Appendix C — Literature Review

Literature Review Notes

ECONorthwest and Otak reviewed a variety of literature from both printed and Internet-based sources. A preliminary list was suggested created by Otak, ECONorthwest, and other MAC members.

Several themes are prevalent in recent literature about industrial land demand. One is that warehousing and distribution patterns are changing due to "just-in-time" production, the advent of e-commerce, and the increasing importance of high value-to-weight goods. Another theme is the rising importance of workforce characteristics compared to traditional location factors such as transportation costs and land costs. Quality of life is seen as a key attribute for attracting and retaining a skilled workforce. Much of the literature points out the continued importance of industry clusters and the various synergies that result.

Various studies deal with estimates or measurements of employment density (employees per square foot) or floor-to-area ratios, with a wide variety of findings. We found several sources describing the current industrial market in Portland, and we also found some sources describing the pressure in the Silicon Valley for increased FARs in response to rising land prices. The rest of this memo lists and summarizes each source we reviewed.

Mark Arend, Survey Reveals New Factors Behind Site Location Decisions, Site Selection Magazine, May 1999.
Site seekers still desire skilled labor and access to global markets but now they require more data for operations cost analysis, and a shorter start-up cycle. Development time is now 6 to 18 months, not 18 to 24 months as it was in the past. Companies expect and get details via internet to short list communities prior to making site visits. They need to know work-force characteristics, site location/size/cost, commuting patterns near site, and business costs. Locating proximate to competitors or industry clusters helps take some of the risk out of site location decisions.

Brownfields Redevelopment: Performance Evaluation, Council for Urban Economic Development, 1999.
The United States Environmental Protection Agency's Brownfield Initiative has successfully assisted over 300 communities across the nation with redevelopment of abandoned, contaminated brownfield properties. This report provides a summary of case studies from 107 completed redevelopment projects. While the case studies are a small sample of the nation's 600,000 brownfields, it is the most extensive summary of recent accomplishments. Key conclusions include:

- Establishment of two benchmarks on which to evaluate the cost effectiveness for investing in brownfield redevelopment: cost per job (median = $14,003); and leverage of private funds per public dollar (median = $2.48 in private investment per dollar of public investment);

- Remediation was funded by public sector on 62 percent of projects and entirely by private sector on 21 percent of projects. Remediation cleanup cost represented 8 percent of total project cost or $4.46 per square foot of land area.

- Infrastructure costs (roads, sewer, water, etc.) ranged from 0 to 86 percent of total project costs. The majority of the case studies had infrastructure costs below 25 percent of total project cost. The public sector funded 67 percent of the infrastructure costs.

- About 3 out of 4 projects were initially owned by the public sector.

- The majority of projects were less than 10 acres in size (average size = 13.7 acres).

- Industrial development (particularly manufacturing and processing) was the most common form of reuse. However, residential and mixed-use represented a small but fast growing segment.

Joseph Cortright, Impresa, Inc., "New Growth Theory: Some Thoughts and Implications for Economic Development," 2001.
New technological advances are evidencing the advantages innovative technology plays in practically all this is produced in our modern society. A higher standard of living is achieved not from the production of more goods and services, but from more efficient production and more effective management of scarce resources. There are four main implications for economic development:

1. Knowledge matters. A well-educated work force is at the core of developing economies. However, Cortright states that.. "regions with great educational systems (and little else) may simply end up exporting their best and brightest and indirectly subsidizing the economic development of other areas."

2. Place matters. While information can flow in bits and bytes to the outer reaches of industrialized society, knowledge is different and still requires some "face-to-face" experiences for it to be effectively transmitted.

3. History matters. Local and regional economies can and do lock in certain technological and competitive advantages that make it difficult for all region's to compete on a level playing field at any given point in time. This is apparent in the emergence of technological clusters and spin-off creation of high tech industries.

4. Institutions matter. Cortright states that…"economic change does not occur by the gradual transformation of existing businesses, but by the revolutionary

displacement of whole new technologies and enterprises: creative destruction. Societies and institutions that cherish stability and eschew change are at a disadvantage in economic competition."

Joseph Cortright, Impresa, Inc., "Transportation, Industrial Location, and the New Economy: How will changes in information technology change the demand for freight transportation and industrial location?" March 2001

Economy: The traded sectors, including manufacturing, have the most intra-metropolitan clustering. There is a "lock-in effect": "Even new industries are more likely to represent outgrowths of older existing strengths than they are to be an entirely new pattern." The availability of specially skilled labor is a decisive locational factor. Quick reactions and flexibility are also key.

Transportation: There is a move away from vertical integration to outsourcing. Trucking dominates the freight transportation system in the US and in Oregon. The highest-value goods move by air; the lowest value move by ship (see Table 3). "Just-in-time" production increases the need for timeliness. Proximity to suppliers' manufacturing is less important than being close to suppliers' personnel, but it is more important in "high-tech" industries. The certainty of time is as or more important than the shortness of time. There is less long-haul trucking as warehousing is regionalized. There is a move to direct shipment, bypassing warehouses. The warehouses have smaller, more frequent shipments. Warehousing is becoming more value-added. There is a declining importance of freight transportation due to less weight per dollar. There is a growth in logistics providers.

Industrial Location: Access to employees is now critical, as the proximity of information is less relevant due to improved communication, and the proximity of other things is less relevant due to improved transportation. There are increasing returns to technology that get locked into regions. Clusters have great importance for access to workers and firms. "Agglomeration economies overwhelm other factors like transportation costs." Long-term capital investments lead to high sunk costs. Transportation has a fixed infrastructure, but there are other variable costs in it. The sensitivity to transportation costs depends on the industry, especially the weight of product or inputs. Energy/minerals/stone/wood/chemicals all have high pounds/worker. Apparel/electronics/machinery/printing all have high output/pound. There is an increased maximum scale of economic activity resulting from declining transportation and information costs, so more centralization has occurred in manufacturing in the past century.

E-Commerce: Two-thirds of manufacturers do not do their business electronically. It is still a poor substitute for face-to-face and personal interaction. Transportation costs are still important, even if information costs are less so. High-value goods are

better candidates for e-commerce, because they are less sensitive to transportation costs.

Portland Evidence: The most clustered in the region are car/truck/bus manufacturing, instruments, electronics, and electric utilities and telephone companies. Manufacturing is the most clustered sector, especially high-tech. Printing and publishing is less clustered. Wholesale apparel is concentrated; smaller scale sectors like food and machinery are dispersed. The tech sector is driven mostly by the availability of labor. But many firms are rooted in their current locations. The center of the metropolitan area has good access to freeways and LTL (less-than-truckload) terminals.

Conclusions: There is an advantage now in moving people and ideas in addition to goods. Knowledge workers are attracted by a unique mix of diverse consumption opportunities, and opportunities for recreation and leisure. Lower transportation costs and information costs allow for centralization of some activities (e.g., goods-producing industries like bakeries) and the decentralization of others.

Robert D. Atkinson and Paul D. Gottlieb, "The Metropolitan New Economy Index: Benchmarking Economic Transformation in the Nation's Metropolitan Areas" Progressive Policy Institute and the Center for Regional Economic Issues, Case Western Reserve University, April 2001
The New Economy is a "global knowledge and idea-based economy where the keys to wealth and job creation are the extent to which ideas, innovation, and technology are embedded in all sectors of the economy." Decentralization is occurring in metro areas. Manufacturing is more likely to be in a metal "Butler" building on the outer edge of the metro area or in a small town. Most high-tech jobs are in the suburbs, leading to people living even farther from the center. "In the New Economy, dispersed development is the dominant spatial form in virtually all areas." "The New Economy gives both companies and workers more locational freedom."

The fifty largest metro areas (CMSAs) are ranked according to five key categories:

- Knowledge jobs
- Globalization (the export nature of manufacturing)
- Economic dynamism and competition ("gazelles" and "churning")
- Transformation to a digital economy
- Technological innovation capacity

Portland ranked fifteenth. San Francisco, Austin and Seattle ranked the highest. Portland ranked high in: internet backbone (7th), high-tech jobs (10th), venture capital (10th), export focus of manufacturing (11th), and online population (11th). Portland ranked low in: managerial/professional jobs (28th), job churning (28th),

computer use in schools (30th), academic R&D funding (35th), and degrees in science and engineering (36th)

Innovative capacity is becoming more important than low costs. Historical factors are still important, as is public policy. There is a decreasing importance of old patterns of location based on minimizing distance and maximizing communication; whether professionals want to live somewhere is important. Business cycles are less important; regional clusters drive innovation. "Critical mass" is important.

The authors offer seven key strategies : three of them are skilled workforce, infrastructure for innovation, and quality of life.

Key Conclusions:
New goal: "get prosperous, not bigger"; should allow some rural or small towns to get some growth.

New means: "get better, not cheaper"…"A low-cost environment with a poor quality of life is not the ticket to success."

"The New Economy, with its dependence upon human capital, is giving urban areas a change to reshuffle the deck and find new niches in which to sustain themselves";

"In the digital economy, where people want to live becomes paramount concern";

"In the 21st century, and even beyond, communities can only survive and prosper by being something more than soulless zip codes of brick and glass, inter-connected by fiber-optic cables. They can do this only by fostering a sense of connectivity in human bonds, not just electronic links, between the various communities, businesses and neighborhoods. More than anything, this reclaimed sense of civic spirit, not technology or government intervention, will determine how cities secure their place in the geography of the digital age."

Metro, "Technical Report, 1999 Employment Density Study."
Metro has changed their focus on examining "land need" not "jobs need"; jobs need was a surrogate for land need. The FARs they use are based on observed FARs, which include the legacy of past building; they are not based on what zoning might allow. But they are in part "aspirational." Businesses that shared space in a taxlot were not studied. FARs varied more by zoning (location) than by industry, while sqft/emp varied more by industry than by location. FARs vary from 0.24 in Clackamas County (ranging from .02 to .59 FAR) and 0.21 in Rivergate (ranging from .01 to 1.04 FAR) to 0.63 in the Hawthorne commercial area. Employment densities vary widely due to economic conditions; businesses densify then expand elsewhere. Employment density can be a "policy lever," but is not as key as FAR.

Employment density varies across 20 subareas; in some places the density is twice or half the study average.

Metro, "Non-Residential Demand Analysis-Using the Zonal Employment Land Demand Analysis Model," Chapter 6 of the Urban Growth Report Update, September 1999
Uses updated employment density parameters. Has a model similar to the Phase 2 RILS demand analysis (Equation 6.1). Observed FARs in ZELDA are not the same as those allowed by today's zoning. Building densities (employees/square foot) fluctuate due to business cycles. Infill and redevelopment ("refill") is 21 percent for new industrial jobs. There is also a home occupation reduction factor.

Sonny Conder, "Can We Finally Say Goodbye to Jobs/Housing Balance? Application of an Integrated Urban Model," Metro, April 2000
Describes the non-residential real estate model. Employment is divided into real estate types, each type is assigned an employment density, and the demand is assigned to an employment zone based on price and access. Prices are adjusted to balance supply and demand. Twenty zones are used. Results deemed to preliminary to utilize for this study.

Columbia River Economic Development Council, "Report to Clark County on Current Industrial Land Inventory," November 2000
Applies an allocation of industrial sector jobs to determine industrial land needs. Adds a 50 percent "market factor" to provide adequate market choice and flexibility. Assumes that contiguous property in excess of 10 acres can be counted as vacant and competitive industrial land inventory. Suggests using actual observed densities not planning densities (e.g., 4 jobs per acre, not 9 jobs per acre). [At 0.3 FAR this would be 1,450 to 3,000 sqft/emp; at 1,500 sqft/emp this would be 0.14 to 0.31 FAR]. Claims that many parcels greater than 50 acres are needed, and a few over 200 acres are needed.

Clark County Industrial Land Supply Update, April 2000
Assumes 25 to 100 percent for "market factor." Uses higher sqft/jobs for rural areas (950, 1500 and 650 instead of 550, 1100 and 450). Interviews with brokers indicated that parcels over 15 acres are 20 percent of industrial land demand, 55 percent of land demand is for 5 to 15 acre parcels, and 25 percent of land demand is for parcels smaller than 5 acres.

ECONorthwest, "Federal Way Market Analysis and Growth Allocation," July 2000
The industrial FAR in Federal Way in February 2000 was 0.19, but for development between 1995 and 1999 it was 0.26. The ECO assumption is 0.35 for the future. Manufacturing was assumed to have employment densities of 650 square

feet/employee. Wholesale and TCU were assumed to have densities of 600 square feet/employee.

ECONorthwest, "West Eugene Parkway: Industrial Land Analysis," December 1997
This study used densities based on the Lane Council of Governments' 1993 Metro Industrial Lands Inventory. Assumes that 19 percent of manufacturing employment is office-based at 85 employees/acre, with the rest at 25 employees/acre. Assumes that 24 percent of construction is office-based at 55 employees/acre, with the rest at 35 employees/acre. Assumes that TCU is 33 percent office-based, at 141 employees/acre, with the rest at 25 employees/acre. Assumes that 4 percent of wholesale employment is office-based at 85 employees/acre, with the rest at 25 employees/acre.

Estimates the amount of employment on industrial land, based on 1994 data: Manufacturing 76 percent, Construction 43 percent, TCU 50 percent, Wholesale 71 percent.

Daniel H. Pink, Free Agent Nation, Warner Books, 2001.
This book documents the impact outsourcing has on the workforce in America. Citing statistics compiled by the US General Accounting Office and Business Week, the author estimates that about one in four workers in the US are considered "free agents." Free agents include approximately 16.5 million soloists, 3.5 million temps, and 13 million micro-businesses. Free agents are redefining the work week and the work place. Americans now work 350 hours per year than the average European and 70 hours more per year than the Japanese.

Over the past 15 years, American manufacturing establishments rehabilitated their operations into the practice referred to as "just in time manufacturing." This new process is intended to reduce the time goods sit in warehouses and allows for rapid changes in industrial design. An example, cited by the author includes Dell Computer's goal of carrying less than a five-day backlog of inventory.

According to MIT professors Thomas Malone and Robert Laubacher companies are constantly striving to optimize their efficiency… "when it is cheaper to conduct transactions internally, within the bounds of a corporation, organizations grow larger, but when it is cheaper to conduct them externally, within independent entities in the open market, organizations stay small or shrink." In the future, the author predicts that our economy will consist of very small and very large enterprises, with few in between—as companies consolidate, outsource and enter into strategic alliances.

William Anderson, Economic Research Associates, "Commercial and Industrial Growth Management: Economic Issues," presented at American Planning Association annual conference, 1997.
Manufacturing space/employee is increasing due to automation (falling job density). Office space/employee is falling due (rising job density) to computers and shared offices.

R. Thompson, "Industrial Employment Densities," Journal of Real Estate Research, Vol. 14, No. 3, 1997
This is a UK-based study. It found higher densities than in the US "Factory" employment at 385 square feet/employee. "Campus Office" at 199 square feet/employee. "Warehouse" at 1,278 square feet/employee. The expected change in density with business cycles was not borne out by the data.

Zenia Kotval and John R. Mullin, "Industry in Transition: Implications for Local Economic Development" presented at American Planning Association annual conference, 1998.
Labor-intensive companies will try to lower costs by shifting location. Clusters are increasingly important. Manufacturing products are increasingly "weight-light and value-heavy." There is an increasing importance of proximity to the airport. There is an advantage of proximity to existing interstate highways. Onsite amenities are increasingly desirable as sites become more isolated.

Industrial FARs will decrease and stabilize at 0.2 FAR, because of the ideas of "factories in a garden" and the value of open space. Employees per square feet will increase as there are more computers and less files. Parcel sizes will be smaller because there is a need for less space for the new production processes, and less of a need for inventory due to "just-in-time" production.

William Fulton and Paul Shigley, "Little Chips, Big Dreams." Governing, May 2001
For high-tech, the big draw is not tax incentives or free land; it's a solid labor pool, critical mass (including proximity to university-based research) and support for young entrepreneurs. While the old saw about "location-location-location" applies to high tech companies, their location criteria tends to differ dramatically from manufacturing companies—"they need to be where the action is so they can be on top of the latest ideas and have access to skilled labor." They desire to be proximate to university-based research and/or a place that is "well wired" for internet information exchange. They also wish to be in a place that "means something to them"—like proximity to a critical mass of related business clusters, recreational amenities, or other quality of life attributes.

Jim Ewing and Jim Bruce, "The Approaching Industrial Land Shortfall," Site Selection, May 1999

"Half-readiness" is a big problem throughout the USA. Development timing can be critical for business relocation and/or expansion decisions. The reason for this shortfall includes: reluctance to invest in industrial parks; and deregulation. Communities often overlook the value of having "ready to go" industrial sites and fail to invest in up-front infrastructure. Those that do tend to reap the economic benefits of industrial development. Deregulation has resulted in reducing or removing the incentive of major utilities to invest in industrial development—since they may not be granted the benefits of serving future business establishments.

Jon B. DeVries and Gary Lenz, "Recentralization," Urban Land, June 1999
Over several decades, factories and warehouse/distribution have gone to suburban locations near major highways. Now recentralization is occurring due in part to intermodal shipping centers, supported by large manufacturers like auto companies. These recentralized industrial centers are from 100 to 500 acres, averaging about 400 acres. Because of the new industrial paradigm that components are produced elsewhere, factories as well as warehouse/distribution uses could come back to inner-city areas because of easy rail and highway access.

James E. Brown, "Industrial Edge," Urban Land, June 1999
Key site factors for industrial space:

- Convenience to highway and transit
- Amenities
- Close to housing (suburban or exurban)
- Good shape and topography
- Built-in-flexibility
- Vehicle maneuverability

The trend in warehousing is consolidation. It is considered large only if it is greater than one million square feet (on approximately 90 to 100 acres). A suburban location is common because it has cheaper land, less congestion, and good freeway access. Warehousing is becoming more automated. It needs lots of power for machinery and HVAC: 1200 amps of 480/277-volt three phase, four-wire power.

Dan Heinfeld, "Creating Value Through Design: Flex Tech Building Design," Development, Fall 2000
Open space and landscape elements are very important in California, consuming up to 25 percent of the parcel space. This is keeping building densities fairly constant despite rising land costs.

Kimberly Kayler Izenson, "Technology, Durability, Flexibility: Keys to New Warehousing and Distribution Patterns," Development, Winter 2000
Consolidation of local distribution facilities into larger regional facilities is occurring. The recent norm is 1.3 to 1.5 million square feet. Warehousing is no

longer about "storing stuff": it is the "science of moving product, storing the bare minimum…" Flexibility is key, in addition to proximity to interstate roadways. Ceiling heights are rising to expand onsite storage capacity—which is leading towards slightly higher employment densities.

Bruce H. Freedman and David C. Twist, "Why Warehouse and Distribution Patterns are Changing," Development, Winter 2000
Air freight is growing in importance, especially for textiles, apparel, electronics, machinery and spare parts. Trucking is still dominant. There has been an increase in short-haul trucking, which is the highest need for warehousing. Inventories have to be strategically located near the key consumer and business markets and have easy access. Need access to airports and ports. The "infill submarkets" cost more, but they cost less as a percentage of operating costs because the supply chain is optimized. There is a now a need for more small subregional warehouses near airports, as well as super regional warehouses away from airports.

Terry Wilson, "Market Focus: Portland," Development, Spring 2001
By the end of the fourth quarter 2000, industrial vacancy dropped to 4.6 percent. The forecast is for continued tightness, and that vacancy will drop further to 4.3 percent in 2001. They predict that by 2002 the industrial vacancy rate will be <2 percent. Rents for industrial space are expected to rise, as much as 20 percent in some areas, in 2001. Rents for flex space are $0.60 to $0.95/square feet/month, being higher on the west side. Class A industrial office space is up to $1.25/square feet/month. Sales prices are expected to rise 10 percent in 2001.

"Freight and Logistics Trends: National and Local," Port of Portland, 2000.
This report examines trends in transportation freight movement. Transportation logistics and operational cost economics are now key considerations in a company's competitiveness. As production capacity is approached, productivity gains are made primarily through marketing and logistics. Computer technology enhances efficiency in all areas. A well-developed warehousing system is required to maintain competitiveness in almost any industry.

Both old and new industries rely on warehousing and transportation. In the new economy, the trend towards consolidation of distribution facilities is reversing. Shippers now prefer regional distribution facilities rather than single points. As a result, US warehousing capacity has added 130 million square feet per year since 1996. Improved technology and decentralized warehousing with "just in time" deliveries has resulted in far lower truck traffic growth than passenger traffic growth. According to FHWA, since 1960 truck VMT increased by 50 percent while passenger VMT increased by 302 percent.

As traffic congestion increases, Port-related infrastructure improvements (i.e., I-5 widening, rail investments, channel deepening) are keys to maintaining regional competitiveness.

Commodity Flow Analysis for the Portland Metropolitan Area, ICF Kaiser et.al., April 1999.
The accessibility of transportation services and infrastructure is one of the key factors that allow the Portland region to remain productive and competitive. Over the past two decades the Portland region has transformed from a raw and semi-finished materials center into a growing high-tech and service-oriented economy that requires a multi-modal transportation network. The region's manufacturing sector played a major role in creating growth in the Portland economy over the past few years. Future growth in the manufacturing sector rests within the electrical machinery, plastics, and chemical sectors.

The Local and Regional Economic Impacts of the Port Harbor for 2000, Martin Associates, January 29, 2001.
This study of the Portland harbor concluded that public and private marine terminals in the Portland harbor handled nearly 25 million tons of cargo for exporters and importers. Nearly 75,000 jobs in the region and state of Oregon are related in some way to activity at the Port of Portland. For each direct job there are 10 induced, indirect or related jobs. Approximately 82 percent of the jobs are held by residents within the Portland region, and 18 percent are held by residents outside the region.

"Multi-modal Freight Analysis Framework," Federal Highway Administration, Office of Freight Management and Operations, June 21, 2000.
Freight movement is increasing in the US due to domestic demand via "just in time" deliveries, NAFTA and global trade. Outsourcing by goods producers and retailers is also generating more freight and warehousing demand. In 1998, 9 percent of the freight tonage moved by all modes was international and 91 percent domestic. Of the domestic shipments, 53 percent is local and 38 percent national (beyond 100 miles).

Emergence of e-commerce tends to increase the velocity of freight movement and leads to more warehouse/distribution networks. Increasing demand for reliability and speed is driving more demand for package and airfreight service. Shift to unit trains (stacking railcars) and double/triple truck trailers allows more tons to be hauled with fewer resources. Economic development is now more dependent upon multi-modal transportation services (air, highway, water, and rail). Freight bottlenecks and congestion are growing concerns for rail and motor carriers.

Grubb and Ellis, "Industrial Market Trends," Spring 2001
For the fourth quarter 2000, industrial vacancy rate in Portland was 6.7 percent. This included general industrial, warehouse/distribution, tech/flex and incubators. Asking rents in the fourth quarter 2000 were $4.21/square feet/year triple net for warehouse/distribution, and $8.06 for R&D/flex space.

In Portland, the Sunset Corridor is the location of flex space, and the Columbia Corridor is the predominant location for warehouse/distribution buildings. Spec warehouse development ended because rents were not keeping up with rising land costs.

Grubb and Ellis, "1999 Real Estate Forecast"
Outsourcing by larger industrial employers is leading towards increased demand for smaller buildings and spaces. The redevelopment of older buildings is popular, but there are also trends towards greater peripheral location given relatively lower land costs and less congestion, *but* proximity to skilled labor is also key.

Daily Journal of Commerce, April 6, 2001
Industrial land prices in the area are from $4.75 to $5/sqft. It is difficult to get the needed rents of 37 to 38c/sqft to breakeven. The expense is pushing some developers to Ridgefield, WA.

Daily Journal of Commerce, April 30, 2001
Birtcher is working on a 200-acre master-planned light-industrial development in East Vancouver.

Daily Journal of Commerce, May 10, 2001
Tony Reser at Cushman and Wakefield says transportation access is "probably the single most important determinant of a viable industrial parcel." He specializes in the Columbia Corridor from the Willamette River to Troutdale.

The Business Journal, April 27, 2001
Telco hotels in the Pearl District are slowing down.

The Business Journal, April 27, 2001
List of the fastest-growing metro companies. They include Pixelworks in Tualatin, Lattice Semiconductor in Hillsboro, TriQuint Semiconductor in Hillsboro, IMSC (semiconductors) in Beaverton, Randisys (embedded computers) in Hillsboro, REI Co. (semiconductors) in Hillsboro, InFocus (projectors) in Wilsonville, and Precision Castparts Corp. (aerospace) in Portland. Other large, though not as fast-growing industries include NW Pipe, Columbia Sportswear, Nike, Williams Control, Consolidated Freightways, Schnitzer Steel, Cascade Crop., Merix Corp., Tektronix, Oregon Steel Mills, Pope and Talbot, Louisiana Pacific, and Willamette Industries.

The Oregonian, "Office Vacancy Rates Skyrocket in Portland," July 26, 2001.
Office vacancy rates have doubled in past 12 months. According to CB Richard Ellis, the vacancy rate in the Portland area stood at 9.9 percent at the end of the second quarter, and when sublease space is counted the rate is closer to 14.9 percent. This time last year the vacancy rate was only 5.8 percent. Suburban markets are weakest with vacancy rates at 12.1 percent (excluding sublease space). Industrial vacancies were lower—at 7.9 percent, up from 6.6 percent last year. Despite higher vacancy rates, office and industrial rents have held steady, and a recovery is predicted within the short term.

"Density a growing issue in valley space dilemman," Silicon Valley/San Jose Business Journal, April 14, 2000
Increased land prices increase the demand for industrial density. The typical industrial FAR in the area is 0.35.

John Mullin and Zenia Kotval, AICP, The Industrial Zoning Crisis, Zoning News, American Planning Association, November 2000.
Across the US, there is a trend towards increasing protest over industrial development. Traditionally, industrial zoned land was designated in areas that were usually unsuitable for agriculture, commercial or residential development. Industrial development is also stigmatized for creating pollution, while most new industry is relatively clean. There is also less connection today between where people work and where they live—hence there is less affinity to major employers.

While recognizing that creation of industrial zoning districts is among the most difficult tasks facing local planners, the authors urge communities to address both industrialization (manufacturing on new sites) and re-industrialization (site reuse). Consideration of compatible adjacent land uses is critical to the long-term success of industrial areas. In carefully planned areas, limited residential uses and offices can be intermingled with industrial development. Comprehensive Economic Development Strategies, an Economic Development Administration process, is recommended to get each community to carefully consider its options in industrial development planning.

Creation of designated industrial districts provides clarity and assurance to industrial employers that they are welcome in that location. In all cases, a community should allow manufacturing that is governed by performance standards. Also, communities should provide locations for various types of industry: traditional light and heavy zones, brownfield reuse, subdivisions, and industrial parks.

Regional Economic Development Partners, presentation to Metro Policy Advisory Committee, November 29, 2000
New alliance of regional partners including PSU's, New Economy Observatory, Cities of Beaverton, Gresham, Hillsboro, and Tualatin.

Regional Economic Development Partners, presentation to Metro Policy Advisory Committee, November 29, 2000
New alliance of regional partners including PSU's, New Economy Observatory, cities of Beaverton, Gresham, Hillsboro, Tualatin, Portland, Clackamas and Washington Counties, Port of Portland, State of Oregon, Hillsboro and Beaverton Chambers of Commerce, Westside Economic Alliance. A summary of conclusions:

- Six County PMSA is home to 1.8 million residents. There are 50,000 business establishments providing one million jobs and a $60 billion payroll.

- The region added 250,000 jobs during the 1990s and is now the 15th largest exporting region, and 20th largest industrial center in the nation (despite being the 27th most populated region).

- Traditional features of the region included: market access, critical mass of industrial clusters, competitive telecom and power, transportation efficiency and high quality of life.

- Metro area clusters prominent in: electronics/software, metals/machinery, creative services, recreation, transportation/distribution, lumber and wood products, nursery products and specialty foods.

- Knowledge is the source for economic growth and tends to cluster within the region around similar firms.

- Existing firms fuel growth, with 60 percent of the new jobs derived from fast-growing high wage firms in electronics and software. Nearly all new firms are started by local entrepreneurs. Oregon was second in the USA for "fast growth" jobs.

- The seeds of our next economy are: smart people, entrepreneurial energy, technological savvy, unique quality of life, access and transportation.

- Growth drivers will be from R&D, next generation manufacturing, growth of existing firms, and spin-off firms. This requires consideration of regional job location/access to labor, creative services industry, and expansion/retention of existing firms.

- Public sector should: target distressed areas, utilize urban renewal, provide adequate land supply, invest in infrastructure, planning/growth management, provide incentives for businesses, and promote education of the workforce.

Sunnyvale Sun (CA), "City Council Passes Stricter FAR Requirements," 5/12/99; and City of Sunnyvale web site (www.ci.sunnyvale.ca.us/reports/1998-08/98-275.html)
City Council passed a 0.35 maximum industrial FAR in 1999. Had previously allowed 0.5, 0.7 and 1.0 FAR in "Futures" areas. The average FAR for industrially zoned land in Sunnyvale was 0.29 in 1998; the demand from developers was for 0.4 to 0.7 FAR.

Santa Clara, CA General Plan, Transportation Element
Recent industrial development (since 1971) has been at densities of 42 employees per gross acre. By 1985, this pattern had raised the average density of all existing industrial development to 28 employees per gross acre.

Venable, Tim, Who's Got the Best Incentives? It Depends. Site Selection Magazine, November 1999
Financial and tax incentives play a role in most high-profile facility location competitions in the USA. Each user has its own set of siting criteria—so you can never determine what incentives are best. Alabama recently offered over $158 million in incentives to lure Honda's new 1,500-employee plant, and Nashville offered a $166 million package to attract Dell Computer's new manufacturing operation with 3,000 jobs.

Oregon offers a fairly comprehensive list of incentives and no sales tax vis a vis other states. But companies still rely more heavily upon location, local work force, and market access than incentives to make location decisions.

Susie Lahsene, The New Economy: Do we need a new vision for transportation with more emphasis on freight? The Westsider, Second Quarter 2001.

The emergence of e-commerce is perhaps the largest single impact on industrial development. E-commerce is a business procurement improvement that is having a significant impact on the pace of commerce and trade in the global market place. Increasing business-to-business transactions and to a lessor extent, business-to-consumer transactions are leading to production efficiencies and cost economies, as global manufacturers, distributors and marketers collaborate via internet. As a result, freight volumes are increasing a rate two times faster than economic growth rates.

While e-commerce does not change the fundamentals of trade and commerce, it is

placing unprecedented emphasis upon globalization, information technology and consumer expectations. To remain competitive businesses must work hard to lower costs. This entails more sophisticated management of trade costs using logistics systems. Susie notes fundamental changes in trade and warehousing that are resulting from logistics management including: more smaller shipments moving longer distances, lower on-site inventory, growth of outsourcing, and changing role of warehousing as a consolidation/distribution point.

She recommends a renewed regional transportation vision as a strategy for supporting these changes in our economy and allowing business to remain competitive in the New Economy.

The Business Journal of Portland, Suburban Siren Song Luring Portland Firms, March 5, 1999.

Article summarizes recent announcements by firms to relocate from Portland to surrounding suburban areas. Firms include: Spicers Paper, Fulfillment Corp. of America, Eoff Electric, Waggener Edstrom, KPDX (local Fox news affiliate), and JP Foodservice. The article cites a recent cost of growth study that indicates it is more expensive to do business in Portland than surrounding suburbs. These firms generally outgrew their facilities and/or were looking for ways to trim operating costs. Firms such as Spicers also noted that encroaching mixed-use development is not the best fit for industrial operations.

To level the playing field the City of Portland is considering:

- More active marketing and direct relocation of companies to the city's industrial sanctuaries, like Rivergate, Portland International Center, Central Eastside, and areas north and west of the River District.
- Rezoning portions of the Central Eastside Industrial District to accommodate office, light commercial, creative services industry and residential;
- A $50 million, five-year Opportunity fund to assist/entice industries to locate anywhere in the Central City and redevelop older buildings;
- Re-examination of the Business Income Tax system.