront revitalization and gentrification

SOURCE: Doig W. On the waterfront, the battle rages on. *Salon.com*. March 10, 2012.

- Providence, RI
- Brooklyn, NY
- New Jersey “Gold Coast” (1980s)
- Seattle, WA (viaduct, tunnel, waterfront development)

1. Peer-reviewed publications

SOURCE: Oakley S. Governing Urban Waterfront Renewal: the politics, opportunities and challenges for the inner harbour of Port Adelaide, Australia. *Australian Geographer* 2009; 40(3):297-317.

SOURCE: Murphy L. Third-wave Gentrification in New Zealand: The Case of Auckland. *Urban Studies* 2008; 45:2521-40.

SOURCE: Hamnett C, Whitelegg D. Loft conversion and gentrification in London: from industrial to postindustrial land use. *Environment and Planning A* 2007; 39:106-24.

SOURCE: Bassett K, et al. Testing Governance: Partnerships, Planning and Conflict in Waterfront Regeneration. *Urban Studies* 2002; 39:1757-75.

SOURCE: Davidson M, Lees L. New-build ‘gentrification’ and London’s riverside renaissance. *Environment and Planning A* 2005; 37:1165-90.

SOURCE: Cook I. Waterfront regeneration, gentrification and the entrepreneurial state: The redevelopment of Gunwharf Quays, Portsmouth [U.K.]. *SPA Working Paper* 51. Univ. of Manchester: July 2004.

a) Brooklyn, NY

SOURCE: Curran W. ‘From the Frying Pan to the Oven’: Gentrification and the Experience of Industrial Displacement in Williamsburg, Brooklyn. *Urban Studies* 2007; 44:1427-40.

SOURCE: Curran W. Gentrification and the nature of work: exploring the links in Williamsburg, Brooklyn. *Environment and Planning A* 2004; 36:1243-58.

SOURCE: Davidson A, et al. Contested Waterfronts: Port Commerce and Urban Land Use: Economic Competitiveness in the 21st Century.[slides] CMTS/TRB Diagnosing the Maritime Transportation System Conference. June 2012. Washington, D.C. <http://onlinepubs.trb.org/onlinepubs/conferences/2012/Metrics/presentations/25-Davidson.pdf>

F. Urban waters initiatives

SOURCE: Urban Waters Federal Partnership [webpage]. <http://www.urbanwaters.gov/>

SOURCE: U.S. Dept. of Interior, et al. [13 federal agencies]. *Urban Waters Strategic Framework*. <http://www2.epa.gov/urbanwaters/urban-waters-strategic-framework>

SOURCE: U.S. Dept. of Interior, et al. [13 federal agencies]. *Urban Waters Federal Partnership: Partnership in Action Report*. May 2013. http://www.urbanwaters.gov/pdf/UW-FederalPartnershipReport_v7al.pdf

- The Urban Waters Federal Partnership is an innovative union of thirteen federal agencies that is improving coordination among federal agencies and collaborating with local community-led revitalization efforts. The Partnership is improving our nation’s waters and promoting the economic, environmental and social benefits of communities near them. The Partnership was launched on June 24, 2011 with local partnerships at seven pilot

locations across the nation. As Partnership locations grow, actions will continue and expand to assist projects and collaborative actions that reconnect communities with their urban waterways

- Anacostia River Watershed
- Bronx and Harlem River Watersheds
- Lake Pontchartrain Area Watersheds
- Los Angeles River Watershed
- Northwest Indiana Area
- Patapsco Watershed / Baltimore Region
- South Platte River in Denver

G. Great Lakes restoration

SOURCE: EPA: Great Lakes. [web page].
<http://www.epa.gov/greatlakes/>

- Areas of Concern (AOCs): The U.S.-Canada Great Lakes Water Quality Agreement (Annex 2 of the 1987 Protocol) defines AOCs as "geographic areas that fail to meet the general or specific objectives of the agreement where such failure has caused or is likely to cause impairment of beneficial use of the area's ability to support aquatic life." More simply put, an AOC is a location that has experienced environmental degradation.



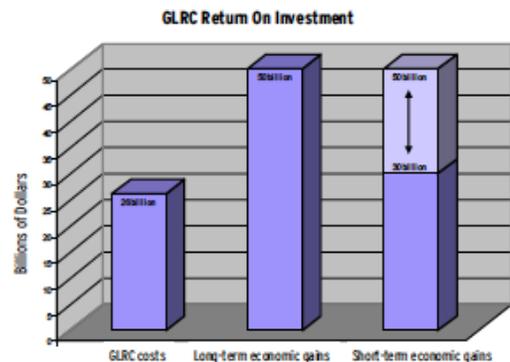
SOURCE: EPA. Great Lakes Legacy Act: Restoring the Centerpieces of Our Coastal Communities.
<http://www.epa.gov/glla/>

SOURCE: EPA. *Revitalizing Local Waterfront Economies: Investing in the Great Lakes*. Oct. 2011.
<http://www.glc.org/rap/pdf/Legacy-FINAL-lowres.pdf>

SOURCE: EPA. *Great Lakes Legacy Act Success Stories: Legacy Act Projects Tackle Great Lakes Pollution* [fact sheet]. Jan. 2009.

SOURCE: Austin JC, et al. (for: Healing Our Waters – Great Lakes Coalition, and Council of Great Lakes Industries). *America's North Coast: A Benefit-Cost Analysis of a Program to Protect and Restore the Great Lakes*. Sept. 2007.

- Based on a present-value total investment of \$26 billion in ecological restoration, the study calculates the following present-value economic benefits:
 - Over \$50 billion in long-term benefits to the national economy; and
 - Between \$30 and \$50 billion in short term benefits to the regional economy.
 - In addition, the study suggests that further investment in Great Lakes restoration would lead to the development of new technologies and industries that are not captured by the economic benefits calculated above.



SOURCE: Austin JC, et al. *Healthy Waters, Strong Economy: The Benefits of Restoring the Great Lakes Ecosystem*. The Brookings Institution. Sept. 2007.

- This report summarizes the major findings of a more in-depth study—*Developing America's North Coast: A Benefit Cost Analysis of a Great Lakes Infrastructure Program* [described above]—of the benefits and costs of the federal-state Great Lakes Regional Collaboration (GLRC) Strategy by the same authors.

- **The Great Lakes Regional Collaboration Strategy.** In December 2004, a collaboration of federal, state, local, and tribal government officials and private sector stakeholders was formed to develop a comprehensive strategy for restoring the vitality of the Great Lakes, and to better ensure their long-term ability to contribute to sustainable development in the region and nation. This effort, the Great Lakes Regional Collaboration (GLRC), ultimately involved over 1,500 individuals, and eight strategy teams focusing on particular subject areas. The teams solicited public input, developed recommendations, and worked together to produce a strategy to address the threats to and damage already suffered by the lakes. That plan, since referred to as the Great Lakes Regional Collaboration Strategy, and the analysis supporting it can be found in the Great Lakes Regional Collaboration Strategy To Restore and Protect the Great Lakes, published in December 2005.

1. Industry partnership

SOURCE: Council of Great Lakes Industries (CGLI). *Council of Great Lakes Industry's Vision for the Great Lakes Region*. [Accessed June 2013]. <http://www.cgli.org/vision.html>

- [Vision statement introduction]
 - The Great Lakes Basin is endowed with a natural regional identity through its supply of 20% of the world's fresh water resources, productive labor force, highly-ranked educational institutions, diverse transportation system and integrated manufacturing supply network. The region is also unique because it is binational. Cooperation among the two national governments, the Great Lakes States and Provinces and other regional stakeholders is needed to meet common goals. The protection and responsible use of the distinctive natural environment of the region and a healthy and competitive regional economy are dependent on each other.
 - The Great Lakes Region is also distinctive in that it has become a proving ground for the development of regional policies that could have and have had significant impact on other areas of the United States and Canada. It is important to focus on a broad spectrum of objectives, rather than on a single objective, to achieve sustainable development and obtain the desired outcomes for the Great Lakes and the people of the region. Our region is known throughout the world for its environmental leadership and our success in "cleaning up" and preserving our lakes will have far reaching effects.
 - Our vision for the future, which we are working to achieve, has been shaped by many of the region's stakeholders. Essential to achieving the following breadth of vision within the Great Lakes basin, is broad implementation of an equitable public. How the region's emerging issues are addressed by all participants in the Great Lakes region policy process. It is the best way to harness all of the region's energy and resources behind a collective vision. This requires that policy in the region is created and implemented utilizing the best science and risk/benefit principles and is based on an integrated view of economic, societal and environmental health and safety issues.
 - Working together, the members of the CGLI along with the governments of the U.S., Canada, States and Provinces; educational institutions; public and private agencies; and the hundreds of public interest groups focused on the Great Lakes region can achieve this vision of a region for future generations.
- Our Vision for the Environment
 - CGLI's vision for the future of the Great Lakes environment is one that includes lakes which are appreciated for their beauty, healthful to mankind and to wildlife, and useful to the population. This vision of our lakes may be measured by the following criteria:
 - Fishability -- *No restrictions on the human consumption of fish as a result of the presence of contaminants in the lakes.* [italics added]
 - Swimmability -- No bathing beaches being closed as a result of human activities.
 - Drinkability -- Treated drinking water is safe for human consumption.
 - Healthy Human Populations -- Human populations in the Great Lakes basin are healthy and free from acute illness associated with high levels of chemical or microbiological contaminants, or chronic illness associated with long-term exposure to low levels of contaminants in the Great Lakes.
 - Biological Community Integrity and Diversity -- Evolutionary cycles that encourage the diversity of biological communities and the genetic variation within species are maintained

- Physical Environment Integrity -- Wetlands are restored in appropriate areas, land use is well planned and sustainable forestry practices are used. Progress in land planning and funding for restoration of wetlands is achieved.
- Achieving our environmental vision requires that:
 - The public recognizes that current industrial practices in protecting the environment and disposing of wastes are significantly better than historic practices.
 - Public policy discussion, decisions and agreements include the principles of prioritized risk, risk assessment and cost-benefit considerations, in other words, consistent with sustainable development principles.
 - The best science is used to guide public policy and governmental actions as well as decisions made in the corporate boardroom. For example, mass balance modeling (that includes atmospheric deposition) is utilized as a tool to guide priorities and programs. Potential human health and environmental impacts of chemicals are evaluated scientifically for hazard potential. Exposure assessments are required for risk determinations.
 - All companies and business organizations, large and small, have implemented product stewardship programs that evaluate their own products throughout their life cycles for environmental and human health impacts. Through these evaluations, manufacturers identify the action needed to eliminate unreasonable risks and maintain absence of harm for habitat, wildlife and humans.
 - Government, environmental groups and the general public recognize industrial leadership in addressing environmental and human health issues and the value in working together to resolve real problems.
- Success is achieved in important initiatives such as: -- Great Lakes Binational Toxics Strategy
- Inputs of persistent, toxic, bioaccumulating and bioavailable substances are virtually eliminated to below levels of significance in point source, non-point source and combined sewer overflow discharges.
- When pursuing environmental policy directions requiring a precautionary approach, it is necessary to include the cost-effective application of UNCED Agenda 21 Principle 15.

SOURCE: CGLI. Industry Policy Needs in the Great Lakes Region.[Position paper] Nov. 2010.

- Industry seeks policies that strive for ecological sustainability and economic progress through utilization of the Great Lakes Region’s water enriched assets in ways that support the global competitiveness of companies operating in the Basin. Such policies must address the following basic needs:
 - the ability to retain existing, and attract new industrial activity - and the jobs this activity provides - in the Region through a competitive business climate and value-added environmental practices;
 - the ability to preferentially attract capital to support world class manufacturing facilities and other industrial activity that creates good jobs while delivering the products and services of the future;
 - assured access to – and responsible use of - water and other natural resources;
 - a predictable, efficient and level regulatory playing field that allows basin facilities to compete with companies in other parts of the country and other parts of the world; and,
 - a healthy and attractive environment that will attract talented people to live and work in the Basin.
- CGLI works with governments and engages with other Great Lakes Region stakeholders to encourage and enable policies that can respond to these needs while incorporating the principles of sustainable development.

SOURCE: CGLI. Who we are: Members [web page; accessed June 2013]. <http://www.cgli.org/whoweare.html>

- The Council represents industries and businesses with significant investments, facilities, products, or services in the Great Lakes region. Members are drawn from manufacturing, utilities, transportation, natural resources, financial, services, and trade. Current members include:
 - Alkylphenols & Ethoxylates Research Council
 - American Chemistry Council
 - American Electric Power Company
 - American Forest & Paper Association
 - BP Corporation.
 - Clark Hill P.L.C.
 - Consumers Energy
 - Detroit Edison Company
 - Dow AgroSciences LLC
 - Dow Chemical Canada, Inc.
 - DuPont
 - Edison Electric Institute
 - First Energy Corp
 - Imperial Oil

- Lafarge North America, Inc.
- Midwest Generation
- Minnesota Power/Allete
- Nestlé Waters North America, Inc.
- NewPage Corporation
- Shell Canada, Ltd
- The Dow Chemical Company
- Wisconsin Energy Corporation