Chapter 6. Growth Capacity for Industrial Land in the Central Puget Sound Region

CHAPTER INTRODUCTION

This chapter presents an assessment of industrial subarea capacity relative to the forecasts in jobs through 2040. This section asks the question: to what extent can the industrial subareas discussed throughout this analysis accommodate the forecast increase in jobs through 2040? How would these subareas need to change to accommodate the forecast increase in jobs? Importantly, PSRC forecasts rely on existing land use policies. Industrial land management policy may change as planners continue to manage land use needs in their jurisdictions.

APPROACH

Forecasting land use in the region's industrial subareas through 2040 can theoretically take one of two approaches: (1) examine trends on each subarea and extrapolate those trends to 2040 to develop jobs and land use forecasts for each subarea, or (2) examine jobs forecasts for each subarea and analyze how land use patterns must evolve to accommodate those forecasts. These two approaches are not mutually exclusive and this analysis utilizes each approach. This chapter starts with the latter of the two approaches, by taking the Land Use Baseline forecasts for subareas as an analytic input, along with land capacity data, to analyze how land utilization could evolve to accommodate the forecasts.

The PSRC Land Use Baseline employment forecasts presented in Chapter 5 reflect regionwide trends in land use, automation, markets and capacity. PSRC's UrbanSim implementation models some of these variables explicitly (as in the case of land capacity and market data), and in some cases these variables are inherently addressed through historic trends (as is the case with automation). In applying the Land Use Baseline forecasts as a measure of demand, a key caveat should be noted - that the UrbanSim job forecasts by subarea, used here as a measure of demand, are constrained by an estimate of available land supply. As noted earlier, an interpretation of development capacity under existing land use regulations is a primary input to UrbanSim's developer model, which then simulates factors such as shrinking vacant land supply, increasing prices, parcel redevelopment, and competition among alternative sites. Job forecasts therefore do not exceed the modeled capacity, which implies that demand might scale up if additional capacity were available. Consequently, as noted below, the UrbanSim forecast was acknowledged as a starting point input to the analysis, along with other suppositions in the approach:

- Regional employment growth by 2040 is forecast and accepted.

- PSRC's land use and employment forecasts provide a useful starting point to analyze where jobs are expected to increase.
- The PSRC forecasts show jobs growing in and around the industrial subareas, and as such the forecasts for the subareas are sufficient starting points in the analysis.
- Job growth will be absorbed throughout the region and the subareas on a combination of existing vacant land, redevelopable land and through infill opportunities.
- Each industrial subarea differs in its absorption forecast, depending on trends in industry sector use and will follow a combination of the following patterns:
    - In some areas, vacant land and infill areas may generally accommodate forecast job growth.
    - In some areas, employment densities must change to accommodate growth.
        - Some of these areas will experience changes in industrial versus non-industrial split of jobs.
        - The way densities must change to accommodate industrial jobs varies by subarea.
        - The way densities must change to accommodate non-industrial jobs varies by subarea.

INDUSTRIAL ABSORPTION CONSIDERATIONS

Industrial absorption trends differ substantially from all other categories because of the vast diversity of land uses that are allowed in industrial areas. Commercial and residential analyses benefit from assumptions of built space square footage (s.f.) per employee or average housing unit sizes, but no such assumption fits industrial uses. Some of the real complexities of industrial absorption that affect analysis are as follows:

- **Variety of Uses.** Industrial zoning is essentially a "miscellaneous" category in the region. The designation accommodates uses that cannot be accommodated by residential and commercial zones, which includes anything that requires noise, smells and other impacts. Ancillary support services are included, too. As a result, the vast array of uses challenges uniform absorption assumptions, such as s.f. of built space per job, floor area ratios (FARs) and other metrics otherwise useful for analyses.
- **Range of densities within the same use.** Within the industrial definitions, some uses are naturally higher density than others (small scale manufacturing versus warehousing, for example). The scale of the operations matter in most cases, and jobs densities are not uniform among similar activities of different sizes (often due to storage needs, for

example). Changes to work patterns and/or technology would be necessary in order for the same industrial activity to increase job density.

- **Construction headquarters accommodate equipment, but not many workers.** Construction jobs are included as industrial jobs, but many construction workers do not report to the main office. Rather they work at the construction site. Therefore employment forecasts of construction jobs do not serve as a good driver of industrial land use patterns.
- **Services and amenities may increase with more non-industrial jobs.** As non-industrial jobs increase in an area, they bring more demand for restaurants, convenience shopping and more. Their higher densities allow for amenities to locate near office sites. Industrial work patterns (including sites, time schedules, and vehicular reliance) result in fewer amenities in the immediate vicinity.
- **Non-industrial jobs densities can increase in traditional ways.** Examples include more stories of workers, additional work shifts, structured parking, and more jobs per built s.f.

The variety of industrial uses requires a nuanced assessment of each subarea's trends and needs to understand the regionwide outlook of industrial land capacity. The following section works through each subarea to assess forecasts and land use trends, followed by a regionwide summary of the absorption analysis.

FORECASTS AND ABSORPTION BY SUBAREA

405 Corridor

Exhibit 6.1. Employment Forecasts and Land Area, 405 Corridor Subarea, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	41,800	46,200	4,400
Non-Industrial	53,500	73,300	19,800
Total	95,300	119,500	24,200
Land Area			
Total Area (acres)	4,405		
Tier A Vacant	661		
Tier B Underutilized	454		

Forecasts for employment in the 405 Corridor subarea show that most of the growth (77%) is anticipated to occur in non-industrial jobs. This job growth fits the tech industry nature of non-industrial jobs in this subarea.

The 4,400 industrial jobs would be expected to serve a range of light-industrial technology needs to match existing uses in the area. The industrial job growth could require between 65 and 100 acres of land (built at a jobs density ranging from 500 s.f. to 750 s.f., per employee, which fits the land uses in the subarea).

Accommodating non-industrial job growth at modest densities for this area (300 s.f. per job, FARs of 1.0) would require an additional 130 acres of land. The 661 vacant acres along with potential redevelopment of 454 acres should accommodate these forecasts with little change in development patterns in the subarea.

Conclusion: The 405 Corridor subarea has adequate land capacity to absorb employment forecasts with current development trends.

Arlington-Marysville

Exhibit 6.2. Employment Forecasts and Land Area, Arlington-Marysville, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	4,600	8,700	4,100
Non-Industrial	1,200	8,100	6,900
Total	5,800	16,800	11,000
Land Area			
Total Area (acres)	3,303		
Tier A Vacant	849		
Tier B Supply	542		

Forecasts for employment in the Arlington-Marysville subarea show a fairly balanced mix of growth in industrial and non-industrial jobs. The area's current mix of warehousing and manufacturing would be expected to grow in number while non-industrial uses will expand to the area as overall employment and population increase in the region.

The 4,100 industrial jobs would be expected to serve additional manufacturing business. Planned growth around the airport will also support additional warehousing and logistics jobs. The industrial job growth could require between 280 and 375 acres of land (built at a jobs density ranging from 750 s.f. to 1,000 s.f., per employee, reflecting the types of uses in the subarea).

Accommodating non-industrial job growth at more modest densities (500 s.f. per job, FARs of .25) would require an additional 320 acres of land. The more modest density reflects lower-density development patterns in the area and its relatively more remote location. Non-industrial job growth will be influenced by both the airport as well as companies wishing to locate near or adjacent to I-5. The 849 vacant acres along with potential redevelopment of 542 acres represent enough land to accommodate both the growth in industrial jobs as well as growth in non-industrial jobs, even at the modest densities assumed for the area.

Conclusion: The Arlington-Marysville subarea has adequate capacity to absorb employment forecasts, provided non-industrial growth occurs with the modest densities of current trends.

Auburn-Sumner

Exhibit 6.3. Employment Forecasts and Land Area, Auburn-Sumner, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	29,700	33,000	3,300
Non-Industrial	6,300	7,400	1,100
Total	36,000	40,400	4,400
Land Area			
Total Area (acres)	6,037		
Tier A Vacant	1,328		
Tier B Supply	629		

Forecasts for employment in the Auburn-Sumner subarea show an increase in industrial employment. Currently, the subarea is predominantly industrial, characterized by warehousing, transportation and logistics, as well as construction companies.

The 3,300 industrial jobs would be expected to serve additional warehousing and logistics companies (referred to as transportation, distribution and logistics). The industrial job growth could require between 200 and 300 acres of land (built at a jobs density ranging from 750 s.f. to 1,000 s.f., per employee, reflecting the types of uses in the subarea).

Accommodating non-industrial job growth at relatively modest densities (300 s.f. per job, FARs of .25) would require an additional 30 acres of land. The density of such uses is projected to be low to reflect the current mix of auto-oriented development in the area and the densities that have been historically achieved in the corridor. Non-industrial job growth will be influenced by the area's growing population and expanding commercial centers. The 1,328 vacant acres along with potential redevelopment of 629 acres represent more than enough land for the anticipated job growth.

Conclusion: The Auburn-Sumner subarea has an overall surplus of land available to absorb employment forecasts.

DuPont-Gray Field

Exhibit 6.4. Employment Forecasts and Land Area, DuPont–Gray Field Subarea, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	960	1,210	250
Non-Industrial	2,220	2,940	720
Total	3,180	4,150	970
Land Area			
Total Area (acres)	1,916		
Tier A Vacant	882		
Tier B Underutilized	116		

Employment forecasts for the DuPont-Gray Field subarea project almost 1,000 new jobs between 2012 and 2040. Of those jobs, just 26% are expected to be industrial. Currently, the industrial sector in this subarea is characterized by low-FAR buildings housing manufacturing uses, many of which relate to the military presence at Joint Base Lewis-McChord.

Manufacturing uses tend to have lower employment densities when compared to some other industrial uses and most commercial uses. At 1,000 s.f. of built space per employee for these uses in DuPont, the industrial job growth could require 23 acres of land in the subarea (at average FAR of 0.25 for industrial uses, which is consistent with current development patterns).

Commercial uses in the subarea include a mix of offices and retail businesses. Accommodating forecast growth in these non-industrial segments at realistic employment densities for this subarea (300 s.f. per job, average FAR of 0.75) would require just seven acres of land. Even absent redevelopment of existing buildings, the 882 acres of vacant industrial land is more than sufficient to accommodate both the growth in industrial and non-industrial jobs.

Conclusion: The DuPont-Gray Field subarea has a surplus of land available to absorb employment forecasts with current development trends.

Duwamish-North Tukwila

Exhibit 6.5. Employment Forecasts and Land Area, Duwamish-North Tukwila Subarea, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	48,149	63,485	15,336
Non-Industrial	27,261	37,758	10,497
Total	75,410	101,243	25,833
Land Area			
Total Area (acres)	5,497		
Tier A Vacant	725		
Tier B Supply	749		

Forecasts for employment in the subarea show that most of the growth (59%) is anticipated to occur in industrial jobs. As one of the region's largest concentrations of prime industrial land and the location of the Port of Seattle's lands, this job growth fits the core industrial nature of this subarea.

Industrial uses in the subarea include the port's marine shipping areas, with deep water berths, wharfs, piers, shipyards, drydocks, container cranes, container yards, cargo distribution and warehousing, oil and petroleum storage facilities, and major railroad yards. Almost all of the 15,336 new industrial jobs would be expected to occur within the core industrial lands currently in the area (99%). Vacant land alone cannot accommodate the forecasted growth in industrial jobs. Land use management strategies will be necessary or the forecasted growth will need to be accommodated elsewhere. (At 700 to 1000 s.f. per job, which fit the land uses in the area, industrial growth would require 800 to 1,200 acres of land.)

Accommodating non-industrial job growth at modest densities for this area (300 s.f. per job, FARs of 1.0) would require an additional 72 acres of land. Nearly all (94%) non-industrial jobs are forecasted to locate on core industrial lands. Relatively few of the non-industrial jobs (667 jobs) are forecasted for the industrial commercial and industrial buffer zoned lands (representing non-core industrial lands), where up to 2.5 FAR development is allowed. Vacant land totals for this subarea, even more than other subareas, likely overestimate the amount available for new uses. They include land that appears vacant but may be used for staging or outdoor storage.

Conclusion: The Duwamish-North Tukwila subarea requires strategies to accommodate growth forecasts, given the very low vacancy rates today and very strong employment growth forecasted for core industrial lands in the area. Strategies will need to address how to accommodate anticipated industrial and non-industrial jobs.

Frederickson-Lakewood

Exhibit 6.6. Employment Forecasts and Land Area, Frederickson-Lakewood Subarea, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	8,600	16,600	8,000
Non-Industrial	4,300	17,800	13,500
Total	12,900	34,400	21,500
Land Area			
Total Area (acres)	7,264		
Tier A Vacant	1,597		
Tier B Supply	907		

Aerospace jobs lead the industrial sector in the Frederickson-Lakewood subarea, followed by a balance of manufacturing, construction, transportation, distribution and logistics and warehousing and wholesale employment. Forecasts indicate that the non-industrial share of total employment in the subarea will increase from 33% in 2012 to 52% in 2040.

High forecast growth in non-industrial employment suggests significant demand for land to accommodate these commercial uses. Assuming 450 built s.f. per commercial job and an average commercial FAR of 0.5, the 13,500 new non-industrial jobs would require about 279 acres of land.

Industrial job growth, at 750 built s.f. per employee and an average FAR of 0.25, would require about 551 acres. The subarea currently has 1,597 acres of vacant land, and about 907 acres of redevelopable land; the subarea should therefore have sufficient land to accommodate the combined 830 acres required by industrial and non-industrial job growth, assuming development patterns facilitate the employment and building densities described above.

Conclusion: The Frederickson-Lakewood subarea has adequate land capacity to absorb employment forecasts with current development trends, though by 2040 the forecast jobs growth will draw vacancies down sufficiently to then change the real estate market.

Interbay-Ship Canal

Exhibit 6.7. Employment Forecasts and Land Area, Interbay-Ship Canal Subarea, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	10,679	14,002	3,323
*Non-Industrial	14,301	18,675	4,374
Land Area			
Total Area (acres)	1,251		
Tier A Vacant	205		
Tier B Underutilized	395		

* PSRC forecast adjusted to reflect rezoning of nine-block area of South Lake Union which was zoned industrial and since rezoned to mixed-use. A Community Attributes estimate of 8,500 jobs in 2012 and 11,100 jobs in the 2040 forecast were subtracted from the PSRC number for non-industrial jobs.

Forecasts for the subarea show that more than half (57%) of the forecasted job growth is anticipated to occur in non-industrial jobs. This reflects the diverse mix of uses within this small, urban subarea. Maritime and aerospace-related manufacturing and supply businesses are the main industrial uses in the subarea, but some of the largest employers include grocery and retail stores. The 3,323 new industrial jobs would be expected to continue to serve the industrial uses. The industrial job growth could require between 127 and 190 acres of land (built at a jobs density ranging from 500 s.f. to 750 s.f., per employee, reflecting the types of uses in the subarea). 40% of the forecasted industrial jobs are expected to be on core industrial lands with the remainder on non-core industrial-commercial zoned lands.

In addition to grocery and retail stores, the subarea contains a growing cohort of high-tech and bio-tech firms, and office-related uses in the city's (industrial commercial) zone. Accommodating non-industrial job growth at moderate densities for this area (300 s.f. per job, FARs of 1.0) would require an additional 30 acres of land. More specifically, industrial commercial lands are anticipated to absorb 100% of non-industrial jobs potentially resulting in 15 to 40 acres of redeveloped non-core industrial land (compared to 72 acres of vacant industrial commercial zoned land). The vacant and redevelopable acreage would mathematically accommodate the forecasts for both industrial and non-industrial jobs, but parcel consolidation and location of vacant parcels would be expected challenges to overcome.

Conclusion: The Interbay-Ship Canal subarea requires strategies to accommodate growth forecasts, given the strong demand for both core industrial and non-core industrial land by a diverse number of users.

Kent-Renton

Exhibit 6.8. Employment Forecasts and Land Area, Kent-Renton Subarea, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	49,300	55,900	6,600
Non-Industrial	14,500	40,700	26,200
Total	63,800	96,600	32,800
Land Area			
Total Area (acres)	5,970		
Tier A Vacant	870		
Tier B Underutilized	408		

Forecasts for employment in the Kent-Renton subarea show that most of the growth (80%) is anticipated to occur in non-industrial jobs. This growth reflects a shift from the current industrial jobs mix to a more balanced mix of industrial and non-industrial jobs.

The 6,600 industrial jobs would be expected to serve additional warehousing, distribution and logistics facilities as well as high tech manufacturing, if the new jobs followed current uses. The industrial job growth could require between 150 and 300 acres of land (built at a jobs density ranging from 500 s.f. to 1,000 s.f., per employee, reflecting the types of uses in the subarea).

Accommodating non-industrial job growth at realistic densities for this area (300 s.f. per job, FARs of 0.5) would require an additional 360 acres of land. Projected non-industrial densities reflect a mix of both higher density office developments as well as lower density retail and auto-oriented uses prevalent in the area. The 870 vacant acres along with potential redevelopment of 408 acres represent enough land to mathematically accommodate both the growth in industrial jobs and shift towards a higher concentration of non-industrial jobs. However, this absorption would also lead to very tight vacancy rates that in turn would be expected to lead to intensification of development patterns over time, especially given dispersed parcels and relative market interest in vacant parcels.

Conclusion: The Kent-Renton subarea will require strategies to accommodate growth forecasts, given the very strong non-industrial employment growth forecast for the area. Strategies will likely require intensification of industrial land uses.

North-Central Everett

Exhibit 6.9. Employment Forecasts and Land Area, North-Central Everett Subarea, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	3,000	4,000	1,000
Non-Industrial	2,100	4,000	1,900
Total	5,100	8,000	2,900
Land Area			
Total Area (acres)	2,507		
Tier A Vacant	610		
Tier B Supply	461		

The North-Central Everett subarea includes industrial activity in maritime, timber, aerospace and military-related uses. Non-industrial jobs account for a smaller share (about 41%) of all employment in the subarea. Forecasts suggest that higher growth in non-industrial employment will diversify the subarea to the point where industrial and non-industrial jobs are about even.

The industrial uses in the subarea are currently located in buildings with higher than average FARs for industrial uses. If this development pattern holds for new development (average industrial FAR of 0.5), and assuming that each new job requires, on average, 750 s.f. of built space, the industrial job growth could require about 34 acres of land in the subarea.

Accommodating forecasted growth in non-industrial job segments at realistic employment densities for this subarea (500 square feet per job; average FAR of 0.5) would require 44 acres of land. The 610 acres of vacant land in the subarea are sufficient to accommodate the 78 acres of land that combined industrial and non-industrial forecasted job growth may require.

Conclusion: The North-Central Everett subarea has adequate land capacity to absorb employment forecasts with current development trends.

PSIC-Bremerton-Sinclair Inlet

Exhibit 6.10. Employment Forecasts and Land Area, PSIC-Bremerton-Sinclair Inlet Subarea, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	12,640	15,906	3,266
Non-Industrial	3,039	4,305	1,266
Total	15,679	20,211	4,532
Land Area			
Total Area (acres)	5,526		
Tier A Vacant	2,414		
Tier B Supply	197		

Forecasts for employment in the PSIC-Bremerton-Sinclair Inlet subarea show that the majority of the growth (72%) is anticipated to occur in industrial jobs. This forecast reflects anticipated growth more than the redevelopment of existing industrial space since the subarea is currently largely undeveloped with a significant amount of vacant land, as well as forest lands and wetlands. It is also currently served by few transportation facilities.

The 3,266 new industrial jobs could require 210 to 300 additional acres of land (built at a jobs density ranging from 700 s.f. to 1,000 s.f., per employee, which fits the land uses anticipated in the area.)

Accommodating non-industrial job growth at modest densities for this area (300 s.f. per job, FARs of 0.5) would require an additional 17 acres of land. The 2,414 vacant acres could easily accommodate these forecasts with little change in development patterns in the subarea.

Conclusion: The PSIC-Bremerton-Sinclair Inlet subarea has a surplus of land beyond that required to accommodate forecasts.

SeaTac-Des Moines

Exhibit 6.11. Employment Forecasts and Land Area, SeaTac-Des Moines Subarea, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	7,700	14,900	7,200
Non-Industrial	5,400	9,100	3,700
Total	13,100	24,000	10,900
Land Area			
Total Area (acres)	2,648		
Tier A Vacant	446		
Tier B Supply	99		

The SeaTac-Des Moines subarea is anchored by the Seattle-Tacoma International Airport, and the industrial employment in the subarea reflects the presence of the airport and its dependents. Jobs in transportation, distribution and logistics account for the bulk of the jobs in this subarea. Forecasts for the subarea project significant job growth in traditional industrial segments and in non-industrial employment alike. Transportation, distribution and logistics jobs generally occur at lower employment densities, and the facilities to support transportation, distribution and logistics uses also tend to have low building densities. As a result, industrial job growth could require 661 acres of land if employment densities average 1,000 built s.f. per worker and facilities are constructed at an average FAR of 0.25.

The presence of a regional transportation hub is attractive for non-industrial employers as well. Retail and services jobs often occur at lower densities, but office and hotel uses, especially in transit-oriented developments, may show higher employment and building densities than many other commercial uses. Accommodating forecasted new non-industrial jobs at 400 built s.f. per job and an average FAR of 0.75 would require 45 acres of land.

The SeaTac-Des Moines Subarea has only 446 acres of vacant land, and 545 acres of combined vacant and redevelopable land (which includes noise-impacted former residential property). This supply is insufficient to accommodate the forecasted growth in industrial and non-industrial jobs unless all uses occur at higher densities than currently exist in the subarea.

Conclusion: The SeaTac-Des Moines subarea requires strategies to accommodate growth forecasts, given the very low vacancy rates today and very strong employment growth forecast for the area.

Southwest Everett

Exhibit 6.12. Employment Forecasts and Land Area, Southwest Everett Subarea, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	50,800	61,600	10,800
Non-Industrial	4,967	6,812	1,845
Total	55,767	68,412	12,645
Land Area			
Total Area (acres)	4,449		
Tier A Vacant	948		
Tier B Supply	390		

Forecasts for employment in the Southwest Everett Subarea show that the majority of the growth (85%) is anticipated to occur in industrial jobs. As the region's largest concentration of aerospace manufacturing, this job growth fits the industrial aviation operations nature of this subarea.

As the location of Boeing's manufacturing facility and Snohomish County's busiest airport in Paine Field, most of the activity here is aviation-related, including uses such as aircraft production, maintenance, testing, flight training, business and corporate aviation and military aviation. The 10,800 new industrial jobs would be expected to occur within these activities currently in the area. This industrial job growth could require 750 to 1,000 additional acres of land (built at a jobs density ranging from 750 s.f. to 1,000 s.f., per employee, reflecting the types of uses in the subarea).

Accommodating non-industrial job growth at modest densities for this area (400 s.f. per job, FAR of 0.50) would require an additional 34 acres of land. The 948 vacant acres along with potential redevelopment of 390 acres could potentially accommodate these forecasts in the subarea with little changes in development patterns in the subarea.

Conclusion: The Southwest Everett subarea has adequate capacity to absorb employment forecasts, provided industrial and non-industrial growth occurs with employment and building densities consistent with current development patterns. Demand for land within this subarea, however, is strong enough to merit management strategies.

Tacoma-Puyallup

Exhibit 6.13. Employment Forecasts and Land Area, Tacoma- Puyallup Subarea, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	21,300	28,500	7,200
Non-Industrial	8,900	26,000	17,100
Total	30,200	54,500	24,300
Land Area			
Total Area (acres)	7,594		
Tier A Vacant	2,182		
Tier B Supply	1,327		

Forecasts for employment in the Tacoma-Puyallup subarea show higher growth in non-industrial jobs, with such jobs representing 70% of all job growth in the subarea. Currently, the subarea is predominantly industrial, anchored by Port of Tacoma facilities as well as access to I- 5.

The 7,200 industrial jobs would be expected to serve existing port facilities as well as manufacturing and distribution companies. The industrial job growth could require between 160 and 250 acres of land (built at a jobs density ranging from 500 s.f. to 750 s.f., per employee, reflecting the types of uses in the subarea). The growth in non-industrial jobs will represent a relative shift for the subarea.

Accommodating non-industrial job growth at relatively higher densities on average (300 s.f. per job, FARs of 0.75) would require an additional 160 acres of land. The urban location of the subarea and potential growth in land values suggests that higher-density commercial development is likely. Non-industrial job growth will be influenced by both access to I-5 as well as growth in nearby commercial centers, such as downtown Tacoma. The 2,182 vacant acres along with potential redevelopment of 1,327 acres represent enough land to accommodate both the growth in industrial jobs as well as growth in non-industrial jobs.

Conclusion: The Tacoma-Puyallup subarea has adequate land capacity to absorb employment forecasts with current development trends. However, some pockets within this area, such as the more densely developed urban areas in Tacoma, will require management strategies

Dispersed-King County

Exhibit 6.14. Employment Forecasts and Land Area, Dispersed-King County, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	6,300	8,400	2,100
Non-Industrial	1,900	12,100	10,200
Total	8,200	20,500	12,300
Land Area			
Total Area (acres)	2,835		
Tier A Vacant	1,273		
Tier B Underutilized	535		

Employment forecasts for Dispersed-King County show that the vast majority of growth (83%) is expected to occur in non-industrial jobs, representing a substantial shift from current employment patterns where industrial jobs dominate. This job growth fits the general trend whereby an increasing number of non-industrial jobs are located on industrial lands.

The forecast 2,100 industrial jobs would likely be in manufacturing and warehousing & distribution, the current areas of specialization. These types of uses typically have lower employment densities than commercial or other industrial activities. Based on this assumption, projected industrial job growth could require between 140 and 200 acres of land (built at a jobs density ranging from 750 s.f. to 1,000 s.f., per employee at an average FAR of .25, reflecting the types of uses in the subarea).

Accommodating non-industrial job growth at moderate densities (at 500 s.f. per job and an average 0.25 FAR) would require an additional 468 acres of land. The 1,273 vacant acres, along with potential redevelopment of 535 acres, should accommodate this growth with little changes in development patterns on these lands. Industrial lands in this category are widely scattered on relatively small parcels, resulting in data suppression. Thus, attributing this growth to any particular area within the county is not possible.

Conclusion: Dispersed industrial lands in King County have adequate capacity to absorb employment forecasts, provided industrial and non-industrial growth occurs with moderate employment and building densities.

Dispersed-Kitsap County

Exhibit 6.15. Employment Forecasts and Land Area, Dispersed-Kitsap County, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	1,500	3,000	1,500
Non-Industrial	2,700	6,200	3,500
Total	4,200	9,200	5,000
Land Area			
Total Area (acres)	4,856		
Tier A Vacant	598		
Tier B Underutilized	287		

Employment in Dispersed-Kitsap County is forecast to grow mainly (70%) in non-industrial jobs, which is largely consistent with the current situation where non-industrial jobs account for the majority of employment on these lands.

The 1,500 additional industrial jobs would be expected to serve a diverse range of manufacturing needs for both civilians and the military, due to the presence of Naval Base Kitsap. As manufacturing uses tend to have lower employment densities than commercial and other industrial activities, the industrial job growth could require between 100 and 140 acres of land, assuming 750 to 1,000 s.f. of built space per job and an average FAR of 0.25.

Accommodating non-industrial job growth at moderate densities for this area (500 s.f. per job at an average 0.25 FAR) would require around 161 acres of additional land. The 598 vacant acres along with potential redevelopment of 287 acres should provide more than enough land to accommodate these forecasts, with little change to current development patterns. Industrial lands in this category are widely scattered on relatively small parcels, resulting in data suppression. Thus, attributing this growth to any particular area within the county is not possible.

Conclusion: Dispersed industrial lands in Kitsap County have adequate capacity to absorb employment forecasts, provided industrial and non-industrial growth occurs with moderate employment and building densities.

Dispersed-Pierce County

Exhibit 6.16. Employment Forecasts and Land Area, Dispersed-Pierce County, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	1,100	2,700	1,600
Non-Industrial	1,600	3,700	2,100
Total	2,700	6,400	3,700
Land Area			
Total Area (acres)	1,883		
Tier A Vacant	587		
Tier B Underutilized	342		

Forecasts for employment in Dispersed-Pierce County show that slightly more growth (57%) is expected to occur in non-industrial jobs. As these lands already have a smaller proportion of industrial jobs, the widening gap between the two categories may be due to general trends towards non-industrial jobs locating on industrial lands.

The forecasted 1,600 industrial jobs are anticipated to be engaged in manufacturing and construction activities already extant in the subarea. As manufacturing typically involves lower employment densities than commercial and other industrial activities, the industrial job growth could be expected to need between 110 and 150 acres of land at 750 to 1,000 s.f. of built space per job at an average 0.25 FAR, which fits the area's current land uses.

Accommodating non-industrial job growth at moderate densities for this area, assuming 500 s.f. per job at an average 0.25 FAR, would require around 96 acres of land. The 587 vacant acres along with potential redevelopment of 342 acres should accommodate these forecasts with little changes in development patterns on these lands. Industrial lands in this category are widely scattered on relatively small parcels, resulting in data suppression. Thus, attributing this growth to any particular area within the county is not possible.

Conclusion: Dispersed industrial lands in Pierce County have adequate capacity to absorb employment forecasts, provided industrial and non-industrial growth occurs with moderate employment and building densities.

Dispersed-Snohomish County

Exhibit 6.17. Employment Forecasts and Land Area, Dispersed-Snohomish County, 2012-2040

Jobs	2012	2040	2012-2040
Industrial	6,900	10,800	3,900
Non-Industrial	6,100	14,500	8,400
Total	13,000	25,300	12,300
Land Area			
Total Area (acres)	4,039		
Tier A Vacant	1,142		
Tier B Underutilized	779		

Forecasts for employment in Dispersed-Snohomish County show that much of the growth (68%) is expected to occur in non-industrial jobs, representing a shift from current employment patterns. Snohomish County has traditionally depended heavily upon natural resource-based jobs, and as these have declined, small communities have turned to more commercial and service-oriented jobs.

The forecasted 3,900 industrial jobs would be expected to fall mostly into a wide range of manufacturing activities, remaining largely consistent with existing employment. As manufacturing uses generally have lower employment densities than commercial and other industrial uses, the industrial job growth could require between 270 and 360 acres of land, assuming 750 to 1,000 s.f, of built space per job at an average 0.25 FAR, which fit the land uses in the area.

Accommodating non-industrial job growth at moderate densities for this area, at 300 s.f. per job and an average 0.25 FAR, would require approximately 386 acres of land. The 1,142 vacant acres along with the potential redevelopment of 779 acres should accommodate these forecasts with little changes in development patterns on these lands. Industrial lands in this category are widely scattered on relatively small parcels, resulting in data suppression. Thus, attributing this growth to any particular area within the county is not possible.

Conclusion: Dispersed industrial lands in Snohomish County have adequate capacity to absorb employment forecasts, provided non-industrial growth occurs with moderate employment and building densities.

REGIONAL SUMMARY OF EMPLOYMENT FORECASTS AND ABSORPTION IMPLICATIONS

The previous section demonstrated that the subareas vary in their capacity to absorb employment growth forecasted to occur in each subarea. While technically all, mathematically, have the capacity to absorb growth, considerations such as the desirability of existing vacant land will require strategies in some subareas to adapt to the demand for land in those areas. The subareas can be grouped into the following categories:

- **Strong demand/limited capacity.** For some subareas, strategies and planning will be required to accommodate growth. These include the Interbay-Ship Canal, Duwamish-North Tukwila, Kent-Renton, and SeaTac-Des Moines subareas.
- **Strong demand/adequate capacity.** In some subareas, capacity appears adequate, but demand is strong enough to merit management strategies. These include the Frederickson-Lakewood, Southwest Everett and Tacoma-Puyallup subareas.
- **Adequate capacity.** Some subareas have adequate land capacity to accommodate growth forecasts. These include the 405 Corridor, Arlington-Marysville, and North-Central Everett subareas, as well as the dispersed areas in all four counties.
- **Surplus capacity.** Some subareas have surplus land capacity beyond growth forecasts. These include the DuPont-Gray Field, PSIC-Bremerton-Sinclair Inlet, and Auburn-Sumner subareas.

Exhibit 6.18 provides a summary table of employment forecasts and land capacity, as analyzed for this study.

Exhibit 6.18. Summary of Employment Forecasts and Available Land, Industrial Subareas in Central Puget Sound Region, 2012 - 2040

	Jobs									Land Area (acres)		
	2012			2040			2012-2040					
Area	Industrial	Non-Industrial	Total	Industrial	Non-Industrial	Total	Industrial	Non-Industrial	Total	Total Area (acres)	Tier A Vacant	Tier B Underutilized
405 Corridor	41,800	53,500	95,300	46,200	73,300	119,500	4,400	19,800	24,200	4,405	661	454
Arlington-Marysville	4,600	1,200	5,800	8,700	8,100	16,800	4,100	6,900	11,000	3,303	849	542
Auburn-Sumner	29,700	6,300	36,000	33,000	7,400	40,400	3,300	1,100	4,400	6,037	1,328	629
DuPont-Gray Field	1,000	2,200	3,200	1,200	2,900	4,200	300	700	1,000	1,916	882	116
Duwamish -North Tukwila	48,100	27,300	75,400	63,500	37,800	101,200	15,300	10,500	25,800	5,497	725	749
Frederickson-Lakewood	8,600	4,300	12,900	16,600	17,800	34,400	8,000	13,500	21,500	7,264	1,597	907
Interbay-Ship Canal*	10,700	14,300	NA	14,000	18,700	NA	3,300	4,400	NA	1,251	205	395
Kent-Renton	49,300	14,500	63,800	55,900	40,700	96,600	6,600	26,200	32,800	5,970	870	408
North - Central Everett	3,000	2,100	5,100	4,000	4,000	8,000	1,000	1,900	2,900	2,507	610	461
PSIC-Bremerton-Sinclair Inlet	12,600	3,000	15,700	15,900	4,300	20,200	3,300	1,300	4,500	5,526	2,414	197
SeaTac-Des Moines	7,700	5,400	13,100	14,900	9,100	24,000	7,200	3,700	10,900	2,648	446	99
Southwest Everett	50,800	5,000	55,800	58,100	7,100	65,200	7,300	2,100	9,400	4,449	948	390
Tacoma-Puyallup	21,300	8,900	30,200	28,500	26,000	54,500	7,200	17,100	24,300	7,594	2,182	1,327
Dispersed - King County	6,300	1,900	8,200	8,400	12,100	20,500	2,100	10,200	12,300	2,835	1,273	535
Dispersed - Kitsap County	1,500	2,700	4,200	3,000	6,200	9,200	1,500	3,500	5,000	4,856	598	287
Dispersed - Pierce County	1,100	1,600	2,700	2,700	3,700	6,400	1,600	2,100	3,700	1,883	587	342
Dispersed - Snohomish County	6,900	6,100	13,000	10,800	14,500	25,300	3,900	8,400	12,300	4,039	1,142	779
Total	305,000	160,300	465,400	385,400	293,700	679,100	80,400	133,400	213,700	71,983	17,318	8,617

* PSRC forecast adjusted to reflect rezoning of nine-block area of South Lake Union which was zoned industrial and since rezoned to mixed-use. A Community Attributes estimate of 8,500 jobs in 2012 and 11,100 jobs in the 2040 forecast were subtracted from the PSRC number for non-industrial jobs.

Note: Total does not exactly sum due to rounding.