

## **Industrial Land Intensification Opportunities in Portland**

Projected industrial land shortfalls in Portland to 2035 have prompted questions about how to accommodate more growth by industrial land intensification that improves land efficiency. The purpose of this handout is to introduce a discussion of the topic at the Industrial Land / Watershed Health Working Group.

### **Background on what intensification means**

#### *Defining industrial intensification*

For our purposes here, industrial land intensification means more intensive industrial use of industrial land. It can occur through business expansion, infill, or redevelopment. It should not be confused with industrial conversion of land for higher density commercial or mixed-use development, a common trend in central cities and regions where industry is declining.

#### *Why do industrial areas have low building density?*

Modern industry tends to prefer single-level buildings and expansive sites for functional purposes (see business focus group results in Metro Urban Growth Report, 2009, and Portland Economic Opportunities Analysis, 2012). For example, elevators are an efficiency bottleneck for multi-story warehousing and manufacturing, especially for large or heavy products. Also, efficiency trends toward larger trucks, trains, and ships have increased typical development sites and needs for outdoor maneuvering area.

#### *International best practices*

In North America and Europe, there are few significant examples of new and modern, multi-story industrial development (MetroVancouver, 2012). In Asia, multi-story, industrial development has been more common, but it tends to be limited to labor-intensive manufacturing and planned growth in certain capital-intensive sectors achieved through a combination of strong state direction and market forces. Conditions leading to industrial land intensification in Asia have been much less common in North America and Europe.

#### *Measuring intensification through output*

Economic output has been suggested as the most apt measure of industrial land efficiency and intensification, viewing land, capital, and employment as industrial inputs that can be more productively used to increase output. In Portland, there have been many examples of industrial companies making major capital investments that increase site capacity for expanding manufacturing output or moving freight volumes faster. Examples of adding night shifts of workers are also common during economic upswings.

#### *Ongoing growth after buildout*

The question has been raised about whether industrial growth can continue in Portland after 2035, when the vacant land will have presumably built out. The next 20 years may be the opportune time to expand Portland's toolkit to encourage intensification, potentially resulting in more successful industrial retention rates, ongoing traded sector innovation, and long-term output and export growth.

## **Opportunities for intensification**

### *Demand segments by types of facilities*

Building density varies by the types of facilities, each of which represent distinct segments of industrial land demand. In Portland's industrial districts, average site coverage by buildings varies from 35% for manufacturing sites, 35% for wholesale trade, 8% for freight terminals (air, marine, and rail); and 30% for multi-tenant (4 or more) buildings (BPS, 2004). Overall, these districts have average site coverage of 25% and an average 9 jobs per acre, representing diverse manufacturing and distribution districts with a large share of freight terminal land uses that rely on Portland's unique, freight hub infrastructure.

### *Intensification case studies*

Rather than general increases in industrial building density and employment density, intensification has been concentrated more in a few specific types of opportunities, which potentially could be encouraged to increase intensification. Here are examples.

- Capital investments that expand output capacity – One large, recent example is UPS's investment of over \$100 million in redevelopment and expansion of their regional distribution facility (package handling) on Swan Island. Schnitzer Steel's \$30 million in 2006 in a new shredder, crane, and upgraded dock in Rivergate is another capacity expansion example.
- New product lines – Expansion at the Evraz Steel facility exceeding \$100 million of investment in the mid-2000s was around new product lines, including a new pipe mill and associated new facilities by Columbia Structural Tubing and Oregon Feralloy.
- Growing upward – Higher ceilings in new warehouses have become common, including automated track systems that move merchandise at higher levels. The Columbia Sportswear distribution facility in Rivergate is an example.
- Expanding office functions – Industrial headquarters have had expansion in their office operations, sometimes in multi-story buildings. Examples include ESCO Steel in the Northwest Industrial District and Daimler Trucks at Swan Island. Productivity and innovation advantages have been cited for keeping engineering and some other office operations near shop floor manufacturing facilities in industrial districts.
- Small-site infill – The aggregate job density of numerous industrial facilities on 1-3 acre sites is often higher than typical large-scale facilities. The small sites along and north of Columbia Boulevard is an example, where infill growth has occurred.

## **Estimating future intensification potential**

### *Comparing development, employment, and output growth trends*

In one measure of intensification, nearly 3 million square feet of new building space has been added on developed (non-vacant) land in Columbia Harbor and Columbia East since 1999, as shown in the table below. However, comparing trends between districts suggest that intensification activity might not be associated with appreciable job growth. In the mostly developed Columbia Harbor area, a high 36% rate of new building space on non-vacant land (intensification) came with no net job growth in the 2000-2008 business cycle. In contrast, the strong job growth occurring in the developing Columbia East district had only a 13% rate of new building space on non-vacant land. While vacant land development consists entirely of new businesses and employees, these district trends data suggest that intensification investments that use land more efficiently may also be using the existing workforce on these sites more efficiently.

Industrial intensification activity is consistent with substantial output growth in Columbia Harbor, including export growth with regional prosperity benefits.

**Growth and intensification trends in Portland industrial districts**

	New building space, 1999-2011		Job growth, 2000-2008		Output growth, 2002-2008	
	New square footage	% on non-vacant sites ("refill")	Total growth	Avg. annual rate (AAGR)	Value Added AAGR	Cargo Tons AAGR
Columbia Harbor	6,613,700	36%	-4755	-0.9%	1.0%	4.1%
Columbia East	4,510,100	13%	3944	2.9%		

Source: Portland Economic Opportunities Analysis, 2012

*Factors that encourage or discourage intensification*

- Freight investments - Business interviews conducted for the Working Harbor Reinvestment Strategy ranked transportation investments as their top priority of public actions to encourage industrial reinvestment there. Implementing the Freight Master Plan infrastructure improvements would be a key opportunity to support transportation, economic, and land efficiency objectives.
- Business climate and regulatory challenges – The Portland Plan Business Survey (2010) ranked City fees and regulations as the biggest barriers to business success here and most widely supported City role in economic development. Changes to Portland’s fee and regulatory environment could encourage or discourage business reinvestment in site intensification.

*Estimating future intensification*

Portland’s EOA forecast is based on employment growth, assuming an overall linear relationship among new employment, new building construction, and land absorption. Thus, to reduce Portland’s industrial land shortfall, intensification must translate into job growth. However, a linear relationship among jobs, buildings, and land is not clear at a site-by-site scale nor when applied specifically to industrial land intensification. The EOA projects 18,900 new jobs in Columbia Harbor by 2035 and 9,600 new jobs in Columbia East.

The EOA estimates that 81 acres of Columbia Harbor demand would be met by redevelopment, which is approximately 9% of forecast demand. If proactive strategies are applied to increase intensification, a 20%-of-demand estimate of intensification would reduce the projected shortfall in Columbia Harbor by approximately 100 acres. This estimate excludes the freight terminal component of demand, which would require large new sites to meet. In contrast, if current levels of freight investment and regulatory burdens shift substantially in the other direction to discourage reinvestment, the intensification rate could be lower, which would increase the projected shortfall.

**Advantages and challenges of increasing intensification**

*Advantages*

- Business retention – freight investments and business climate changes benefit both new and existing businesses
- Incremental growth in tight land markets

*Challenges*

- Other investment priorities – freight projects often compete with active transportation projects for the same sources of funding.
- Other priorities that favor increasing fees and regulatory costs.