

Appendix 7

Large industrial site demand analysis

Introduction

A strong regional economy that provides job choices and prosperity is an important part of quality of life. The economic position of the Portland metropolitan region is partially dependent upon global factors as the world shifts towards new market realities. However, local and regional choices can shape this region's place in the global economy. Regional leaders have identified the recruitment and retention of large traded-sector industrial firms as a priority. The availability of development-ready sites is one element of this strategy. This appendix describes the methods used to estimate future demand for large industrial sites (over 25 net buildable acres). An inventory of large industrial sites was completed for Metro and several public and private-sector partners by the consulting firm, Mackenzie. The inventory is summarized in Appendix 13.

Caveats and assumptions

State land use laws require that UGB expansions be based on demonstrated needs for additional land. However, demand for large sites will depend on the decisions of individual firms, so need is inherently difficult to forecast for this use. A regional employment forecast cannot predict which firms could be recruited or which existing firms could expand in the future or which specific sites they may prefer. A regional employment forecast can only provide a general framework for understanding potential demand for large sites. When it comes to large industrial sites, this question would be more appropriately handled as a policy or value statement rather than a technical demand analysis. However, this analysis, with its limitations, is the best available analysis of potential needs. Given this uncertainty, the range forecast for demand is appropriate. Caveats include:

- This analysis assumes that firm size is an indicator of site size needs. In reality some large firms use small sites and some small firms use large sites. A separate analysis finds that the correlation between firm size and site size is weak. Nevertheless, a positive relationship between firm size and site size is asserted for purposes of this assessment.
- This analysis assumes that the current distribution of firm sizes will be the same in the future. It is unknown whether future firms will be bigger or smaller than the current firm size distribution.
- As described in the Regional Industrial Site Readiness project, large industrial firms operate on quick site selection timeframes. These firms are looking for development ready sites. No amount of land will address potential demand if the public and private sector do not work together to make that land development ready.

- This analysis assumes that each NAICS employment category can be mapped to a single primary building type. In reality, one type of employment (e.g., manufacturing) could locate in several different building types.
- This analysis assumes that each building type can be represented by average values for square foot per employee (SFE), floor area ratio (FAR), and consequently, jobs per acre ($\text{jobs/acre} = \text{FAR} * 43560 / \text{SFE}$). In reality, there will be variation, particularly since this is intended to understand demand from a narrow subset of the firms.
- This analysis assumes that the UGB capture rate from the regional forecast is 75% of new jobs. Particularly when it comes to large industrial firms, there may be good policy reasons for striving to attract a different share.

Methods

This analysis starts with the regional jobs forecast for the next 20 years (2015 to 2035). Each employment sector in the forecast is assigned to a single primary building type. In reality, employment can locate in any type of building depending on the circumstances, but the building type assignments here are made to represent an expected average density for the industry. Given the focus of regional and state economic development efforts, this analysis is limited to employment that may locate in three industrial building types – industrial manufacturing, warehouse/distribution, and tech/flex business park.

The employment forecast is converted to an establishment forecast using the 2012 distribution of firm sizes in the confidential QCEW employment data for the UGB. The establishment size distribution is specific to each building type, and therefore to the group of industries that are assigned to that building type. Then each projected new establishment is assigned to a predicted lot size bin based on the number of employees and the employment density assumptions (FAR, SFE) of the building type.

Conversion of employment sectors to building types

NAICS	Sectors	Primary building type
11 & 21	<i>Ag, Mining (excluded from UGB calc.)</i>	NA
23	Construction	Mfg industrial
31-33	Manufacturing	Mfg industrial
334	High tech manufacturing	Flex/BP
42	Wholesale Trade	Warehouse
44-45	Retail Trade	Retail
22, 48-49	Transportation, Warehouse & Utilities	Warehouse
51	Information	Office
52	Finance	Office
53	Real Estate	Office
54	Professional Services	Office
55	Management	Office
56	Admin, Waste	Office
61	Education	Institution
62	Health & Social Services	Institution
71	Arts, Entertain, Rec	Retail
72	Accomm & Food Service	Retail
81	Other Services	Office
	<i>Government</i>	<i>Split</i>
	Gov: NAICS 61-62	Institution
	Gov: all other NAICS	Office

Employment and building density assumptions by relevant building type

Building type	SFE	FAR	Jobs/acre
Mfg industrial	780	0.3	16.75
Warehouse	1,300	0.25	8.38
Flex/BP	740	0.3	17.66

UGB employment forecast by building type, assuming a 75% capture rate of the regional forecast

Low growth	2015	2020	2025	2030	2035	20-year change (2015 to 2035)
Flex/BP	23,363	22,523	22,328	22,260	22,643	-720
Mfg industrial	87,368	87,255	85,688	86,063	85,058	-2,310
Warehouse	69,810	76,410	80,153	83,933	87,225	17,415
Total	180,541	186,188	188,169	192,256	194,926	14,385
Medium growth	2015	2020	2025	2030	2035	20-year change (2015 to 2035)
Flex/BP	27,315	30,248	32,198	33,293	35,483	8,168
Mfg industrial	106,958	116,438	120,060	126,555	132,248	25,290
Warehouse	73,545	81,083	85,193	89,483	93,420	19,875
Total	207,818	227,769	237,451	249,331	261,151	53,333
High growth	2015	2020	2025	2030	2035	20-year change (2015 to 2035)
Flex/BP	31,268	37,980	42,068	44,325	48,330	17,063
Mfg industrial	126,540	145,643	154,418	167,003	179,445	52,905
Warehouse	77,288	85,740	90,218	95,048	99,615	22,328
Total	235,096	269,363	286,704	306,376	327,390	92,296

20-year UGB demand for sites by building type and lot size by growth forecast

Low growth forecast				
Building type	25 to 49 acres	50 to 99 acres	100 acres +	Total sites
Flex/BP	0	0	0	0
Mfg industrial	0	0	0	0
Warehouse	5	2	1	8
Total	5	2	1	8

Medium growth forecast				
Building type	25 to 49 acres	50 to 99 acres	100 acres +	Total sites
Flex/BP	4	1	1	6
Mfg industrial	4	1	0	5
Warehouse	6	3	1	10
Total	14	5	2	21

High growth forecast				
Building type	25 to 49 acres	50 to 99 acres	100 acres +	Total sites
Flex/BP	8	2	2	12
Mfg industrial	7	3	1	11
Warehouse	7	3	1	11
Total	22	8	4	34

Conclusion

Retaining the detail about building types and site sizes in a statement of 20-year regional need implies more certainty and precision than is appropriate for this kind of analysis. Because of all of the caveats and limitations associated with this analysis, a more general statement about potential demand for large industrial sites is appropriate.

With the assumptions made in this analysis, there is a potential regional 20-year demand for 8 to 34 large (over 25 net buildable acres) industrial sites.

The supply (inventory) of large industrial sites inside the UGB is described in Appendix 13. The documented supply of 75 large industrial sites exceeds estimated 20-year demand even at the high end of the forecast range.