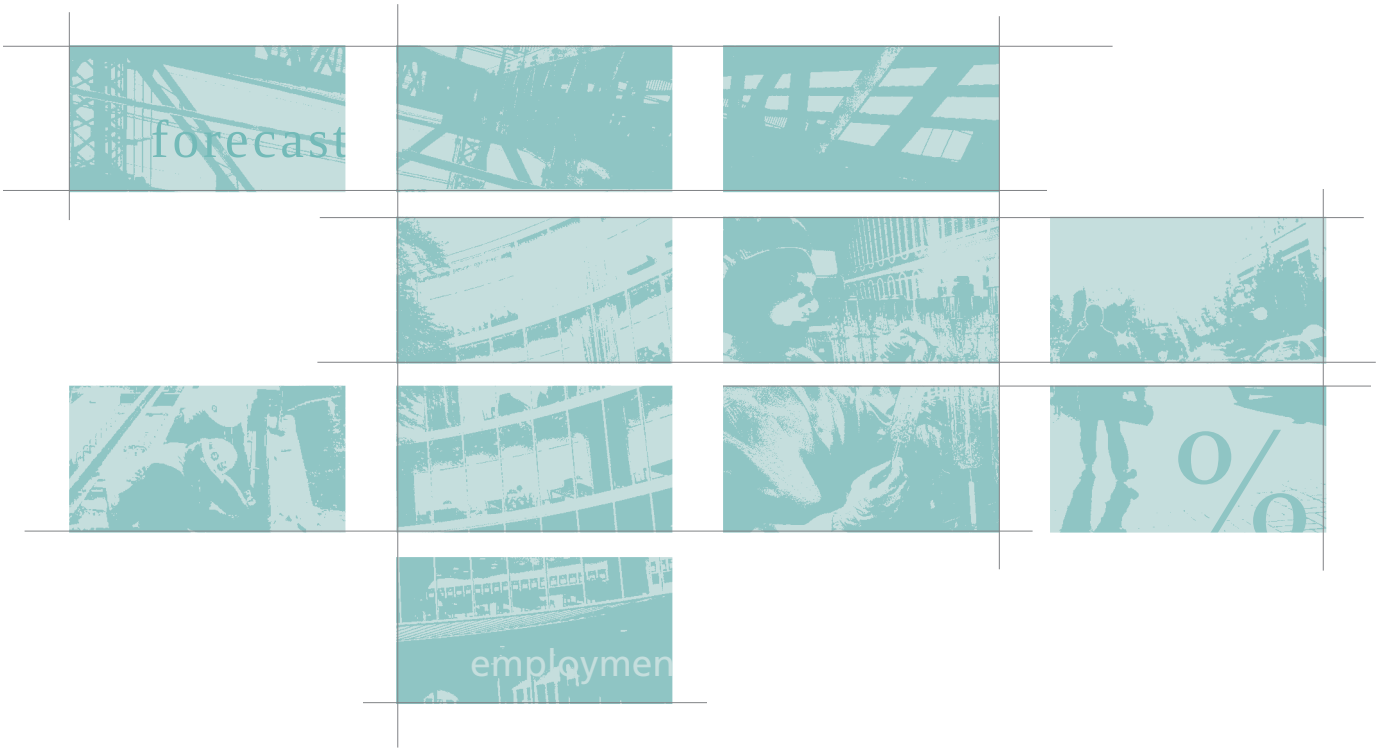


PRELIMINARY URBAN GROWTH REPORT

2009 – 2030

Employment

May 2009

Metro | *People places. Open spaces.*

TABLE OF CONTENTS

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. In addition to job capacity, factors that contribute to a strong regional economy include, an educated workforce, high value added businesses, wage levels, the mix of jobs, the success of economic development efforts, the transportation system, infrastructure investments and quality of life.

Oregon's land use laws were crafted to protect and maintain a high quality of life for our residents. In the Portland metropolitan area, Metro is the agency legally responsible for anticipating changes in population and employment and monitoring our ability to support jobs and a strong regional economy. Oregon land use law requires that Metro maintain sufficient capacity for the number of people anticipated to work in the region over the next 20 years. Every five years, Metro conducts an inventory of the current employment capacity within the urban growth boundary, forecasts employment growth over a 20-year timeframe, calculates the anticipated need, and documents the results of these analyses in an urban growth report. This preliminary report provides the analysis of employment capacity and demand. A separate report provides an analysis of residential capacity and demand.

This preliminary employment urban growth report indicates that there is sufficient capacity within the current urban growth boundary to meet the low end of the regional forecasted employment demand in the 5- and 20-year time frames. The analysis shows that there is sufficient capacity to meet the high end of industrial demand, but policy or investment changes must be made to meet the high end of the non-industrial demand. The analysis also calls out a potential gap in the capacity of the existing UGB to meet unique industry needs. The report illustrates a potential disparity between the location of certain types of land supply and current employment location trends. These topics should be considered for local and regional discussion, specifically through Metro's Making the Greatest Place initiative that connects land use and transportation policies and investments to support vibrant communities across the region.

Metro has developed a new approach to analyzing employment demand and supply in this preliminary urban growth report, considering changing times and learning from past experiences. This demand and supply analysis describes Metro's best estimates of what is likely to happen over the next 20 years, given the policies in place today, which may or may not be adequate for adaptation to a changing world. The initial assumptions made in this preliminary urban growth report are likely to be amended as a result of local and regional discussions and policy changes made in the spring and summer of 2009. This preliminary analysis provides a vehicle for seeking feedback on assumptions. The analysis will be revised and released as a draft in September for the Metro Council to consider for adoption.

OUTCOMES-BASED APPROACH TO GROWTH MANAGEMENT

Planning for the future is not just an exercise in providing numbers and forecasts. Planning creates opportunities for people and communities to define and articulate their collective desires and aspirations for enhancing the quality of life in our region. It allows citizens and their elected leaders to take stock of the successes that have been achieved in their communities through years of hard work. It also forces us to think carefully about and to be accountable for the costs of our choices, ensuring we get the greatest possible return on both public and private investments.

Aside from fulfilling statutory requirements, this preliminary urban growth report provides the region with an opportunity to assess how it has been performing and determine which policy actions could be taken to improve future outcomes and ensure that our communities are sustainable. Shorter-term circumstances such as the current economic recession and longer-term concerns such as climate change demand that we do things differently and make a new approach to our growth management responsibilities all the more timely.

The determination of employment demand and capacity is necessarily part art and part science. State statutes and statewide planning goals direct the region to determine what share of growth can "reasonably" be accommodated inside the existing boundary before expanding it. Ultimately, how the region defines "reasonable" will be a reflection of regional and community values and commitments. At the opposite ends of the spectrum, the Metro boundary could be held tight or expanded significantly. There are tradeoffs that accompany such choices. This preliminary urban growth report is intended not just to determine whether or not there is an employment capacity need when looking out over the next 20 years, but also to place growth management decisions in the context of the region's desired outcomes.

Characteristics of a successful region

In 1995, the region endorsed the 2040 Growth Concept, an innovative blueprint that seeks to direct future population and employment growth into urban centers, transportation corridors and employment areas in a manner that uses land more efficiently and enhances the character and economic vitality of urban communities. In making growth management decisions, the Metro Council and the Metro Policy Advisory Committee (MPAC) have indicated their desire to weigh policy and investment tradeoffs to produce outcomes that citizens have expressed support for. To that end, in the summer of 2008, the Metro Council, following MPAC's recommendation, adopted six desired outcomes that provide guidance for growth management decisions to support the 2040 Growth Concept:

1. People live and work in vibrant communities where they can choose to walk for pleasure and to meet their everyday needs.
2. Current and future residents benefit from the region's sustained economic competitiveness and prosperity.
3. People have safe and reliable transportation choices that enhance their quality of life.
4. The region is a leader in minimizing contributions to global warming.
5. Current and future generations enjoy clean air, clean water and healthy ecosystems.
6. The benefits and burdens of growth and change are distributed equitably.

POLICY AND INVESTMENT CHOICES

The 2040 Growth Concept guides both regional and local growth management decisions. By focusing development in centers, corridors and employment areas, we can foster great communities while accommodating forecasted growth. The urban growth report is part of a continuous effort to implement the 2040 Growth Concept in the context of current conditions and knowledge.

This preliminary urban growth report is intended to provide policy makers with an understanding of how well the region accommodates the range of expected growth and how well it achieves the outcomes the region's citizens want. It does not recommend any particular policy direction. Instead, it provides policy makers with information needed to guide policy decisions. Consequently, this analysis is being released well in advance of required growth management decisions to allow for adequate consideration of local policy options (e.g. zoning and public investments) and regional policy options (e.g. boundary adjustments and transportation investments) and the likely outcomes of those options.

As the region's leaders review this analysis of forecasted employment demand and the current boundary's capacity to meet that demand, there are a number of questions to keep in mind:

Supporting the region's place in a shifting global economy

1. The world is changing rapidly – what are our region's unique strengths in a global economy and how do we capitalize on those strengths in ways that are consistent with the region's vision? Should the region be positioned as a leader in the green economy to address greenhouse gas emissions and reduce dependence on imported sources of energy?
2. 2How important is land supply in the mix of elements that make up a strong regional economy (along with educated workforce, quality jobs, and other factors)?
3. Global economic conditions change quickly. Is twenty years an appropriate time horizon for planning how to accommodate job growth? How might we be prepared to act upon new opportunities in a timely fashion? How can we design a rapid response system to support a strong regional economy both in the near term and sustainably over the next 40-50 years?

Maintaining capacity for land-extensive industry

4. Given the impossibility of predicting with confidence the need for large-scale manufacturing capacity over the 20-year planning period and the difficulties experienced trying to preserve large private parcels for industrial use in the face of pressures from landowners who do not want to "bank" their land for 10-15 years of waiting for a large company and from cities and counties that want flexibility to respond to more immediate opportunities, are there better ways than used in the past to address the call for large parcels?
5. Is employment land interchangeable or are there specialized needs for certain locations or industries? (For example, is a car manufacturer more likely to locate on Swan Island or in the Columbia Corridor while high tech companies may tend to cluster together?)
6. What strategies can be put in place to ensure that industrial land is used for job generating industrial purposes in order to protect public investments made to support industrial uses (such as transportation investments and planning efforts) and enhance regional competitiveness?

Investing and infrastructure

7. What strategies and investments would support more non-industrial employment in the region's centers and corridors?
8. What is the right balance of strategies and investments to support redevelopment of existing employment areas and development on greenfield industrial sites when there are limited local and regional resources?
9. How should the region prioritize investments, such as transportation, infrastructure, and technical resources? What does a city or county need to have in place to take advantage of regional investments?

Balancing local and regional perspectives and managing risk

10. How do we balance local desires or aversions with a regional perspective? (For example, what if all jurisdictions plan on being home to solar industries, but no jurisdictions plan on being home to warehousing and distribution)?
11. What are the risks of planning for the high or low end of the employment forecast? Are there different risks when planning for employment (versus housing)?
12. What are the risks of assuming that future employment trends will be the same or different, compared with today? Can the region minimize these risks by targeting high growth industries or business clusters? Or should there be less attention to identifying potential winners and losers, with more emphasis on assuring competitive capacity to serve the increasingly diverse needs of as yet unknown employers who will grow the jobs of the next 20-50 years?
13. In addition to the creation of employment capacity, are there reasons (based on the six desired outcomes) to expand the UGB?
14. How might our region's policies and investments interact with actions taken in the broader economic region, from Longview to Salem?

Factors that contribute to the region's employment capacity

Employment capacity is a product of zoning, public investments, market dynamics and regional growth management policy. The region has decided that it does not want to accommodate future growth through urban growth boundary expansions alone. That vision is memorialized in the 2040 Growth Concept and was reaffirmed in a series of joint JPACT and MPAC meetings during fall 2008. Additionally, Statewide Planning Goal 14 compels the region to first look inside the boundary for capacity before expanding the boundary. It is up to all of the cities and counties in the region to make the determination of where growth should occur and to take policy and investment actions as needed to direct growth in a way that supports local aspirations and the regional vision. How growth is accommodated will play a large part in determining whether or not the region achieves its desired outcomes and creates great communities.

A strong regional economy into the future will depend on a variety of decisions that are not related to land use. Greenlight Greater Portland, a regional group organized to market the Portland – Vancouver region to attract businesses, focuses on the people and places that make up the region. A quote from the 2008 Greater Portland Prosperity Index emphasizes the importance of human resources in this region's economic future:

What people find here is vitality and livability: great neighborhoods, schools and efficient means of getting around; a creative work environment; a backyard of mountains, rivers and forests. This isn't lost on business leaders, well aware that where there's urban vitality there's talent. The region's skilled workforce is drawing companies to Portland-Vancouver, where they're adding new expertise and innovation to a diverse economic base.

Local and regional policy choices can foster communities that are attractive to the people that make up the regional economy. Some of those choices are described below.

Zoning In most cases, the maximum zoned capacity in centers, corridors, employment and industrial areas is adequate to meet demand. The challenge is to attract the market to that zoned capacity. Removing barriers to more efficient use of land in industrial areas is a strategy that can be pursued (e.g., innovative approaches to landscaping requirements such as green walls and green roofs, etc.).

Investments in centers and corridors Past experience and recent scenario modeling indicate that investments in centers and corridors are an effective means of attracting growth to these areas. Employment in these locations creates great places by generating daytime activity. Residential development, as a companion to employment uses, supports retail and entertainment and creates nighttime activity. Investments can take the form of:

- Urban renewal
- Urban design improvements (e.g. street trees, sidewalks, traffic calming design improvements)
- Land assembly
- Investments in structured parking
- Incentives that reduce the costs of construction (such as System Development Charge credits, vertical housing tax abatement, or the other tools explored in Metro's Community Investment Toolkit: Financial Incentives (2007))

Investments in brownfields A portion of the region's land supply is currently environmentally contaminated. Public investment in cleaning up brownfield sites is good from an environmental perspective, supports redevelopment and reuse of land in existing urban locations that typically is well-served by infrastructure, and allows new private investment to occur without the risk of uncertain costs.

Targeted infrastructure investments Infrastructure investments determine where population growth will occur. Transportation investments are a key component; past experience and recent MetroScope scenarios indicate that high capacity transit and system demand management hold the greatest promise for attracting growth to the region's centers and corridors. Participants in recent employer focus groups also emphasized the importance of transit to support employment and industrial areas. These strategies will also be necessary for reducing greenhouse gas emissions. All transportation strategies come with tradeoffs, however, and no single strategy will accomplish all goals. Many local governments are struggling to fund ongoing maintenance and operations and additional investments may prove difficult. However, a complete range of infrastructure services is needed to form great communities in keeping with regional goals.

Urban growth boundary expansions In theory, all future growth could be accommodated either inside the existing boundary or exclusively through future boundary expansions. There are potential limitations and tradeoffs to each approach.

Accommodating the majority of growth through boundary expansions appears unrealistic for several primary reasons: 1) there is not likely to be adequate funding for infrastructure; 2) many types of employment need to locate in urban centers; 3) it has become clear that a growth strategy that relies primarily on boundary expansions would likely result in increased automobile reliance, making it difficult or impossible to meet the greenhouse gas reduction targets set by Oregon law. In light of increasing energy costs, automobile dependence would result in higher combined costs of transportation and housing.

NEW METHODS IN THIS EMPLOYMENT ANALYSIS

The last time Metro produced an analysis of employment demand and capacity was in 2002. The world has changed significantly since then with shifting global economic conditions, technological innovations, increased understanding of resource limitations, awareness of individual and collective actions on the global climate and creative approaches to workplace environments, to name just a few. To support a more sophisticated approach for analyzing employment demand and capacity, Metro contracted with a consultant team led by E.D. Hovee & Company, LLC.[1] The Hovee team reviewed global, national, and local trends, conducted focus groups with employers, analyzed recent job location data, updated and categorized the region's employment and industrial land inventory, and developed a new employment demand paradigm.

The consultant work informed the methodology in this preliminary employment urban growth report, as described in **Table 1**. The analysis also makes use of MetroScope, an integrated land use and transportation simulation model that operates on economic principles to predict where the region's employment and housing will locate in the future. The intent of this approach is to allow policy makers to focus on outcomes and the types of places that support a strong regional economy.

[1] *The E.D. Hovee team included FCS Group, Bonnie Gee Yosick, LLC, and Davis, Hibbitts & Midghall.*

Table 1 New methods in 2009 employment urban growth report

Demand ranges	**Rationale**
5- and 20-year range forecast	• Acknowledges risk and uncertainty • Consistent with five-year periodic review schedule • Applicable to city and county Goal 9 requirements • Recognition that five- and 20-year markets are different, in the short-term markets are likely to be similar to today, but in the longer-term changes and innovations are more likely
Variable redevelopment rates	• Recognition that redevelopment rates are not the same across the region, higher in some market subareas than others
Capacity ranges	**Rationale**
5- and 20-year range capacity forecast	• Recognition of uncertainty in supply and that policies and investments can influence capacity
Analysis by 2040 design types	• Region's strategy is to support development consistent with 2040 growth concept focused on centers, corridors and employment/industrial areas • Recognition that 2040 design types have special market affinities that policies and investments can impact • Acknowledges that centers, corridors and other design types are not alike and attract different types of development
Floor-to-area ratios (FARs) (measurement of building intensity)	• FAR densities vary across the region, market subarea and design types • FAR densities vary over time, as the market matures • Proxy for variations in achievable rents between market subareas
Building space as unit of capacity measurement	• Allows discussion regarding the form of future workforce space needs, rather than a primary focus on needs for added land acreages
Market subareas	• Recognition that labor markets are not the same across the region • Rents and FAR intensity differ by market subarea • Allows decision makers to consider more effective policies and investments tailored to local markets • Acknowledges that different industries may be attracted to different locations across the region

STATUTORY REQUIREMENTS

This urban growth report is being completed to comply with state statutory requirements in Oregon statewide planning goal 14. While Metro is not required to comply with planning goal 9, much of the work completed to analyze employment demand and supply can support the cities and counties in the region that are addressing the requirements of goal 9 in their periodic review work plans.

Oregon statewide planning goal 14 ("Urbanization")

Goal 14 states:

"Urban growth boundaries shall be established and maintained by cities, counties and regional governments to provide land for urban development needs and to identify and separate urban and urbanizable land from rural land. Establishment and change of urban growth boundaries shall be a cooperative process among cities, counties and, where applicable, regional governments."

"Prior to expanding an urban growth boundary, local governments shall demonstrate that needs cannot reasonably be accommodated on land already inside the urban growth boundary."

Oregon statewide planning goal 9 ("Economic development")

"Comprehensive plans and policies shall contribute to a stable and healthy economy in all regions of the state. Such plans shall be based on inventories of areas suitable for increased economic growth and activity after taking into consideration the health of the current economic base; materials and energy availability and cost; labor market factors; educational and technical training programs; availability of key public facilities; necessary support facilities; current market forces; location relative to markets; availability of renewable and non-renewable resources; availability of land; and pollution control requirements."

TIMELINE

This preliminary employment urban growth report is being released well before decisions must be made to allow substantial discussion at both the policy and technical levels. Refinements to the data and assumptions as well as local and regional actions that affect employment capacity that are put in place in 2009 will be considered for inclusion in the final urban growth report adopted by Metro Council.

Technical review Metro staff will meet with city and county staff and members of the business community in May and June to review the methodologies and outstanding issues identified in the preliminary analysis. Groups include the Employment Coordination and Advisory Committee, business associations, and the Metro Technical Advisory Committee.

Spring-Summer 2009 Regional leaders will engage in a more specific discussion of the long-term aspirations of local communities and the capacity assumptions in the preliminary analyses, culminating in a draft urban growth report to be issued in September 2009.

December 2009 Metro Council will accept a 2030 population and employment range forecast and complete a final urban growth report that describes any capacity gap to be addressed in 2010.

December 2010 Local and regional governments will continue to implement policies and investments to create and enhance great communities while accommodating anticipated growth. Metro Council will submit plans to accommodate at least 50 percent of any 20-year capacity need (through local and regional actions inside the boundary or through expansions) to the Oregon Land Conservation and Development Commission.

December 2011 If any additional 20-year capacity need remains, the Metro Council will consider urban growth boundary expansions into designated urban reserves.

REPORT ORGANIZATION

Metro's approach to this preliminary employment urban growth report represents a new direction from past practice and from business as usual, with the outcome of the capacity analysis leading to a regional discussion on growth management choices oriented towards achieving outcomes that support great communities. This report is reflective of the new approach and is designed to serve as a discussion guide to prepare the region for growth management decisions in 2010. The following sections are included:

Demand range covers global risks and opportunities for the region, and the 20-year range forecast

Supply range covers historic use of capacity, components of supply range, and methodology for calculating capacity

Reconciliation compares demand and supply ranges and describes choices

Performance describes how well existing policies measure against a series of indicators

Next steps indicates growth management decision timeline

Metro and its consultants have produced a substantial amount of information that supports this report. Much of this is contained in the following appendices:

Appendix 1 E.D. Hovee consultant team products

Appendix 2 Documentation of MetroScope scenario assumptions

Appendix 3 Forecast (full population and employment forecast write up; available in a separate document)

Appendix 4 Legal requirements for urban growth report (Available with August draft urban growth report)

DEMAND

The demand range for employment is a function of global, national and regional economic factors, changing demographics, and overall population growth. The Hovee consultant team performed substantial analyses to support understanding of regional economic and employment trends, their work is summarized here (complete reports may be found in Appendix 1). This section includes a brief description of the information gathered from:

- Focus groups consisting of representatives from a variety of employment sectors
- Literature review
- Expert opinions of economic consultants

The economic and employment trends provide the context for the 2030 population and employment forecast and a new demand paradigm for assessing the amount and type of employment the region must plan for in the short- and long-term.

GLOBAL RISKS AND OPPORTUNITIES

Consumers are being cautious, companies are laying off employees, and businesses are keeping inventories lean. At the same time, baby boomers are nearing retirement age, distinctions between traditional land uses are blurring, and technology for everything from telecommunications systems, inventory management, and on-line shopping is improving. This sampling of existing and emerging trends will inform decisions about the capacity of the Metro region to meet employment needs and support a strong regional economy.

Financial market instability

The current economic slowdown became undeniable when, after nearly 20 consecutive quarters of rising employment, the State of Oregon posted its first job losses in the 2nd quarter of 2008. More recently (March 2009), Oregon's seasonally adjusted unemployment rate reached 12.1 percent, now second highest in the nation. The region's economy has also slowed as national and global concerns over credit availability and high energy prices have taken hold.

These and other macroeconomic issues represent risks to the regional economy, and – with it – regional employment and development patterns. Financial market instability is affecting business and consumer confidence, which will affect businesses' capital spending plans. Though the immediate credit crunch is currently perceived as primarily a short-term issue, the ramifications (i.e. the industrial makeup of the economy) will also play out through the mid-term of the next 10 to 20 years and possibly beyond.

Housing market

While not directly an economic development factor, housing values and credit availability affect household wealth and resulting decisions ranging from consumer purchases to job choices. In recent years, lax lending standards and low interest rates resulted in rampant overleveraging in the mortgage market. The resulting home price declines and mortgage equity withdrawal declines have slowed consumer spending and impacted consumer net worth (including retirement funding).

Oregon is particularly susceptible to a major housing correction in California and the rest of the nation due to dependence on forest products (more so for the rest of the state than the Portland Metro area). Oregon's relative advantage in housing cost is narrowing as prices in California fall faster than in Oregon. Additionally, weak residential building demand has resulted in a loss of construction employment.

Fiscal environment

The current fiscal environment is forcing governments to find more cost-effective ways to deliver services and, in many cases, to cut services. On the revenue side, the economic slowdown, tax limitations, and the political challenge of increasing revenue streams are constraining local government revenues, while expenses related to provision of service are growing faster than the tax bases which support them.

Oregon's tax structure, with its initiative reforms of the 1990s (Measures 5 and 50), relies particularly heavily on the personal income tax. This system seemed to work during the high-tech boom and its resulting prosperity, but has proved problematic in the dot-com bust several years ago and appears even less sustainable today. Declining employment and personal income will result in declining tax revenues, and state and local governments will need to cut services and infrastructure investment which will affect business and consumer location decisions.

Global positioning

Key manufacturing sectors of the Pacific Northwest economy are increasingly dependent on international markets – as exemplified by high tech, aerospace and machinery. This dependence presents risks as well as opportunities.

Volatility of the dollar The recent decline of the U.S. dollar has helped the region's economy by making exports more competitive on the international market, while at the same time making imported goods more expensive for consumers. A resurgent dollar will lessen the manufacturing competitive advantage. Longer term, continued instability of exchange rates will increase risk to Portland-area companies dependent on staying globally competitive.

Global pathway cities The Urban Land Institute's (ULI) Emerging Trends in Real Estate 2009 report concludes that U.S. pathway cities "which have become investor favorites and global business magnets, reinforce their premier standings in the looming market correction." The report highlights the coastal cities of Seattle, San Francisco, and Los Angeles along the pacific and New York, Boston, and Washington DC to the east, also noting Chicago, Dallas, and Atlanta as "three key metros in the middle of the country." Portland is situated between what are currently the two top-ranked U.S. gateways of Seattle and San Francisco. However, without clear economic drivers, the ULI report notes that "Portland prospers in Seattle's shadow, but increasingly plays second fiddle." A pivotal question for the future is the extent to which this region should align with its larger neighbors or seek to forge its own distinctive identity, both locally and globally.

China and emerging economies In recent years, the rapid growth of China and India created incredible inflationary pressure, especially on basic commodity prices. While perhaps not sustainable, as exemplified by the current economic downturn, global recovery could mean a return to increased competition for products ranging from steel and cement to food to oil – all with effects on the Portland metropolitan economy. At the same time, increasing incomes in developing nations boost demand for Oregon's exports. Short term, the global economic downturn can be expected to dampen demand for Oregon's manufacturing exports. Longer term, the reality of an increasingly global economy and constrained resources will place increasing emphasis on sustainability as good business practice – and as perhaps a key source of competitive advantage for years to come.

Outsourcing of manufacturing operations and professional services Recently, the availability of advanced telecommunications networks has allowed the outsourcing of certain manufacturing operations and professional and technical jobs to regions of the world with lower labor costs. With the U.S. as a current leader in design and development, the need for rapid turnaround in the development of new products seems to support domestic labor, but the mid- to long-term impact of globalization remains unclear, especially as other countries move quickly up the education and technology curve.

Going green

Higher energy costs may encourage development of smaller and more dispersed distribution centers. The Portland metropolitan region may be well positioned for this role. The region also has an opportunity to focus on the development of alternative energy sources such as wind and solar power. It will be critical that the region take advantage of this position, as other regions develop expertise to close this gap in the mid- and long-term.

Development Costs

Increased capitalization rates indicate higher levels of property income are needed to support new real estate development. Higher income level requirements make it harder for industrial uses to compete for sites with commercial uses. This is particularly the case in thriving urban centers. Construction material costs are also likely to influence future development patterns. In the short-term, construction materials are likely to become more affordable as commodity prices ease, but they may rise again as the global economy rebounds in the mid-term. This combination of factors places more pressure on finding cost-effective ways of delivering urban development, but may encourage redevelopment and renovation of existing buildings in developed areas.

Demographics

Aging baby boomers, smaller household sizes, and flattened levels of labor force participation have short-, medium-, and long-term implications to the labor market and levels of consumer spending, which will likely outlast the immediate financial situation. According to an analysis by the Oregon Employment Department, Oregon's public-sector workforce has a higher proportion of older workers than the private sector, with about one in five workers in state and local government and education estimated to be 55 or older. Among private industries, the transportation sector has the highest proportion of older workers, with over one-third of the total workforce in transit and ground transportation 55 or older. Other industry sectors with a relatively higher proportion of older workers include other services, natural resources and mining, and health care and social assistance. Industry groups with moderate numbers of older workers include financial activities, professional and business services, wholesale trade, and manufacturing. Industry groups with the lowest proportion of older workers include retail trade; arts, entertainment, and recreation; administrative and waste services; construction; information; and accommodation and food services.

The potential economic and financial burdens posed by an aging retired population are offset, at least in part, to the extent that the U.S. remains attractive and facilitates continued in-migration.

REAL ESTATE OUTLOOK
INDUSTRIAL, OFFICE, RETAIL, INSTITUTIONAL, AND MIXED-USE

Global economic conditions affect regional employment which, in turn, affects industrial, office and retail development patterns in the region.

INDUSTRIAL

Building types and uses

Industrial development includes a broad range of product types and settings:

Warehouse/Distribution buildings generally provide storage and distribution of goods. These require large, flat sites with space for maneuvering trucks and access to transportation. They typically have low employee-to-area ratios so parking requirements are typically small. Some buildings may have 10 to 20 percent of their floor area allotted to office uses. Ceiling heights can be as high as 36 feet to provide for higher stacking, and buildings can be as large as 750,000 to 1 million square feet, though facilities in the Portland metropolitan area are generally less than 250,000 square feet.

Manufacturing buildings are designed to house manufacturing processes and can be more than one million square feet. Like warehouse/distribution space, ceiling heights are high and ample room for truck maneuverability is a necessity. Parking ratios are usually low, so the floor area ratio (FAR) is usually relatively high, despite the single-floor format.

Tech-flex space often consists of one- or two-story buildings ranging from 20,000 to one million square feet with internal space a combination of office and warehouse. Building uses vary, though the tech-flex is usually defined as 50 percent or more office space with the balance as warehouse and/or manufacturing space. This class includes buildings devoted exclusively to research and buildings which serve multiple uses, often with office and administration functions in the front of the building and R&D other high-tech uses in the rear. Offices in R&D buildings typically have open floor plans to promote teamwork and collaboration, and activities range from the creation and development of new technologies and products to the development, testing, and manufacture of products from existing technology. Building design is more important for R&D uses than for other industrial uses and is usually tailored to the needs of specific tenants.

Emerging trends

Employment in manufacturing, distribution, and related sectors drives the market for industrial space. Though job gains are expected in the transportation/warehousing and wholesale trade sectors, the Bureau of Labor Statistics has forecast a loss of over 1.5 million U.S. manufacturing jobs between 2006 and 2016. Some job losses are the natural result of automation as employers substitute capital for labor. But job losses coupled with the turmoil of the financial markets will not bode well for businesses making capital investments. Key trends affecting the Portland region's industrial land uses are described below:

Offshoring As globalization continues, an increasing number of workers likely will be vulnerable to the impacts – both negative and positive – of offshoring and other labor market shifts.

Supply-Chain Management Continued consolidation of corporate America and resulting consolidation of distribution facilities have fueled the trend in supply-chain management such as just-in-time inventory management, direct distributing (shipping goods directly from manufacturers to retailers, or – in some cases – consumers), and electronic inventory control.

Clusters Regional "anchors" – large firms providing both stability and volume of ideas – help to fuel start-ups and support their growth. The capabilities of companies to coordinate will drive the degree of commercial success enjoyed within the region. The clusters currently identified by the Regional Partners for Business[2] include: high tech; metals, machinery and transportation equipment; nursery products; specialty foods and food processing; creative services; sports apparel/recreation-related products; bioscience; sustainable industries; and distribution and logistics.

Future outlook (Portland metropolitan region)

Employment in manufacturing, distribution, and related sectors drives the market for industrial space. Cautious consumers and inventory management practices are driving businesses to keep inventories lean, resulting in weak demand for warehousing/distribution space. However, despite increasing availability, rents are holding steady.

Until the more recent economic slowdown, the U.S. and Portland metropolitan region experienced a somewhat unexpected resurgence in some manufacturing sectors following 9/11. The manufacturing sectors enjoying this renaissance seemed to be technologically sophisticated, niche-oriented, leading edge (for their industry) and market responsive (i.e. with rapid turnaround to changing customer requirements). It is not clear whether this was an anomaly (brought about, for example, by the weak U.S. dollar) or represents a longer term and sustainable path for selectively reinventing our industrial base – as tech-savvy and market-focused.

Short-term (5-year) Though still low relative to other regions, vacancies in the seven-county Portland Metro area are rising – putting downward pressure on rental rates, especially while unemployment rates continue to trend upward. The Portland region has a price advantage over other west coast cities and is priced competitively with other similarly-sized cities inland, making it attractive to companies seeking industrial space with good access and a location with high-quality amenities and attractions for staff. To the extent that the dollar remains comparatively weak over this time period, exports may continue as an important source of stability for the regional economy.

Mid-term (20-year) For the 20-year time horizon, the region's prospects are highly dependent on its current competitive position and decisions by major high-tech and Port-related industries within the Portland metropolitan area relative to other U.S. and global alternatives. The opportunity for the region to attract new growth lies with existing industry clusters. Particular emphasis has been on the recent surge in sustainable and renewable energy. The ability of one company – such as Vestas or SolarWorld – to "anchor" the region's sustainable industry cluster could pave the way for spinoff industries.

Other opportunities include building off the region's other industry groupings, including established and emerging industries such as apparel, metals, high-tech, biosciences, and others. Linkages to Oregon's historic natural-resource activities should also not be overlooked, as these resource-based activities may also shift towards an emphasis on sustainability, such as green forest products, and local and organic agriculture, with a preference to agricultural products from Oregon and Southwest Washington.

Improved supply chain management may make distribution centers more highly-automated activity hubs and less passive warehousing space. Volatility in the energy market and fuel prices may encourage development of second-tier distribution locations, and Portland may be well-positioned to satisfy this role.

[2] *Portland Regional Partners for Business is an organization formed to support employer recruitment and retention in the Portland-Vancouver region.*

OFFICE

Building types and uses

Office development is a highly segmented, diverse, and competitive segment of the development industry. Office buildings are categorized by class, building type, use, ownership, and location.

The three main classes are A, B, and C.

Class A office spaces are investment-grade buildings with top-notch location, design, building systems, amenities, and management. They typically are mid-high rise structures and command the market's highest rents and most credit-worthy tenants.

Class B buildings also have good location, management, and construction with a little functional obsolescence or deterioration. This class is generally found in well-located buildings that have been well maintained.

Class C buildings are typically substantially older and have not been modernized.

The office market can also be also categorized as high- (15 or more stories), mid- (four to 15 stories), or low-rise (one to three stories), and garden office (one to five stories with extensive landscaping). Related building product types (often classified by brokers as industrial space) include R & D (typically one or two stories with up to 50 percent office/dry laboratory space and the workshops, storage, and perhaps some light manufacturing), and tech-flex space (one- or two-story buildings often with a mix of warehouse and light industrial and offices).

Most urban areas classify office space by the location and the physical characteristics of the offices and their typical users. The central business district (CBD) usually contains the largest concentration of major office buildings, though the CBD's share of metropolitan office space is declining in most cities. Typical tenants in downtown offices include law firms, insurance companies, and financial institutions that require high-quality space. Creative firms and software are an increasing part of the tenant mix in some metro areas, including Portland. Suburban areas have experienced office nodes clustering near freeway interchanges or major suburban shopping centers and executive housing areas.

Historically, suburban rents have been lower than those in the CBD and tenants have typically included regional headquarters offices and smaller companies and service organizations, but suburban locations have been attracting more major law firms, accounting firms and some corporate entities from the CBD, with construction quality, range of amenities, and rents increasing correspondingly. Neighborhood offices are typically oriented to serve the needs of local residents by providing space for service and professional business along arterial streets near residential areas. Business parks might include several buildings with a range of uses from light industrial to office and are typically in suburban locations.

Emerging trends

Corporate campuses and office decentralization Though downtowns across the United States are enjoying a renaissance with new sports and cultural facilities, restaurants and entertainment districts, lofts and condominiums, the office market has not experienced the same phenomenon. The past decade has revealed an overall trend toward office decentralization – albeit with Central City cores also still experiencing strong office occupancies – and the development of suburban corporate campuses.

Office space "hoteling" Improved technology and cost-cutting pressure is leading more companies to consider telecommuting and other strategies to reduce expenditures on office space. Companies are able to operate with less space by not assigning workers specific offices, but sharing them as needed.

Education systems In choosing a location, businesses look for strong education systems that produce an educated workforce, a user friendly development and regulatory bureaucracy, affordable workforce housing, and proximity to desirable amenities, including executive housing and recreational opportunities for employees.

Ownership in small businesses Small business ownership may continue to rise due to a variety of factors, including low interest rates, the conversion of leasable property to for-sale units motivated by high vacancy rates, the availability of below-market loans from the U.S. Small Business Administration, retirement planning for small business owners, the tax benefits of property ownership, increasing numbers of professional women working part-time while caring for children, all of which might also point to opportunities for condominium- office development.

Live-work space Following the trend to save time and commuting costs, the prevalence of live-work space seems to be increasing. An Urban Land Institute study indicated that local governments are attracted to the home-office model because it allows for higher levels of energy efficiency and potential for increased tax revenue.

Offices serving non-local markets Traded-sector corporate headquarters, research and development, and back-office functions can readily move if the company perceives advantages to one location over another. Over the past two decades much of this corporate activity has gravitated to suburban office park locations.

Offices serving local markets Non-traded-sector office uses are more captive to the local community. This segment is generally comprised of law firms, Certified Public Accountants (CPAs), medical office, financial institutions, insurance providers, real estate professionals, architectural/ engineering firms and others that serve the local business and consumer base of a particular region. As with retail commercial, much of this segment is driven by population growth and general economic conditions in the region.

Future outlook (Portland metropolitan region)

Prospects for the office market are generally tied to financial, technical, and professional services sector employment. The hit to the financial sector directly affects commercial real estate markets serving global financial markets (most particularly New York and London), as job losses and other cost-cutting measures force employers to re-evaluate their space needs. A steady increase in vacancy rates is putting downward pressure on rents, which will result in less short-term development activity.

Compared to other metropolitan areas, the Portland region was still faring well as of the third quarter of 2008. As in many other metro areas of the U.S., central city office product appears to be holding its own better than suburban office product. This phenomenon reflects some back-to-the-city movement that is also being echoed in housing markets across the nation – driven, in part, by the appeal of urban amenities and efforts to reduce the cost of commuting.

Short-term (5-year) With relatively lower vacancy rates than comparable metro areas, the Portland region is expected to perform better than the national average. Even with uncertain economic conditions, building is continuing with over 1.3 million square feet under construction in the CBD, including Portland's Pearl District. However, with increasing vacancies, a slowing of development is expected. The duration of the slowdown depends on the extent of the global financial-sector consolidation now in process and statewide employment stagnation. Unlike many metro areas, there currently appears to be some opportunity for Central City (downtown plus Lloyd and Pearl) to recapture market share with more diverse products, attractive lease rates (in down market), increased transit premium, and LEED certifications. The greatest challenges are for much of the suburban market, including business/tech-flex parks with substantial office tenancies.

Mid-term (20-year) The mid-term future of the office market remains highly uncertain. The labor market – already growing slowly – is expected to further decelerate as baby boomers retire. An additional challenge is the Portland metropolitan region's perceived lack of "global pathway" status, though increasing energy costs may represent an opportunity for the region even as a second-tier center. There are continued opportunities to build on the region's appeal to young creatives and an entrepreneurial strengthening of business, tech-related and creative service sectors. Best opportunities are for transit-rich, higher density and increasingly urban locales marketed for green development. Portland's position as a leader in sustainable and renewable energy in industry and manufacturing may be expanded to include professional services. With high numbers of LEED-accredited professionals currently in the marketplace, there may be opportunity for spinoff firms and other specialized professional services.

RETAIL

Building types and uses

Retail developments are typically categorized by the commercial real estate brokerage and development communities based on market served and tenant characteristics.

Convenience and neighborhood centers Provide convenience (food, drugs, and sundries) and personal services (laundry and dry cleaning, barbershop, etc.) for the needs for the immediate neighborhood. These centers are usually anchored by a supermarket or drug store, and contain up to 100,000 square feet of leasable area. The site is usually 3 to 10 acres in size and typically serves a population of between 3,000 and 40,000 people.

Community centers Provide many of the convenience and personal services by neighborhood center with a wider array of soft lines (apparel) and hard lines (hardware and appliances). Most of these centers are anchored by a junior department store or variety store in addition to a grocery store and ranges in size from 100,000 to 500,000 square feet. The site area is usually 10 to 30 acres and typically serves a population of between 40,000 and 150,000 people.

Regional and super regional centers Provide the general merchandise, apparel, furniture, and home furnishings in depth and variety as well as a range of service and recreational facilities. Typically built around two or more full-service department stores (50,000 square feet each), they typically contain between 500,000 to 1 million square feet or more. The site area required ranges from 10 to 100 acres or more and serves a population of 150,000 to 300,000 or more. In addition, there are several variations of the major types of shopping centers, including Power Centers, Lifestyle Centers, and Downtown or Urban (Street) Retailing. Specialization of shopping centers started in the 1970s, though the trend accelerated through the 1990s.

Emerging trends

Some of the trends involve variations of the major types of shopping centers. Specialization of shopping centers started in the 1970s, though the trend accelerated through the 1990s.

Power centers The power center is a specialized type of super community center which emerged in the 1980s. It usually contains at least four category-specific anchors of 20,000 square feet or more. They tend to be narrowly focused but deeply merchandised "category killers" together with the more broadly merchandised price-oriented warehouse clubs and discount department stores. Anchors in a power center typically occupy 85 percent or more of the total leasable space.

Power towns Further boosting the strength of power centers is the addition of amenities and square footage. This new genre, sometimes referred to as a "power town" may contain 600,000 to 1

million square feet or more and feature expanded components beyond big-box retail anchors, such as lifestyle wings, mix of uses such as residential or office, or a entertainment or hospitality element.

Lifestyle centers Lifestyle centers are another specialized type of super community center. The International Council of Shopping Centers (ICSC) defines a lifestyle center: a location near affluent residential neighborhoods, an upscale orientation, 150,000 to 500,000 square feet of gross leasable area (GLA), an open-air format, and at least 50,000 square feet of national specialty chain stores. The success of these centers, including the region's BridgePort Village, appears to correspond with a downtown renaissance, with the lifestyle center emulating a man-made "town square."

Hybrid centers Hybrid centers provide both big-boxes and in-line boutiques. A pioneer of this combination of power and lifestyle is Developers Diversified with the 1999 Phase 1 opening of Riverdale Village in Coon Rapids (Minneapolis), MN, which featured a Costco, Best Buy, and a Main Street with small shops in an 875,000-square-foot open-air center which includes a man-made lake and pavilion for outdoor events.

Downtown or urban retailing While the postwar suburban shopping centers grew, downtown retailing declined. The late 1970s and early 1980s saw the introduction of festival marketplaces in a few cities, such as the Faneuil Hall Marketplace in Boston, Harborplace in Baltimore, and South Street Seaport in New York. Regional shopping centers were built in a few downtown locations. These new-generation centers form anchors within the downtown retail environment and encourage spillover of retail growth throughout the surrounding neighborhood.

Urban street retail is more difficult to track on a consistent basis as commercial brokerage firms do not typically include independent stand-alone retailers outside of larger shopping centers such as NW 23rd Avenue or SE Hawthorne Street. This type of "Main Street" retail is sometimes configured as neotraditional developments, with ground floor retail and residential and office uses on the upper floors.

Vertical stacking of tenants Retailers are being challenged to adapt successful suburban retail formulas to fit urban spaces, leading to the vertical stacking of tenants. In addition to being more expensive to build than a conventional horizontal center, these projects need to draw shoppers from floor to floor and create the visual connections that allow circulation. There are numerous examples of vertically stacked retail, including Pioneer Place in downtown Portland.

Transportation-integrated retailing Following the restoration of Union Station in Washington DC in the late 1980s demonstrated the potential for shopping centers in major transit stations. The restoration of Grand Central Terminal in New York has created the opportunity for high-end specialty shopping to serve commuters, tourists, and office workers in the Midtown area. Transit-oriented development along light-rail stations is Portland's answer to this type of transportation-integrated retailing. As ridership continues to increase, station areas can expect to become increasingly visible and desirable retail locations.

Online shopping The popularity of on-line shopping has raised questions for bricks-and-mortar stores. According to Forrester Research, more than half of U.S. households regularly shop on the Web, but online purchases still make up only 7 percent of total retail sales. The increased integration between on-line and in-person shopping will heighten the demand for integrated transportation networks.

Future outlook

Short-term (5-year) With relatively less square footage of retail space than other comparable metropolitan areas, the Portland metropolitan region should outperform the national average. However, the current economic downturn will certainly affect this region with increasing retail vacancies, the likely exit of national retailers from the market, and dramatically slowed retail

development (especially in outer suburban areas). Overall, the best investment opportunities are expected to be with major regional centers and grocery-anchored neighborhood centers, while older strip centers will face challenges and likely higher vacancy rates as the economic downturn results in a flight to quality. New developments will continue to employ the more population and lower-cost open-air format, in contrast to the former enclosed mall format. There may be an increase in on-line purchases, particularly for smaller, more ubiquitous products.

Mid-term (20-year) As the economy recovers, development will be renewed but at a slower pace with the aging of the prime baby-boomer market. As a result, there may be increased emphasis on redevelopment or reuse of dated centers. Increasing consumer desire for open-air formats and limited real estate for new lifestyle developments may benefit urban street retail with mixed use, possibly including scaled-back infill grocery concepts. Transit-oriented development is likely to benefit from increased ridership. More vertical stacking of retail is also likely. As distribution becomes more centralized and automated, it will become increasingly dependent on public investments in transportation infrastructure.

There is opportunity for retailers with both websites and brick-and-mortar stores to respond to web-savvy consumers with well-integrated, multichannel operating strategies. Some retailers may invest in their web presence not only to sell merchandise directly, but to position their site as a research tool to increase sales at their stores.

INSTITUTIONAL

Building types and uses

There is comparatively little national literature on institutional building types and uses. More than any other employment related real estate product type, institutional users such as medical centers and universities tend to respond more to unique considerations associated with project funding and market demand. Medical office buildings are often developed on the campuses of existing hospitals, but can also be stand-alone buildings in downtowns or even suburban environments. Many universities have embarked on large-scale redevelopment projects, often in partnership with real estate development firms. These university-related projects are frequently extensive mixed-use developments that will serve both daily and visiting populations.

Emerging trends

Demographics As the population continues to age, health-care institutions will continue to flourish. From 2005 to 2020, the under-65 population is expected to grow by nine percent, while the 65-and-over population is expected to grow by 50 percent. Inner-city school districts – which have faced declining enrollment for years – are now seeing their student populations stabilize and may even experience a bit of recovery in coming years. Though these declines are largely offset by gains in suburban school districts (for example, the Beaverton School District has been experienced gains which roughly offset losses in the Portland Public Schools), the flattening of the region's population pyramid is resulting in impacts on institutional planning as students move through the K-12 system to higher education or workforce training programs.

Private redevelopment partnerships Universities can work in partnership with businesses that support both university development and economic development. These neighborhoods will allow students to attend class, then walk next door to apply their learning in related workplaces. The Silicon Valley example shows that adjacency and integration can have synergistic qualities.

Unconventional Sites At a time when universities are running out of room to expand on their existing campuses, some are thinking beyond their ivy-covered walls and finding ways to use

unconventional sites to their advantage. In the process, they are helping to revitalize neighborhoods and creating synergies with other uses. Locally, University of Oregon's Portland satellite campus in the White Stag block of Old Town is an institutional example benefiting the urban area's revitalization efforts. And Oregon Health and Science University's (OHSU) development of South Waterfront allowed much needed expansion, despite severe land-capacity constraints.

Future outlook

Short-term (5-year) Though the prospects are good for increased need for health care and education, the economic downturn will likely provide challenges of constrained funding for education, Medicare/Medicaid reimbursements, and public and nonprofit agencies. In the short term, there could be an emphasis on planning for mid-term development, and the opportunity to accommodate adults returning to school.

Mid-term (20-year) In the mid-term, substantially increased health care demand is anticipated with aging of baby boomers. There may be challenges posed by increased funding uncertainties for Medicare and Medicaid (pending substantial health care reform). Medical office buildings – traditionally located on hospital campuses – will likely need to expand to more stand-alone locations proximate to growing populations. Educational facilities may also be likely to increasingly focus development on satellite campuses, closer to the populations they serve. Workforce training programs will also need to be distributed with population. A South Portland expansion and strengthened linkage of OHSU/PSU campus development is anticipated. Inmate population and capacity of correctional institutions will need to be revisited.

MIXED-USE

Building types and uses

Suburban office/housing/retail The transformation of suburban business districts from poorly linked, auto-dependent, segregated-use projects into well-connected, pedestrian-friendly, mixed-use environments is a development trend gaining momentum in urban areas nationwide, with plans for suburban office parks transitioning to mixed-use developments, sometimes with nearly equal parts of office space, housing, and retail. Because the building form and layout of suburban business districts have an independence and separation not found in downtown business districts, they can prove a major challenge to public transit, which is sometimes unable to serve lower density and fragmented development in a cost-effective manner.

Retail/medical office As described in the office and institutional sections of this report, health care services were historically provided on hospital campuses, but began to move into freestanding medical office buildings. Some medical uses are now moving into retail settings, combing medical office use with neighborhood retail uses.

Redevelopment of obsolete public buildings Obsolete facilities of all kinds can result in newly available parcels of prime land. These facilities might include public uses such as decommissioned military bases, surplus school sites, and hospitals closed due to demographic shifts or private uses, such as industrial sites and buildings intended for development which never occurred. The resulting sites, proximate to transportation infrastructure, are often ideal candidates for redevelopment.

Emerging trends

Mixed-use design has advanced from the traditional main street approach – with residential above retail space – to a diverse mix of property types, users, and strategies to create true urban environments. A key challenge with mixed use will be to successfully address potential conflicts between different uses.

Future outlook

Short-term (5-year) It is likely that there will be a slowdown in mixed use (beyond existing projects and those in the works) due to overall economic contraction, greater financial challenges with urban density projects, and lender caution with what is often viewed as more challenging mixed use project finance. These difficulties may be offset, at least in part, by public-private development programs (as with urban renewal where available).

Mid-term (20-year) In the mid-term, our region has a major rebound opportunity as core urban markets solidify advantages over car-dependent outer ring alternatives. Substantially increased market share depends on extension of mixed use beyond the Central City, as with station area development and streetcar extension, and greater diversity of mixed use application, e.g. work-live, office/retail condos, and use diversification of ground floor space beyond retail. Provision of health-care services will likely become increasingly specialized and geographically segmented as the bulk of baby-boomers reach retirement age.

FOCUS GROUP ANALYSIS

Metro, in cooperation with the business community, hired Adam Davis of Davis, Hibbits & Midgehall to facilitate focus groups to obtain business and industry perspectives on emerging trends in building space needs and changing regional competitive advantage.

The following eight focus groups were conducted:

- Biotech/medical
- Distribution/logistics
- Food/beverage
- High tech
- Metals/machinery
- Business locators
- Regional services
- Retail

Focus group participants were asked about trends that they anticipated over the next 20 years.

Anticipated building and space usage trends

- Rapid industrial change is likely as land and building space become increasingly expensive
- Hi-cube distribution is on the horizon for mid-to-large firms
- Manufacturing will undergo a transformation as companies of all sizes invest in technology
- There will be a diversity of office needs, but with common themes of more collaboration, space-sharing and conferencing
- There will be a retail shift to smaller store concepts, especially grocery in the near-term

Anticipated location/site trends

- Regional competition for industrial sites , extending at least from Woodland to Salem
- For sites of 20+ acres, an increasing need to look outside the metro region
- Distribution centers will continue to require freeway access
- Clustering will occur for competitive advantage – exemplified by clusters including high-tech, metals and professional services
- Access to the labor force will be a growing driver of facility siting
- Customer / client businesses will seek proximity to population centers
- Little eagerness for brownfield redevelopment due to liability issues
- Greater impetus for businesses to say in the same site footprint – to mitigate neighborhood and cost issues

Other anticipated trends

- Transit is now important across all business types, especially for employees
- Transit-oriented development (TOD) is of interest , but is a source of frustration for at least some commercial/industrial firms in this region
- Auto orientation still critical for customer and patient access, but with recognition that auto reliance varies widely across the region. Parking is needed, but is seen as a major cost.
- Work force accessibility is a critical concern. Attracting young talent is easier due to this region's quality of life draw.
- "Going green" is of broad interest , especially when supported by customers, clients, workers and/or investors

Opportunities to use land more efficiently (per focus group participants)

- Multi-story development works best for office / administrative functions
- Mixed opinions on retail suitability for two-plus stories, but agreement that it is most likely at higher value and urban or constrained sites
- Manufacturing typically holding at one to two floors with more floors possible for admin / R&D functions
- Multi-level economics are not workable for distribution yet (despite some global experience) – but hi-cube distribution accomplishes similar results of reduced land footprint
- There is a great impetus for more and more efficient building on site, adaptive reuse, and multi-level parking on constrained sites
- Continued strong and growing interest in sites offering transit accessibility together with opportunities for improved site efficiency (less land can be devoted to parking where supported by project economics and other transportation modes)

RANGE 20-YEAR EMPLOYMENT FORECAST

A primary factor that influences future employment need is population growth. The findings of Metro's current 5- and 20-year employment forecasts are summarized in this preliminary urban growth report. In recognition of the uncertainty surrounding future conditions, the forecast is expressed as a range. The full forecast is included in Appendix 3.

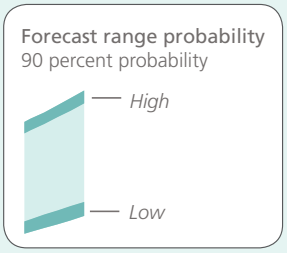
What does the range mean?

As with a weather forecast, this population and employment range forecast is expressed in terms of probability. The methodology for producing the range forecast is described in more detail later in this document.

Low end of range: There is a five percent chance that actual growth will be less than or equal to the low end of the range.

High end of range: There is a five percent chance that actual growth will be greater than the high end of the range.

Stated differently, there is a 90 percent chance that growth will occur within the outer bounds of the forecasted range.



FORECAST OVERVIEW

To inform the regional discussion of growth management choices and the possible implications of those choices, Metro has developed a range population and employment forecast. The regional forecast is derived from Metro's regional macro-economic forecast model. This model has been thoroughly vetted by an independent panel of economic and demographic experts from across the U.S. It relies on national growth factors obtained from the economic forecasting firm Global Insight, Inc., as well as birth and death rates derived from the U.S. Census Bureau's most current "middle series" fertility and survival rates.

The regional geography for the Portland-Beaverton-Vancouver OR-WA Primary Metropolitan Statistical Area (PMSA), as defined by the federal Office of Management and Budget, now comprises a total of seven counties (Clackamas, Multnomah, Washington, Clark, Columbia, Skamania and Yamhill) – consistent with changes to federal data reporting standards. (See **Map 1**) PMSA delineations are revised periodically in order to reflect actual changes in the economic structure of regions as they grow and expand. For purposes of this preliminary report, the forecast time period is 2030.

Map 1: Portland-Beaverton-Vancouver OR-WA PMSA

Geographic extent of the regional forecast encompasses seven counties. The Metro urban growth boundary comprises a fraction of the land area of the region.

Forecast results

Some of the basic variables that inform this forecast are birth, death and immigration rates and anticipated economic conditions. The regional economy is increasingly subject to global and national forces that are beyond the region's influence and are not easily quantifiable through standard economic tools. Economic globalization affects the flow of trade, foreign exchange rates, and the cost and availability of foreign and domestic skilled and unskilled labor. Employment growth in the region continues to reflect the region's status as one of the nation's more desirable metropolitan areas. (See **Figure 1** and **Table 2**)

Figure 1: 2030 employment range forecast
Portland, Beaverton, Vancouver, OR-WA PMSA

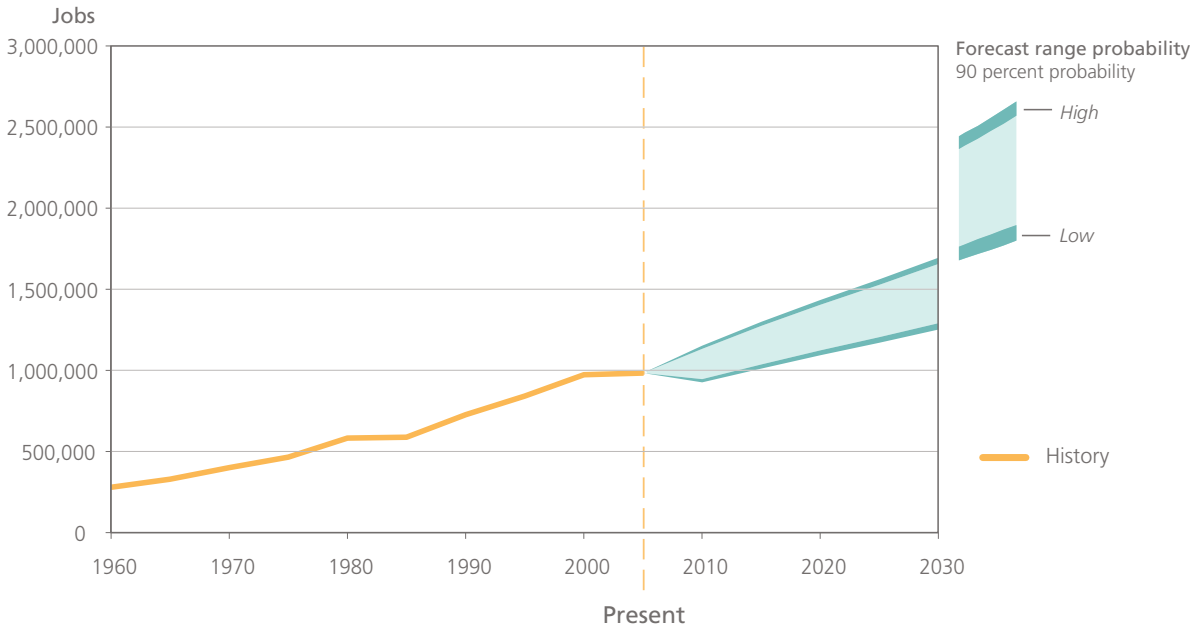


Table 2: Employment range forecast and annual percentage rate (APR) change from year 2000: Portland, Beaverton, Vancouver, OR-WA PMSA
Source: Metro

Year	Low end of range	High end of range
2000	973,230	973,230
2030	1,252,200 0.84% APR	1,695,300 1.87% APR

Regional employment change: 5- and 20-year forecast by sector

Figure 2 depicts the cumulative employment change for the seven-county area, starting in 1980. However, employment growth rates are forecasted for a number of sectors, which are grouped here for simplicity. The growth rates vary by sector, rather than consistently across all employment. Manufacturing job growth is anticipated to be slower than job growth in the service and government sectors, consistent with expected U.S. macroeconomic trends. Sector level details are important for this preliminary urban growth report analysis since square footage requirements for industrial, commercial and institutional users vary widely.

Figure 2: Cumulative employment change in 5-year increments, 1980-2030
7-county statistical area

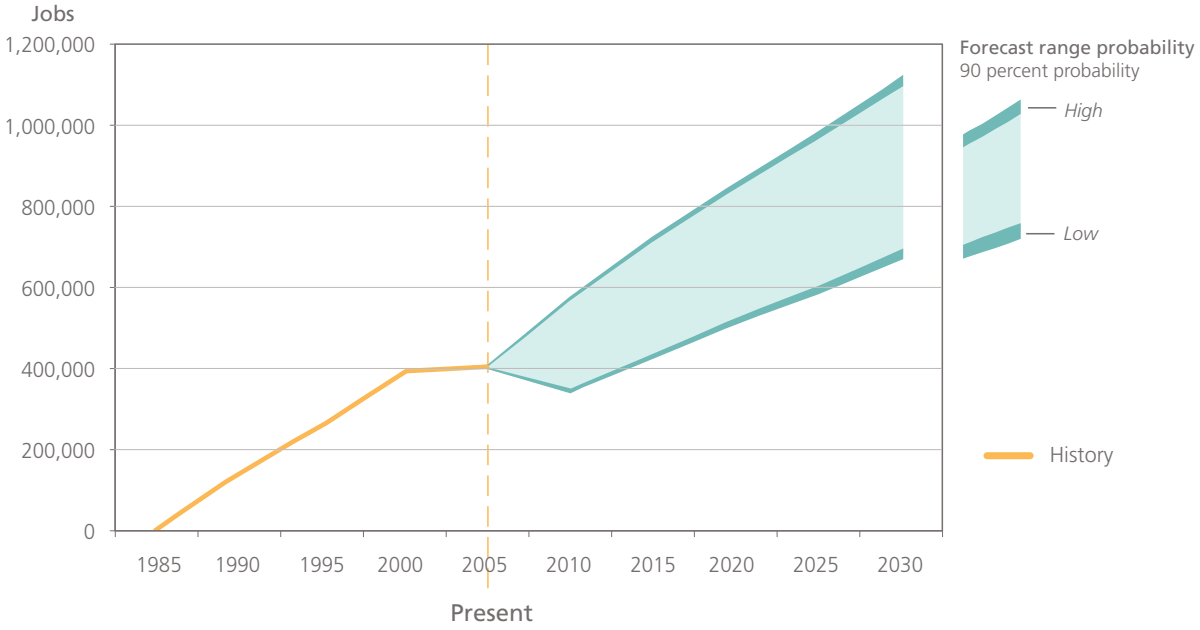
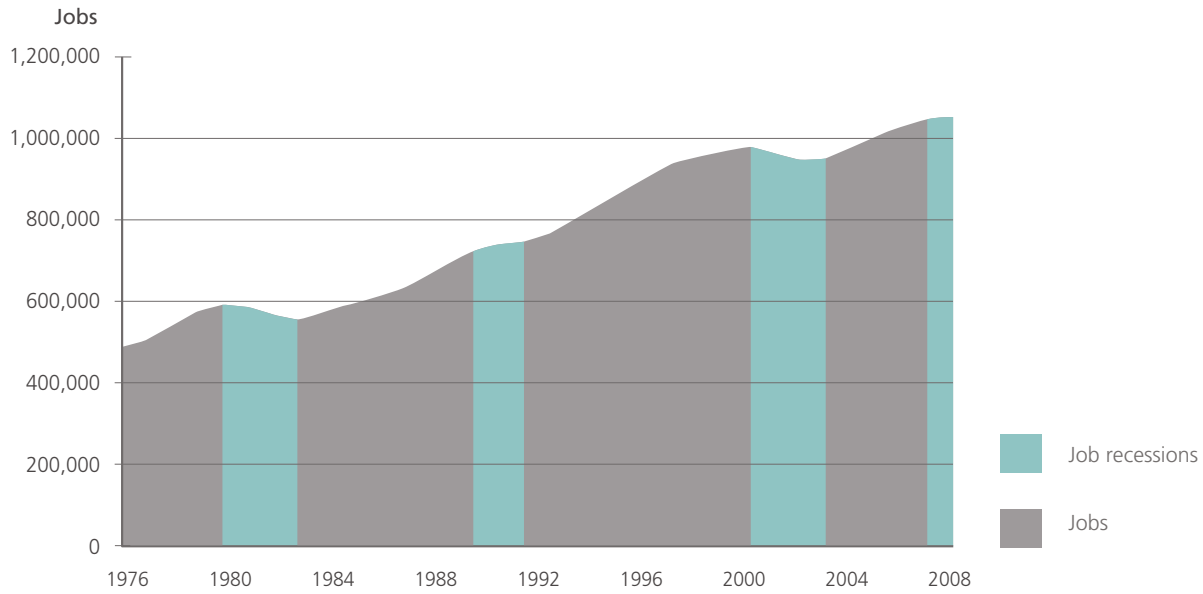


Table 3: Regional employment change, 5 and 20 year forecast by sector

	5-year				20-year			
	Low forecast	% Total jobs	High forecast	% Total jobs	Low forecast	% Total jobs	High forecast	% Total jobs
Manufacturing	2,700	3.2%	11,900	8.1%	2,400	0.7%	25,400	4.7%
Non-manufacturing	80,100	94.2%	131,500	89.5%	295,300	90.6%	484,000	89.2%
Government	2,200	2.6%	3,600	2.4%	28,300	8.7%	33,500	6.2%
Total	85,000	100.0%	147,000	100.0%	326,000	100.0%	542,900	100.0%

The region has experienced three periods of job stagnation or decline since the since the 1980's. (See **Figure 3** that shows recessions) Today, the region again faces uncertain economic times.

Figure 3: Annual nonfarm wage and salary payroll employment
7-county statistical area



The short-term forecast anticipates additional job losses in 2009, and small job gains in 2010, with anemic growth for several years. Service sectors are likely to improve more rapidly. (See **Figures 4-6** showing 7-county employment history and short term forecast)

Figure 4: Total nonfarm wage and salary employment
7-county statistical area

Figure 5: Total manufacturing employment
7-county statistical area

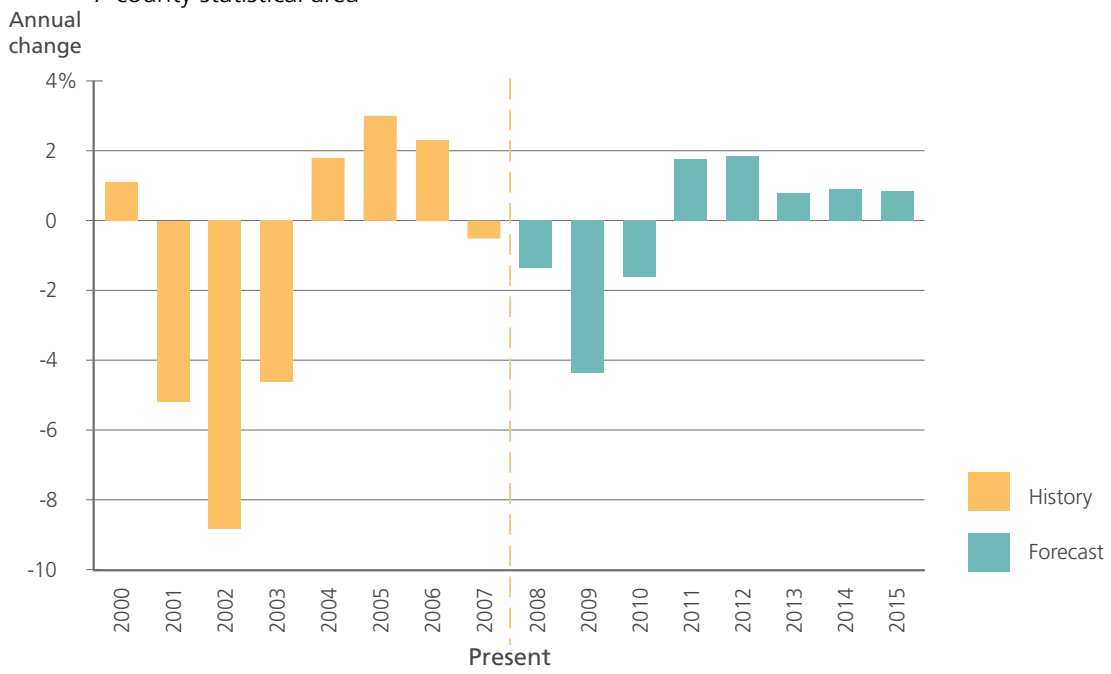
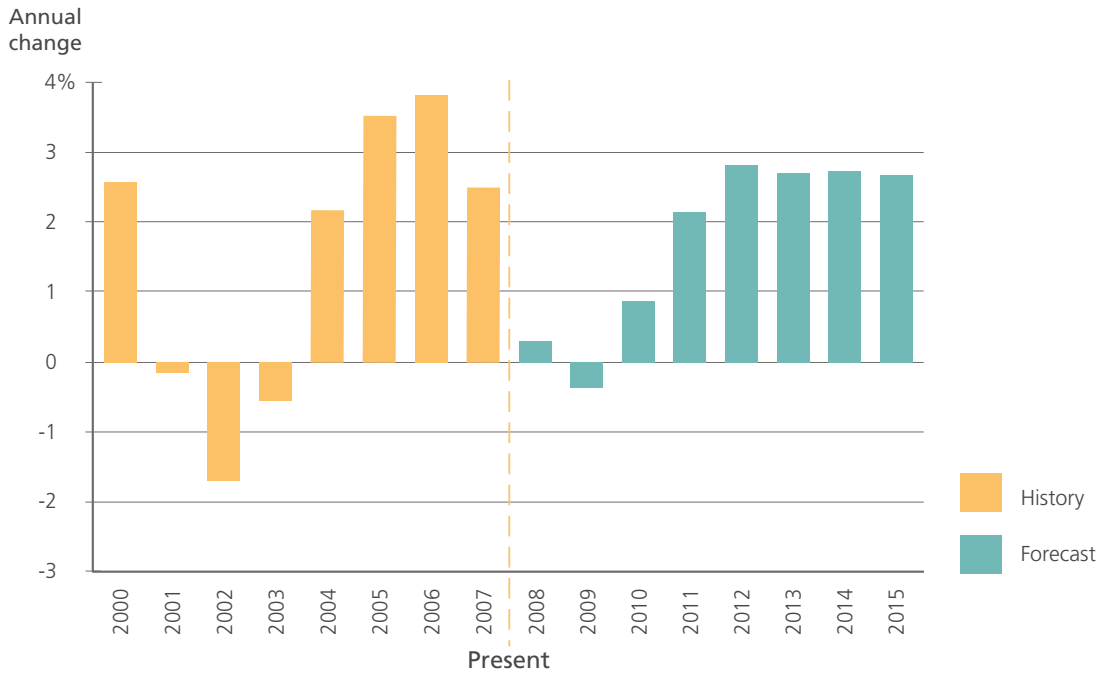
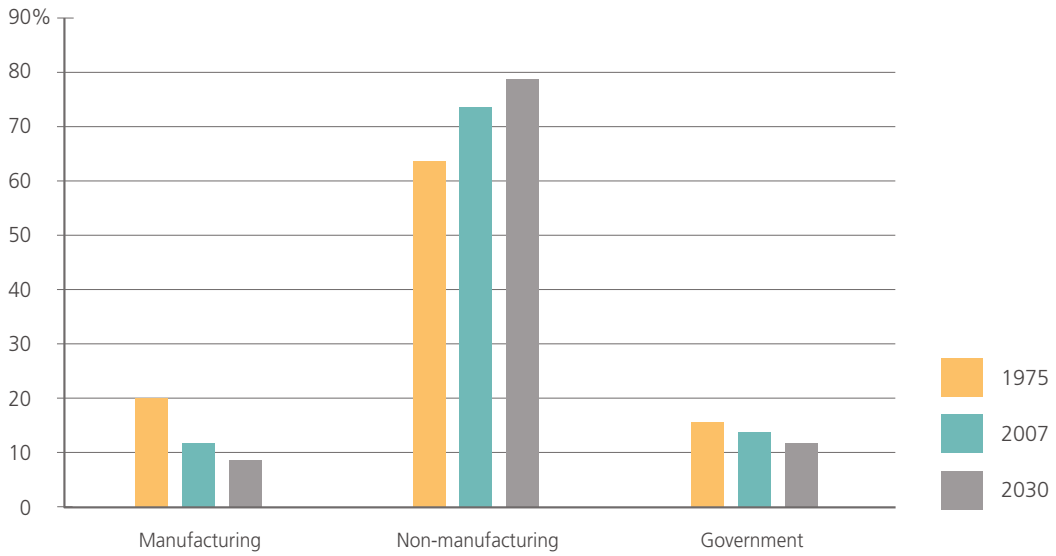


Figure 6: Total non-manufacturing employment
7-county statistical area



Over the long-term (20 years), employment trends show a shift in job concentrations from traditional manufacturing towards more non-manufacturing employment. (See **Figure 7** employment distribution for three employment sectors 1975, 2007, and 2030) Despite this shift in job concentrations, even in recent years, industrial land consumption has held steady at about 300-500 net acres per year. Technological changes allowing for more automation allow companies to use fewer employees in the same amount of space.

Figure 7: Employment distribution 1975, 2007, 2030
7-county statistical area



Factors that might contribute to a high or low forecast

Our region is not immune to the recession and other recent economic distress. In the short term, it is expected that job growth will slow in our region. Employment sectors that tend to be most sensitive to downturns in business cycles include construction, manufacturing and professional business services. However, by the year 2020, growth is expected to have returned to average long-term trend (compared to older forecasts).

High

- The Portland region's economic base includes a higher than average manufacturing sector with strong high-tech representation which could bounce back quicker than the rest of the country.
- The Portland region's cost of living and cost of doing business stays lower than other metropolitan regions on the west coast, attracting more growth.
- The Portland region and the Pacific Northwest remain attractive to the creative class.
- Green industries expand aggressively.

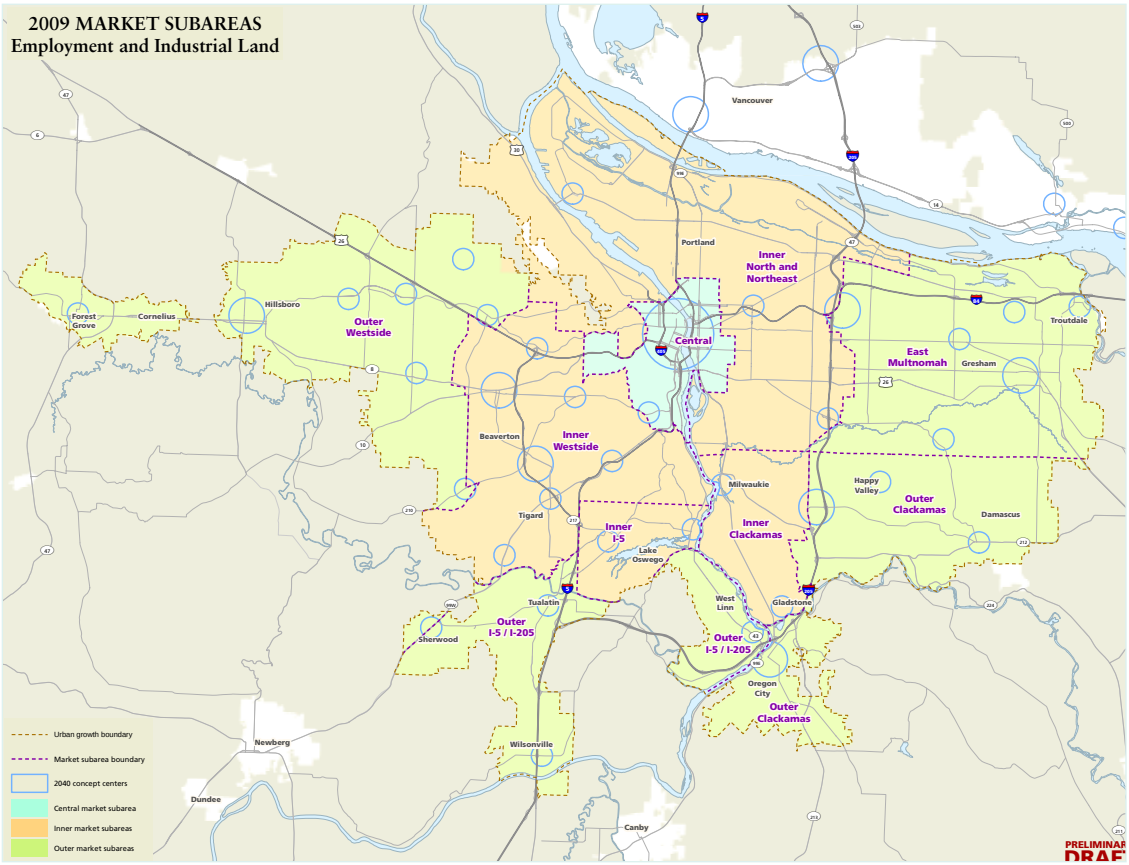
Low

- The current recession continues for an extended period and both the Portland region and the entire state emerge slower than the rest of the country.
- International immigration slows.
- Lack of a major research university dampens investment from firms requiring high tech and creative class workforce.
- Insufficient resources to invest in the infrastructure needed to support growth.

Narrowing the forecast to the Metro urban growth boundary

The employment forecast begins with the seven-county statistical area, and then must be narrowed to the area within the Metro urban growth boundary. The first step in the new demand paradigm is to recognize that there are market subareas within the Portland metropolitan region. These market subareas attract different components of the forecasted employment growth. The market subareas are shown in **Map 2**.

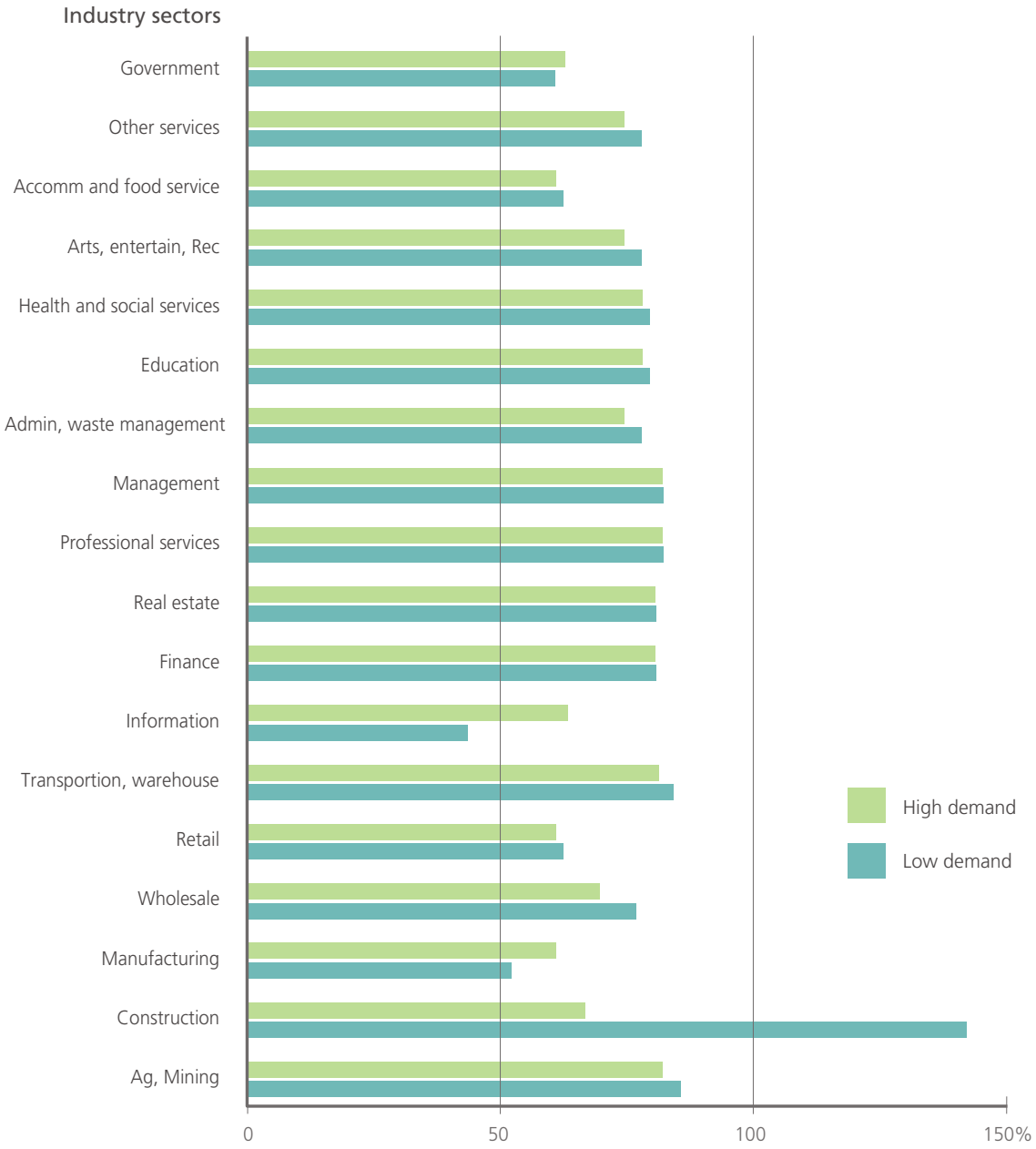
Map 2: 2009 market subareas, employment and industrial analysis



Capture rate An employment capture rate is applied to the 7-county range forecast in order to estimate what share of projected job growth is anticipated to locate within the Metro urban growth boundary between 2010 and 2030. This rate measures the proportion of employment growth (or change) that is to be expected in the Metro urban growth boundary. This rate may be expected to change somewhat depending upon regional (and macroeconomic) economic growth assumptions, land supply assumptions, and regulatory assumptions. Capture rates tend to rise and fall relative to changes to the phase of the regional business cycles.

In analyzing the high growth economic scenario, the employment capture rate for 2010 to 2030 is projected to be 73 percent for the Metro urban growth boundary (relative to the 7-county PMSA job growth) and a 75 percent capture rate is projected in the low growth scenario. (**See Figure 8**) Based on this methodology, the region must plan for between 975,000 and 1.2 million total jobs by 2030.

Figure 8: Projected industry sector UGB capture rates: 2010-2030
Source: MetroScope UGR scenarios



The construction sector exceeds 100 percent because of projected region-wide job losses in construction employment in the low growth scenario and retrenchment of remaining construction jobs into the Metro UGB.

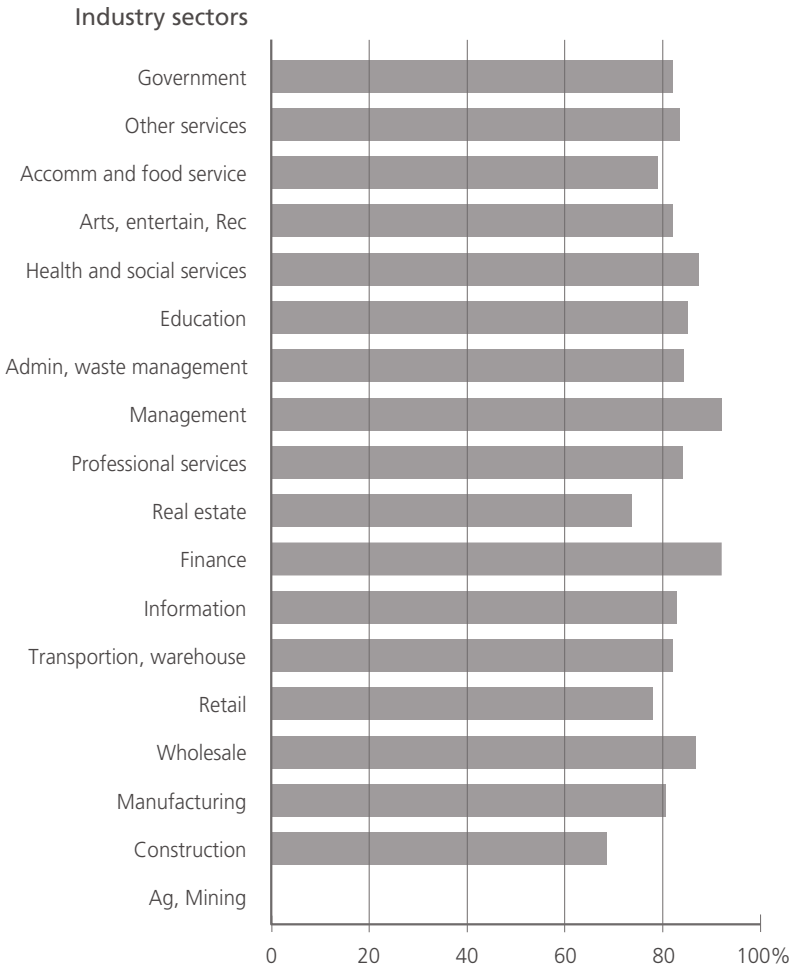
Due to changes in federal employment codes (SIC to NAICS), industry-level capture rates are unavailable. However, historical observed rates for total employment are available for the Metro UGB in the Table 4.

Table 4: Historic 20-year urban growth boundary capture rates for total employment
Portland, Beaverton, Vancouver PMSA, Source: Metro

1980 to 2000	1981 to 2001	1982 to 2002	1983 to 2003	1984 to 2004	1985 to 2005	1986 to 2006	1987 to 2007
83%	84%	86%	87%	85%	81%	80%	NA

The current set of assumptions assumed in the preliminary employment urban growth report is based on an analysis of the industry sector shares in 2006 (see **Figure 9**) within the urban growth boundary and its proportional share to the 7-county PMSA.

Figure 9: Share of 7-county statistical area jobs that are in the Metro urban growth boundary, by industry sector in 2006



Note: 2006 Employment Share (derived from employment security data and Bureau of Labor Statistics) The Metro urban growth boundary share is 82 percent.

Employment range to building square footage demand

One of the innovations of this analysis is to consider employment demand and supply in terms of the buildings that accommodate jobs, rather than only on the land. This allows policy makers to discuss both the employment demand and the building form that shapes the way communities look and feel for residents and employees. In order to compare with the region's building square footage capacity, the employment forecast (numbers of jobs by sector) is converted to building square footage demand.

The first step is to assign jobs to six building types, based on recent trends and professional expertise. The six building types used for purposes of the design paradigm are: office, institution, flex, general industrial, warehouse, and retail. Assumptions as to the building type in which jobs are located could change over time as the real estate market matures, land prices increase, and technologies shift. **Table 5** shows how jobs are assigned to building types.

Table 5: Job sectors and building types
Source: E.D. Hovee & Company, LLC, 2009

NAICS code	Sectors represented	Office	Institution	Flex	General industrial	Warehouse	Retail
11, 21	Agricultural, mining	0%	0%	0%	0%	0%	0%
23	Construction	14%	0%	18%	40%	18%	10%
31-33	Manufacturing	8%	0%	24%	60%	8%	0%
42	Wholesale	8%	0%	22%	20%	40%	10%
44-45	Retail	5%	1%	6%	0%	12%	76%
22, 48-49	Transportation, warehouse and utilities	15%	0%	12%	13%	55%	5%
51	Information	25%	0%	25%	40%	0%	10%
52	Finance	72%	1%	5%	1%	1%	20%
53	Real estate	72%	1%	5%	1%	1%	20%
54	Professional services	72%	1%	5%	1%	1%	20%
55	Management	79%	5%	8%	0%	0%	8%
56	Administrative waste management	72%	1%	5%	1%	1%	20%
61	Education	30%	53%	5%	1%	1%	10%
62	Health and social services	30%	53%	2%	0%	0%	15%
71	Arts, entertain, recreation	35%	0%	10%	0%	0%	55%
72	Accommodations and food service	20%	1%	7%	1%	1%	70%
81	Other services	72%	1%	5%	1%	1%	20%
92	Government	43%	35%	5%	1%	1%	15%

Once jobs have been assigned to building types, they are converted to building square foot demand using assumptions based on data analysis and professional expertise on the amount of building square feet needed for an employee in each of the six building types. (See **Table 6**) These assumptions could change over time based on industry changes and policy and investment choices and other trends.

Table 6: Building square feet per employee by building type

	Central area		Inner ring		Outer ring	
	Short term	**Long term**	**Short term**	**Long term**	**Short term**	**Long term**
General industrial	550	550	600	600	600	600
Warehousing/ distribution	1,100	1,100	1,200	1,200	1,850	1,850
Flex	450	450	500	500	500	500
Office	350	350	375	375	375	375
Retail	500	500	550	550	550	550
Institutional	600	600	650	650	650	650

Building square foot demand varies by market subarea, accounting for market realities in the location decisions made by the region's employers. Based on analysis of the trends just described, there will be a need to up to 82 million square feet of industrial space and between 99 million and 188 million square feet of non-industrial space within the UGB by 2030.

Figures 10-13 show the 20-year building square foot demand (net of redevelopment demand) by market subarea. At the low end of the population and employment forecast there is a projected reduction in demand for industrial jobs, commensurate with national trends showing a decline in manufacturing. Demand shifts from some locations, such as industrial employment in the central city, to locations in outer areas with lower land costs. This analysis carries forward recent job location trends; local and regional policy and investment actions could shift this demand to different locations. The demand by market subarea is aggregated to identify the regional demand range for industrial and non-industrial building square feet. This demand is then compared with the supply range.

Figure 10: 2010-15 Industrial square foot demand

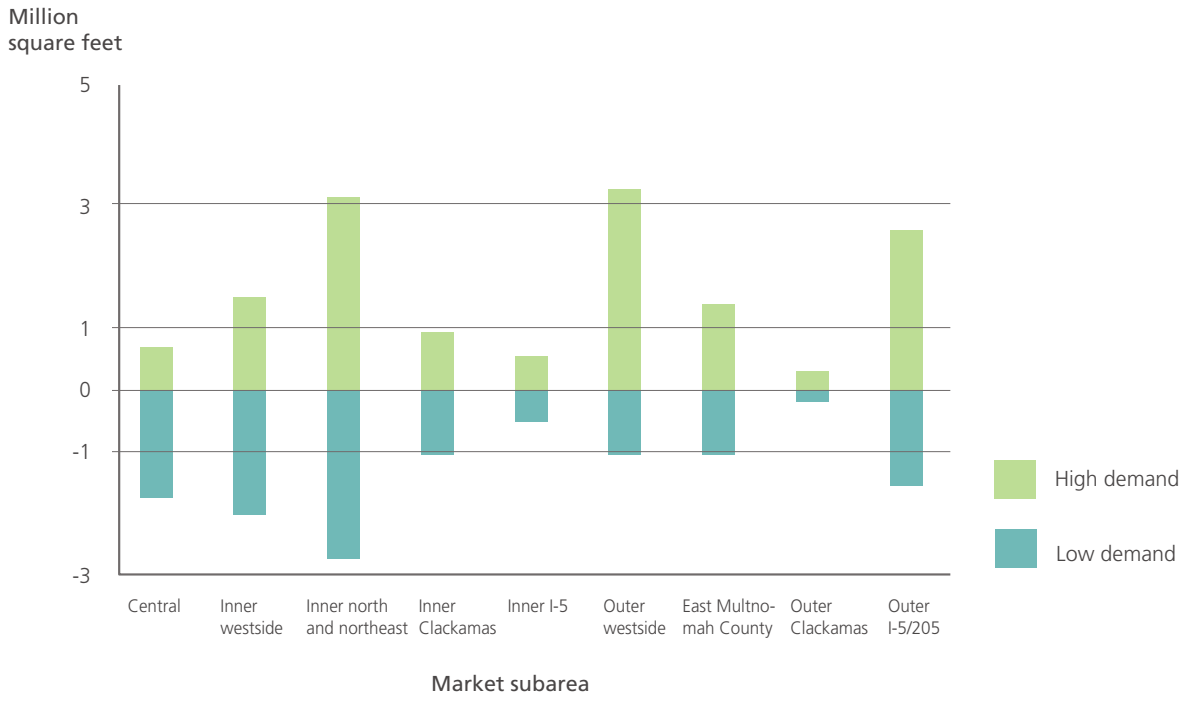
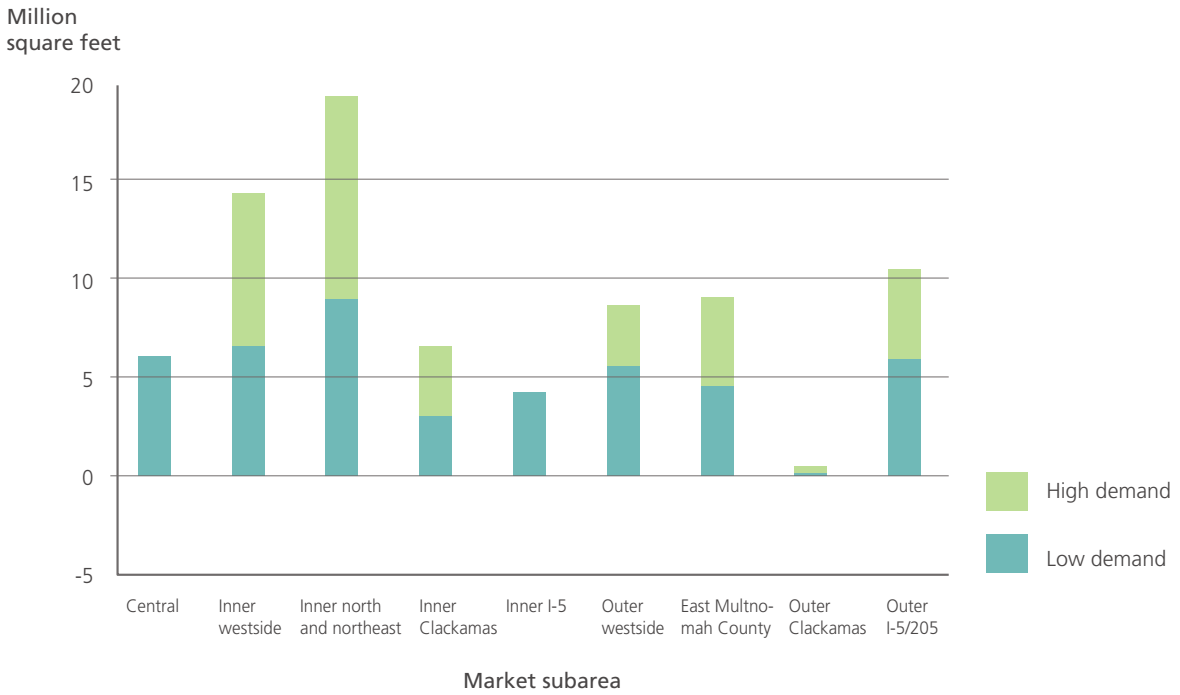


Figure 11: 2010-15 Non-industrial square foot demand

Figure 12: 2010-30 Industrial square foot demand

Figure 13: 2010-30 Non-industrial square foot demand



EMPLOYMENT CAPACITY (SUPPLY) RANGE

Determining the total employment capacity of the current urban growth boundary is not as simple as adding up the maximum-zoned capacity of all parcels. Unlike residential zoning, some of the land zoned for employment uses does not have legal limits to height and other restrictions. However, this does not mean that this analysis assumes infinite capacity in those locations, since the urban real estate market does not intensively use land where achievable rents will not cover the cost.

Capacity changes over time as real estate market conditions change. A primary purpose of this preliminary urban growth report is to begin a discussion of how the region might make more of its existing capacity market-feasible, both on vacant land and through refill. This purpose is in keeping with Statewide Planning Goal 14's guidance to determine that growth cannot be "reasonably" accommodated inside the existing urban growth boundary before expanding it. The region's stated desire to pursue an outcomes-based approach can spark a discussion that can lend greater definition to the word "reasonable":

- How might different choices support or confound the region's attempts to achieve desired outcomes?
- What are the possible tradeoffs of those choices?

Many parcels inside the urban growth boundary are developed below maximum allowed density or are partially developed. Some parcels have buildings that have less value than the underlying land and are ripe for redevelopment. Others have viable buildings that are not likely to be redeveloped and simply do not fully utilize the allowed density. Because of market conditions, some of these parcels are more likely to see infill or redevelopment ("refill") than others. Similarly, in the case of some vacant, buildable lands, there is a very limited market for their development. Limited market feasibility could be the consequence of the location of the parcels, inadequate funding for infrastructure, macroeconomic conditions, credit availability, individual entrepreneurship and public actions taken inside the boundary, in Clark County, Washington and in neighboring cities.

RECENT LOCATION AND DEVELOPMENT TRENDS

An understanding of where employment has been locating and how land has been used to provide employment capacity inform this assessment of the region's short- and long-term employment capacity. Metro contracted with a consultant team led by E.D. Hovee & Company, LLC to complete an analysis of employment and economic trends to inform this preliminary employment urban growth report. Much of the following information is drawn from the consultant team's work. Additional information may be found in the complete consultant reports found in Appendix 1.

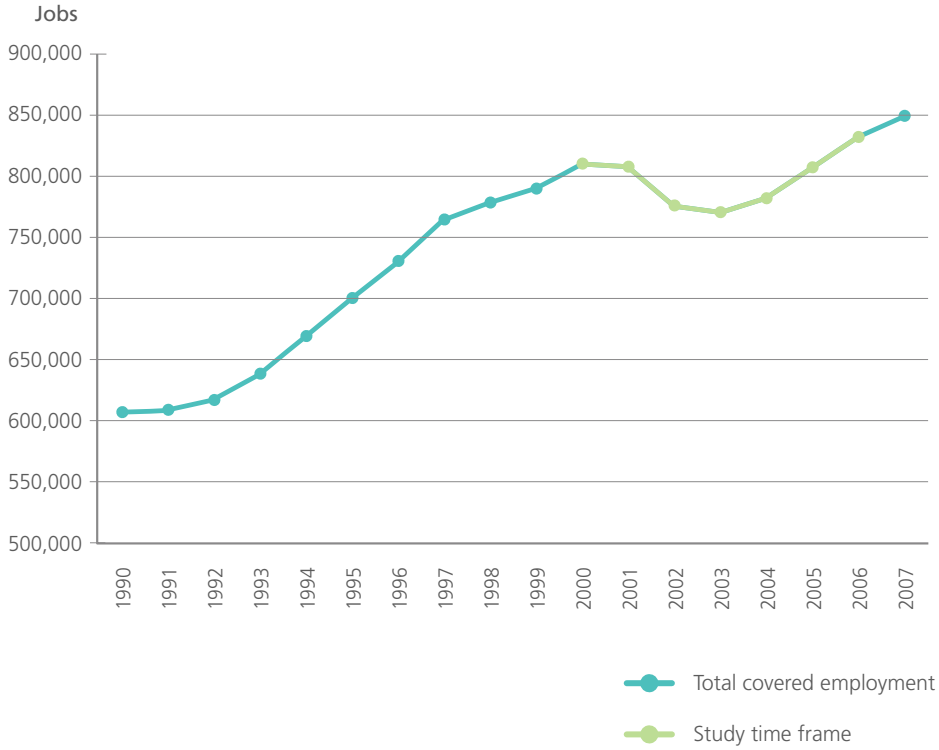
Employment trends

E.D. Hovee & Company, LLC analyzed recent employment trends using the best available information, which included Employment Security 202 (ES 202) data from 2000-2006 .[3] See **Figure 14**. As of 2006, the Portland metropolitan region had an estimated 842,000 non-agricultural jobs.[4] Employment in the Metro urban growth boundary represents 83 percent of the job base for the seven-county Primary Metropolitan Statistical Area (PMSA), with the bulk of remaining jobs located in Clark County, Washington.

[3] *Recent employment trends were analyzed using geocoded Employment Security 202 (ES 202) data for 2000-2006. This data is collected by the state for unemployment insurance purposes. 2006 is the latest year for which detailed geocoded employment information is currently available. The ES 202 data captures about 85 percent of employment, the self-employed are not included.*

[4] *Because this analysis is concerned with employment capacity inside the urban growth boundary, it focuses on non-agricultural jobs. State land use laws are, in part, intended to protect the viability of the agriculture outside of urban growth boundaries.*

Figure 14: Employment trends within Metro UGB, 1990-2007
Source: E.D. Hovee & Company, LLC



Between 2000 and 2006, the region added approximately 22,500 jobs – representing a 0.5 percent annual job growth over a period marked by an economic downturn and subsequent recovery. The Portland metropolitan region's job growth, while low, was still above the national average of 0.3 percent for the same time period. Employment growth was far weaker in this most recent cycle than the 2.9 percent annual job growth experienced during the previous decade of the 1990s. Job gains in the 1990s were high by comparative standards, about one-third higher than the rate of growth in the preceding decade of the 1980s.

The type of jobs in the region also impacts the region's employment capacity, as different industry sectors use space in different ways. Shifts in the region's employment sectors reflect job classification changes and actual job losses and gains. Several key trends include:

- The service sector had the largest amount of growth; in 2006 it accounted for 56 percent of the region's covered employment. Health care and social assistance has dominated service sector job growth, with a net gain of 17,000 jobs.
- In 2006, the industrial sector comprised 30 percent of the region's jobs, a decline from a 32 percent share in 2000. Manufacturing, a subset of the industrial sector, had a net loss of 6,700 jobs from 2000 to 2006.
- Jobs associated with retail (excluding dining) also declined – a reversal of prior experience in the 1990s.

Job location by market subarea

As described in the Demand Section of this report, for this analysis, the Portland metropolitan region was divided into nine geographic market subareas and further aggregated to three overall ring geographies:

Central, also a subarea of its own.

Inner ring Inner North and East, Inner Westside, Inner I-5 and Inner Clackamas.

Outer ring Outer Westside, East Multnomah County, Outer Clackamas and Outer I-5/205

Key trends for these market subarea geographies include:

- In 2006, about one-half of the region's employment was located within the largely developed inner ring subarea, with the remainder divided between the central and outer rings.
- From 2000 to 2006, the central and inner ring subareas lost jobs, while outer ring geographies added jobs at a pace above three percent per year.
- Within the inner ring, the Central and Inner North and Northeast subareas showed the largest job loss, especially for industrial jobs.
- In contrast, outer ring subareas added industrial jobs – enough to offset about 65 percent of inner and central ring losses (but still resulting in an overall industrial employment decline in the region).
- Retail job growth appears to have migrated to the outer ring subareas (+3,200 jobs), enough to offset about 50 percent of inner and central ring employment decline.
- Clark County also reported rapid job growth during this time period of 2.2 percent annually, well above the overall job growth rate indicated for the Oregon side of the Columbia River, but somewhat consistent with the growth rates of outer ring subareas.

The analysis shows substantial shifting between market subareas by industry sector, particularly for industrial jobs. Despite the shifts, the central and inner rings still house more than 75 percent of the region's jobs in utilities, wholesale trade, transportation and warehousing. **Figures 15 and 16** depict employment sector trends by market subarea.

Figure 15: Job change by market subarea, central and inner rings, 2000-2006
Source: E.D. Hovee & Company, LLC

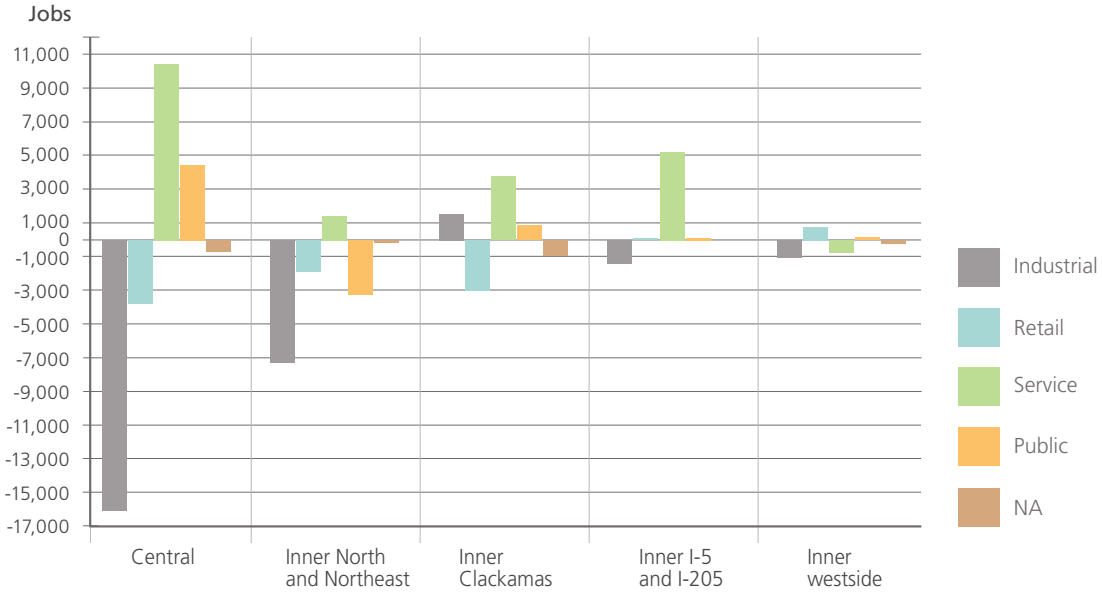
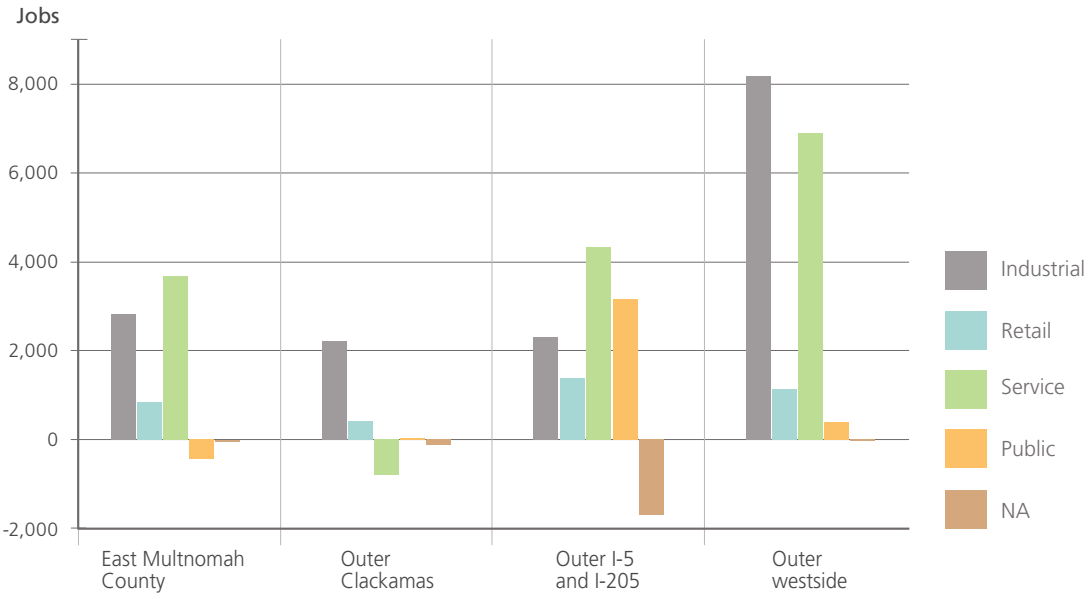


Figure 16: Job change by market subarea, outer rings, 2000-2006
Source: E.D. Hovee & Company, LLC



Job location by 2040 design type

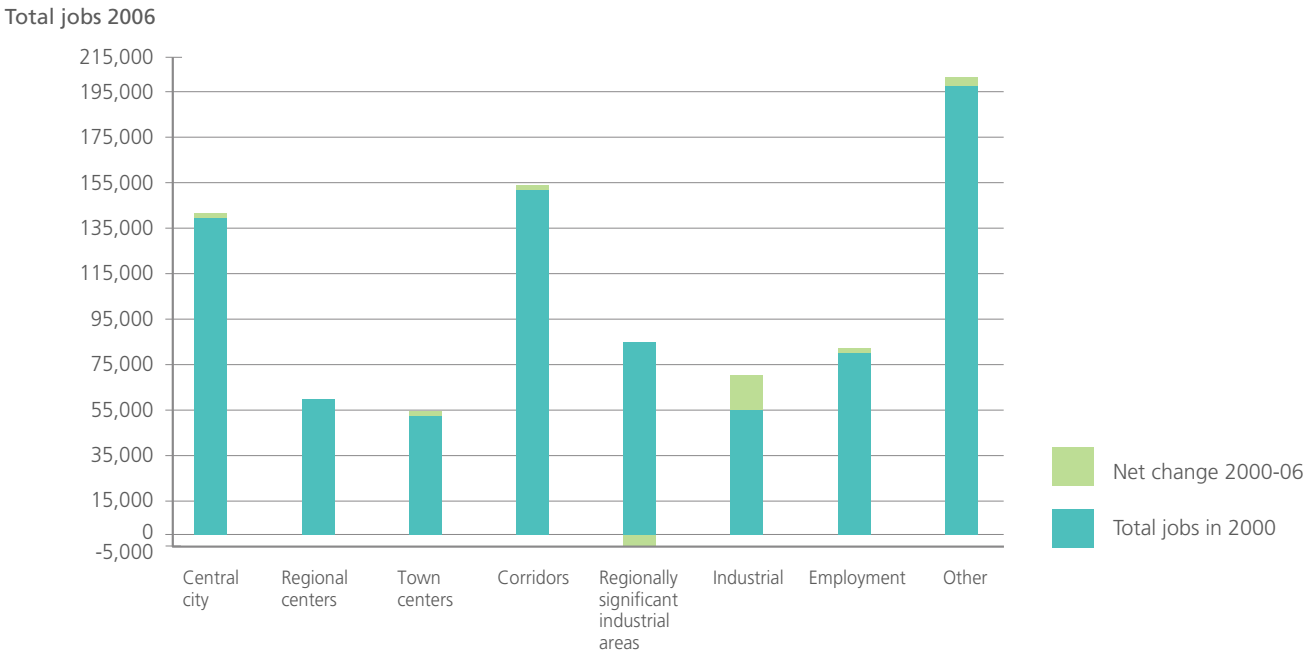
The region's 2040 Growth Concept calls for development to be focused in centers, corridors, employment and industrial areas. To better understand how successful current policies have been and to develop a basis for further policy discussion this analysis considers job growth by 2040 design types from 2000 to 2006 (see **Figure 17**):

Urban-focused 2040 design types (central city, centers and corridors) report job growth, but at rates below the 0.5 percent annual growth rate experienced region-wide. An exception is noted for town centers, which grew at a pace equivalent to the overall region. Service and public sector jobs fueled the job growth occurring in the other 2040 design types (city center, regional centers and corridors).

Industrial areas (areas designated as Regionally-Significant Industrial Areas, Industrial and Employment Areas under Title 4 of the Urban Growth Management Functional Plan) are associated with the strongest growth rates, averaging 4.5 percent per year. The largest share of the growth has occurred for industrial jobs. But, about 30 percent of net new jobs locating in industrial areas were non-industrial (primarily service sector) jobs. Employment areas experienced slower job growth and Regionally Significant Industrial Areas (RSIAs) reported some job base erosion from 2000-2006.

Other areas (inner and outer neighborhoods) currently account for about one-quarter of all Portland metropolitan region employment but very little of the job growth experienced post-2000. This employment includes neighborhood corner stores and other population serving businesses.

Figure 17: Jobs by design type, 2000-2006
Source: E.D. Hovee & Company, LLC



Development trends

Development of industrial, commercial and mixed use building space for employment use was evaluated at the market subarea level using proprietary CoStar real estate industry data (proprietary data tracked at the regional and national levels).

Industrial and commercial development trends

Primary commercial real estate classifications include:

- Office (Class A, B, C)
- Retail (roughly defined by size)
- Industrial (distribution, warehouse, general manufacturing)
- Flex (typically includes a mix of at least 50 percent office space with the remainder as industrial/ distribution)

These categories provide a means to compare growth within job sectors to growth in commercial real estate sectors, but there is not always a one-to-one relationship between how jobs and buildings are described or between the kinds of buildings in which a certain job sector is housed. For example, a service sector job may be in an office structure, retail center or industrial building.

As of January 2009, the Portland metropolitan region had an estimated 275 million square feet of industrial and commercial building space (as tracked by CoStar) (see **Figures 18 and 19**):

- An estimated 34 million square feet has been added post-2000 – with industrial and retail sectors increasing their respective shares of the total identified space inventory.
- Industrial space represents 43 percent of the region's total employment space inventory and 51 percent of new construction. Flex space (typically with 50 percent or more office use) remains a small component of the overall industrial market, with about 16 percent of the overall industrial inventory.

- The single largest share of new office product, 41 percent of all recent development, has located within the inner ring.
- Retail space has also become an increased share of the region's employment building inventory. New retail development has favored outer ring market subareas, which have captured close to 50 percent of post-2000 retail development
- Overall, this analysis suggests that the development of industrial and commercial real estate product has out-paced job gains since 2000 throughout the region, possibly due to increased automation and larger products for manufacturing and warehousing.
- Also noted is that both industrial and retail space types have accounted for a greater proportion of added building space in recent years than was previously the case. This is accounted for, in large part, by service-related uses that gravitate to retail center and industrial (including flex / business park space) as well as to office space commercial real estate product types.

Figure 18: Employment real estate inventory, Jan. 2009
Source: CoStar, E.D. Hovee & Company, LLC

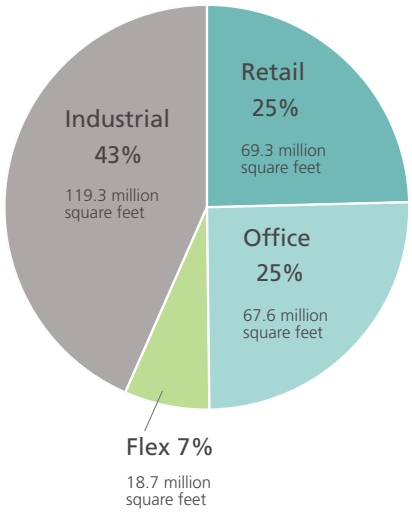
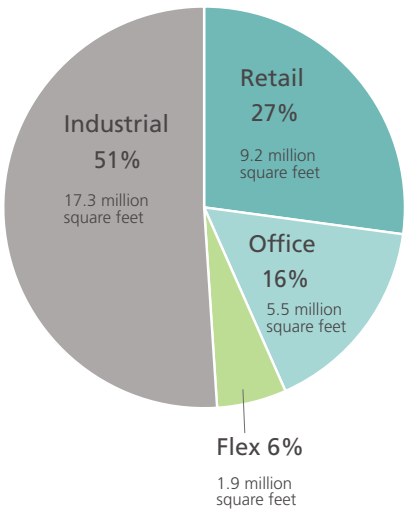


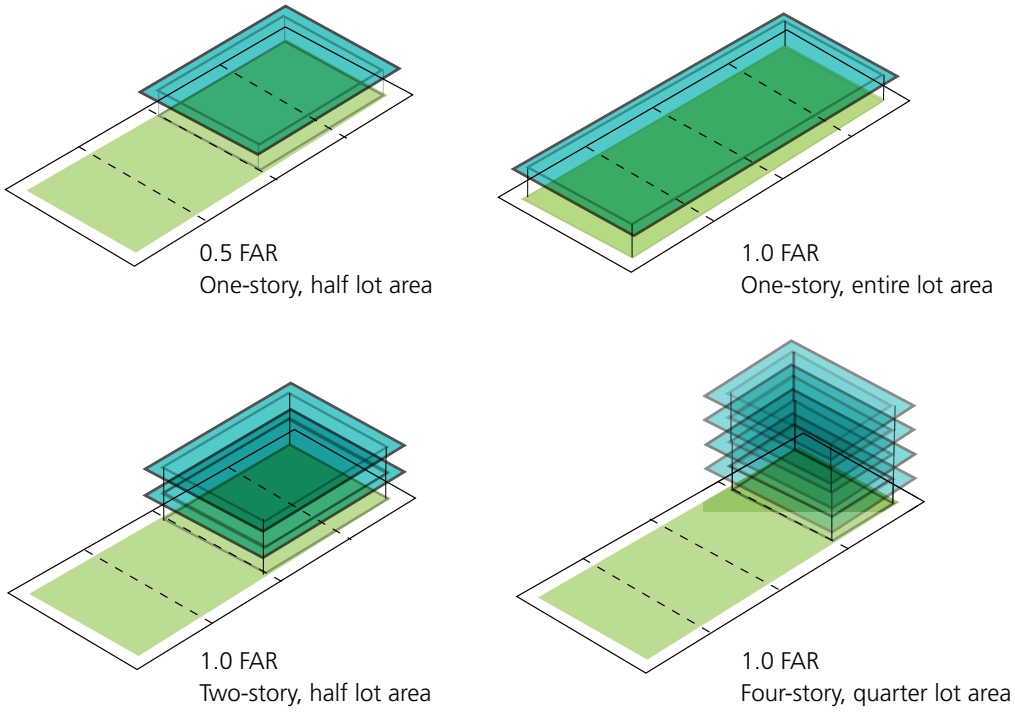
Figure 19: Inventory additions, post 2000
Source: CoStar, E.D. Hovee & Company, LLC



Intensity of employment development

Floor- area ratios (FARs) can be used as a measure of development density. An FAR of 0.5 indicates that the total building square feet is equal to half of the land area of the parcel it is on (for example, a single story building with 50 percent lot coverage) as shown in **Figure 20**. An FAR above this often indicates a multi-story building with some form of structured parking or fewer parking spots, as the portion of a lot not covered by the building is typically required for on-site parking, landscaping and setbacks. The development density for non-industrial buildings has increased substantially for buildings constructed since 2000, as compared to what was on the ground pre-2000.

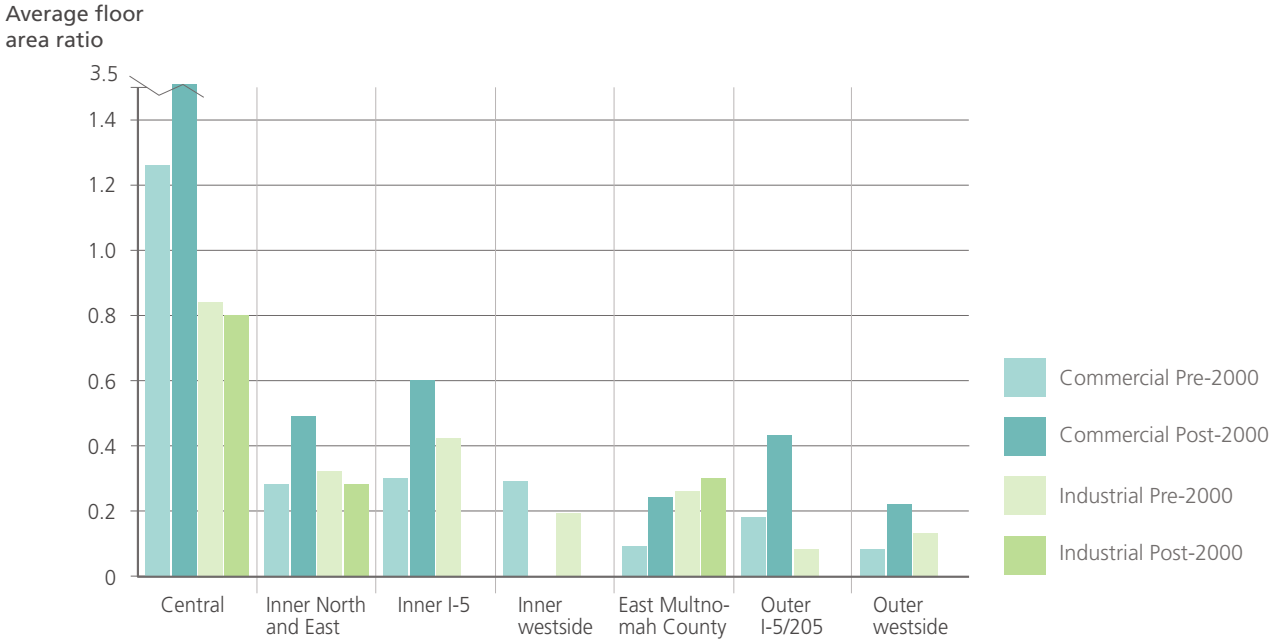
Figure 20: Illustration of floor area ratio (FAR)



Densities for the central city, centers and corridors have increased since 2000 across the region.[5] However, only the Central market subarea of the region currently achieves FARs that average above 1.0. See **Figure 21**.

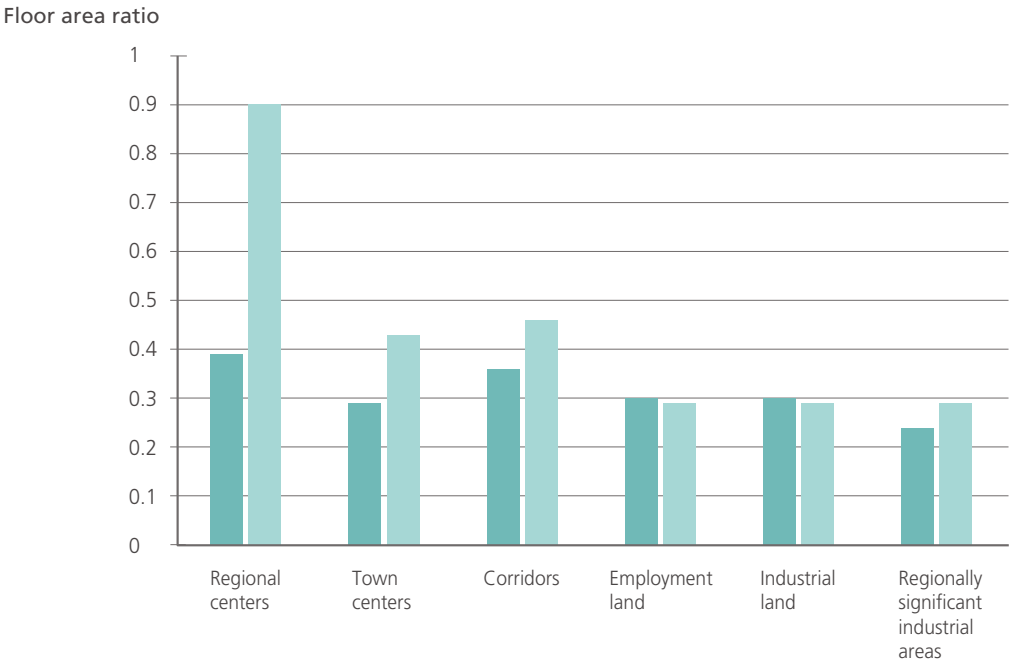
[5] *A caveat for this data is that limited square footage data is available for lots in Washington County, and no data for Clackamas County. Further description of the data may be found in Appendix 1, Employment Demand Factors and Trends: Task 1 Report.*

Figure 21: Floor area ratios by market subarea
Source: E.D. Hovee & Company, LLC



Industrial and employment area densities have experienced little overall FAR change since 2000, remaining relatively stable at close to 0.30. However, all of the urban design types showed an increase in FAR with post-2000 development. FARs increased substantially when residential development associated with mixed-use retail or office is included. **Figure 22** shows FARs by design type, not including residential related development.

Figure 22: FAR by design type (not including central city)
Source: Metro Data Resource Center RLIS and E.D. Hovee & Company, LLC



EMPLOYMENT AND INDUSTRIAL VACANT LAND SUPPLY INVENTORY

A thorough understanding of the region's vacant land supply that is zoned for employment uses is a crucial first step in analyzing the capacity of the region to meet future employment demand. This land inventory includes analysis of tax lots that were characterized as vacant or partially vacant in 2007[6] by Metro's Regional Land Information System (RLIS). Employment capacity in areas added to the urban growth boundary from 1998 onward ("new urban areas") is handled separately in this analysis. Metro's vacant buildable land inventory was supplemented by local review and analysis of development readiness by the E.D. Hovee consultant team. Additional information on the methodology used and resulting data may be found in Appendix 1. The approach included the following tasks:

- Review draft vacant land supply maps with city and county staff
- Compile city and staff comments on additions and removals to the inventory
- Estimate the buildable land area for each tax lot by analyzing environmental features and future streets and pedestrian corridors
- Remove tax lots that have recently developed, tax lots that no longer have an "employment land use" classification category (based on local comments), and tax lots with less than 0.2 buildable acres after accounting for environmental constraints
- Sort tax lots into tiers reflecting development readiness

Environmental constraints and streets

An important component of the inventory methodology was to assess the impact of environmental constraints on the site development potential of vacant and partially vacant land. Washington County and the City of Portland identified environmental constraints based on local zoning for all areas within their jurisdiction. For all other areas, environmental constraints were calculated as follows:

- Water quality and floodplain protection (Title 3) overlays (for Wilsonville, local zoning was used);
- Slopes over 10 percent for tax lots zoned for industrial land uses;
- Slopes over 25 percent for tax lots zoned for other employment or mixed-use;

Streets and sidewalks reduce the amount of buildable land available on any specific tax lot. This analysis used the same methodology described for the residential capacity analysis, setting aside the following amounts for future streets:

- Tax lots under 3/8 acre: assume zero percent
- Tax lots between 3/8 acre and one acre: assume 10 percent
- Tax lots greater than one acre: assume 18.5 percent

The basis for these net street deduction ratios derive from previous research completed by Metro's Research Center and local jurisdictions during the 2002 urban growth report. The current street set aside rates are based on "skinny street" assumptions.

After environmental constraints and streets are accounted for, approximately 13,300 acres remain in the vacant employment land inventory.

[6] *2007 is the most recent information available for analysis due to the timing of aerial photography and the analysis period to produce vacant/buildable land GIS layer.*

Local jurisdiction corrections to vacant land inventory

City and county staff played an important role in reviewing the vacant land inventory.[7] This local review of the inventory resulted in more up to date information across the landscape. The inventory starting point was approximately 12,000 acres. Through the local review process, about 1,100 acres were removed from the inventory. Tax lots developed since the 2007 aerial photographs were taken were removed, and reclassified as developed land. Tax lots that no longer have an employment zoning category were removed from the inventory. Very small tax lots, less than 0.2 buildable acres[8] after accounting for environmental constraints, were also removed from the inventory. Of the inventoried tax lots over one acre in size, about 20 percent of the land was deducted because it is now owned by or developed for public and non-profit uses (e.g., churches, schools and parks).

Approximately 1,300 acres were identified by local jurisdictions as missing from the original inventory and were added. After accounting for corrections made by local jurisdictions, there are approximately 12,200 vacant buildable acres inside the Metro urban growth boundary.

Development readiness: "tiers"

An innovation in this employment and industrial land inventory is to expand the assessment of development readiness that has been used for industrial land in the Regional Industrial Land Supply work to the entire landscape of vacant employment and industrial land. This analysis allows a better assessment of the short- and long-term employment and industrial land supply in the region based on the public or private investments that must be made prior to development for employment uses. The tiers are shown in **Table 7**, and range from vacant land over one acre with no constraints to small lots in infill locations with no urban services.

[7] *Metro will continue to review and potentially update the inventory with the help of city and county staff until the draft urban growth report is released in September 2008.*

[8] *Unlike the methodology used in the Regional Industrial Land Study (1999-2003 reports, 2007 update), this analysis includes all types of employment land and therefore includes tax lots less than one acre in size.*

Table 7: Employment and industrial vacant land development readiness tiers
FCS Group, based on local review.

Tier		Description	Development readiness
A	Vacant, unconstrained	Over one net buildable acre** with no known constraints	Great
B	Vacant, constrained	Over one net buildable acre with one or more constraints	Good
C	Small lot, vacant or partially vacant	Infill development, 0.2-1 acre in size; zoned and provided with urban services	
D	Partially vacant, with constraints	Over one net buildable acre on a developed lot, after subtracting any existing buildings*** and parking; zoned and provided with urban services	
E	Vacant, not served	Over one net buildable acre**; no urban services, infrastructure, or zoning	Fair
F	Partially vacant, not served	Over one net buildable acre on a developed lot, after subtracting any existing buildings*** and parking; no urban services, infrastructure, or zoning	Poor
G	Small lot (0.2-1 acre), vacant or partially vacant, not served	Infill development; 0.2-1 acre in size; no urban services, infrastructure, or zoning	

* *Constraints include one or more of the following:*
- *Environmental constraints (water quality, floodplain, habitat, or slopes)*
- *Transportation deficiency (within ¼ mile of major arterial roadway with V/C>1.0 as defined in Metro's Regional Transportation Plan)*
- *Inadequate sewer or water infrastructure*
- *No urban zoning*
- *Known land use or policy constraints (e.g., brownfields, aviation flight protection overlay zone, marine use restrictions)*
- *Tax exempt status*

** *Tax lot building market value is less than $25,000 per county assessor records as of 2008.*

*** *Tax lot building market value is greater than $25,000 per county assessor records as of 2008.*

Tax lots were sorted into the tiers described in the table to the left based on an analysis of location, existing building and land value, environmental constraints, infrastructure availability, transportation access, local zoning, and owner constraints (e.g., land banking). Local cities and counties provided input on this assessment of development readiness.

For purposes of this analysis, tax lots within one quarter mile of a major arterial roadway with a peak hour volume to capacity ratio greater than 1.0 (V/C>1.0) were identified as transportation deficient. Land use policy constraints include tax lots that currently have rural zoning or specific development restrictions (e.g., brownfields, aviation flight protection overlay zone, marine use restrictions). The current assessed market value for building improvements helped determine if a site should be considered vacant or partially vacant. In this analysis, tax lots with less than $25,000 in building valuation are assumed to be vacant and those above are considered partially vacant.[9]

Vacant employment and industrial land inventory results

The region's vacant employment and industrial land supply is categorized by generalized land use classification, parcel size, and market subareas. This approach allows an analysis of both the amount of land supply as well as its ability to accommodate both the short- and long-term employment demand in the region. Land supply that is included in tiers A, B, C, and D ("great" and "good" categories) is regarded as being available in the short-term. Land in tiers E, F, and G ("fair" and "poor" categories) is assumed to be available in the long term. **Table 8** describes the number of acres available for employment uses in the short- and long-term by subarea.

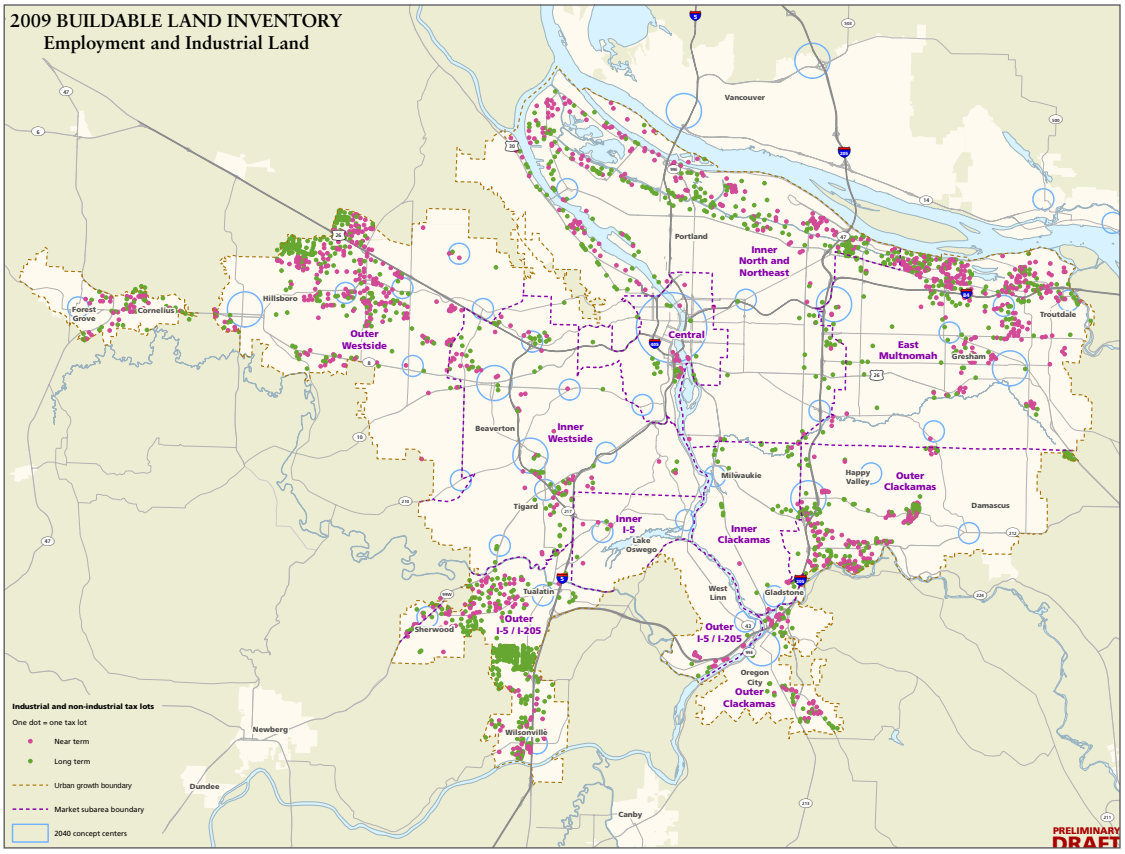
Table 8: Acres of buildable employment and industrial land by market subarea and development readiness
(8,705 acres total, not including land brought into the boundary after 1997

	Capacity available in short-term				Capacity available in long-term			
	GREAT		GOOD		FAIR		POOR	
	IND	NON-IND	IND	NON-IND	IND	NON-IND	IND	NON-IND
Central	-	2	3	80	-	-	-	-
Inner Clackamas	15	40	338	333	-	-	-	-
Inner I-5	-	9	2	137	-	-	-	-
Inner North/NE	23	36	1,184	222	-	-	232	-
Inner Westside	9	54	82	502	-	-	-	-
East Multnomah	120	93	1,160	274	-	-	-	-
Outer Clackamas	-	28	-	128	6	-	13	-
Outer I-5	41	50	505	377	414	-	272	14
Outer Westside	29	192	578	548	343	-	218	-
Totals	237	503	3,852	2,601	763	-	735	14

[9] *This analysis was performed only on parcels identified in Metro's RLIS data as vacant based on aerial photography, not land that would be considered developed in Metro's database.*

Map 3 shows the results of the buildable land inventory, coded for short- and long-term development readiness.

Map 3: 2009 buildable land inventory: employment and industrial land



New urban areas

Because they lack zoning, new urban areas, land brought into the urban growth boundary after 1997, are not included in the vacant land inventory. Instead, concept plans inform an estimate of employment capacity. Many of these new urban areas are planned for residential and employment uses. This analysis estimates that approximately 4,100 acres in new urban areas will be developed for employment uses. As described in the following sections of this analysis, land supply is converted to employment capacity.

CAPACITY RANGE FOR EMPLOYMENT AND INDUSTRIAL LAND

Local zoning for employment uses does not lend itself to an assessment of capacity in the same way that it does for residential. Residential zoning is explicit about the maximum number of units allowed within a particular zone and the urban form those units may take. For example, an R5 zone allows single-family detached units on 5,000 square foot lots, and MFR 7 allows up to 60 units per acre. Calculating the residential capacity is therefore a simple mathematical exercise. Many employment zones are much more flexible, leaving more uncertainty in the assessment of capacity.

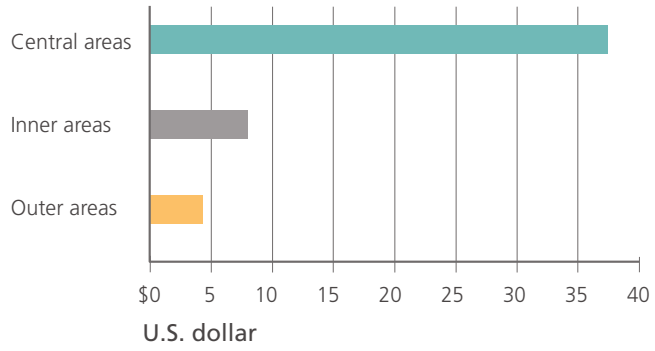
To be consistent with the employment demand assessment, which translated the employment forecast to a building square footage demand, this analysis translates the vacant land supply into building square feet. While it is difficult to translate local zoning into the number of jobs that might be provided on a parcel, it is easier to assess the building type and form likely to be built based on the zoning. Floor-to-area ratios (FARs) allow a translation between local zoning and capacity expressed through building square feet.

Translating land supply to a capacity estimate

As described in the recent development trends section of this report, FARs are not consistent across the region. Buildings with higher FARs have been built in the central market subarea and the region's centers and corridors. FARs vary based on the real estate product type, which can be distributed to zoning classification. For example, a multi-story style "office" building may be built in any of the zoning classes, but is most likely to occur in commercial, mixed-use, or public facility zones. There is a smaller likelihood that the same building may be built in industrial zones. Building type and form also evolves over time, with more intensive land use occurring when the market allows for higher achievable rents.

Higher density of development (or FAR) can occur as land becomes more valuable, requiring more efficient use of space including multi-level development, lower parking ratios with greater use of transit and shift to structured parking (**See Figure 23**). Higher density of employment is also expected to the extent that an increasing share of regional employment takes place with service and office-related functions compared with traditional manufacturing or distribution space. As noted elsewhere in this report, supporting office functions are becoming more common in industrial areas.

Figure 23: Effective assessed land value per square foot of vacant land



Any transition in density of employment should be expected to occur over time, and to the extent supported by market trends globally as well regionally. The experience of the last several years demonstrates that increasing development intensity is more readily experienced with urban 2040 design types and commercial corridors. The transition will prove more challenging with industrial lands, requiring on-going dialogue both with end users and the development community to understand best management practices and effects on regional competitiveness. This capacity

analysis recognizes variations by market subarea, 2040 design type, and zoning, as well as varying the expected achievable FAR over time. The region's employment capacity is calculated by multiplying acres by FAR value for each geography, accounting for building mix, and differences in the short- and long-term. The assumptions for these calculations are summarized in **Table 9 and 10.**

Table 9: Floor-to-area ratios by market subarea, 2040 design type and zone class Short/long-term by regional zoning classification

	MUR	CC	CG/CN	CO	MUE	IL	IH/RSIA
Central market subarea							
Centers/corridors	5 / 7	4 / 6			5 / 7	0.5 / 1	0.5 / 1
Other design type	5 / 7	4 / 6			5 / 7	0.5 / 1	0.5 / 1
Inner market subareas							
Centers/corridors	0.75 / 1	1 / 2	0.5 / 0.7	0.75 / 1.1	0.4 / 0.4	0.3 / 0.3	0.3 / 0.3
Other design type	0.35 / 0.6	0.75 / 1.1	0.4 / 0.6	0.65 / 1	0.4 / 0.5	0.3 / 0.3	0.3 / 0.3
Outer market subareas							
Centers/corridors	0.35 / 0.6	0.75 / 1.1	0.4 / 036	0.65 / 1	0.5 / 0.5	0.3 / 0.3	0.3 / 0.3
Other design type	0.3 / 0.35	0.3 / 0.35	0.3 / 0.35	0.3 / 0.35	0.35 / 0.35	0.25 / 0.3	0.25 / 0.3

Look up table for zone and use descriptions.

MUR	Mixed Use Commercial and Residential: FAR varies by location.
CC	Central Commercial: allows a full range of commercial typically associated with CBD's and downtowns. More restrictive than general commercial in the case of large lot and highway-oriented uses. Encourages higher FAR uses including multi-story development.
CG	General Commercial: larger scale commercial districts, often with a more regional orientation for providing goods and services. Businesses offering a wider variety of goods and services (including large format retailers) are permitted in this district and include mid-rise office buildings, and highway and strip commercial zones.
CN	Neighborhood Commercial: small-scale commercial districts permitting retail and serice activities such as grocery stores and neighborhood service establishments that support the local residential community. Floor space and/or lot sizes are usually limited to between 5,000 to 10,000 square feet.
CO	Office Commercial: districts accommodating a range of low-rise offices; supports various community business establishments, professional and medical offices; typically as a buffer between residential areas and more intensive commercial districts.
MUE	Multiple use employment: an employment district that accommodates a broad range of users including offices, retail stores, warehouse distribution, and light industrial including manufacturing, fabrication, and assembly.
IL	Light Industrial: districts permit warehousing and distribution facilities, light manufacturing, processing, fabrication or assembly. May allow limited commercial activities such as retail and service functions that support the businesses and workers in the district.
IH/RSIA	Heavy Industrial: districts permit light industrial and intensive industrial activity such as bottling, chemical processing, heavy manufacturing and similar uses with noxious externalities.
EMP	Employment: designation under Title 4 of Metro's Urban Growth Management Functional Plan
PUB	Public facilities

Table 10: Building mix assumptions by market subareas

	2040 Design type	Use	Retail	Office	Industrial
CENTRAL MARKET SUBAREA	Center-Corridor	MUR	2.5%		
		CC/CG/CN/CO/COM	5%	95%	
		MUE/EMP	5%	85%	10%
		IL	15%	20%	65%
		RSIA	5%	10%	85%
		IH	0%	0%	100%
	Other design type	MUR	2.5%		
		CC/CG/CN/CO/COM	5%	95%	
		MUE/EMP	5%	85%	10%
		IL	15%	20%	65%
		RSIA	5%	10%	85%
		IH	0%	0%	100%
INNER MARKET SUBAREA	Center-corridor	MUR	10%		
		CC/CG/CN/CO/COM	10%	90%	
		MUE	20%	75%	5%
		EMP	20%	70%	10%
		IL	15%	20%	65%
		RSIA	5%	10%	85%
		IH	0%	0%	100%
		PUB	20%	80%	
	Other design type	MUR	10%		
		CC/CG/CN/CO/COM	10%	90%	
		MUE	20%	75%	5%
		EMP	20%	70%	10%
		IL	15%	20%	65%
		RSIA	5%	10%	85%
		IH	0%	0%	100%
		PUB	20%	80%	
OUTER MARKET SUBAREA	Center-corridor	MUR	15%		
		CC/CG/CN/CO/COM	20%	80%	
		MUE	20%	75%	5%
		EMP	20%	70%	10%
		IL	15%	20%	65%
		RSIA	5%	10%	85%
		IH	0%	0%	100%
		PUB	20%	80%	
	Other design type	MUR	15%		
		CC/CG/CN/CO/COM	20%	80%	
		MUE	20%	75%	5%
		EMP	20%	70%	10%
		IL	15%	20%	65%
		RSIA	5%	10%	85%
		IH	0%	0%	100%
		PUB	20%	80%	

These FAR and building mix assumptions are applied to the vacant land inventory and the employment land supply in new urban areas to calculate building square feet capacity for each market subarea as summarized in **Figures 24** (industrial) and **25** (non-industrial).

Figure 24: Industrial capacity on vacant land in building square feet, by market subarea

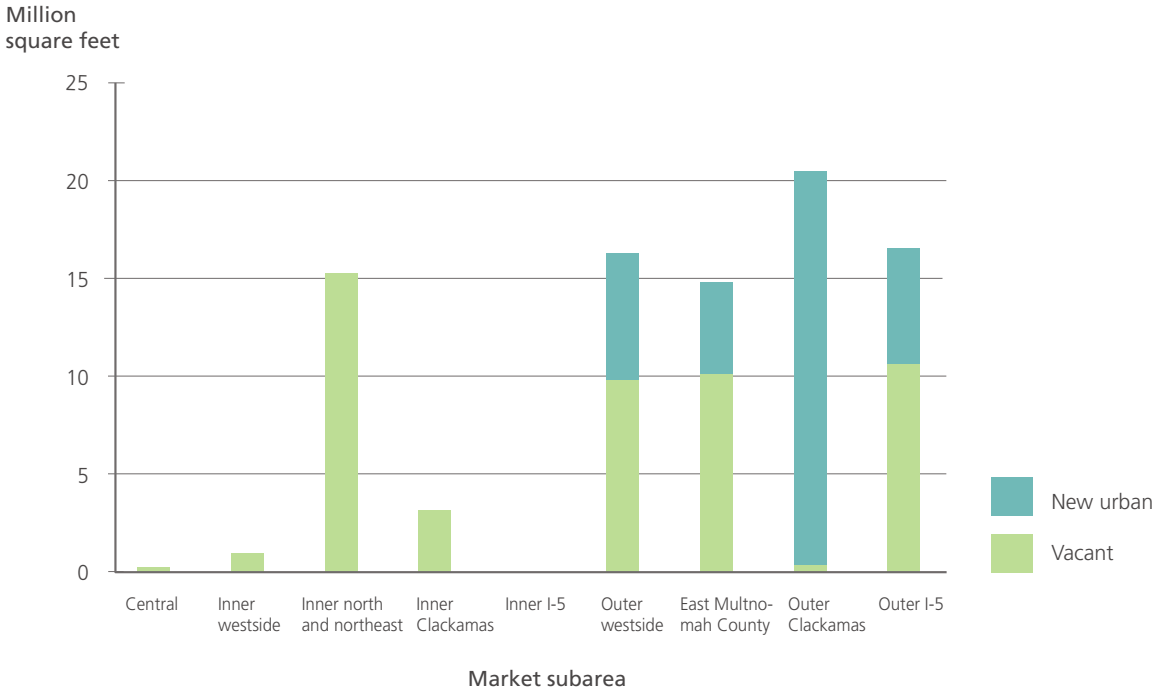
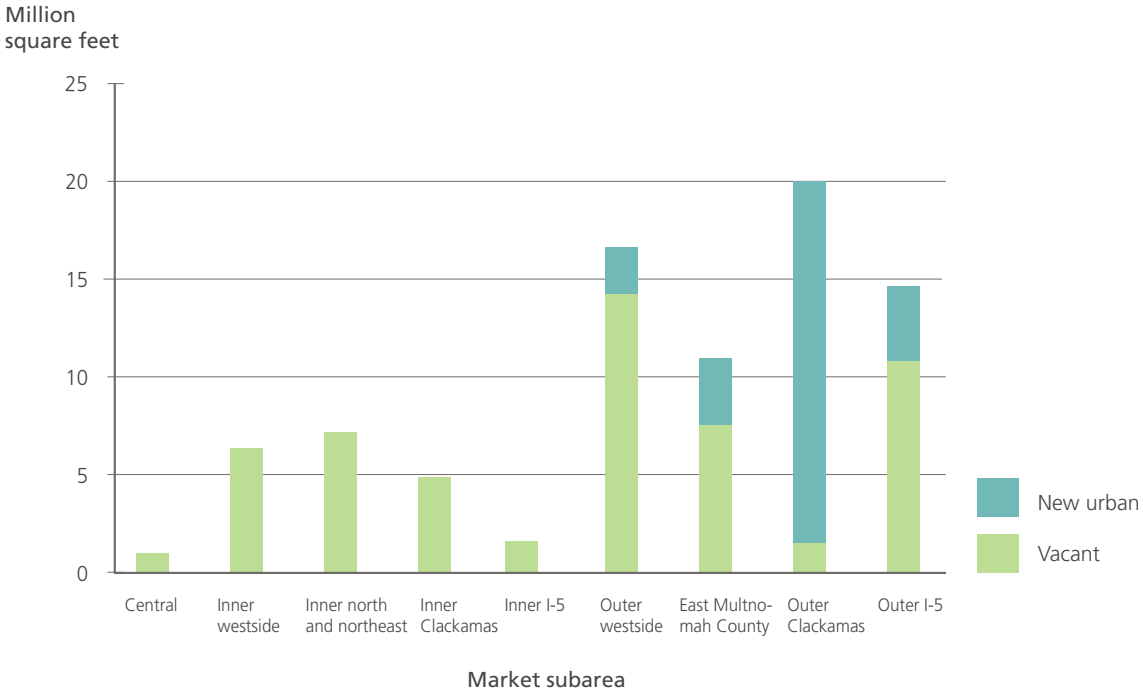


Figure 25: Non-industrial capacity on vacant land in building square feet by market subarea



"Refill" capacity

Like the Metro UGB employment capture rates, the UGB refill rate may also rise and fall with fluctuations in regional business cycle activity. The refill rate is impacted by the pace of regional economic growth, macro-economic cycles (such as interest rates, home price valuations, inflation, credit availability to name a few), regional land supply assumptions, and regulatory factors. Refill rates also are expected to vary during the 2010-30 forecast period by market subareas. The market subareas represent uniquely different labor markets. Refill rates also vary substantially between industrial uses and non-industrial uses.

Industrial redevelopment and infill predominately occur as several forms:

- Industrial uses redeveloping into other industrial uses
- Vintage Industrial uses redeveloping into non-industrial uses
- Non-industrial uses redeveloping into other non-industrial uses
- Vintage non-industrial redeveloping into industrial uses (theoretically possible, but data analysis has found undetectable amounts of this activity)

The following redevelopment rates represent net redevelopment rates (i.e. deducting for the capacity that was demolished or abandoned). Also, for ease of calculations, the "regular" industrial refill rate is merged with the vintage refill rate (i.e. conversion to non-industrial uses).

The Metro UGB refill rates for 2010-30 by subarea are shown in **Table 11** below.

Table 11: Refill rates by market subarea.

Market subarea	Industrial	Non-industrial
Central city	23%	48%
Inner westside	0%	61%
Inner north and east	32%	48%
Inner Clackamas	0%	44%
Inner I-5	0%	63%
Outer westside	20%	25%
East Multnomah county	0%	46%
Outer Clackamas	20%	21%
Outer I-5 / I-205	0%	49%
Metro UGB total	24%	45%

New urban area infrastructure limits

New urban areas, which were brought inside the urban growth boundary after 1997, are not expected to yield full development at maximum planned density in the next 20 years due to infeasible market conditions, lack of infrastructure and/or financing ability to produce urban densities. Market feasibility is derived from a discrete MetroScope scenario showing half of the capacity of new urban areas will be available within the 20-year period under current infrastructure investment expectations.

Capacity range

This analysis distinguishes between capacity that may be counted on within the short-term (5-year), long-term (20-year) and that which relies upon changing market dynamics. Due to the fact that industrial and non-industrial development currently are built in such different building forms, this analysis separates the two main types of land uses that provide capacity to meet employment demand.

Figure 26 depicts the range of potential industrial capacity, and Figure 27 shows the range of potential non-industrial capacity in the current urban growth boundary. Two primary types of capacity are shown. The capacity depicted in solid colors can be relied upon with a continuation of current policy and investment trends. The capacity shown in dotted colors is deemed to be zoned capacity that requires additional policy or investment actions to render it market feasible by the year 2030. As with the residential UGR, this chart is all based on current zoning; no "upzoning" is assumed.

Capacity is broken into 6 main categories:

Development ready Tier A or B vacant land, over one net buildable acre.

Investment required Tier C or D partially vacant land, some constraints such as environmental or infrastructure.

Lacks infrastructure Tier E, F or G, no urban services, infrastructure, or zoning.

New urban areas land brought into the UGB since 1997.

Refill redevelopment and infill.

Increase in achievable building intensity increased FAR achieved through public investments like parking structures or changing market conditions.

Expected employment and industrial capacity based on current policies

The first type of capacity shown in **Figures 26 and 27** is zoned capacity inside the current urban growth boundary that is market feasible (by the year 2030) with no change in policy or investment trends. Land that is classified as tier A or B is included in this category in both the short-term (5-year) and long-term (20-year). Most of the land classified as tier C is included in this category for the long-term, with a small portion assumed available in the short term. Only a portion of the land in tiers D-G, which will require investments in infrastructure, environmental cleanup, or local land use action, is included in the long-term supply. Refill rates (the amount of redevelopment and infill), which are different for industrial and non-industrial development, are based on historic rates and MetroScope scenario analysis (24 percent for industrial and 45 percent for non-industrial). Finally, half of the new urban areas (land brought into the urban growth boundary since 1997) are deemed to be market feasible by the year 2030.

Potential employment and industrial capacity based on future policy choices

The second type of capacity that is depicted in Figures **26 and 27** is zoned capacity inside the urban growth boundary that is likely to require changes to policies and investments to make it market feasible by the year 2030. Policy and investment actions can increase FARs, increase the refill rate, and increase the market feasibility of developing vacant land. An example of this type of actions is targeted infrastructure investments. The potential result of these actions, taken at the local or regional level, is shown in the dotted colors in the figures. These actions could support development on land classified in tiers D-G as well as new urban areas, making them more development ready.

Table 12 shows the complete range of capacity over the next twenty years, including key assumptions that influence the low and high ends of the supply range.

Table 12: Assumptions that establish the range of capacity

INDUSTRIAL		NON-INDUSTRIAL	
Low supply	**High supply**	**Low supply**	**High supply**
• Infrastructure limits development in new urban areas • Refill at 24% • FAR reflects current development	• No infrastructure limits • Refill at 50% (potential) • FAR increased by 10%	• Infrastructure limits development in new urban areas • Refill at 45% • FAR reflects current development	• No infrastructure limits • Refill at 90% (potential) • FAR increased by 10%
88.6 million building square feet	**140.9 million building square feet**	**118.6 million building square feet**	**223.2 million building square feet**

The next section of this report reconciles the 20-year supply ranges described in this section with the projected demand range and lays out policy choices and implications.

Figure 26: Industrial building square foot capacity range
Source: Metro, E.D. Hovee & Company, LLC, FCS Group

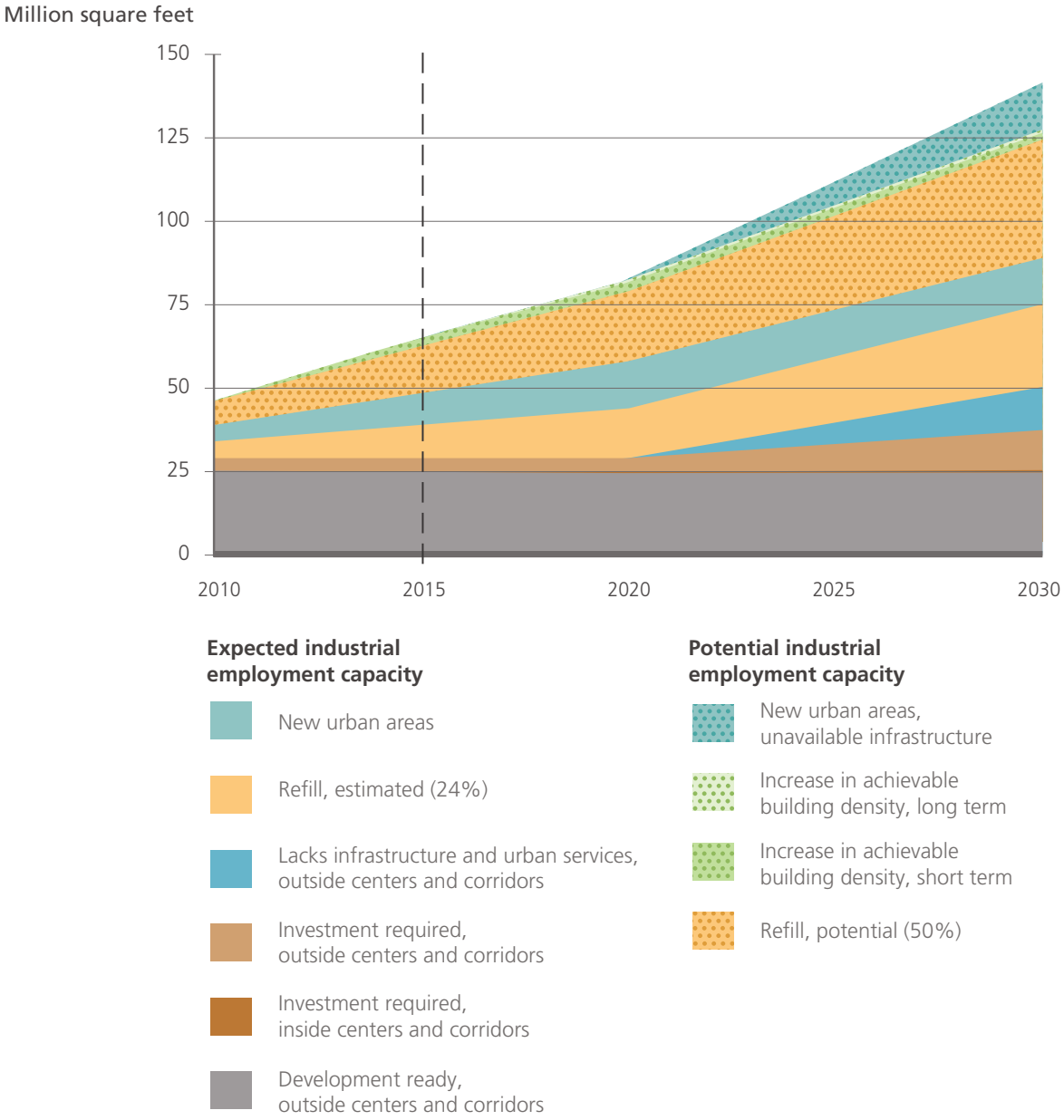
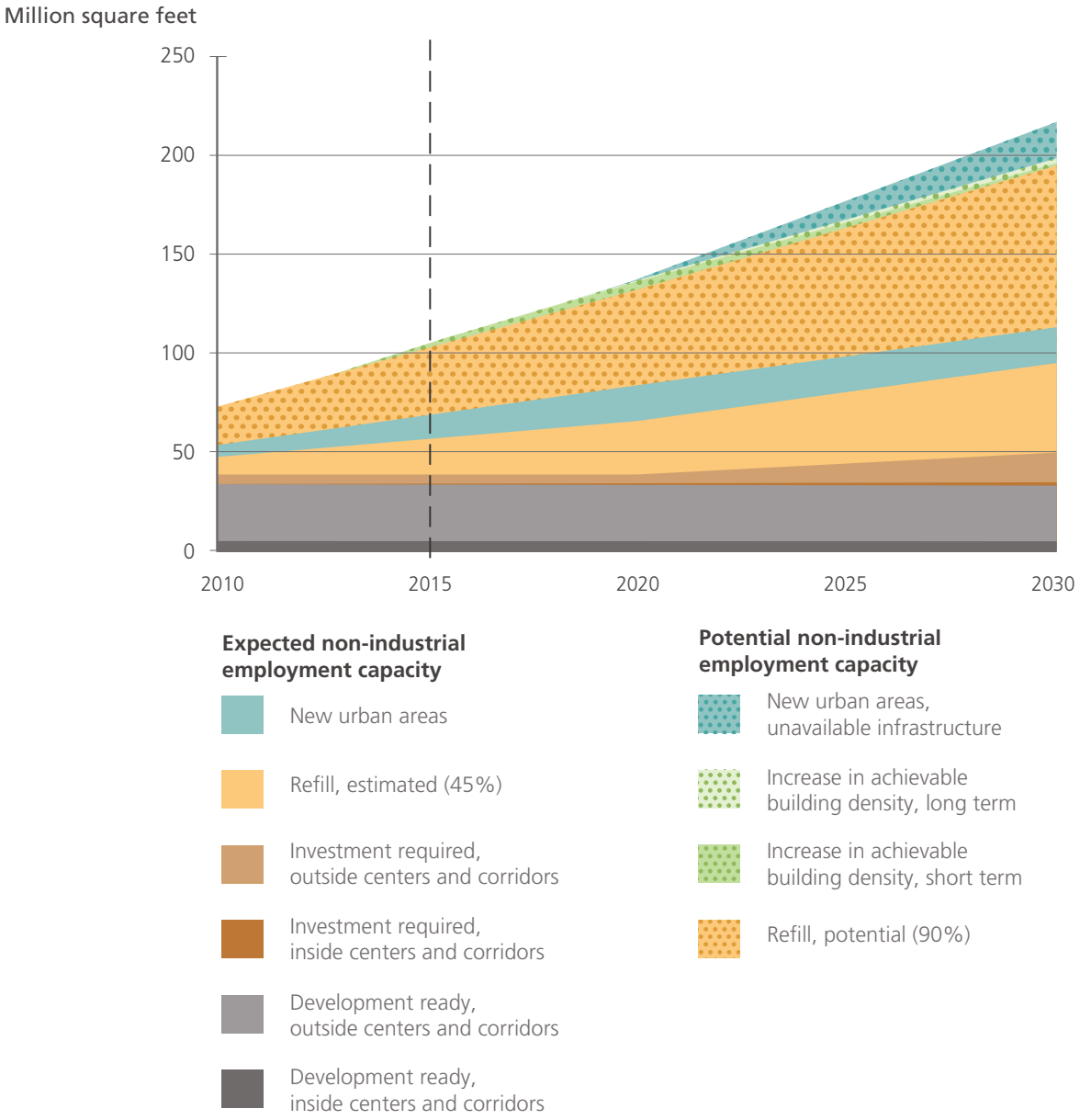


Figure 27: Non-industrial building square foot capacity range
Source: Metro, E.D. Hovee & Company, LLC, FCS Group



RECONCILIATION (DEMAND AND SUPPLY)

This assessment is reflective of uncertainty and describes employment demand and supply in terms of a range, allowing policy makers to consider a range of possibilities and plan for contingencies. This approach supports decision-making focused on the outcomes that characterize a successful region and support vibrant communities.

The current employment demand forecast and the analysis of employment capacity within the UGB do not indicate a need to add land to the boundary for industrial purposes at the regional level to meet statutory requirements to maintain a 20-year land supply. However, the analysis does show a need for additional capacity through investments, policy changes, or expansions to meet the high end of the demand range for non-industrial employment. Further analysis of certain categories of employment land uses (such as large lot employer/industrial uses) and the ability to address economic development opportunities to support the regional economy may be needed.

PARCEL SIZE

New industrial opportunities that require large vacant lots are difficult to accurately forecast. Demand for large industrial lots (greater than 50 gross acres) is usually precipitated by one or more large employers looking for a new location to start a new production or warehousing facility. These are characterized by the decisions or mindset of one firm and not the trends of an industry as a whole. Consequently, our ability to forecast the behavior of a single firm or entity is fraught with significant risk and uncertainty.

However, an opportunity to attract, expand and retain large employers in the region represents a significant opportunity to diversify the regional economy and support the general economic vitality of the region. Large employers generally attract substantial supply-chain benefits and attract other manufacturers in the same field. There are also substantial indirect benefits that produce jobs in population serving industries such as retail, personal and business services, real estate and finance.

Opportunities to attract, expand and retain large industrial land users are rare and even rarer in a downward spiraling global economy. Attracting large industrial end users are a consequence of many unpredictable factors including local political will and decisions made by individual firms. Although these opportunities exist, we cannot forecast with high degree of certainty what that demand might entail in the next 5 or 20 years.

This analysis does not, yet, attempt to determine whether or not there is adequate large lot capacity inside the current UGB. Instead, capacity is described in aggregate terms as square feet. However, this topic remains an important economic development strategy that cannot be ignored. Metro will continue to work with the Hovee consultant team and regional planning partners to develop a means to forecast potential demand for large lot industrial users.

This is not to suggest that there will not be a need for large industrial lots in the next 20 years, just that there may be an alternative approach for handling large lot end users. One option could be a fast-track UGB expansion process that responds to verifiable industrial opportunities in a timely manner. In the event that an opportunity presents itself and cannot be reasonably accommodated inside the existing UGB, a fast-track process could draw from adopted urban reserves to provide adequate capacity.

COMPARING MARKET SUBAREA DEMAND AND SUPPLY

This analysis shows that the region's capacity is not always located where demand is projected to be. This analysis shows that the region's capacity on vacant land is not always located where demand is projected to be. It highlights the importance of redevelopment and infill to support the region's economy as well as creating vibrant communities.

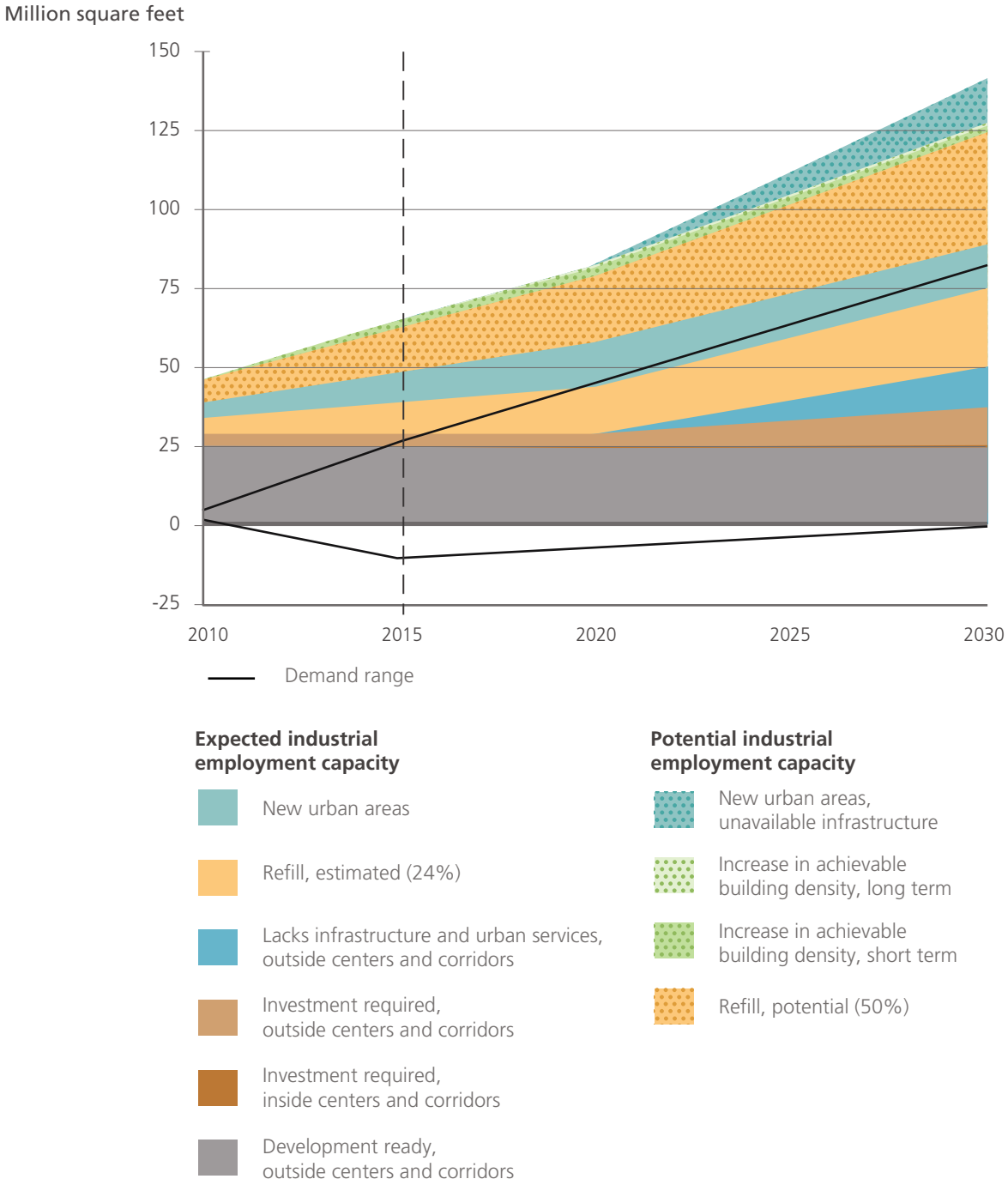
For industrial, the outer I-5/205, outer westside, inner north and northeast, and east Multnomah County market subareas show sufficient capacity to meet forecasted demand. The vacant capacity in outer Clackamas is almost entirely in new urban areas, requiring infrastructure and other investments to become developable (one reason that projected demand is low). Inner I-5, inner westside, and the central city do not have sufficient vacant capacity to meet projected demand, and must rely on redevelopment and infill.

Non-industrial demand and supply by market subarea shows sufficient capacity to meet demand in outer I-5/205, east Multnomah county, outer westside and outer Clackamas. Demand is projected to be much higher than vacant capacity in the inner north and northeast, inner westside, and the central city. Local and regional policies and investments can help to address the disparity between capacity and demand.

DEMAND AND CAPACITY RANGES

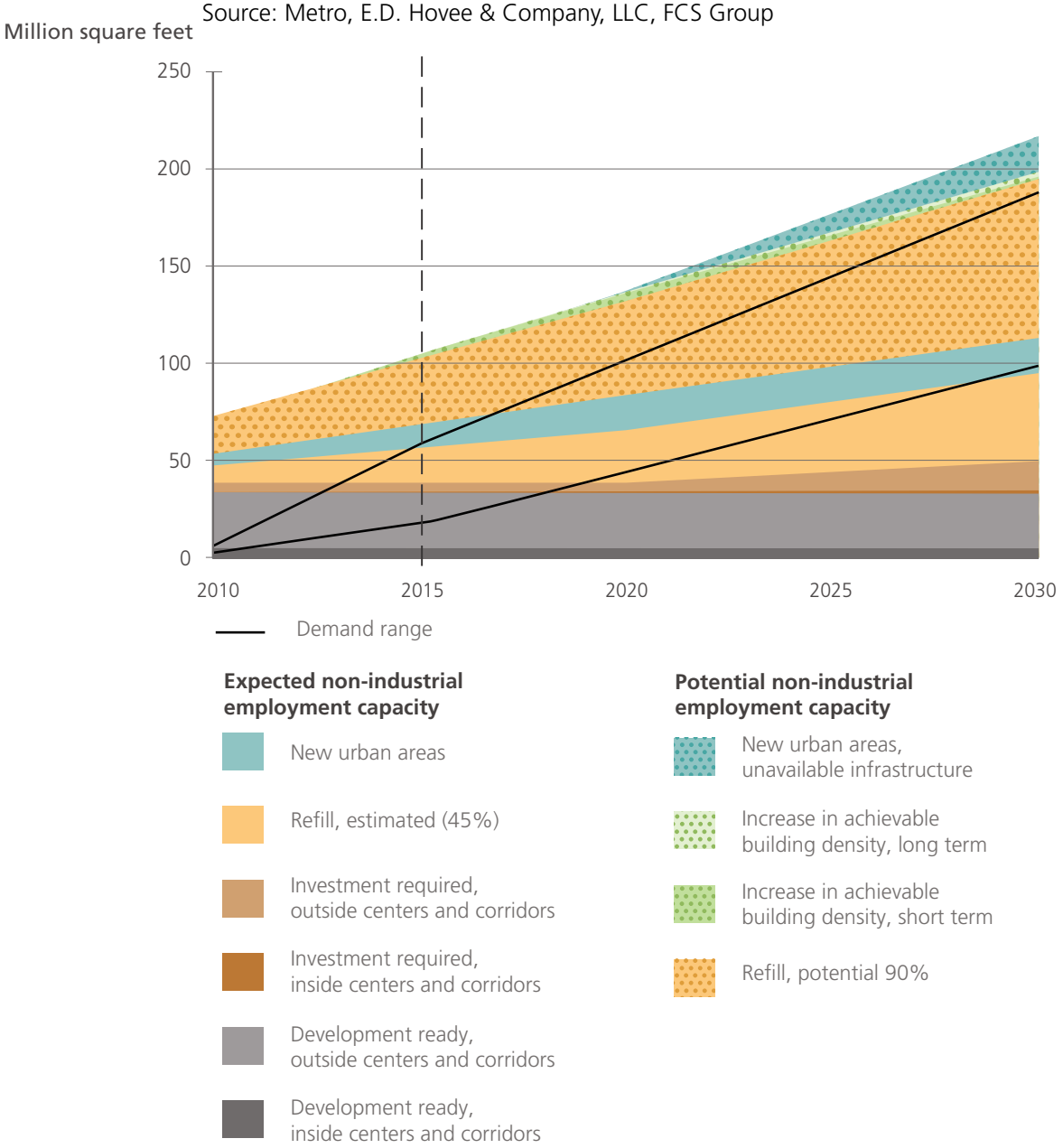
Figures 28 **and 29** depict the 5- and 20-year building square foot demand range (from the 20-year forecast) for industrial and commercial along with the previously described capacity range. The demand range is illustrated with two lines that show the upper and lower end of the building square foot demand forecast.

Figure 28: Industrial building square foot demand forecast and sources of capacity
Source: Metro, E.D. Hovee & Company, LLC, FCS Group



NOTE: This analysis does not specifically address unique needs such as large lot industrial/employment demand.

Figure 29: Non-industrial building square foot demand forecast and sources of capacity
Source: Metro, E.D. Hovee & Company, LLC, FCS Group



As regional leaders discuss these choices, questions to consider include:

- Can local and regional investments be targeted to increase development intensity (FARs) in locations that capitalize on and leverage past public investments?
- How important is it to protect past public investments (e.g., transportation improvements) to support future industrial uses?
- Are local and regional leaders willing to put policies and investments in place to support redevelopment of commercial and industrial lands (e.g., enterprise zones, public subsidy in existing industrial areas, economic development for select industries, brownfield cleanup, system development charge incentives for redevelopment, etc.)?
- Will the region identify an infrastructure funding source to make employment land more "development ready" and support development in past urban growth boundary expansion areas?
- What are the relative costs of investing in different locations?
- Under what conditions should the region expand the urban growth boundary?

PERFORMANCE

This preliminary urban growth report is intended to document the current range of capacity within the existing urban growth boundary and, given current policy and investment direction, estimate how that capacity may get used in the future. One of the fundamental principles of this analysis is that there is a range of possible futures for which the region can plan. Possible futures are defined by: a range of population growth rates, a range of possible market responses to zoned capacity, and a variety of megatrends that insert additional uncertainty.

Applies to desired outcomes

- ✓ Vibrant, walkable communities
- ✓ Economic competitiveness and prosperity
- ✓ Transportation choices
- ✓ Reduce greenhouse gas emissions
- ✓ Clean air and water, healthy ecosystems
- ✓ Equity

MetroScope, an integrated land use and transportation model can help to illuminate the possible implications of continuing with current policies and investments. MetroScope is an equilibrium model and, as such, always "solves the problem" by distributing forecasted new households and jobs. Unlike a game of musical chairs, MetroScope scenarios do not conclude with households lacking a residence. Since MetroScope scenarios do not identify whether or not there is a capacity gap, the scenarios do not produce the capacity analysis. Rather, scenarios inform the capacity analysis. As previously mentioned in the Capacity Range section of this preliminary urban growth report, MetroScope scenarios are also used to help to determine reasonable estimates for future refill rates and the market feasibility of vacant/buildable land.

Key scenario assumptions

Two scenarios were conducted for the specific purpose of informing this analysis:

Low end of population and employment range forecast	High end of population and employment range forecast

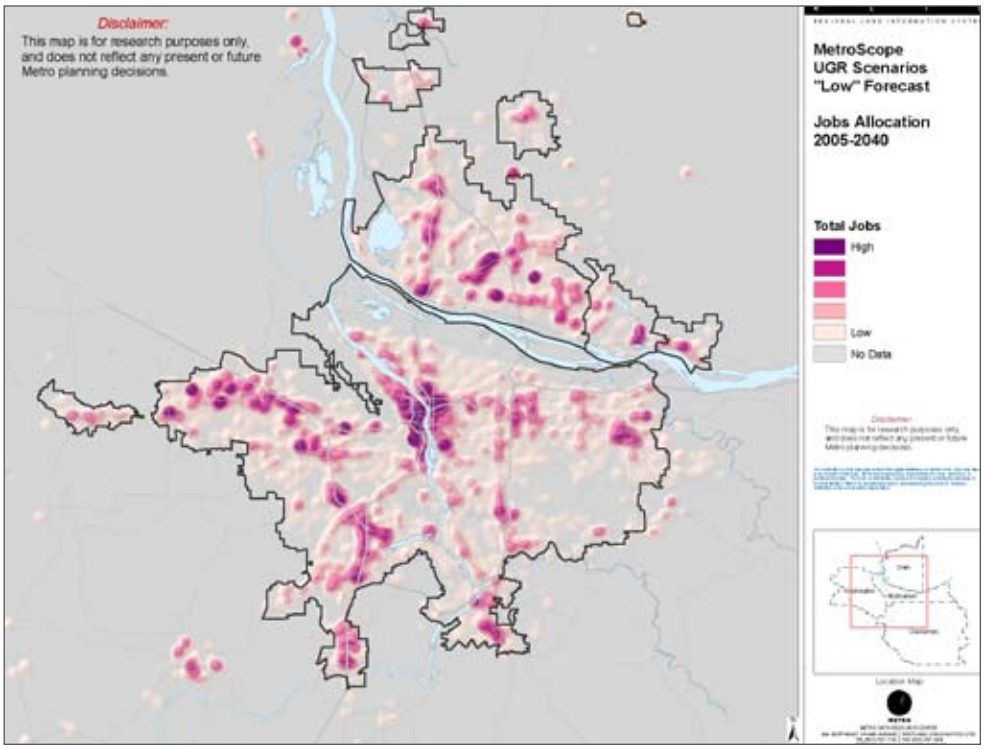
The assumptions made for these scenarios are intended to be a reflection of current policy and investment direction. Documentation of scenario assumptions can be found in **Appendix 2.** In order to insure that scenario assumptions reflect current policies and investments, all assumptions were reviewed ahead of time by representatives of the three counties and the City of Portland. **These scenarios are intended as a starting point for discussions.** It is anticipated that many of these assumptions will need to change to reflect ongoing work being done by local jurisdictions both through the "Local Aspirations" work program and through the periodic review of a number of cities' comprehensive plans. Furthermore, these scenarios do not account for the implications of possible shifts in future housing preferences (due to factors such as fuel prices, credit availability, etc.).

Scenario findings

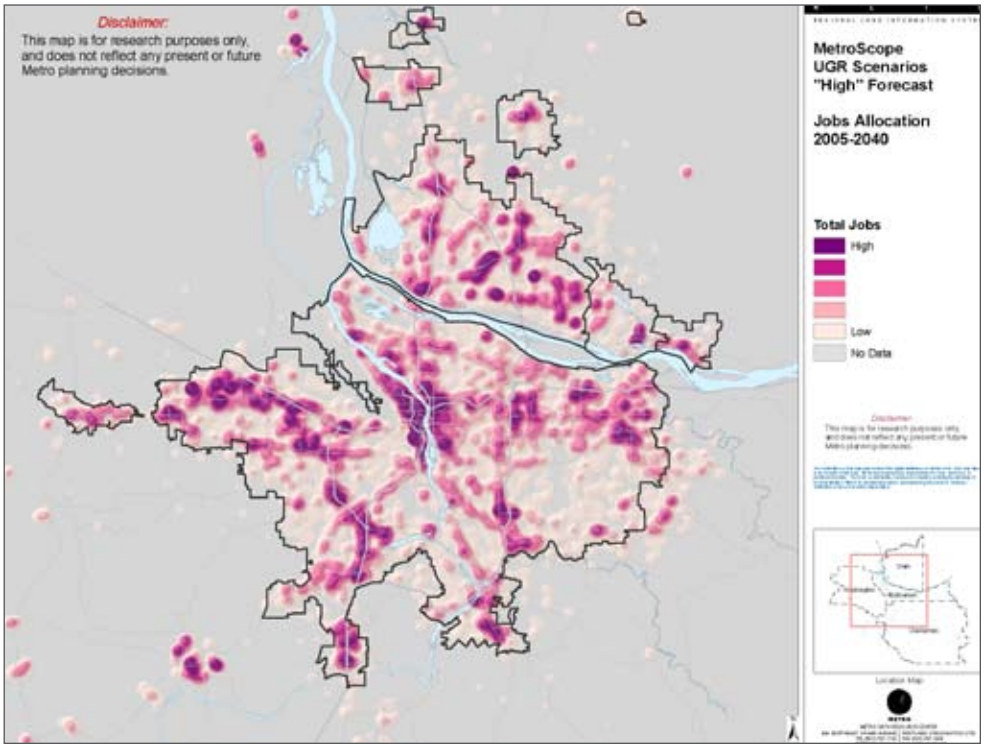
Because they do not test different policy options, only different population growth rates, these two scenarios produce results that are often similar. Different policy choices would produce different results.

One of the primary outputs of MetroScope scenarios is the job distributions that could occur, given assumed policies and investment. Since the two scenarios only test the effects of high or low population growth (i.e. they don't test different policy or investment options), these two maps show similar patterns for the distribution of new jobs by the year 2040. The maps below show the change in job distributions by the year 2040 for the low growth and high growth scenarios.

Map 4: Distribution of new jobs by the year 2040, LOW growth scenario

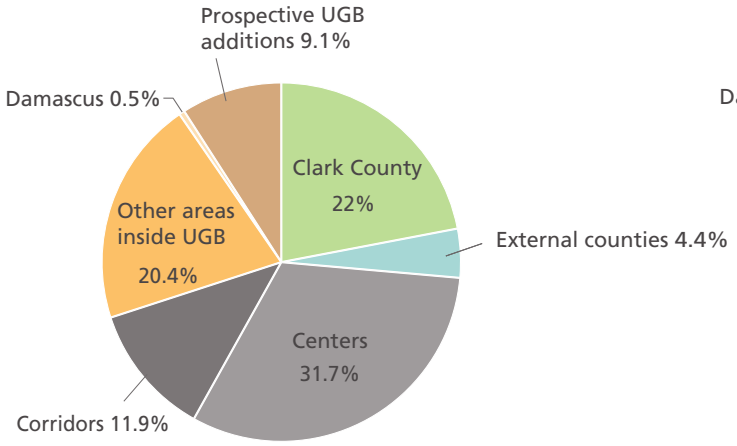


Map 5: Distribution of new jobs by the year 2040, HIGH growth scenario

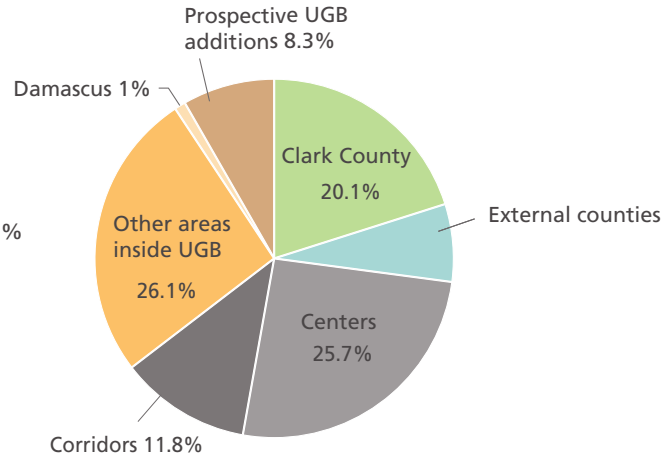


Distributions of new jobs in the 7-county area (year 2040)

Figure 30 LOW growth scenario



HIGH growth scenario



Why does this measure matter?

The 2040 Growth Concept specifies the areas where the region's citizens decided they wanted growth to go. Job growth is intended to go to centers, corridors and employment areas.[10] Centers and corridors are areas that are most likely to provide people with walkable access to everyday needs and transportation choices. These characteristics offer potential to reduce transportation costs to the individual and to the employer, and will be crucial to reducing greenhouse gas emissions. Employment areas are designated as such to minimize conflicts with other uses.

Applies to desired outcomes

- ✓ Vibrant, walkable communities
- ✓ Economic competitiveness and prosperity
- ✓ Transportation choices
- ✓ Reduce greenhouse gas emissions
- ✓ Clean air and water, healthy ecosystems
- ✓ Equity

[10] *RSIA, Industrial, and Employment areas designated under Title 4 of the Urban Growth Management Functional Plan are included in "other areas" here. "Other areas" also includes neighborhoods. Jobs that locate in neighborhoods would be consistent with local zoning and are likely to be retail and service uses that serve the neighborhood.*

SCENARIO RESULTS

Average one-way commute distance (for new households in the 7-county area in the year 2040)

Low growth scenario	High growth scenario
12.6 miles	12.7 miles

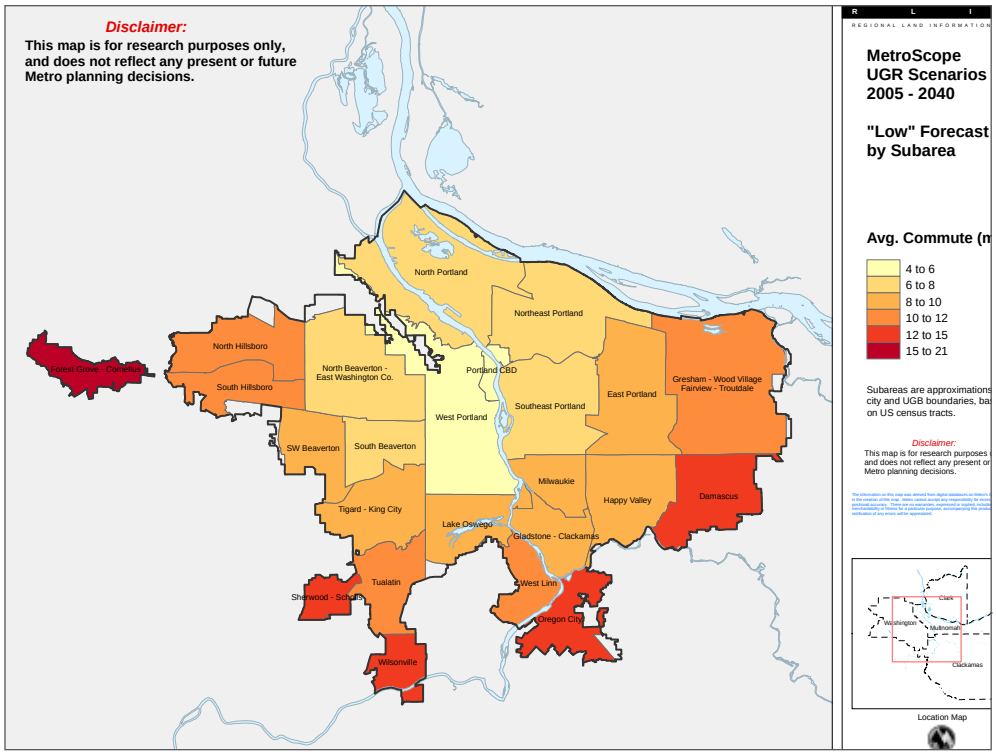
Why does this measure matter?

Commute miles are a useful indicator of overall travel behavior. Longer commutes tend to be an outcome of living in suburban or exurban locations. These same location choices also tend to produce long trips for meeting other needs, such as going to the grocery store. Longer travel distances mean that the public would be footing a larger bill to build and maintain the roads and transit necessary to accommodate those trips. The scenarios indicate that there could be big differences in average commute distance, depending on where residents and employers locate.

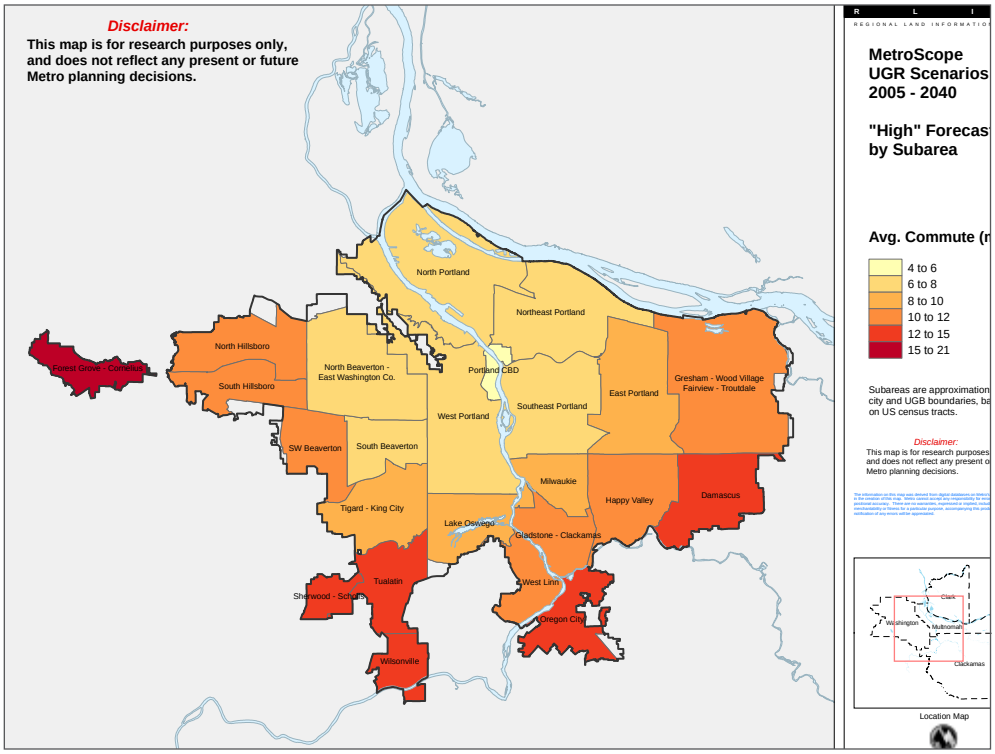
Applies to desired outcomes

- ✓ Vibrant, walkable communities
- ✓ Economic competitiveness and prosperity
- ✓ Transportation choices
- ✓ Reduce greenhouse gas emissions
- ✓ Clean air and water, healthy ecosystems
- ✓ Equity

Map 6: **Average one-way commute distance, LOW growth scenario**
For new households in the 7-county area in the year 2040



Map 7: **Average one-way commute distance, HIGH growth scenario**
For new households in the 7-county area in the year 2040



SCENARIO RESULTS

Total daily commute miles (for new households in the seven-county area in the year 2040)

Low growth scenario	High growth scenario
13,047,500 miles per day	17,292,700 miles per day

Why does this measure matter?

The State of Oregon has adopted greenhouse gas reduction targets that call for a halt in increases in emissions by 2010, a 10 percent reduction in emissions below 1990 levels by 2020 and a 75 percent reduction in emissions below 1990 levels by 2050. A critical aspect of reducing emissions will be to reduce commute and other trip distances not just in our region, but also in the larger 7-county area.

Even though the scenarios indicate that in 2040 the average household may have a shorter commute than today, there will simply be more people commuting, resulting in an increase in the total daily commute miles for the seven-county region. It appears that the region will need to take much more ambitious and coordinated steps to comply with State greenhouse gas reduction targets.

Applies to desired outcomes

- ✓ Vibrant, walkable communities
- ✓ Economic competitiveness and prosperity
- ✓ Transportation choices
- ✓ Reduce greenhouse gas emissions
- ✓ Clean air and water, healthy ecosystems

SCENARIO RESULTS

Total infrastructure capital costs to serve new households and jobs (in 7-county area from the year 2000 to 2040)

Low growth scenario	High growth scenario
$44.44 billion	63.79 billion

Why does this measure matter?

Applies to desired outcomes

- ✓ Vibrant, walkable communities
- ✓ Economic competitiveness and prosperity
- ✓ Transportation choices
- ✓ Equity

The United States faces a crisis in deteriorating and inadequate infrastructure. The Portland metropolitan region shares in this crisis. A 2008 infrastructure study commissioned by Metro estimates the cost of building public and private facilities to accommodate growth in the three-county Portland metro area through 2035 will run between $27 and 41 billion. Traditional sources of funds would likely cover half of that. In addition, the region needs $10 billion to repair and rebuild existing systems. System development charges, gas taxes and other revenue sources are not keeping pace with rising costs. Voter approved tax limitations and other ballot initiatives further constrain the ability of communities to provide services. There is much to do. We need to consider the return on these kinds of public investments; pool regional resources where appropriate; strategically manage future demand; embrace emerging technologies and creative approaches; and identify new sources of funding.

The region needs to take on the challenge of paying for infrastructure, not just to accommodate growth, but for ongoing maintenance and replacement. One way to address this challenge is to reduce demand for infrastructure by capitalizing on investments the public has already made. Shorter commutes require fewer miles of road or transit service per household. Likewise, higher densities lead to more efficient use of infrastructure, not just transportation but also sewer and water as well as schools and parks. MetroScope estimates public infrastructure costs using national construction cost data and a formula that is based on development densities and commute distances. These estimated costs are only the capital costs of building new infrastructure to serve new households and jobs and do not include maintenance of these new facilities or the maintenance and upgrade of existing facilities. This measure does assume urban levels of service, which are not likely in rural parts of the 7-county area. Thus, costs in rural areas (and thus the total) are likely to be exaggerated. Costs are in 2005$ and are not adjusted for inflation.

SCENARIO RESULTS

Average capital costs of infrastructure to serve one new job (average for all new jobs in 7-county area from 2000 to 2040)

Low growth scenario	High growth scenario
$4,710	$8,775

Why does this measure matter?

Different growth patterns produce different costs and different benefits. The equitable distribution of costs and benefits should be kept in mind as policies and investments are considered. The benefits of spending public money wisely can include, for instance, the creation of walkable communities and transportation choices.

This measure includes estimated capital costs for all facilities, including local, community, and regional facilities, needed to serve a new job. This measure does not include ongoing operations and maintenance costs. These costs are based on estimated demand for infrastructure, which varies according to travel behavior and development density. Costs are in 2005$ and are not adjusted for inflation.

Applies to desired outcomes

- ✓ Vibrant, walkable communities
- ✓ Economic competitiveness and prosperity
- ✓ Transportation choices
- ✓ Equity

These scenarios indicate that, the types and locations of new jobs that accompany higher growth rates may be more infrastructure-intensive, leading to higher infrastructure costs per new employee. Different policy and investment choices and economic trends may produce different results.

HISTORIC PERFORMANCE

Jobs-to-housing balance (2006)

Applies to desired outcomes

- ✓ Vibrant, walkable communities
- ✓ Economic competitiveness and prosperity
- ✓ Transportation choices
- ✓ Reduce greenhouse gas emissions
- ✓ Clean air and water, healthy ecosystems
- ✓ Equity

Ideally, people would live close to where they work, thereby saving money and time spent commuting. However, for a number of reasons, achieving a jobs-to-housing balance at the local jurisdiction level (i.e. city) does not appear to have the intended effect of shortening commutes:

- Many households have two or more employees, thereby reducing the likelihood that all members of a household will find employment in their city of residence.
- Employees have specific qualifications and wage requirements that will not necessarily be met by jobs that are nearby.
- Employers have specific worker requirements that will not necessarily be fulfilled by the local labor pool.
- Workers may change jobs with some frequency, but each job change will not necessarily result in a residential move.
- Wages and rents may be mismatched for an employee in a given city.

Data from the U.S. Census Bureau (Longitudinal Employer-Household Dynamics) indicate that many Metro region residents make commutes[11] not only to other cities, but to other counties. However, most trips are for non-commute purposes. Creating a local mix of uses is an important means of reducing non-commute trip frequency and distance.

Year 2006 data on commute behavior are summarized on the following pages for Clackamas, Clark, Washington and Multnomah counties.

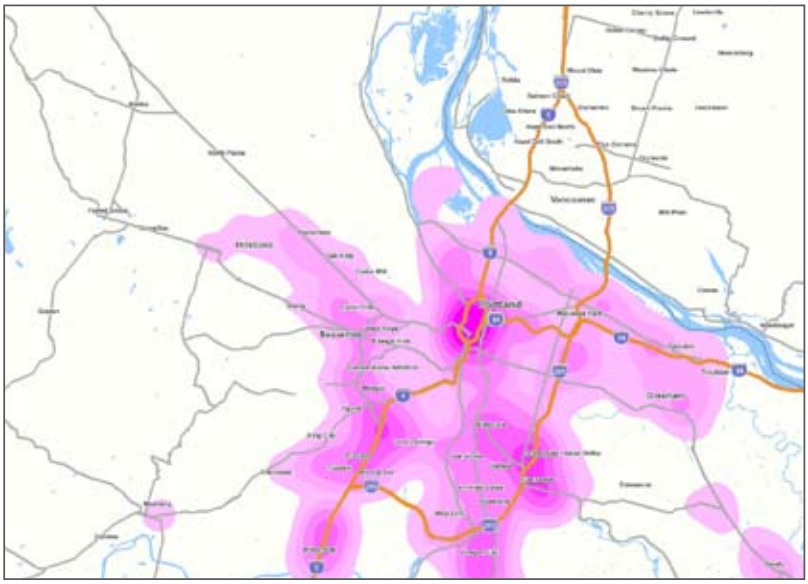
[11] *Data on following pages is for primary job only,.*

Jobs-to-housing balance (2006): Clackamas County

Source: U.S. Census Bureau (Longitudinal Employer-Household Dynamics)

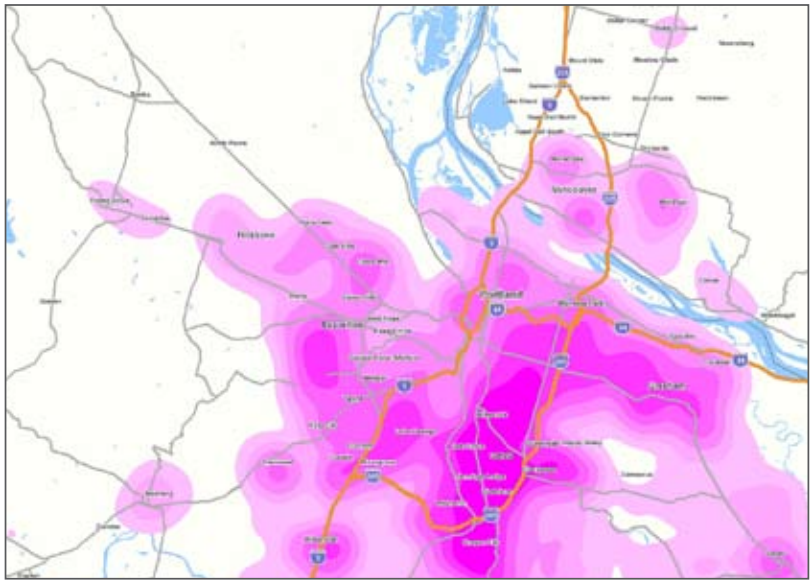
Clackamas County is sending workers to and attracting workers from locations throughout the region.

Map 8: Where Clackamas County residents work (2006)



Portland	29.6%
Oregon City	5.3%
Beaverton	4.0%
Lake Oswego	3.8%
Tigard	3.7%
Milwaukie	3.6%
Wilsonville	3.4%
Gresham	3.3%
Tualatin	2.9%
Hillsboro	2.0%
All Other Locations	38.6%

Map 9: Where Clackamas County workers reside (2006)



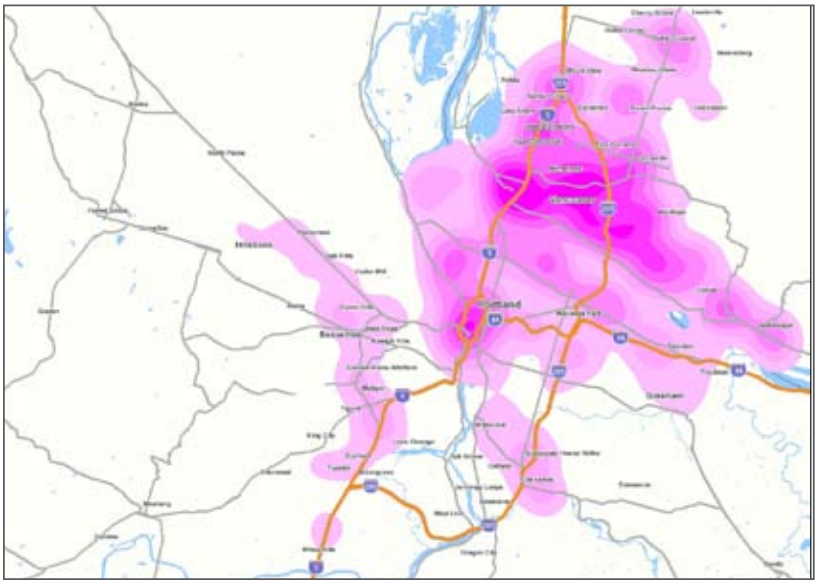
Portland	19.4%
Gresham	4.6%
Oregon City	4.5%
Lake Oswego	3.0%
Beaverton	3.0%
West Linn	2.8%
Milwaukie	2.6%
Salem	2.5%
Oatfield	2.3%
Canby	2.2%
All Other Locations	53.0%

Jobs-to-housing balance: Clark County

Source: U.S. Census Bureau (Longitudinal Employer-Household Dynamics)

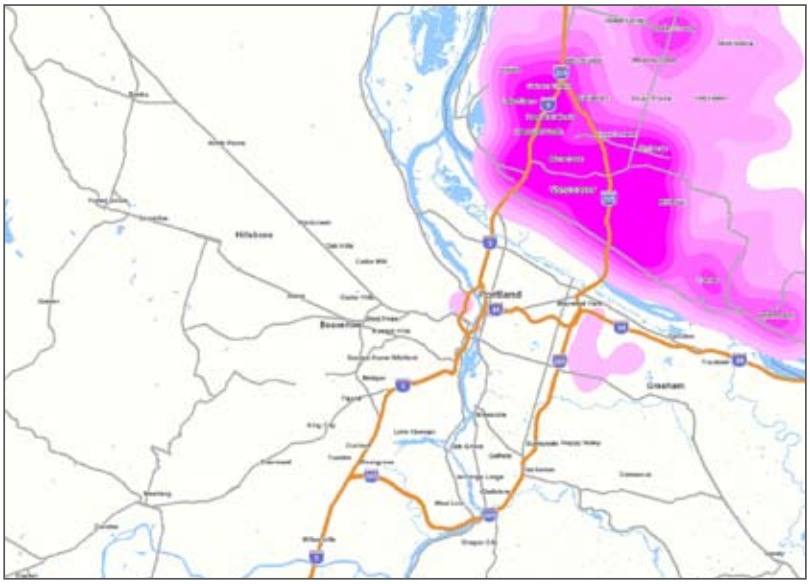
Many Clark County residents commute to jobs in the Metro region, particularly in Portland. However, most of Clark County's jobs are filled by those who live north of the Columbia River.

Map 10: Where Clark County residents work (2006)



Vancouver	31.4%
Portland	21.9%
Camas	3.1%
Orchards	1.9%
Salmon Creek	1.9%
Walnut Grove	1.7%
Battle Ground	1.6%
Seattle	1.6%
Five Corners	1.5%
Gresham	1.5%
All Other Locations	31.9%

Map 9: Where Clark County workers reside (2006)



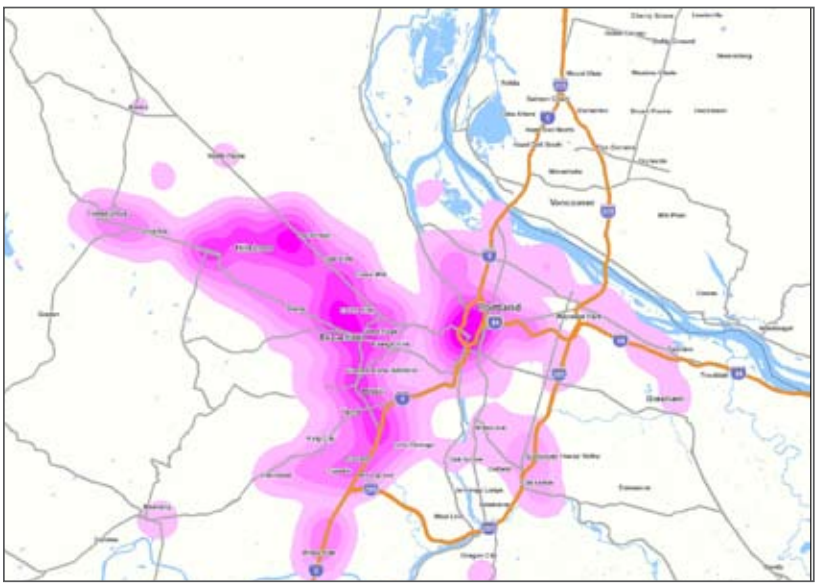
Vancouver	29.3%
Portland	5.0%
Orchards	4.3%
Salmon Creek	3.8%
Camas	3.2%
Five Corners	3.0%
Battle Ground	2.9%
Washougal	2.4%
Hazel Dell North	2.2%
Mill Plain	2.1%
All Other Locations	41.8%

Jobs-to-housing balance: Washington County

Source: U.S. Census Bureau (Longitudinal Employer-Household Dynamics)

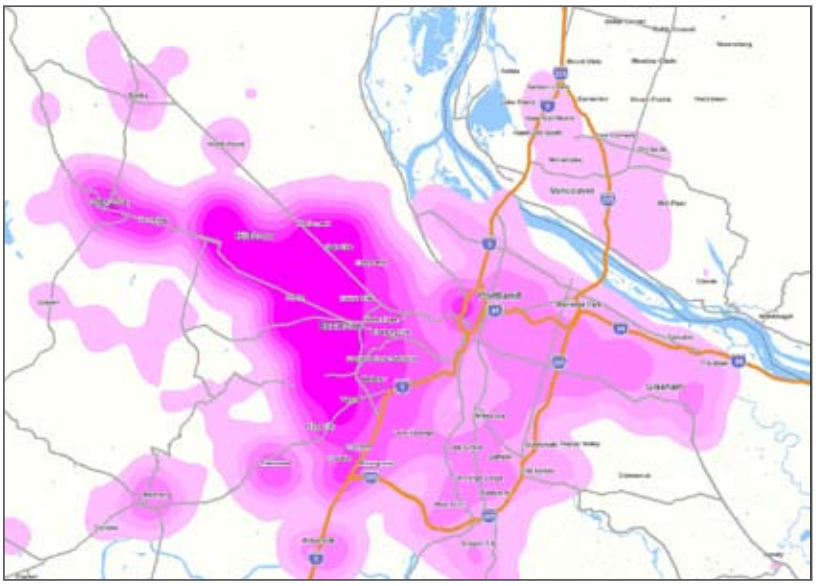
Washington County is sending workers to and attracting workers from locations throughout the region.

Map 12: Where Washington County residents work (2006)



Portland	25.1%
Hillsboro	16.7%
Beaverton	15.6%
Tigard	6.1%
Tualatin	3.2%
Forest Grove	2.2%
Lake Oswego	2.1%
Wilsonville	2.0%
Aloha	1.8%
Salem	1.4%
All Other Locations	23.8%

Map 13: Where Washington County workers reside (2006)



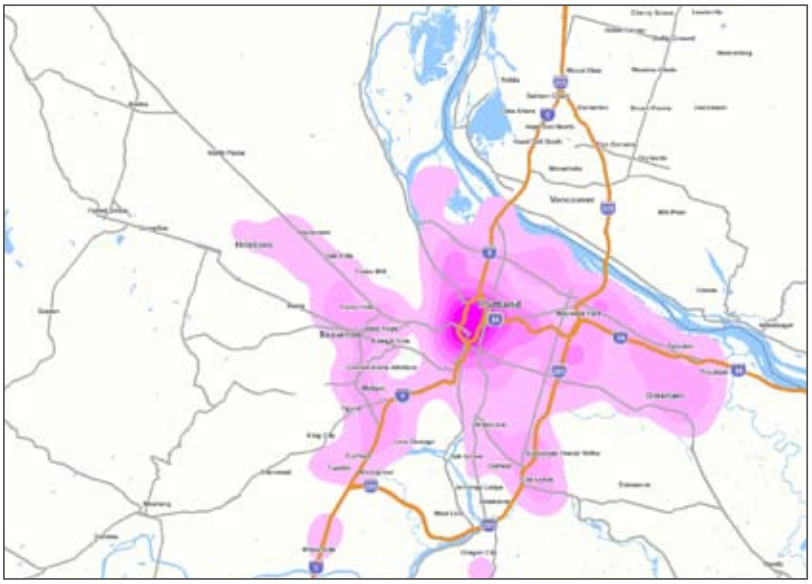
Hillsboro	10.6%
Beaverton	9.9%
Aloha	5.2%
Tigard	3.9%
Forest Grove	2.5%
Tualatin	2.0%
Gresham	1.9%
Lake Oswego	1.7%
Vancouver	1.5%
All Other Locations	43.8%

Jobs-to-housing balance: Multnomah County

Source: U.S. Census Bureau (Longitudinal Employer-Household Dynamics)

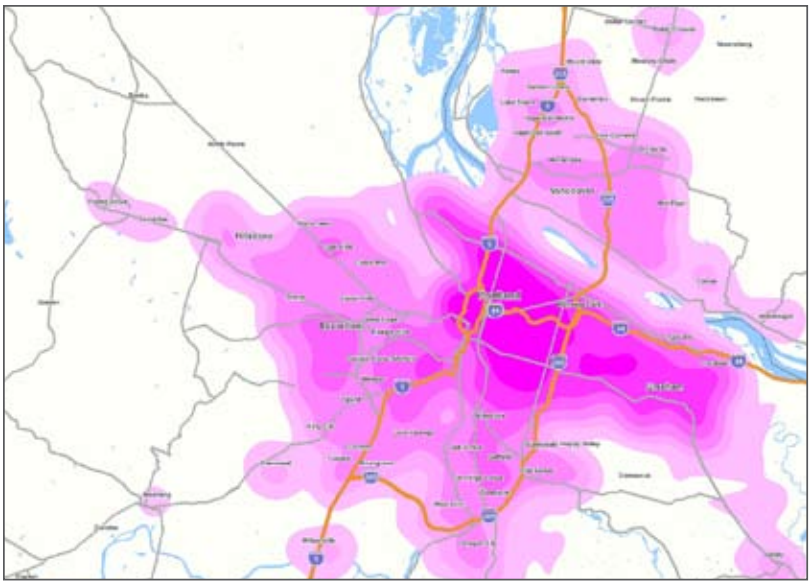
Multnomah County is sending workers to and attracting workers from locations throughout the region.

Map 14: Where Multnomah County residents work (2006)



Portland	58.2%
Gresham	5.9%
Beaverton	4.7%
Hillsboro	2.6%
Tigard	2.6%
Vancouver	1.5%
Lake Oswego	1.4%
Milwaukie	1.4%
Tualatin	1.3%
Salem	1.2%
All Other Locations	19.2%

Map 15: Where Multnomah County workers reside (2006)



Portland	42.6%
Gresham	7.2%
Vancouver	4.2%
Beaverton	3.5%
Hillsboro	1.8%
Lake Oswego	1.6%
Tigard	1.5%
Troutdale	1.3%
Aloha	1.3%
Milwaukie	1.2%
All Other Locations	33.8%

NEXT STEPS

This preliminary employment urban growth report is designed to frame policy questions and choices for the region's residents and elected leaders to discuss and address throughout 2009. As such, this analysis will evolve in response to public input and to any policy decisions made by local and regional governments this year.

This summer, regional leaders will engage in a more specific discussion of the long-term aspirations of local communities and the assumptions of the capacity of the existing urban growth boundary to meet the next 20 years' worth of employment and population growth, culminating in a draft urban growth report to be issued in September 2009.

This fall, the Metro Council will, with the boards of commissioners of Clackamas, Multnomah and Washington counties, designate urban reserves to accommodate potential urban growth boundary expansions over the next 40 to 50 years, as well as rural reserves that will be off-limits for expansion during that same 40- to 50-year period. These designations will be informed by the 2060 population and employment range forecast, released on March 19, 2009, as well as by the preliminary urban growth report. The employment trends work referenced in this UGR also included a 50-year analysis which will inform the reserves designation process.

In December 2009, the Metro Council will accept a 2030 population and employment range forecast and will adopt the final urban growth report, which describes any gap between the capacity within the existing boundary and forecasted demand.

Throughout 2010, local and regional governments will continue to implement policies and investments to stimulate and support the region's communities while accommodating anticipated growth. By the end of 2010, the Metro Council will submit to LCDC its plans to accommodate at least 50 percent of any identified 20-year capacity need through efficiency measures designed to accommodate future growth within the existing urban growth boundary or through expansions if there is any need to take further action to accommodate the forecasted 20-year growth.

Metro | *People places. Open spaces.*

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy and good transportation choices for people and businesses in our region. Voters have asked Metro to help with the challenges that cross those lines and affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to protecting open space, caring for parks, planning for the best use of land, managing garbage disposal and increasing recycling. Metro oversees world-class facilities such as the Oregon Zoo, which contributes to conservation and education, and the Oregon Convention Center, which benefits the region's economy.

Metro representatives

Metro Council President – David Bragdon

Metro Councilors

Rod Park, District 1
Carlotta Collette, District 2
Carl Hosticka, District 3
Kathryn Harrington, District 4
Rex Burkholder, District 5
Robert Liberty, District 6

Metro Auditor – Suzanne Flynn

www.oregon**metro.gov**

Metro
600 NE Grand Ave.
Portland, OR 97232-2736

503-797-1700

Printed on recycled content paper.09152 May 2009