EXHIBIT E

Growth Scenarios Report: Version recommended by the Planning and Sustainability Commission, July 2015.

COMPREHENSIVE PLAN UPDATE

Growth Scenarios Report

July 2015
PSC Recommended Draft

Bureau of Planning and Sustainability
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City of Portland, Oregon
Charlie Hales, Mayor • Susan Anderson, Director

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II. CONTENTS

III. EXECUTIVE SUMMARY

The Growth Scenarios report is a background report of the Comprehensive Plan and is a required element of Portland's Periodic Review work program (Task 3). The purpose of this report is to describe how and where Portland is expected to grow over the next 25 years and to measure the performance of different alternate growth patterns and their ability to help meet Portland's goals and objectives. This analysis is rooted in the Measures of Success adopted with the 2012 Portland Plan.

The performance of the Proposed Comprehensive Plan shows how land use and infrastructure investment can help Portland achieve our vision for a prosperous, healthy, equitable and resilient city. The report shows that most of the anticipated new growth and infrastructure investment occurs in a way that makes significant progress towards meeting the Portland Plan's 2035 Measures of Success.

- The expected growth pattern along with planned investments in parks, transit, and the bicycle and pedestrian networks will help to create more complete neighborhoods and increase the number of Portlanders that live in a complete neighborhood.
- The land use and transportation choices made in the Proposed Comprehensive Plan and Transportation System plan reduce vehicle miles traveled per capita, reducing the share of commuter trips in single-occupant vehicles, and help reduce our carbon emissions.
- The land use changes and investments in transit will help increase the number of households with convenient access to family-wage jobs.
- Portland can accommodate the future household growth and do it in ways that will help to meet our goals, but providing enough affordable housing, especially for the lowest income households, will continue to be a challenge.

Portland is expected to add approximately 260,000 people (123,000 households) and 142,000 new jobs between 2010 and 2035. From 2010-2014 Portland added approximately 15,000 households and 25,000 jobs—a rate of growth consistent with this forecast. Portland's existing zoning and Proposed Comprehensive Plan has more than enough development capacity to accommodate future residential growth. This excess capacity creates an opportunity to make choices about where to focus or prioritize that residential growth. This Growth Scenarios Report presents an evaluation of a variety of growth patterns, including the Proposed Comprehensive Plan.

In addition to analyzing the impact of different growth patterns, this report evaluates the benefits of the infrastructure investments and planned public facilities in the Citywide Systems Plan (CSP) and Transportation System Plan (TSP), which are part of the Proposed Comprehensive Plan.

Forecast growth represents only about one-third of the total households and employment in Portland in 2035. Two-thirds of the buildings that will exist in 2035 already exist today. Thus, Portland's existing development pattern defines many of the challenges in achieving the goals identified in the Portland Plan. The city's legacy development pattern has a significant impact on how well Portland will perform over the next 25 years. Large improvements in performance from land use changes will take time, and the City will need to make long term strategic investment and development decisions to meet those goals.

CHALLENGES AND OPPORTUNITIES

Two Investment Strategies – Portland needs to pursue a public investment strategy on two tracks simultaneously to meet its objectives. One strategy supports growth in high-performing areas that already have a relatively complete infrastructure support system. With the Proposed Plan, 75 percent of the new development is expected to take place in centers and corridors that are ready to accommodate this growth. The other strategy fills infrastructure gaps in historically underserved areas to reduce disparities and increase equity. This two-track strategy will allow Portland to significantly improve performance across the board by focusing growth in high-performing areas, while at the same time improving conditions in areas previously neglected.

Transportation Choice – Transportation investment priorities emphasize active transportation, transit, and freight mobility. Investing in sidewalks, bicycle facilities and transit significantly improves performance across several measures, such as reducing carbon emissions, improving affordability, and improving access to jobs for more Portlanders. Expansion of the frequent transit network will mean that 62 percent of Portland households will have convenient access to frequent transit. Investment in the low-stress bicycle network will mean that 72 percent of Portland households will live within ¼-mile of a bike facility.

The projects in the Proposed TSP create a transportation system that will decrease reliance on automobiles by reducing the single occupant vehicle (SOV) commute rate to 35 percent of trips, which in turn helps reduce per capita daily vehicle miles travelled (VMT) by 27 percent.

Complete Neighborhoods – The Portland Plan set the goal of providing most Portlanders with safe, walkable access to services. While most (77%) of the new development is expected to take place in complete neighborhoods, this goal cannot be achieved simply by only focusing growth in existing complete neighborhoods – Portland needs infrastructure investments to create more complete neighborhoods. The combination of the growth pattern and the infrastructure investments in the Proposed Comprehensive Plan increase the number of households in complete neighborhoods to 73 percent by 2035.

Reducing Carbon Emissions – The land use and transportation choices made in the Proposed Comprehensive Plan lead to a reduction in per capita daily VMT, increase in non-automobile mode share, and help make progress towards Portland's carbon reduction goals. The City of Portland and Multnomah County will need to take additional action beyond planned land use and transportation investments in order to meet our carbon reduction goals. The Climate Action Plan identifies additional policy and program actions that go beyond the Comprehensive Plan to help achieve this goal, including: carbon pricing, building energy performance reporting, renewable energy, net zero energy buildings, low carbon transportation fuels, electric vehicles, waste prevention and recovery, and green infrastructure.

A Central Role for the Central City – The Central City is expected to accommodate 30 percent of future growth. Focusing growth in and around the Central City may be the most cost-effective way to provide the greatest level of service to the greatest number of Portlanders; each incremental investment in this service-rich area has disproportionate benefits. However, in order to grow as a residential area, it will be necessary to ensure that the needs of a variety of household types can be met within the Central City.

Jobs and Better Transit Connections in East Portland – East Portland has Portland's largest pool of affordable housing and is home to a large number of families with children. However, the area does not have many family-wage jobs, and it is not easy or quick to travel from East Portland to major job centers. Convenient and reliable access to work is one of the major contributors to job success (others include overall employment opportunities and relevant education and training). The Proposed Plan includes policies, map changes and transit investments that will increase the number of households with convenient access to. Developing more jobs in East Portland and providing better connections to and from East Portland are critical to improving household economic self-sufficiency.

More Affordable Housing – Providing enough affordable housing, especially for the lowest income households, will be a challenge. Public investments to increase services can create gentrification pressure. Portland will need to better align growth management, public investment and affordable housing development, anticipate the consequences of investments, minimize displacement and engage communities.

Prepare for the Future – While short-term development trends show a market preference for the Central City and Inner Neighborhoods, East Portland has significant growth potential and is home to many households with school-age children. Today, there is a window of opportunity to address the infrastructure gap in East Portland. The timing and location of East Portland infrastructure investments are a pressing issue.

Access to Parks – The Proposed Comprehensive Plan shows an increase in the number of households with good access to parks. This increase can be attributed to parks investment areas identified in the CSP that fill gaps in areas underserved by parks to reduce disparities, especially in East Portland.

IV. 2015 UPDATE TO THE GROWTH SCENARIOS REPORT

The Growth Scenarios report was first published in 2013. The purpose was to evaluate and compare different growth scenarios to determine how our choices of where and how growth could occur might impact our community. In addition to public input generated from visionPDX, the Portland Plan and the Comprehensive Plan Update Community Involvement Strategy, the 2013 Growth Scenarios report served to inform many policy choices and land use recommendations made with the Proposed Comprehensive Plan.

The purpose of this update is to evaluate the performance of the Proposed Comprehensive Plan as the preferred scenario to guide future growth in Portland. The 2013 report evaluated four growth scenarios—Default, Centers, Corridors, and Central City-focused. The original 2013 Growth Scenarios Report created a framework for a preferred growth scenario (the Proposed Plan). This new report serves to summarize how well the Proposed Plan performs relative to the scenarios identified in 2013.

The Proposed Comprehensive Plan (the preferred scenario) is different from other scenarios:

- **The preferred scenario combines three scenarios**. Relative to the Default scenario, the land use changes in the Proposed Comprehensive Plan accommodate more growth in Centers, along some Corridors and in the Central City and surrounding inner neighborhoods. Density reductions have been proposed in locations farther from identified Centers and Corridors, particularly in outer East Portland.
- **The preferred scenario incorporates infrastructure changes**. If land use changes shape the regulations about where growth can and cannot occur, infrastructure investments shape the capacity to accommodate growth. The Transportation System Plan (TSP) and the Citywide System Plan (CSP) identify which infrastructure projects the City will undertake.

Accounting for comprehensive plan map changes and infrastructure investments – The 2013 Growth Scenarios Report provided a starting point for a community discussion about how and where Portland can accommodate future growth. In particular, the performance measures have provided a framework for evaluating different growth and investment options. The Proposed Comprehensive Plan reflects the community discussion of where and how Portland should grow and how to make investments to advance goals and reduce dipartites.

Model the Effects of Infrastructure Investments – The scenarios in the first version of this report modeled the likely effects of 25 years of growth (the location of new jobs and housing), but not infrastructure investments. In this update, the corresponding infrastructure investments that are identified in the TSP and CSP have been evaluated.

Transportation System Plan (TSP) – The update to this report accounts for the financially constrained TSP project list. The TSP projects have increased performance significantly for transportation related performance measures including; low-stress bike network, frequent transit, complete neighborhoods, mode share and greenhouse gas emissions. Examples of projects that have increased performance are north-south frequent transit service on 122nd Avenue, neighborhood greenways and dedicated bicycle facilities in East and North Portland.

Transportation Modelling – The evaluation of transportation related performance measures relied heavily on information from Metro's regional transportation model. Transportation model outputs for 2035 mode split and vehicle miles traveled (VMT) were adjusted further to reflect program investments that support the pedestrian and bicycle network and transportation demand management policies.

Citywide Systems Plan (CSP) – The Citywide Systems Plan is a coordinated 20-year plan for the City of Portland's infrastructure (sewer, water, parks) systems that will be necessary to serve anticipated growth. The update to this report reflects the modeled results of infrastructure investments in the CSP where applicable. Accounting for CSP projects has significantly increased performance in the park access and complete neighborhoods measures.

Community Mapping – The District Liaison team at BPS has worked with community members to identify Comprehensive Plan map changes to advance goals identified in the Portland Plan. Map changes have resulted in net positive changes to performance evaluation. The most significant positive outcomes can be attributed to focusing density in identified centers and corridors, bringing non-conforming commercial uses into conformance, and creating or augmenting dispersed commercial areas in neighborhoods with limited access to services.

1. INTRODUCTION

Portland is growing and will continue to grow over the next 25 years. By 2035, there will be approximately 260,000 more people and 142,000 new jobs in Portland.[1] While the forecasted growth rate is consistent with Portland's historical growth rates, these numbers still raise important questions about how and where Portland will grow and the effect that growth will have on Portlanders' quality of life.

PURPOSE

This report is intended to provide information about the potential implications of growth that will help answer key questions like:

- Where will new housing will be built?
- What types of development will be seen on Portland streets?
- Where will new businesses be located?
- Will existing businesses be able to expand?
- How will this growth affect carbon emissions?
- How will this growth affect significant natural resources?
- Will this growth help reduce disparities and improve access to opportunity for more Portlanders?
- Where and how can Portland focus investments in public facilities and services to improve how well the city functions?

In addition to facilitating discussions about the questions listed above, this report will:

- Provide comparative alternative growth scenarios that illustrate the potential locations and intensity of growth over the next 25 years, given Portland's existing development pattern and development capacity.
- Measure the performance of the alternative growth scenarios, including their effect on the city's ability to meet goals and objectives based on the Portland Plan's Measures of Success.[2]
- Evaluate a Preferred Growth Scenario for the City of Portland (now developed into the Proposed Comprehensive Plan).
- Provide the basis for developing an infrastructure investment approach that will improve Portland's ability to meet its identified goals and objectives (the TSP and CSP).
- Meet the requirements of Task 3 of the City of Portland's State of Oregon-approved Periodic Review Work Program, which calls for the development and analysis of alternative growth scenarios.[3]

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[1] Metro Regional Forecast, January 2013. Forecasts indicate that Portland will grow by approximately 123,000 new households between 2010 and 2035. The average household size in 2010 was 2.35; however, it is expected that Portland's average household size will decrease in coming decades. A proxy household size of 2.1 was used in the calculation.

[2] The Portland Plan is a citywide strategic plan to promote prosperity, education, health and equity. It includes guiding policies, a five-year action plan and measures of success. The goals and objectives used to evaluate the scenarios are adapted from the Portland Plan's Measures of Success. The Portland Plan was adopted in 2012.

[3] In November 2007, the Oregon Department of Land Conservation and Development (DLCD) informed the City of Portland that its Comprehensive Plan is subject to Periodic Review. DLCD has the authority to

ORGANIZATION

This report has five primary sections: Introduction, Context, Scenario Alternatives, Performance Measures and Key Findings.

- The **Introduction** provides a brief overview of the report's purpose and organization, as well as basic background and process information.
- The **Context** section provides detailed information on existing conditions, development trends, development capacity and housing and employment growth forecasts.
- The **Scenario Alternatives** section provides information on each of the four growth scenarios considered and their implications.
- The **Performance Measures** addresses how well the four scenarios affect Portland's ability to meet established goals and objectives, as well as options for improving performance. With this updated report, this section now also includes an evaluation of the impacts of the proposed Comprehensive Plan, and planned infrastructure investments (the TSP and CSP)
- The **Key Findings** provides a summary of the lessons learned from this analysis.

The **Appendices** provide additional detailed information on how different areas of the city perform under each of the four alternative growth scenarios, and under the Proposed Plan.

BACKGROUND AND PROCESSES

What are growth scenarios?

Growth scenarios reflect choices about growth. They are illustrations of where Portland could choose to grow and develop in different parts of the city over the next 25 years. The scenarios are an opportunity to test how different growth patterns will affect different aspects of livability for Portlanders, such as access to transit, jobs, parks and commercial services. The performance evaluation also looks at carbon emissions, tree canopy, housing affordability and risk of gentrification.

Why develop growth scenarios?

Growth scenarios help inform decisions in the Proposed Comprehensive Plan. These are decisions about where to focus housing and job development, where to conserve and protect land, where to develop, and where and when to invest to improve services to increase equity, improve performance, and maintain and improve overall quality of life.

As a nearly fully developed city that is both largely surrounded by other cities and in a region with an urban growth boundary, Portland cannot expand by annexing substantial tracts of land outside the city limits, or by developing large areas of vacant land. As a result, nearly all of Portland's growth will occur on smaller underdeveloped parcels or through the redevelopment of previously developed properties.

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compel a local jurisdiction to enter Periodic Review (ORS 197.628 to 197.650 and OAR 660-25). Periodic Review is a substantial evaluation and revision of a local Comprehensive Plan, the purpose of which is to ensure that a city's Comprehensive Plan is up-to-date and responsive to local, regional and state conditions, complies with the Statewide Planning Goals and provides necessary provisions for economic development, needed housing, transportation and urbanization or growth needs.

PORTLAND'S GROWTH SCENARIOS

This report includes four previously evaluated growth scenarios as well as the evaluation of the Proposed Comprehensive Plan.

Default – The Default Scenario is based on existing development patterns and development trends. This scenario distributes future growth in the same places Portland has seen growth over the past 15 years.

Centers – The Centers Scenario focuses more growth in areas like Lents, Hillsdale and Gateway and less growth along the length of commercial and mixed-use streets.

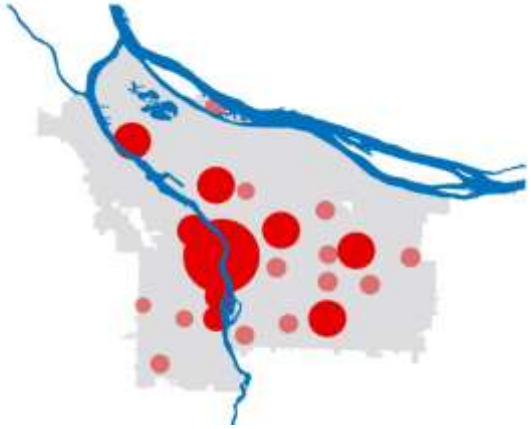
Corridors – The Corridors Scenario focuses more development along streets like SE Powell, SE Foster, SW Barbur and N Lombard and less growth in centers.

Central City Focused – The Central City Focused Scenario concentrates nearly all new growth in the Central City and the inner neighborhoods near the Central City, both east and west of the Willamette River.

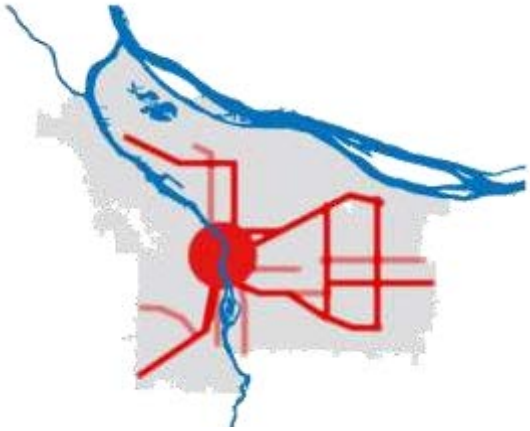
Proposed Comprehensive Plan – This report has been updated to evaluate the performance of the Proposed Comprehensive Plan. The evaluation of the Proposed Comprehensive Plan The proposed Comprehensive Plan Update 2035 combines Centers, Corridors and Central City scenarios and incorporates infrastructure investment from the Citywide Systems Plan (CSP) and Transportation Systems Plan (TSP). Relative to the Default scenario, the land use changes in the Proposed Comprehensive Plan accommodate more growth in Centers, along Corridors and in the Central City and surrounding inner neighborhoods. Density reductions have been proposed in locations farther from identified Centers and Corridors, particularly in outer East Portland.

Figure 1: Growth Scenario Alternatives

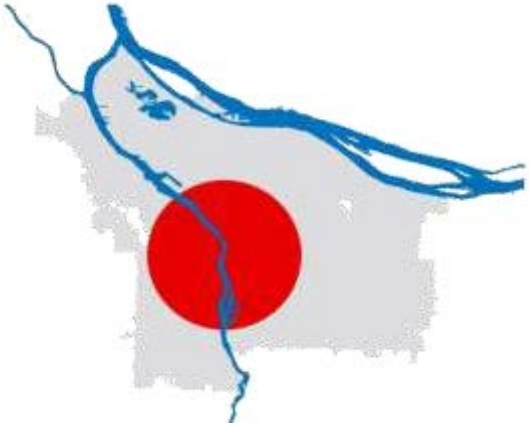
Default



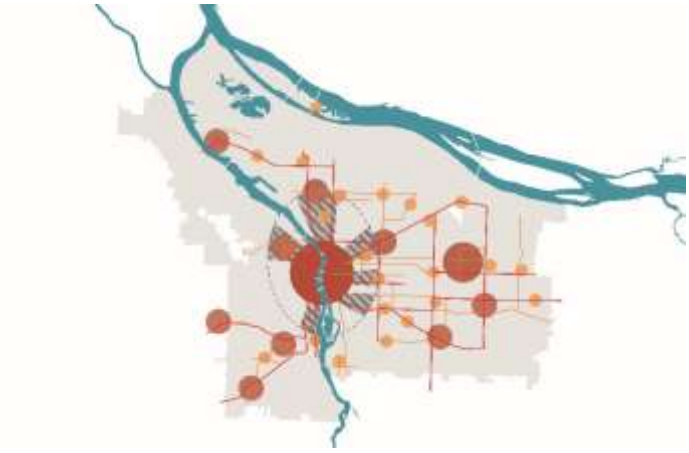
Centers



Corridors



Central City Focused



Proposed Comprehensive Plan

HOW ARE THE SCENARIOS AND PROPOSED PLAN EVALUATED?

Each scenario is evaluated according to how well it performs with respect to the following Portland Plan objectives and the associated performance measures.

Performance Measures

- Access to Family-Wage Jobs
- Housing Mix and Affordability
- Risk of Displacement/Gentrification
- Complete Neighborhoods
- Access to Frequent Transit
- Access to Low-Stress Bikeways
- Vehicle Miles Traveled
- Mode Share
- Greenhouse Gas/Carbon Emissions
- Access to Parks
- Watershed Health
- Tree Canopy
- Access to Nature

For each scenario, and the Proposed Comprehensive Plan, a performance evaluation is used to help answer the following questions:

- Does this development pattern help the city move closer to its goals? For example: Does the Central City Focused scenario make it more likely that the percentage of Portlanders who live in complete neighborhoods will increase? Will it increase the likelihood that more Portlanders will have access to family-wage jobs?
- How do the performance results for each scenario compare to those of the other scenarios? For example: Do the Centers and Corridors scenarios each provide the same mix of affordable housing?

The performance evaluation focuses on how well each scenario performs at the citywide level. Evaluations of how well each scenario performs at the district scale (East, North, Southeast, West and Central City) or neighborhood scale are provided in the appendix.

HOW ARE THE SCENARIO EVALUATIONS BEING USED?

The evaluations in the 2013 report have been used to support discussions about policies and investments related to issues such as land use, environmental conservation, affordable housing, urban design, and public infrastructure. The evaluations will prompt discussions to consider the following:

- Is there a form of growth that will help Portland advance prosperity, health equity and resilience?
- What investments are needed to support that pattern?
- How do the anticipated development patterns help achieve the goals?
- What problems will these patterns create?
- How and where can investments help to meet specific performance goals?
- Which scenarios bring the greatest benefit to different parts of the city?

This analysis and public input was used to develop a Preferred Development Scenario (the Proposed Comprehensive Plan). This process informed the development of the Comprehensive Plan Map, the Transportation System Plan, the Citywide Systems Plan and the List of Significant Projects.

2. CONTEXT

Developing future growth scenarios involves looking at forecasts of future growth and learning from how the city is performing today in terms of conditions and trends. Portland's existing built environment, recent development trends and current plans and policies have a tremendous influence on how the city will develop and perform in the future.

The history of the past 30 years shows that thoughtful and intentional land use policies, regulations and investments can help improve quality of life for many. It also offers proof that people who live in areas without high-quality services may find it harder to meet their full potential. Growth often brings challenges, but it also offers opportunities to bring more transportation, housing, employment and neighborhood services to more Portlanders.

This section of the report provides the background information needed to review the growth scenarios and make recommendations about growth and investments to improve livability for all Portlanders. The information includes an overview of the local growth forecasts; a primer on Portland's existing land use patterns, development trends and performance; information on existing development capacity; and ideas about the ways in which new development may benefit different parts of Portland.

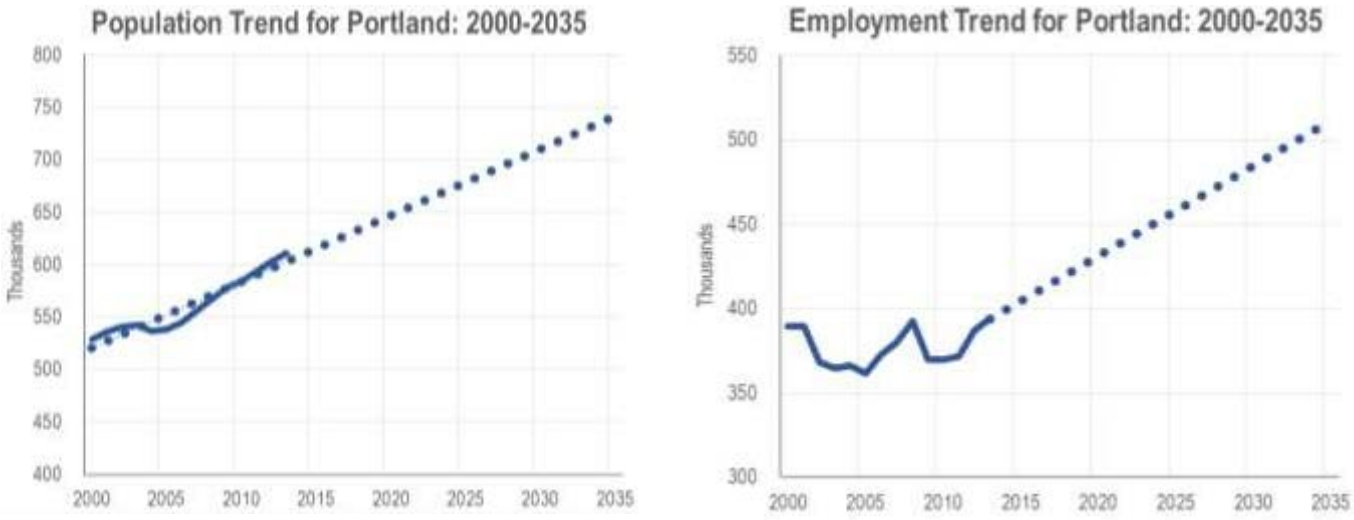
GROWTH FORECASTS

Metro forecasts that the Portland metropolitan region will grow by 410,000 new households and 518,000 new jobs between 2010 and 2035. Metro expects Portland to accommodate 30 percent of that new household growth with 123,000 new households and to create 27 percent of the new regional employment growth with142,000 new jobs in Portland[4]. The Metro forecasted growth rates are consistent with historical trends. From 2010-2015 Portland has added approximately 15,000 households and 25,000 jobs—a rate of growth consistent with this forecast.

Metro develops the forecast and allocates the forecasted growth to each of the jurisdictions within its boundaries. Each local jurisdiction is responsible for determining how to best manage and direct that growth within its boundaries. This means that Portland must figure out how and where to accommodate the future growth forecast.

[4] The original Growth Scenarios Report cited a draft 2010 Metro forecast, which was slightly higher. This new report cites the adopted Metro Regional Forecast, January 2013. Forecasts indicate that Portland will grow by approximately 123,000 new households between 2010 and 2035.

Figure 2: Population and employment trends for Portland, 2000-2025.



Household Forecast

In 2010, Portland had 270,000 households with an average of 2.3 persons per household. Of those households, 28 percent included children. Both the average size of Portland households and the percentage of households with children are expected to continue to decline. By 2035, the average household size is expected to be just over 2 persons per household and the percentage of households with children is expected to decline to 25 percent of all households. At the same time, a greater proportion of Portlanders will be older. These anticipated demographic changes are consistent with national trends and will affect the demand for different types of housing.[5]

In 2010, about 60 percent of the dwellings in Portland were single family detached homes. Although little change is expected to the character of Portland's predominantly single family residential neighborhoods (they will remain single family residential neighborhoods), single family homes are expected to make up a smaller share (47 percent by 2035) of the housing mix in coming years.

In addition to the trend of smaller household size, a decreasing share of the population can qualify for a mortgage. Across the nation, job growth tends to be concentrated in high- and low-wage jobs with little expansion of family-wage jobs. In addition, banks and other lenders have been restructured following the housing bust, which has led to more conservative lending practices. This has made it increasingly difficult for Portlanders to secure mortgages to purchase homes and will have long-term consequences for homeownership.

The demographic and economic changes described above are driving increased demand for multifamily dwellings, particularly apartments. Estimates suggest that 80 percent of all new housing built in Portland between now and 2035 will be multifamily housing. This change can already be seen in recent development trends: Between 2010 and 2014, 67 percent of new housing units built in Portland were multifamily dwellings. Similarly, the majority of new growth between 2010 and 2035 within the Urban Growth Boundary (61%) will be multifamily dwellings.

[5] More information is available in the Housing Demand and Supply Background Report.

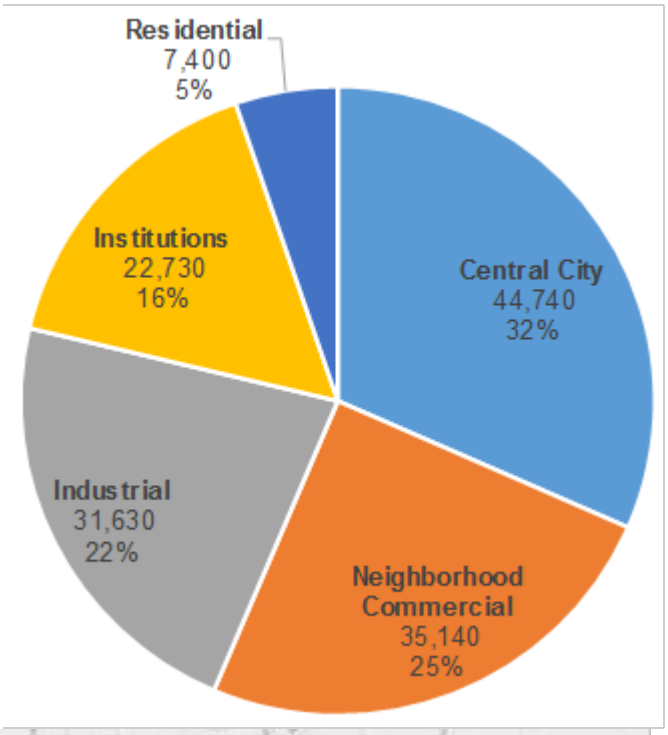
Employment Demand

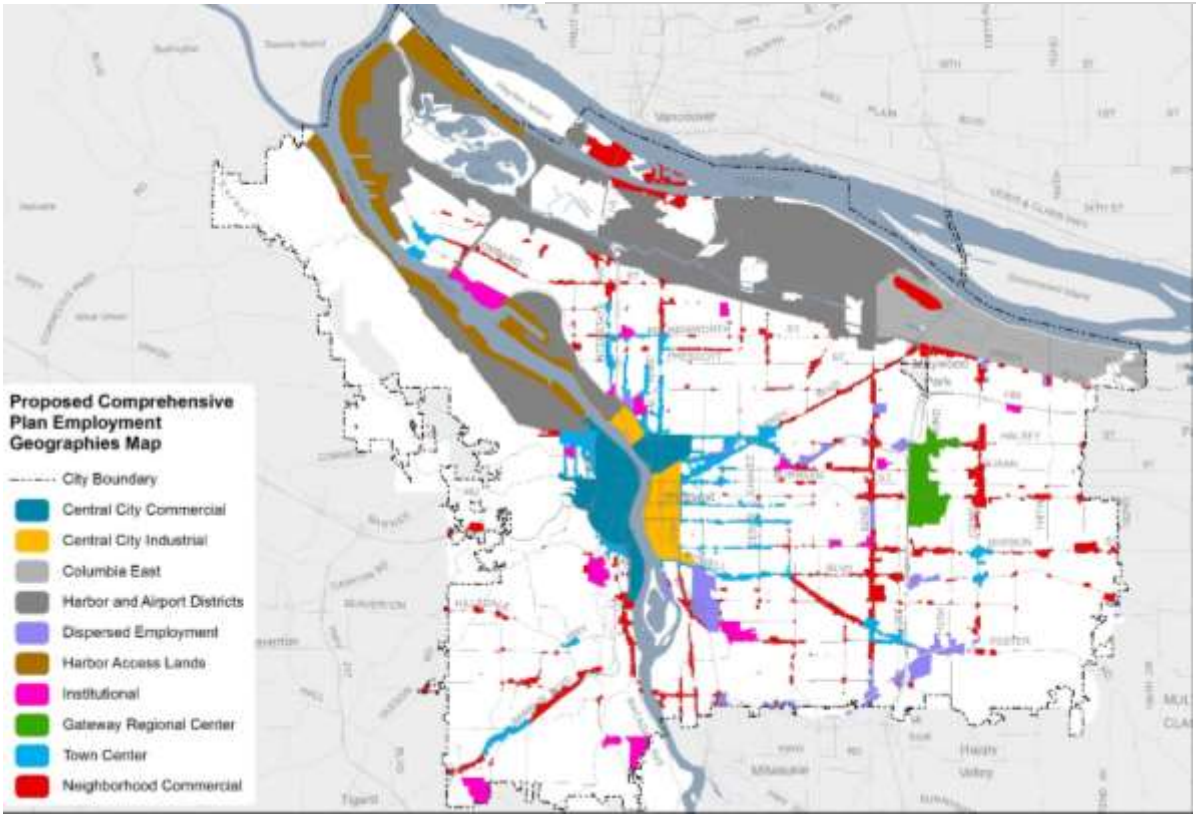
Portland is expected to add 142,000 new jobs by 2035, which is a 26 percent capture rate of the regional job growth – similar to Portland's historical 25 percent capture rate.

These new jobs are anticipated to be distributed across the city in a manner similar to the current distribution of employment. The Central City will see the largest share (44,740 jobs) of the job growth, with neighborhood commercial areas (35,140) and industrial areas (31,630) seeing significant growth.

Institutional campuses are a strong growth sector (22,730), and home-based employment in residential areas (7,400) remains a relatively small share of future employment growth.[6]

Figure 3: Employment Growth by Geography, 2010-2035.





[6] More information is available in the Economic Opportunities Analysis.

CURRENT PLANS AND DEVELOPMENT CAPACITY

Metro 2040 Growth Concept and Portland's Comprehensive Plan

Growth in the Portland metropolitan region is guided by regional land use and transportation plans developed by Metro, including the Metro Regional Framework Plan and the Metro 2040 Urban Growth Concept. The Metro plans provide the region with a preferred regional urban form.[7]

As with the growth forecasts, each jurisdiction is responsible for implementing the regional growth concept in local comprehensive plans.

Figure 4: Metro 2040 Growth Concept Zoomed to Portland

The core ideas in the Metro 2040 Growth Concept, which are also reflected in Portland's Comprehensive Plan, include:

- A hierarchy of mixed-use, pedestrian friendly centers. The mixed-use centers identified in both the Metro 2040 Growth Concept and Portland's current Comprehensive Plan include: the Central City, Gateway Regional Center and the Hollywood, St. Johns, Lents, Hillsdale and West Portland town centers.
- Corridors and main streets that are connected to each other and the centers by high-capacity and high-quality transit.
- A multi-modal transportation system that emphasizes transit, bicycle and pedestrian systems to ensure continued mobility of more people and goods throughout the region.
- A jobs/housing balance in centers, protected industrial sanctuaries and stable residential neighborhoods, outside of mixed-use centers, corridors and main streets.

The principles that support Metro 2040 and that are embodied in Portland's current Comprehensive Plan were not new when they were initially adopted. They were built on Portland's legacy and historical development pattern. These principles and Portland's historical development pattern will continue in the Proposed Comprehensive Plan and will continue to influence the physical development of Portland over the next 25 years.

Development Capacity

Development capacity is defined as the likely number of new dwelling units or jobs that can be accommodated in the city under existing regulations, and considering existing and planned infrastructure.

The Buildable Lands Inventory (BLI) is the estimate of the development potential that is possible under current plans and zoning after considering infrastructure and physical constraints, like

[7] For more information, please visit Metro's website: www.oregonmetro.gov.

steep slopes.[8] The BLI identifies lands that could potentially be available for development should a market demand exist.

Residential Capacity

The BLI shows that under the current Comprehensive Plan and existing zoning, Portland's estimated residential capacity is 230,000 dwelling units, which is more than sufficient capacity to accommodate Metro's 2035 housing growth forecast of 123,000 households for Portland.

With the Proposed Comprehensive Plan, the estimated residential capacity is 267,000 dwelling units[9]. The increase in total residential capacity in the Proposed Comprehensive Plan is the result of land use changes identified in the mixed use zones in some centers and corridors, a variety of community map changes, and the removal of development constraints that occurred as the result of infrastructure planned with the TSP and CSP.

Figure 5: Residential Development Capacity (Proposed Plan).

The surplus capacity enables Portland to accommodate and manage growth and support a development pattern that helps to achieve the goals and objectives. The scenarios explore different ways to use that development capacity to accommodate 25 years of future growth.

Most of this capacity (70 percent) is in mixed-use corridors and neighborhood centers. The Central City (with capacity for 32,000 additional dwellings) has significant growth capacity. Other areas with high growth capacity are the Gateway Regional Center, North Interstate Corridor, the Lents Town Center and some parts of East Portland.

Areas with the least capacity for additional growth are parts of Northeast Portland and most of West Portland. Portland's predominantly single family residential neighborhoods (the areas outside of the centers and corridors) will see limited new housing development, and will remain single family residential neighborhoods. About 11 percent of the development capacity is in land available for single-dwelling residential development (detached or attached homes on their own lot).

[8] City of Portland, Bureau of Planning and Sustainability, Buildable Land Inventory (2012).
[9] This is the capacity of the Comprehensive Plan designations – not all zoning matches these designations. Some areas are zoned for less intensive development than the Comprehensive Plan would allow.

Figure 6: BLI Housing Development Capacity (Proposed Plan)

Employment Capacity

The employment capacity analysis uses the same approach as the residential capacity analysis. The estimated employment development capacity is about 100 million square feet of new employment floor area citywide. In general, there is adequate capacity in the Central City; a surplus capacity in the neighborhood commercial areas; and shortfalls in industrial areas and for campus institutions, such as colleges and hospitals. The existing Comprehensive Plan provides capacity for 316,100 jobs while the Proposed Comprehensive Plan provides capacity for 391,400 jobs. The increase in employment capacity in the Proposed Comprehensive Plan reflects capacity increases as the result of the new Mixed Use and institutional designations, changes anticipated in the Central Eastside Industrial District, and other land use changes to address employment land shortfalls identified in the EOA.

Table 1: Employment Allocation

Aggregate Geography	Existing Share	Share in 2035 (Existing Comp Plan)	Share in 2035 (Proposed Comp Plan)
Central City	33.4%	32.9%	32.9%
Neighborhood Commercial	25.1%	27.0%	25.0%
Industrial	23.5%	21.9%	23.2%
Institutions	8.6%	9.9%	10.7%
Residential	9.4%	8.2%	8.2%

More important than the total job capacity, the Comprehensive Plan must provide capacity for the different types of jobs and economic activity that exists in different employment geographies. Table 2 compares the existing Comprehensive Plan and Proposed Comprehensive Plan, in terms of how well they provide needed land in each employment geography.

Table 2: Employment Capacity.

Aggregate Geography	% of Needed Capacity Provided (Existing Plan)[10]	% of Needed Capacity Provided (Proposed Plan)[11]
Central City	177%	260%
Neighborhood Commercial	189%	216%
Industrial	80%	105%
Institutions	83%	141%

Figure 7: BLI Employment Development Capacity (Proposed Plan).

[10] See Figure 27 of Section2/3 of the Economic Opportunities Analysis, March 2015.
[11] See Figure 1 of Section 4 of the Economic Opportunities Analysis, March 2015.

PORTLAND'S EXISTING LAND USE PATTERN

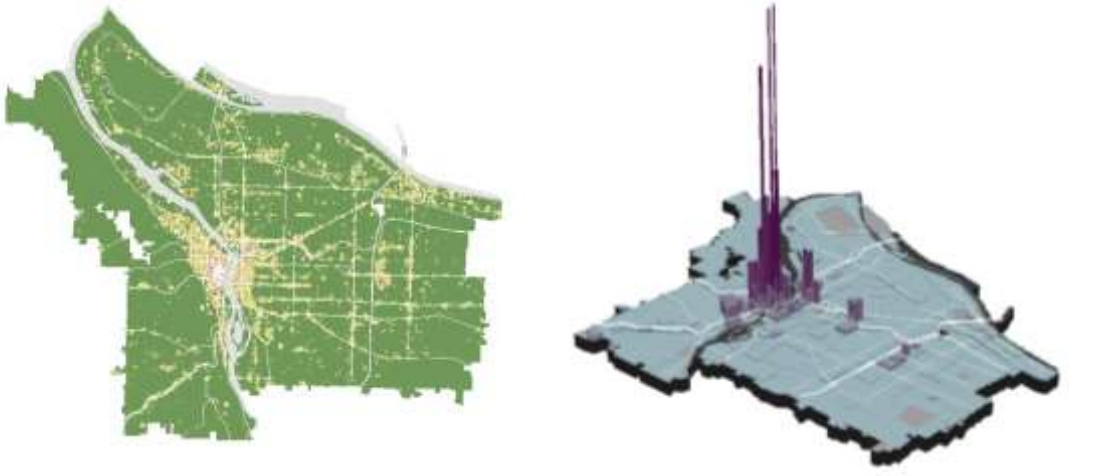
Portland and the surrounding areas within our Urban Services Boundary are already urbanized. Portland is located at the center of a larger metropolitan region. There are few opportunities to expand Portland's physical boundaries into rural undeveloped lands. Therefore, new growth and development will primarily occur though infill and redevelopment. Portland's existing development patterns provide the framework for managing future growth and development. A brief description of the overall land use pattern, as well as more detailed information on Portland's "Pattern Areas," is provided below.

Citywide Development Pattern

Portland's overall development pattern includes a strong Central City, a series of centers (e.g. Hollywood, St. Johns and Hillsdale), and main streets and corridors (e.g. NE Sandy and N Interstate) that connect areas like Hollywood and Hillsdale to the Central City and beyond. The centers and corridors contain a mix of commercial and residential uses. The pattern also includes large swaths of residential development between the centers and corridors and across all areas of the city. Residential areas vary from predominantly single family dwellings to areas with greater concentrations of multifamily dwellings. For detailed information on Portland's existing development pattern, please review the Urban Form Background Report.

Figure 8: Existing Residential Density.

Figure 9: Existing Employment Density.



DEVELOPMENT TRENDS

Growth and development have shaped, and will continue to shape, the character of Portland's neighborhoods, streets, commercial areas, and other key places. Three broad trends have defined development over the past 15 years:

- Robust growth and development have occurred in the Central City.
- East Portland experienced a period of particularly strong residential development activity in the 1990s and early 2000s. This growth occurred after annexation of East Portland and much of this development included multifamily residential development and new subdivisions.
- In the late 2000s, coincident with the deep recession, development activity shifted from East Portland to the Inner Neighborhoods surrounding the Central City. The most intensive development has occurred along frequent transit lines, such as SE Division, North Williams, and North Interstate Avenue. Rising property values and rents have led to some displacement of lower income residents.

Figure 10: Areas with High Development Activity.

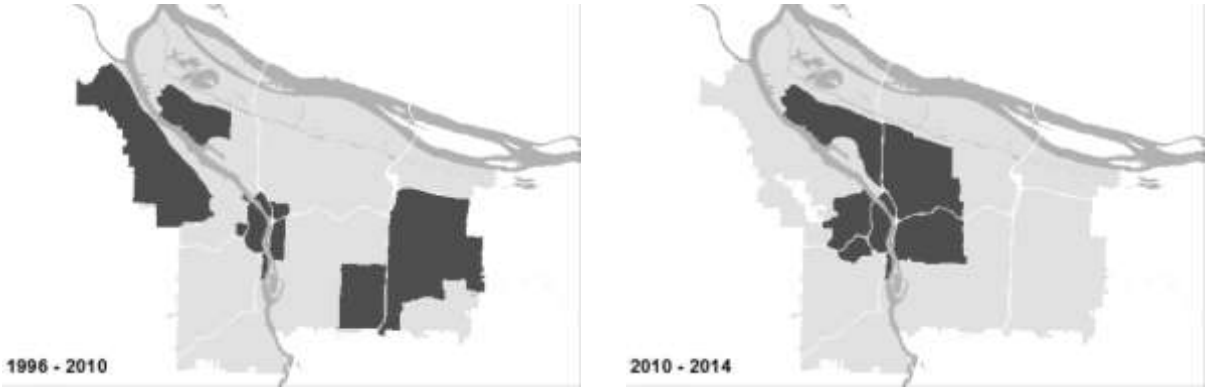


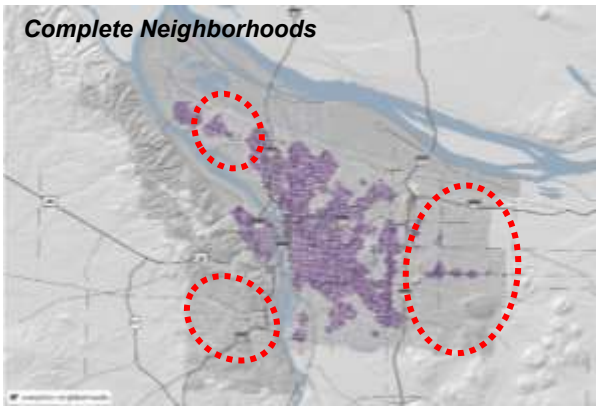
Table 3: New Dwelling Units by Portland Plan Analysis Area.

15 Year Trend: 1996-2010				5 Year Trend: 2010-2014			
Rank	**Analysis Area**	**New Units**	**Share**	**Rank**	**Analysis Area**	**New Units**	**Share**
1	Central City	12,214	25%	1	Central City	4,430	30%
2	122nd-Division	3,759	8%	2	Belmont-Hawthorne-Division	1,834	12%
3	Lents-Foster	3,013	6%	3	Interstate Corridor	1,522	10%
4	St. Johns	2,931	6%	4	Northwest	955	6%
5	Gateway	2,793	6%	5	Hollywood	821	6%
6	Centennial-Glenfair-Wilkes	2,045	4%	6	MLK-Alberta	805	5%
7	Forest Park-Northwest Hills	2,012	4%	7	St. Johns	460	5%
	Citywide	**48,116**	**100%**		**Citywide**	**14,768**	**100%**

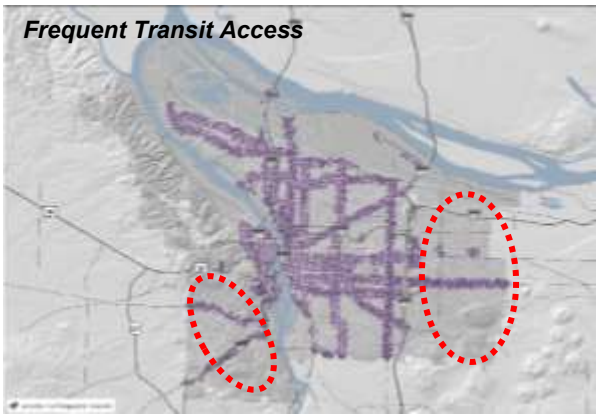
WHERE AND HOW CAN GROWTH BENEFIT THE CITY IN THE FUTURE?

Growth brings change, but it also offers opportunities to solve problems and bring more services to more Portlanders—making it easier for people to get to work by bus or train, walk to the grocery store or school and get to the park or community center. A few of Portland's key land use and infrastructure-related challenges are highlighted below.

Complete Neighborhoods: Today, only 63 percent of Portland households are in complete neighborhoods, with significant gaps in East and Southwest Portland.



Frequent Transit Access: Currently, 47 percent of Portland households are located within a convenient (1/4-mile) walk to the frequent transit network. While the Central City and most of the Inner Portland neighborhoods have good access to transit, there are significant gaps in coverage in East and Southwest Portland. Access to transit also is an important component of complete neighborhoods and access to employment.



Access to Jobs: Households in most of East Portland and parts of North Portland may have a more than 60-minute commute to locations with family-wage jobs.

A good job is one of the keys to household prosperity. The opportunity for a good job is dependent on three major factors: overall employment, education and workforce training, and access – the ability to get to the job. Currently, 82 percent of Portlanders adequate access (a 60-minute transit trip) to a number of family-wage jobs.

These are some of the many performance measures against which the growth scenarios will be evaluated. For more information, please review the Portland Plan Measures of Success at www.pdxplan.com.

The challenges highlighted on these maps are but a few of the issues that need to be addressed through the Comprehensive Plan update process.

PATTERN AREAS

Portland has five distinct areas or "Pattern Areas," each with unique needs and characteristics: Central City, Inner Neighborhoods, Eastern Neighborhoods, Western Neighborhoods and the Industrial and River Area.

Pattern Areas are defined by characteristics such as topography and physical features; street, land use, and block pattern; form and intensity of development; character, size, and function of natural resource areas; and the period in which the area was developed. Each area also has conditions and challenges related to its physical environment, development, history and the histories of the people who live there.

Figure 11: Portland's Five Pattern Areas.

Central City

Central City includes the Downtown core, South Waterfront, portions of the east and west banks of the Willamette River, the Central Eastside Industrial District, the Lloyd District and Rose Quarter, Old Town/Chinatown and the Pearl District. The Central City is the region's business center, with an intensely urbanized built form. It also includes some of the city's industrial sanctuaries and higher education institutions. Today, more than 34,000 people live in the Central City, making it Portland's most densely populated residential area. It is a regional cultural hub—home to numerous concert halls, performance venues, museums, schools and universities. The Central City must remain an attractive and highly functional office, education and residential location.

Figure 12: Central City 2035.

New development in the Central City may:

- Strengthen its role as the region's center for innovation by increasing education and new entrepreneurial business opportunities.
- Contribute to the region's densest clusters of office, employment and residential districts.
- Enhance the fine-grain patterns of blocks and buildings offering a highly connected system of sidewalks and pathways.
- Improve connections to the Willamette River.

Inner Neighborhoods (North, Northeast, Southeast)

From Lents to St. Johns to Northwest Portland, this area primarily includes neighborhoods that were developed in a "streetcar era" pattern. The area is characterized by compact development, a highly connected grid of streets and sidewalks, active main street business districts, buildings that face the streets, street trees and a relatively pedestrian- and bicycle-friendly transportation system. With more than 140,000 households, more than half of Portland's population lives in the Inner Neighborhoods.

In the past 15 years, housing in Inner Neighborhoods has become increasingly expensive. As a result, many long-time residents have needed to move to less expensive, but also less service-rich parts of the Portland region. At the same time, new multifamily residential development has been built along mixed-use corridors, like N Interstate, N Mississippi and SE Hawthorne and SE Division. These trends highlight the need to provide a greater variety of housing types at a much wider variety of prices, to expand and upgrade existing community facilities, like parks and sports fields, and to increase pedestrian and gathering spaces in the public right-of-way.

New development may

- Make it easier for residents to meet their daily needs. More residents can support a broader range of neighborhood-serving businesses.
- Provide more housing at a range of prices, so that more Portlanders can afford to live in areas with access to services and transit.
- Create plazas and community gathering places.

Figure 13: Inner Neighborhoods 2035.

The Impact of Community Amenities on Development Feasibility

Metro conducted a series of studies on how investments in public amenities, such as parks, sidewalks, bike facilities, and transit affect development feasibility. The studies showed that investment in public amenities can help attract people to a neighborhood, which in turn can increase rents by 10 to 20 percent and can increase sales prices enough to make new development financially feasible, especially for higher density development types.

In the July 2012 report, *Development Feasibility in Portland's 20-Minute Neighborhoods*, Fregonese Associates found that development feasibility dramatically increases with increasing amenities and rents. For example, in the Interstate neighborhood, Fregonese found that amenity investments that resulted in a 10 percent increase in rents increased development potential by 35 percent. However, the analysis also showed that in some neighborhoods with lower property values, amenity investments alone are not enough to spur a significant amount of new development.

As a result, public investments like this can lead to increased property tax revenue to pay for needed urban services, and (in the absence of affordable housing programs) also lead to displacement of the lowest income residents.

Fregonese Associates. Development Feasibility in Portland's 20-Minute Neighborhoods. July 2012.

Eastern Neighborhoods

This area includes neighborhoods east of I-205. Most of this area was annexed into the City of Portland after the adoption of the 1980 Comprehensive Plan. The Eastern Neighborhoods have a mix of urban and semi-rural development, with towering Douglas firs and multiple buttes. Despite being home to one-quarter of the City's population (about 50,000 households), the area has nearly 40 percent of Portland's youth. During the late 1990s and early 2000s East Portland saw rapid residential growth. This growth highlighted many infrastructure deficiencies in the area, including the need for sidewalks, paved roads, safer street crossings and more frequent transit connections. Development in East Portland dramatically increased the area's population, changed the demographic makeup of the community, and highlighted remaining infrastructure deficiencies. School districts in East Portland have struggled to accommodate the corresponding growth in student enrollment.

Other issues highlighted by growth in East Portland include the need for developed parks and more neighborhood-serving businesses, so that residents can meet their needs close to home, and the need to provide a way to support local entrepreneurs and small businesses.

Figure 14: Eastern Neighborhoods 2035.

New development may:

- Help provide needed public infrastructure, such as parks and sidewalks.
- Create safer and friendlier pedestrian environments along major streets.
- Increase the viability of commercial services in areas that have limited access to goods and services.
- Provide space for community markets, business incubators, and start-up space for businesses and entrepreneurs.

Portland Infrastructure Investment Pilot Study

The Portland Infrastructure Investment Study examined existing conditions in the Lents and Powellhurst-Gilbert neighborhoods and the potential for public investments to leverage private investment and enhance community livability.

The study assessed the cost of providing the basic infrastructure needed to make each area a more "complete community" (e.g., sidewalks, safe pedestrian crossings, etc.). The study also looked at development readiness indicators, such as housing mix, rents/prices and long-term growth forecasts. A Return on Investment (ROI) analysis compared the cost of providing basic infrastructure with fiscal revenues (property taxes, SDCs, utility revenues, etc.) from forecasted development.

The study found that strategic public investments to provide basic infrastructure, especially pedestrian, bicycle and street networks improvements, are likely to have a net positive fiscal impact for the City, while also improving public health, safety, and neighborhood livability. Opportunity areas that currently have average scores on development readiness indicators are likely to have the greatest potential return on investment.

Western Neighborhoods

This area includes neighborhoods west of the Willamette River. The Western Neighborhoods have a mix of urban corridors (including SW Barbur Boulevard, Beaverton-Hillsdale Highway, and SW Capitol Highway) and more suburban development patterns that respond to challenging topography, sensitive natural areas, and lower densities. The Western Neighborhoods' most prominent characteristics are the hilly topography, streams, ravines, forested slopes, variably sized lots, and curvilinear street patterns.

Other issues highlighted by growth in West Portland includes the improved transportation options, more neighborhood-serving businesses so residents can meet their needs close to home, and the need to provide a way to support local vibrant activity centers and support a diversity of small businesses.

Figure 15: Western Neighborhoods 2035.

New development can:

- Improve watershed health by daylighting streams and restoring other natural features that builds on the distinctive topography and environmental character of the west side.
- Increase tree canopy by developing green setbacks with new trees and other plants to build on the area's green character and create buffers from busy streets.
- Improve safety for pedestrians, bicyclists, transit riders and motorists where there are limited streets through the hilly topography.

Industrial and River Area

This pattern area serves a key role as a location for port facilities, the airport, major land-based freight transportation networks such as pipelines and railroads, industry and other employment centers, and river habitat. Hayden Island, Bridgeton and scattered riverfront and houseboat communities have unique identities and a strong river orientation.

3. ALTERNATE GROWTH SCENARIOS

HOW WERE THE SCENARIOS DEVELOPED?

The scenarios are based on the existing development pattern; current and Proposed Comprehensive Plan designations; the Buildable Lands Inventory (BLI).The BLI provides information on how much land and which land is likely to be redeveloped given market conditions, development constraints and the current level of investment in properties and recent development trends. The scenarios are also based on Metro's 2040 Growth Concept. The different scenarios emphasize different aspects of existing plans. For example, which of these regionally designated centers are expected to develop over the next 25 years, and how much growth is expected in each?

Recognizing the significant influence of the current development and infrastructure, like bridges and light rail lines, each of the scenarios is a variation of Portland's current development pattern:

Default – The Default Scenario is based on existing development patterns and development trends. This scenario distributes future growth in the same places Portland has seen growth over the past 15 years.

Centers – The Centers Scenario focuses more growth in distinct hubs like Lents, Hillsdale and Gateway and less growth along the length of commercial and mixed use streets.

Corridors – The Corridors Scenario focuses more development along streets like SE Powell, SE Foster, SW Barbur and N Lombard and less growth in centers.

Central City Focused – The Central City Focused Scenario concentrates nearly all new growth in the Central City and the inner neighborhoods near the Central City, both east and west of the Willamette River.

How was the Proposed Comprehensive Plan scenario evaluated?

Proposed Comprehensive Plan – The proposed Comprehensive Plan combines Centers, Corridors and Central City scenarios and incorporates infrastructure investment from the Citywide Systems Plan (CSP) and Transportation Systems Plan (TSP).

Housing Growth Allocations

Although each scenario assumes the same level of household growth, the distribution of that growth varies in each scenario. Using the Proposed Comprehensive Plan scenario for comparison, the range of household growth in each district can be significant, especially in the Central City and East Portland. The Proposed Comprehensive Plan household growth allocation reflects land use changes that have increased capacity in some areas while decreasing capacity in others.

Table 4: Residential Growth Forecast Allocation.

District	Existing Comprehensive Plan (Default Scenario)	Proposed Comprehensive Plan	Household Change – Existing Comprehensive Plan to Proposed Comprehensive Plan	Other Scenarios
Central City[12]	24,000	36,000	12,000	24,000 – 40,000
East	39,000	27,000	-12,000	19,000 – 39,000
North	17,000	13,000	-4,000	11,000 – 17,000
Northeast	13,000	15,000	2,000	12,000 – 19,000
Southeast	20,000	22,000	2,000	20,000 – 24,000
West	10,000	10,000	-	10,000 – 10,000

Growth Factor

In addition to looking at the number of new households, it can also be helpful to look at the magnitude of expected growth. The magnitude of growth, or growth factor, quantifies the potential amount of change anticipated in a given area. A growth factor of 1.0 means there is little or no growth or change potential. A growth factor of 2.0 is equal to a 100 percent growth rate or doubling of the number of housing units in a given location. For Portland as a whole, the Metro forecast projects a 50 percent increase in the number of households, which is a growth factor of 1.5 (or 123,000 new dwelling units).

If the Metro-projected growth were to be proportionately distributed across Portland, then each district would have a growth factor of 1.5. However, development capacity is not evenly distributed across the city, nor is it expected that growth will be evenly distributed across Portland. Therefore, the scenarios do not assume an even growth pattern across the city. The Central City, East Portland, and North Portland see higher growth factors in most of the scenarios.

[12] The Central City district includes the Northwest District Association to provide accurate comparisons to analyses in the first version of the Growth Scenarios Report.

Table 5: Growth Factor Comparison by Scenario.

District	Default	Centers	Corridors	Central City Focused	Proposed Plan
Central City	1.9	2.2	2.2	2.5	2.4
Southeast Portland	1.3	1.3	1.3	1.3	1.3
Northeast Portland	1.3	1.3	1.3	1.4	1.3
North Portland	1.6	1.6	1.6	1.4	1.5
East Portland	1.7	1.6	1.6	1.3	1.5
West Portland	1.2	1.2	1.2	1.2	1.2
Citywide Average	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**

* All scenarios and the Proposed Plan scenario use 2010 as a base year to compute growth estimates. Between 2010 and 2014, about 15,000 new housing units were built in the city. Those units have been incorporated into the forecast growth allocation for the Proposed Plan, with each unit being attributed to the geography where it is located. As a result, only about 110,000 units are allocated using the Buildable Land Inventory and related forecast models.

Employment Allocation

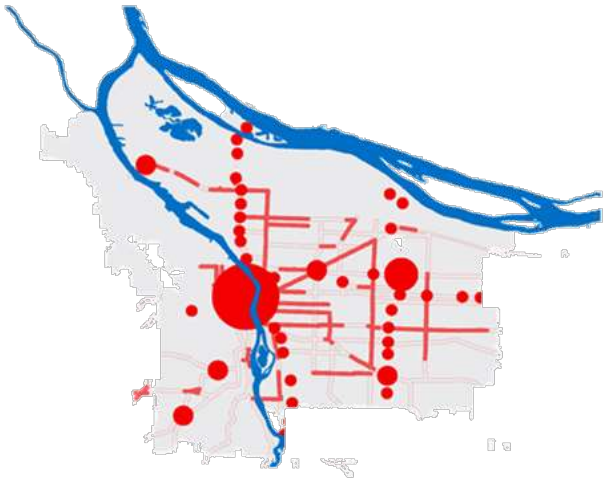
The five growth scenarios also address the potential location of neighborhood commercial job growth. The distribution of jobs in each scenario does not vary much because many of the employment locations are essentially fixed in place; the Central City, campus institutions and industrial areas are not expected to move or relocate, so all of the scenarios use the same job distribution for these geographies. Instead, it is the employment in neighborhood commercial areas that changes with each scenario. Neighborhood commercial areas will capture about 25 percent of the employment growth in the period of 2010–2035.

Therefore, new neighborhood commercial jobs are allocated to employment areas that are also residential focus growth areas for each scenario. For example, in the Centers scenario, neighborhood commercial jobs are located in centers. This assumption is based on the premise that new employment growth follows new household growth. New households bring more disposable income to an area, which in turn drives the demand for goods and services that creates the employment. Consequently, the scenario descriptions are focused on the differences in residential growth.

The other employment, such as the industrial areas and campus institutions, has been allocated across Portland based on the current employment distribution as identified in the Employment Opportunities Analysis (EOA) 2012 adopted report and the 2015 Update. The scenarios do not address the industrial and campus institution development capacity shortfalls identified in the EOA. These shortfalls are being addressed through map changes in the Comprehensive Plan Update and the Campus Institution Zoning Project.[13]The evaluation of the Proposed Comprehensive Plan accounts for land use changes to address these shortfalls.

[13] https://www.portlandoregon.gov/bps/article/408240

DEFAULT SCENARIO



The growth distribution in the Default scenario is based on Portland's 15-year development trends (1996-2010). As a result, in this scenario a significant amount of growth is allocated to both East Portland (39,000 new households). However, less growth is allocated to the Central City (24,000).

In East Portland, much of the projected growth is located in Gateway and near SE 122nd Avenue and SE Division Street.

In the Inner Neighborhoods, most growth is expected along corridors and in centers, like Hollywood.

Figure 16: Default Scenario: New Household Growth Distribution.

Table 6: Default Scenario: New Household Growth Distribution.

District	New Growth	2035 Total	Growth Factor
Central City	24,000	50,000	1.9
Southeast Portland	20,000	90,000	1.3
Northeast Portland	13,000	59,000	1.3
North Portland	17,000	44,000	1.6
East Portland	39,000	95,000	1.7
West Portland	10,000	54,000	1.2
Citywide	**123,000**	**392,000**	**1.5**

Figure 17: Default Scenario: 2035 Development Pattern.

Default Scenario Development Pattern

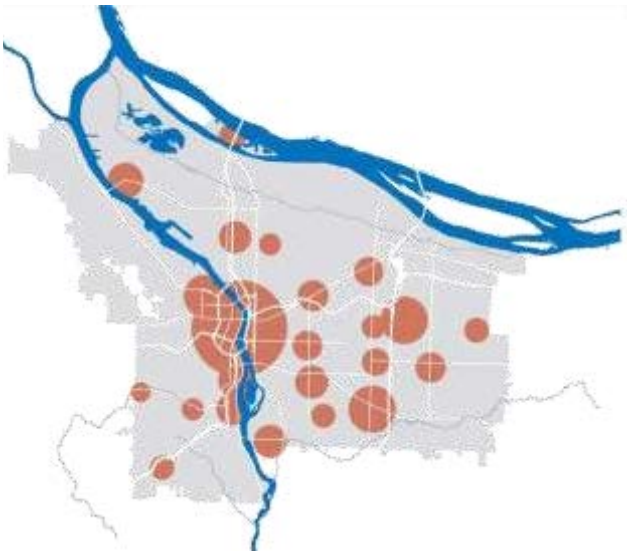
The resulting development pattern is relatively dispersed. It does not have significant concentrations of mixed-use areas. This dispersed pattern may make it more difficult to provide most Portlanders with walkable access to services, make cost-effective infrastructure investments and provide enhanced transit access.

Complete Neighborhoods – Widely distributed growth makes it less likely there will be the critical mass of activity needed to support the development of highly functioning mixed-use centers. Without mixed-use centers, fewer residents will have safe and walkable access to needed goods and services.

Infrastructure Investment – This growth pattern may also make it more difficult and less efficient to provide needed infrastructure services to all Portlanders. With a dispersed development pattern, there will be fewer residents within service areas, increasing the need to provide more facilities and services, without increases in financial resources.

Access to Transit and Jobs – Transit service is more efficient when there are concentrations of jobs and housing. This pattern will necessitate more transit lines, and may result in less frequent service.

CENTERS SCENARIO



In this scenario, growth is focused in Centers. Centers are compact mixed-use, walkable areas with shops and services that are well served by transit and connected to employment centers. Centers also have a housing mix that provides a range of choices for various household sizes and income levels. The Centers scenario builds off of the Healthy Connected City strategy in the Portland Plan, as well as the current Comprehensive Plan and Metro's 2040 Growth Concept, all of which prioritize growth in centers.

This scenario has a more compact growth pattern than the Default. It directs approximately 80 percent of new multifamily household growth into a more limited set of existing and emerging urban centers, including SE Lents, St. Johns and Hillsdale, the Central City and SE Hawthorne-Division-Belmont, among others.

Figure 18: Centers Scenario: New Household Growth Distribution.

Table 7: Centers Scenario: New Household Growth Distribution.

Districts	New Growth	2035 Total	Growth Factor
Central City	30,000	56,000	2.2
Southeast Portland	20,000	90,000	1.3
Northeast Portland	12,000	58,000	1.3
North Portland	17,000	44,000	1.6
East Portland	34,000	90,000	1.6
West Portland	10,000	54,000	1.2
Citywide	**123,000**	**392,000**	**1.5**

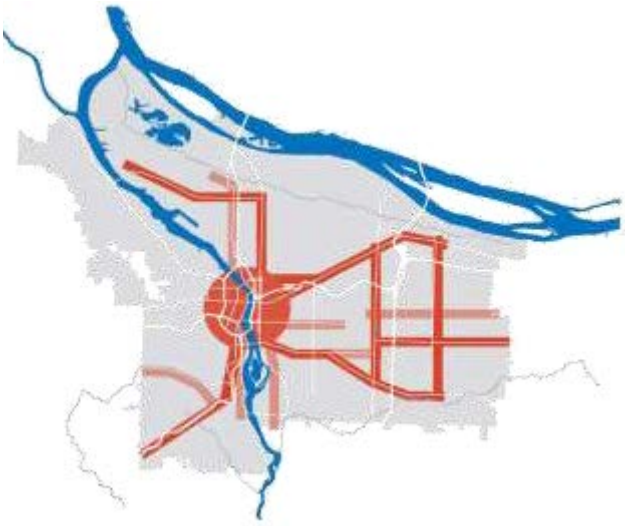
Figure 19: Centers Scenario: 2035 Development Pattern.

Centers Scenario Development Pattern

The Centers scenario yields a series of compact, walkable, mixed-use areas with commercial services and residential buildings. Residential areas within centers will see more development, but residential areas outside centers will remain largely unchanged from today.

In order to encourage private development in Centers, the City and other agencies may need to invest in infrastructure facilities, like sidewalks, to improve safety and access to transit and streetscape improvements to create more pleasant walking environments and gathering spaces. These improvements will increase the attractiveness of centers and make it easier for residents in surrounding neighborhoods to safely and easily walk, bike or roll to local services to meet their household needs.

CORRIDORS SCENARIO



This scenario prioritizes growth along Civic Corridors. Civic Corridors are typically long and significant streets that link different parts of the city together. They have frequent transit service and have the potential for a high level of development on either side.

The Corridors scenario builds off a significant component of the Healthy Connected City strategy in the Portland Plan, as well as the current Comprehensive Plan and Metro's 2040 Growth Concept.

This scenario allocates approximately 80 percent of new multifamily household growth into corridors, such as SW Barbur Boulevard, North Interstate, 82nd Avenue, and 122nd Avenue.

Figure 20: Corridors Scenario: New Household Growth Distribution.

Table 8: Corridors Scenario: New Household Growth Distribution.

Districts	New Growth	2035 Total	Growth Factor
Central City	30,000	56,000	2.2
Southeast Portland	20,000	90,000	1.3
Northeast Portland	12,000	58,000	1.3
North Portland	17,000	44,000	1.6
East Portland	34,000	90,000	1.6
West Portland	10,000	54,000	1.2
Citywide	**123,000**	**392,000**	**1.5**

Figure 21: Corridor Scenario: 2035 Development Pattern.

Corridor Scenario Development Pattern

This scenario results in a linear growth pattern with much development along major streets, but with minimized impacts to established single family neighborhoods. It supports distinctly urban corridors with more intense uses and levels of activity than there are today or in the Default.

A corridor growth pattern may improve watershed health by shifting growth from more environmentally sensitive areas into redevelopment of already urbanized corridors. It also may be more cost effective to serve with sewer and water infrastructure.

CENTRAL CITY FOCUSED

This scenario focuses most future household growth into the Central City and Inner Neighborhoods within 3 miles of the Central City (a short transit or bike trip). Some additional growth is also directed to Gateway. This scenario reflects Portland's more recent (2008-2012) five-year development trends.

With this scenario, 16000 more households would be directed to the Central City than in the Default. Inner Southeast and Northeast Portland would see 10,000 more households than in the Default. This distribution alleviates growth pressures in East Portland.

Figure 22: Central City Focused Scenario: New Household Growth Distribution.

Table 9: Central City Focused Scenario: New Household Growth Distribution.

Districts	New Growth	2035 Total	Growth Factor
Central City	40,000	66,000	2.5
Southeast Portland	24,000	94,000	1.3
Northeast Portland	19,000	65,000	1.4
North Portland	11,000	38,000	1.4
East Portland	19,000	75,000	1.3
West Portland	10,000	44,000	1.2
Citywide	**123,000**	**392,000**	**1.5**

Figure 23: Central City Focused Scenario: 2035 Development Pattern.

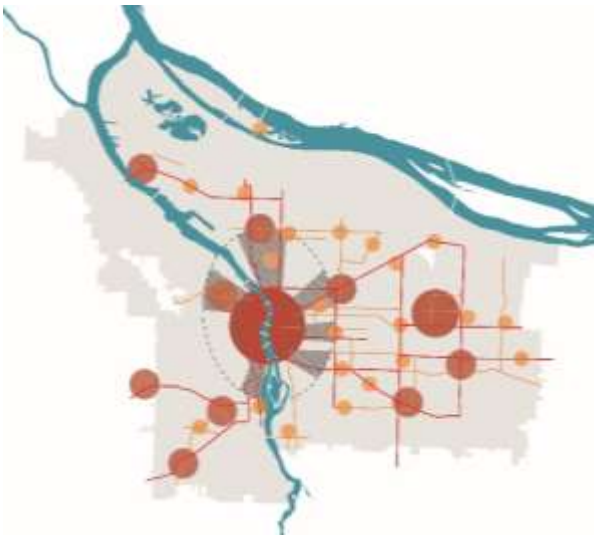
Central City focused development pattern

The overall land development pattern includes a highly developed Central City, with more tall buildings and significantly more residential development than today. Some additional development in the Central City may be achieved by encouraging the use of height and density bonuses. This scenario also includes developed mixed-use corridors within 3 miles of the Central City.

This scenario represents an opportunity to capitalize on existing infrastructure – these areas have a complete street network and good access to existing bicycle and transit networks. It may require less expensive infrastructure investment with a focus on amenities such as community centers and schools.

At the same time, the decrease in development pressure on East Portland may provide the opportunity to invest in much-needed infrastructure, such as schools and sidewalks.

PROPOSED COMPREHENSIVE PLAN



This scenario reflects the policies and actions supported by the Proposed Comprehensive Plan. This is a blend of three growth strategies – Centers, Corridors and Central City. It takes advantages of the mixed-use, walkable areas that can be created in centers and along Civic Corridors. The Proposed Plan also focuses more future household growth into the Central City and Inner Neighborhoods within 3 miles of the Central City (a short transit or bike trip). Some additional growth is also directed to Gateway and other town centers. This scenario also reflects Portland's most recent (2010-2014) development trends.

With this scenario, 12,000 more households would be directed to the Central City than in the Default. Inner Southeast and Northeast Portland would see 4,000 more households than in the Default. Density reductions have been proposed in locations farther from identified Centers and Corridors, particularly in outer East Portland.

Figure 24: Proposed Comprehensive Plan Scenario: New Household Growth Distribution.

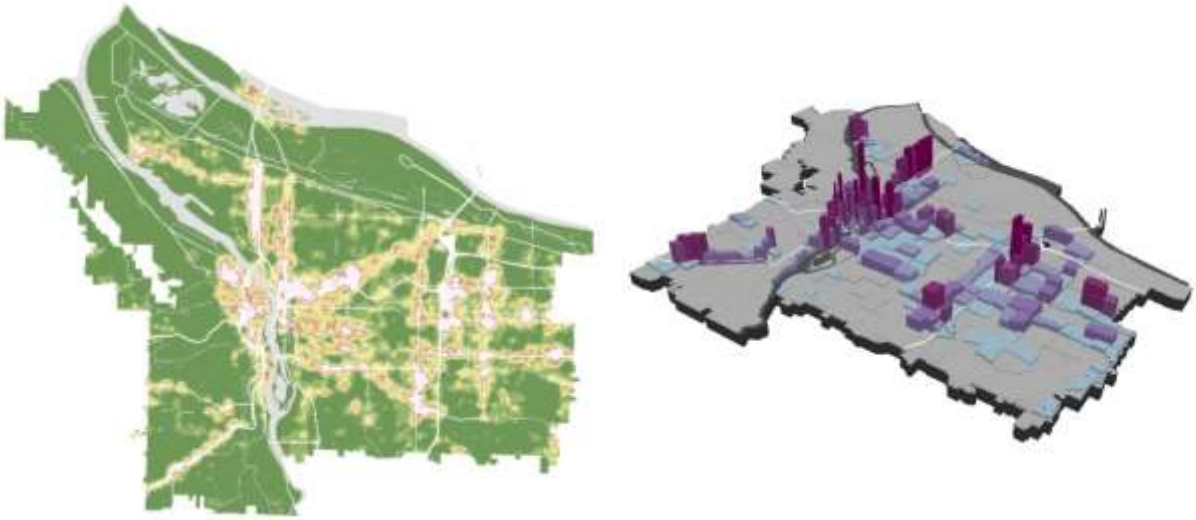


Table 10: Proposed Comprehensive Plan Scenario: New Household Growth Distribution.

Districts	Existing	New Growth	2035 Total	Growth Factor
Central City	26,000	36,000	62,000	2.4
Southeast Portland	70,000	22,000	92,000	1.3
Northeast Portland	46,000	15,000	61,000	1.3
North Portland	27,000	13,000	40,000	1.5
East Portland	56,000	27,000	83,000	1.5
West Portland	44,000	10,000	54,000	1.2
Citywide	**269,000**	**123,000**	**392,000**	**1.5**

Figure 25: Proposed Comprehensive Plan Scenario: 2035 Development Pattern.

Proposed Comprehensive Plan development pattern

The overall land development pattern includes a highly developed Central City, a series of compact, walkable, mixed-use centers with commercial services and residential buildings and some linear growth along major streets and transit corridors. This development pattern supports distinctly urban areas of development with more intense uses and levels of activity than exist today.

This scenario represents an opportunity to capitalize on existing infrastructure – these areas have a complete street network and good access to existing bicycle and transit networks. In order to encourage private development in prioritized centers and corridors, City bureaus and other public agencies will need to invest in infrastructure facilities, like sidewalks, to improve safety and access to transit and streetscape improvements to create more pleasant walking environments.

A critical component of the Proposed Comprehensive Plan Scenario is to accommodate growth by taking advantage of existing infrastructure efficiencies in well served inner neighborhoods while investing to reduce disparities in centers and corridors in East Portland.

4. PERFORMANCE MEASURES

The primary purpose of this report is to establish a framework to evaluate the alternative growth scenarios against a set of performance measures. This framework will allow Portlanders to weigh the tradeoffs between different growth patterns and investment priorities, and evaluate the relative performance of the Proposed Plan.

The performance measures are based on the Portland Plan's Measures of Success and cover a wide range of subjects, from complete neighborhoods to watershed health. This list of measures provides a snapshot or overall sense of current conditions and where Portland will be in 2035. The evaluation identifies challenges and gaps to achieving the performance goals as well as the potential impact of different infrastructure investments. The scenarios also provide an opportunity to evaluate performance at different scales – citywide, district and neighborhood.

Finally, these measures are a starting point. They are not intended to provide a complete analysis of the issues, and some Portland Plan measures, such as high school graduation rates, are not directly dependent on the geographic distribution of growth.

LONG-TERM VALUE

This evaluation framework was used throughout the development of the Proposed Comprehensive Plan Map.

The preferred growth strategy of the Proposed Comprehensive Plan is also reflected in the Urban Design Framework and the policies, infrastructure projects and maps in the adopted Comprehensive Plan. The performance measures informed those decisions and serve as a framework for ongoing monitoring and evaluation of the plan's implementation. The information in this background report focuses primarily on housing growth in Portland, with an emphasis on highlighting the performance of existing infrastructure and highlighting key opportunities and the relationships between Portland's existing deficiencies and potential future gaps. The evaluation has been used to identify actions to address gaps in performance. This updated analyses summarizes approaches used to overcome performance gaps through the Proposed Comprehensive Plan.

The purpose of this section is to outline to what degree different scenarios affect performance on a series of measures. These measures evaluate how well existing infrastructure and zoning perform under different growth patterns. The results of these measures begin to indicate performance gaps. This, in turn, served to clarify Comprehensive Plan goals, policies, infrastructure, investments, programs and partnerships that can best help Portland to reach performance targets.

Table 11: Portland Plan Performance Measures.

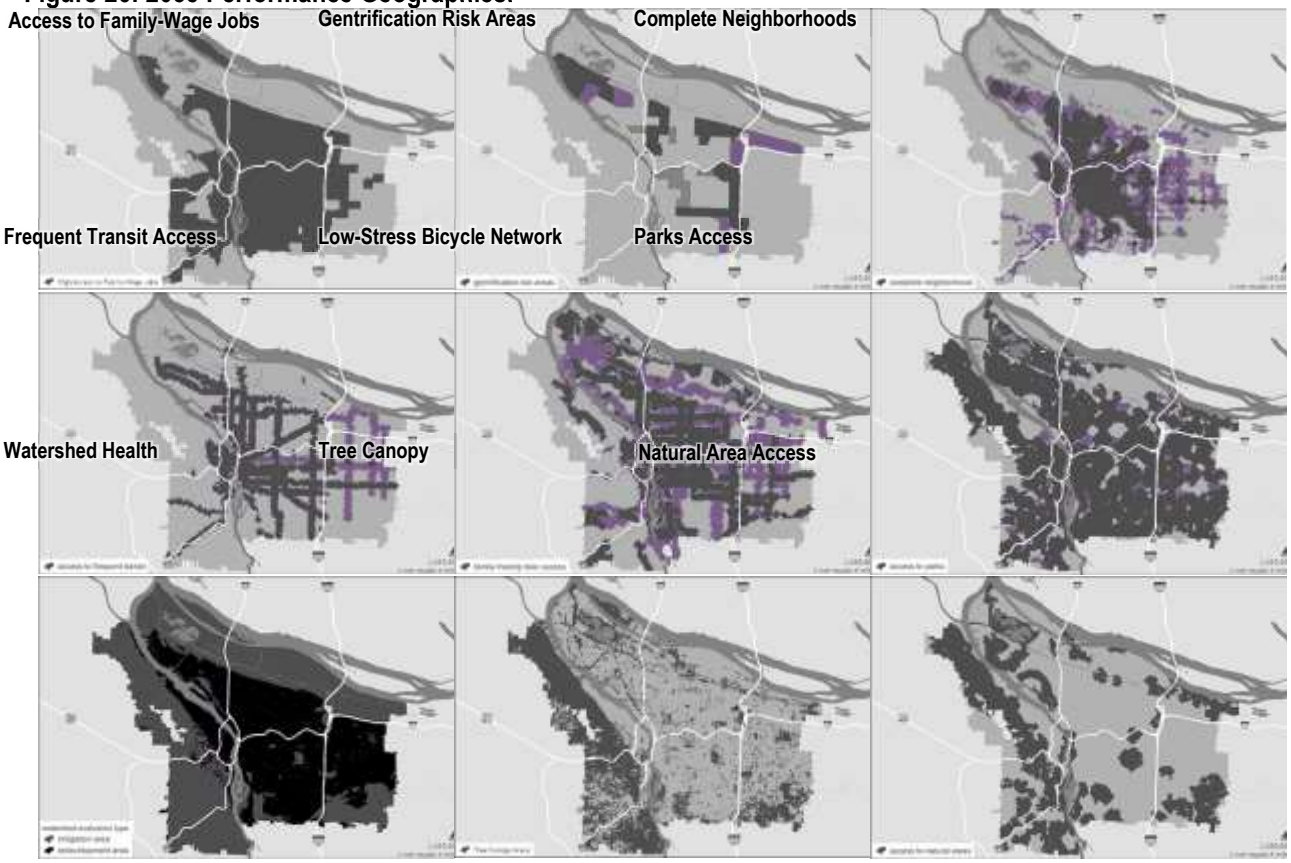
Portland Plan Objective	Performance Measure
Prosperity and Affordability	
By 2035, extend upward mobility pathways so that at least 90 percent of households are economically self-sufficient. By 2035, Portland has 27 percent of the region's new jobs, more of which provide a living wage, and continues to serve as the largest job center in Oregon.	Access to Family-Wage Jobs
By 2035, preserve and add to the supply of affordable housing so that no less than 15 percent of the total housing stock is affordable to low-income households, including seniors on fixed incomes and persons with disabilities.	Housing Mix and Affordability
By 2035, no more than 30 percent of city households (owners and renters) are cost burdened, which is defined as spending 50 percent or more of their household income on housing and transportation costs.	Risk of Displacement/ Gentrification
Healthy Connected City	
By 2035, 80 percent of Portlanders live in a complete neighborhood with safe and convenient access to the goods and services needed in daily life.	Complete Neighborhoods
By 2035, Portlanders have reduced the number of miles they travel by car to 11 miles per day on average and 70 percent of commuters walk, bike, take transit, carpool or telecommute to work. By 2035, Portland's transportation-related carbon emissions are 50 percent below 1990 levels, and effective strategies to adapt to climate change are in place and being implemented.	Access to Frequent Transit Access to Low-Stress Bikeways Vehicle Miles Traveled (VMT) Mode Share GHG/Carbon Emissions
By 2035, all Portlanders live within a half-mile safe walking distance of a park or greenspace. By 2035, all Portlanders can conveniently get to and enjoy the Willamette and Columbia Rivers. The regional Trail System is substantially complete and is an integrated component of a Healthy Connected City network.	Access to Parks Access to Natural Areas
By 2035, watershed health is improved, and the Willamette River and local streams meet water quality standards. Tree canopy covers at least one-third of the city and is more equitably distributed. Fewer homes and businesses are at risk from flooding. A diversity of critical habitats (including floodplains, riparian areas, wetlands, oak groves, native forests and remnant meadows) are protected, connected and enhanced to support a rich diversity of native and migratory wildlife. High-quality trees are routinely preserved and planted on development sites.	Watershed Heath Tree Canopy

METHODOLOGY

Most of the performance measures can be mapped as an area or geography that represents a part of Portland that meets the performance objective. This evaluation analyzes the amount of growth and the total number of 2035 households that occur within the high-performance geography. The evaluation includes the existing (2010) households, the 2010-2035 growth, and the total (existing plus growth) 2035 households for each scenario and the Proposed Comprehensive Plan. For example, the Complete Neighborhoods geography represents the parts of Portland that are relatively complete based on an index that measures walkable access to shops, services and civic amenities. The 2035 Portland Plan objective is that 80 percent of Portland households are located in a "complete neighborhood." The performance evaluation shows that 63 percent of current (2010) households are located in complete neighborhoods and the scenarios show a 2 to 6 percent increase for the different scenarios, without considering infrastructure investments. The Proposed Comprehensive Plan brings this number to 73% through a combination of land use changes, and investments to create more complete neighborhoods where they do not currently exist (adding parks, transit, sidewalks, etc. as described in the TSP and CSP).

The dark areas on the maps represent the high-performance geography. For the most part, these measures are positive indicators, which means increasing performance by maximizing the number of households in these geographies or expanding the coverage area of the geographies. The Gentrification Risk Areas is the one exception, where there is not a clear positive or negative associated with the information.

Figure 26: 2035 Performance Geographies.



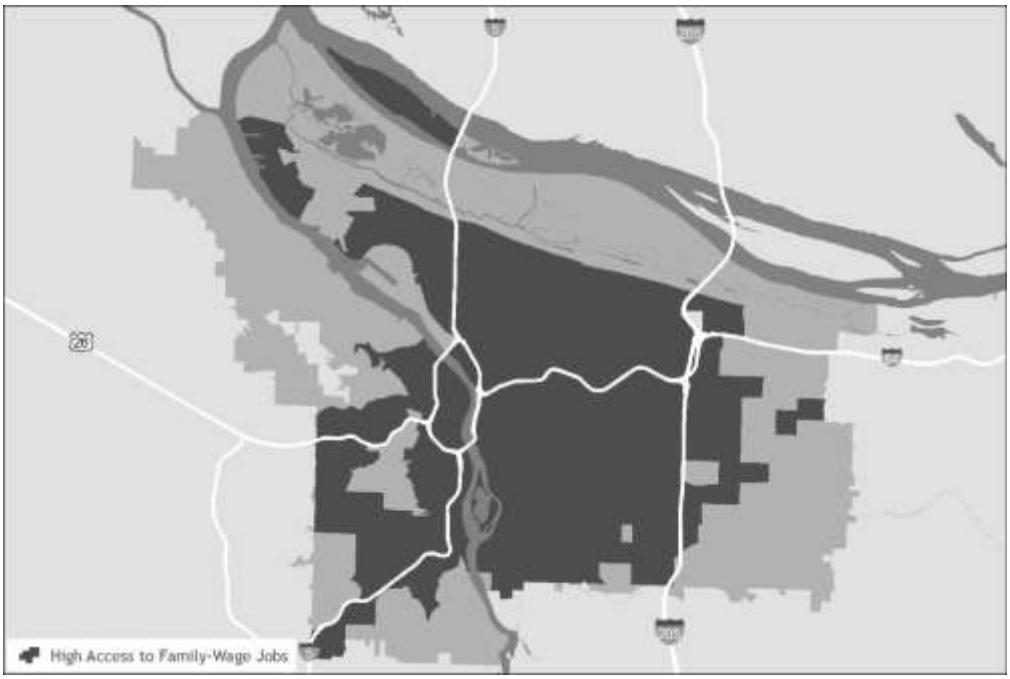
ACCESS TO FAMILY-WAGE JOBS

PORTLAND PLAN

By 2035, extend upward mobility pathways so that at least 90 percent of households are economically self-sufficient.

By 2035, Portland has 27 percent of the region's new jobs, more of which provide a living wage, and continues to serve as the largest job center in Oregon.

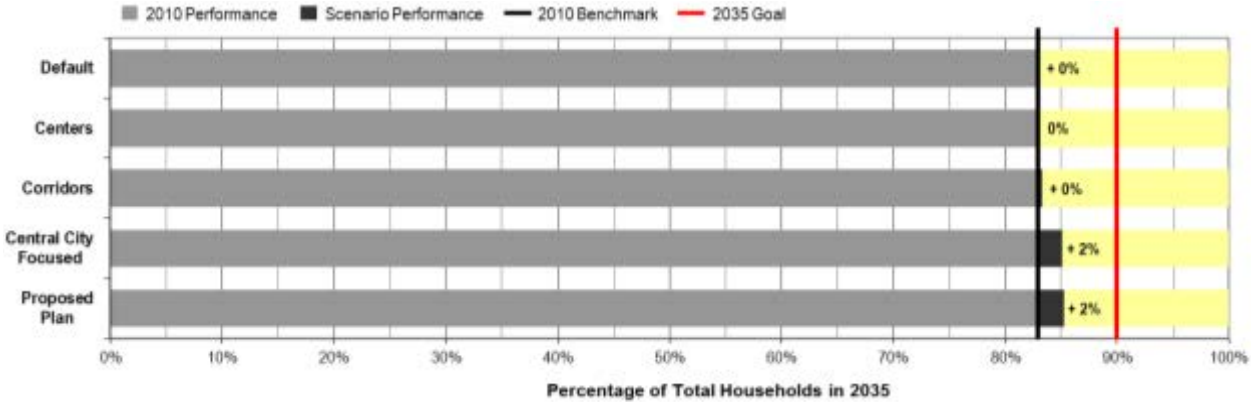
Locating housing with access to a variety of higher paying jobs is a critical component of household prosperity. This performance measure is based on the number of family-wage jobs accessible within a 60-minute transit trip. A family-wage job is one that can meet the basic needs of a single-income household of one adult, one infant and one preschooler. In Multnomah County, the family-wage employment threshold is $47,244 per year. This basic measure only accounts for access to the quantity of jobs as an indicator of opportunity, without considering skills, qualifications or education attainment levels. While this analysis is influenced by proximity to the Central City, the region's largest job center, it also accounts for employment destinations accessible by transit in cities throughout the region.



Family-Wage Job Access Areas are places where households have good transit access and are reasonably close to employment centers with concentrations of jobs. Prioritizing development, especially affordable housing, in these areas will be beneficial to household prosperity by increasing the number of family-wage jobs that are accessible to a household with reduced dependence on an automobile.

Family-Wage Job Gap Areas are places where households have reduced access to family-wage jobs. Focusing public investments to increase access to transit or to support business growth to increase employment opportunities in or near these areas will help to expand the access to family-wage jobs.

Chart 1: Performance Measure: Access to Family-Wage Jobs – Households in Job Access Area[14]



Performance of the Proposed Comprehensive Plan

The performance goal is a translation of the Portland Plan objective that 90 percent of households are economically self-sufficient – in order to be a prosperous household, wage-earners need access to family-wage jobs. In 2010, 82 percent of Portland households were located in areas with good transit access to family-wage jobs. Policy and investment decisions in the Proposed Comprehensive Plan increase transit access to family-wage jobs by 2 percent. Comprehensive Plan map changes in the Gateway Town Center, along 82nd Avenue and elsewhere in East Portland, as well as the transit and active transportation investments in the TSP will contribute to better access to family-wage jobs in East Portland. Proposed changes in transit service to better connect 122nd Avenue with the Columbia Corridor had a particularly strong impact on this number.

Options for Improving Performance

In order to meet the 90 percent goal, approximately 38,000 additional households need to have improved access to family-wage jobs. This change could be accomplished by increasing access to transit or creating more job opportunities in or near these low-access areas.

Increase Transit Service in East Portland

This measure is a function of transit travel time to employment centers. One strategy is to increase transit service in East Portland to provide faster or more direct connections to regional employment centers, especially the Columbia Corridor.

Lesson Learned: More Jobs in East Portland

If our pool of family-wage jobs is too far away from the pool of affordable housing, access to opportunity is reduced. East Portland is Portland's largest pool of affordable housing, but it lacks access to family-wage employment.

Increase Employment Opportunities in East Portland

Another option is to support business growth in order to increase job opportunities, especially middle-skill, family-wage jobs in East Portland. This business growth could be achieved through continuation and expansion of PDC's Neighborhood Prosperity Initiative. It also could be achieved through zoning changes to increase the amount of land available for light industrial uses and manufacturing.

[14] Performance of the Proposed Plan is will increase in the future as new employment uses are built in new dispersed employment areas in East Portland and new frequent transit service is added. A transit matrix analysis will be updated when new frequent transit stops are identified by Trimet.

HOUSING CHOICE

PORTLAND PLAN

By 2035, preserve and add to the supply of affordable housing so that no less than 15 percent of the total housing stock is affordable to low-income households, including seniors on fixed incomes and persons with disabilities. By 2035, no more than 30 percent of city households (owners and renters) are cost burdened, which is defined as spending 50 percent or more of their household income on housing and transportation costs.

Housing choice is a complex issue that is shaped by household preferences based on factors such as age, family size and income level. Additionally, discrimination in the housing market influences choice. Such complexities make it difficult to assess the housing choice impact of different scenarios. The housing choice analysis encompasses the mix of housing types (buildings) and how those types are expected to meet forecasted demand for different households (people). On a basic level, Portland has the zoned capacity to enable the private sector to produce a sufficient supply of new housing units to meet forecasted demand. The scenarios also allow for a wide range of housing types that are expected to meet a wide range of household needs. The differences are in the minor shifts in the unit mix of housing types that can affect affordability and gentrification risk.

Expanding housing choice is dependent on three key components:

Location Diversity – Location matters. Housing choice in Portland always takes place within the context of the larger regional housing market, which offers different amenities and opportunities. Portland can increase location diversity by (1) targeting growth into key centers and corridors, and (2) creating more complete neighborhoods by improving services and access in areas that are currently not well served.

Unit Affordability – Affordability is a function of two components: housing cost/rent and household income. A mismatch between these two factors can result in a cost-burdened household, wherein 50 percent or more of household income is spent on housing and transportation costs. For many low-income households, affordable housing is difficult to find in the private market and they must rely on public programs to keep housing costs below the burden level. Affordability can also be affected by supply and demand. Failing to enable mixed-income housing development in high-demand areas can create tight market conditions, driving prices up.

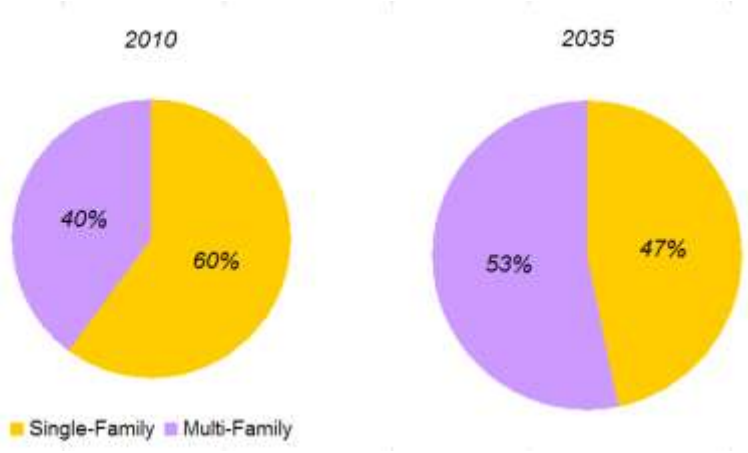
Unit Diversity – Housing unit diversity in an area can support a range of housing choices that respond to changing household needs such as larger family-sized units or multifamily rental opportunities adjacent to established single family neighborhoods.

The interaction of these components affects the level of housing choice available to each household differently. It is important to note that choice can be expanded independent of affordability by building more housing units and creating more complete neighborhoods (attractive locations). These issues have impacts on Portland's performance to the degree that Portland continues to grow. Housing unit diversity offers regional and citywide benefits, including lessening the burden of automobile travel across the region (resulting in fewer vehicle miles traveled), using existing infrastructure efficiently and supporting regional transportation corridors and employment centers.

Housing Mix

Overall, Portland provides a relatively balanced mix of housing types. Currently, single family houses make up nearly 60 percent of Portland's housing stock. As a result of Portland being already urbanized, with limited opportunities for single family residential development, the vast majority (80 percent) of new housing units are expected to be in multifamily units. The supply of multifamily units is expected to grow by 95,000 units, far exceeding the expected single family growth of 26,000 units. Even though the new growth is skewed toward multifamily housing types, the overall mix in 2035 is still relatively balanced, with 47 percent being single family houses.

Chart 2: Single-Family–Multi-Family Unit Split.



Although the housing mix will shift, the share of the land area zoned within the City of Portland will remain consistent, with Single Family Residential covering about 42 percent of Portland's land area. The mixed-use commercial areas and multifamily residential areas make up only about 10 percent of the land area, with the balance largely in industrial areas and open space.

Figure 27: Land Area by Zoning Designation.

Multi-family & commercial zones

Single-family zones

Table 12: Housing Types.

SINGLE FAMILY RESIDENCES

Detached House

A one- to three-story detached, single family dwelling on its own lot. Typically, lot size is more than 5,000 square feet.

Small Lot Single Family Residence

A one- to three-story detached, single family dwelling on its own lot, but a smaller (2500 sq foot) lot.

Attached House (Medium Density)

Characterized by individual units that share a common wall, with each unit on its own lot. Examples include townhomes and rowhouses.

Attached House (High Density)

Characterized by individual units that share a common wall. Many high-density attached houses include shared open space amenities in backyards or courtyards. Examples include duplexes, triplexes and units with shared courtyards.

CORRIDOR APARTMENTS

Plex

A dwelling having apartments with separate entrances to six or more units. This includes two-story houses having a complete apartment on each floor and side-by-side apartments on a single lot that share a common wall.

Corridor Apartment

A four-story residential apartment building, typically with one on-street entrance and internal entrances to individual units.

Neighborhood Mixed Use

A four-story residential apartment building with commercial uses on the ground floor.

Single Room Occupancy Unit (SRO)

A studio apartment that does not have its own washing, laundry and kitchen facilities. Examples include affordable housing projects, assisted living facilities and college dormitories.

MID- TO HIGH-RISE APARTMENTS

Mid-Rise Mixed Use (Small Units)

A six- to ten-story building with ground floor office or retail uses. Allocated units of this type tend to be predominantly studios and one-bedroom units and tend to have smaller units.

Mid-Rise Mixed Use (Large Units)

A six- to ten-story building with ground floor office or retail uses. Typical units are larger, one- to four-bedroom units, and have a smaller number of studio units as part of the overall mix.

High-Rise Tower

A 10+ story building containing residential apartments or condominium units. In addition to spectacular views, most high rises offer their residents a full range of amenities. Building features may include 24-hour concierge service, swimming pools, spas, saunas, tennis courts, exercise areas, party rooms and guest suites.

Chart 3: Housing Type Production by Scenario.

Table 13: Housing Type Production by Scenario.

	Default	Centers	Corridors	Central City Focused	Proposed Comprehensive Plan
SINGLE FAMILY RESIDENCES					
Detached Houses	14,000	14,000	13,000	14,000	14,000
Small-Lot Houses	3,000	3,000	3,000	3,000	3,000
Attached Med Density	5,000	5,000	5,000	5,000	5,000
Attached High Density	3,000	4,000	4,000	4,000	4,000
CORRIDOR APARTMENTS					
Plexes	8,000	8,000	7,000	6,000	7,000
Corridor Apts	16,000	16,000	16,000	11,000	14,000
SRO/Studios	9,000	9,000	10,000	10,000	13,000
Neighborhood Mixed Use	21,000	20,000	21,000	21,000	16,000
MID-TO-HIGH RISE APARTMENTS					
Mid-Rise (small units)	19,000	19,000	21,000	15,000	18,000
Mid-Rise (large units)	3,000	3,000	3,000	2,000	4,000
High-Rise	19,000	19,000	18,000	30,000	22,000
ACCESSORY DWELLING UNITS					
ADUs	3,000	3,000	3,000	3,000	3,000

Housing Types

Housing types found in Portland fall into three broad categories: single family residential, neighborhood and corridor apartments, and mid- to high-rise units. These categories are based on building types and include both rental and ownership/condos. The analysis shows that Portland expects to produce a wide range of housing types, with all of the scenarios producing a similar mix. The one exception is the Central City Focused scenario, which produces more high-rise towers and fewer plexes and corridor apartments, which could negatively affect housing affordability.

Household Types

Housing preference is usually shaped by the size and needs of a household. However, the actual choice and eventual place of residence for a household is significantly influenced by household income. Metro's Metroscope model groups current (2010) and future households (2035) into eight different types (See Table 14) based on income, age, and size across the metro region. This grouping is helpful in estimating current and future affordable housing needs by helping identify and describe the household types that are most likely to struggle to meet the cost of housing based on their income.

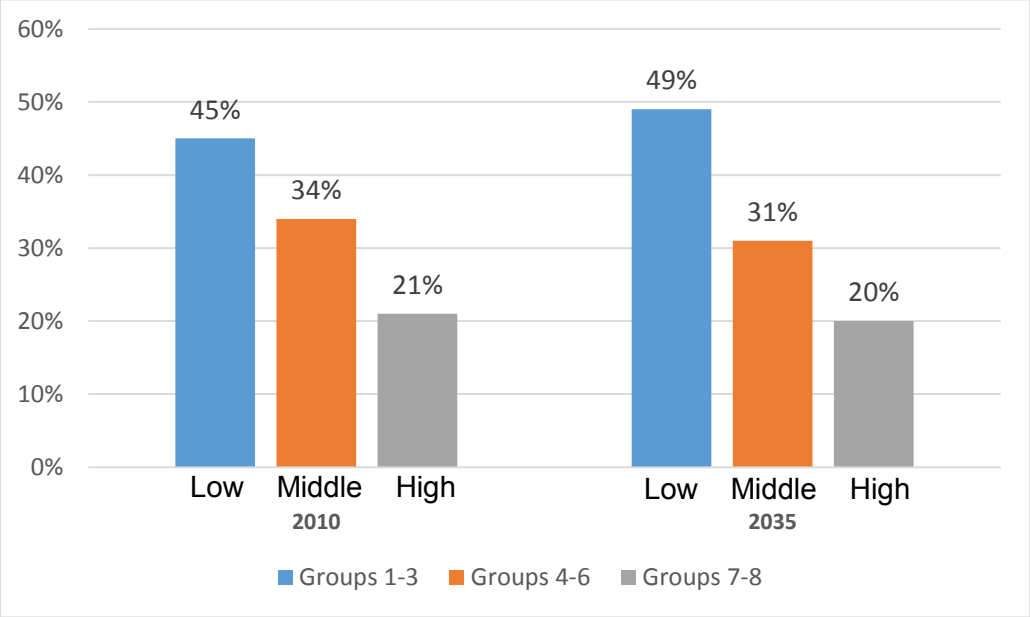
Metro's most recent household projections provide insight regarding the share and number of households that struggle to find suitable housing today and are likely to face the same challenge through 2035. As can be noted from following table (Table 14), Groups 1, 2, & 3, are households that generally make less than 80% MFI and made-up 45% of households in Portland in 2010. By 2035, the share these household groups is projected to grow an additional three percent. The number of households in the lowest income group alone is projected to grow by 25,000.

Table 14: Households by Income Type (2010–2035)

	Household Type	Income	2010 Share	2010 Households	2035 Share	2035 Households	Percent Change	Amount Increase
Low	Group 1	<$15,000	17%	43,004	18%	67,544	1%	24,540
	Group 2	$15,000-$24,999	13%	32,885	15%	56,285	2%	23,400
	Group 3	$25,000-$34,999	15%	37,944	16%	60,039	0%	22,095
Middle	Group 4	$35,000-$44,999	13%	32,885	13%	48,781	0%	15,896
	Group 5	$45,000-$59,999	13%	32,885	11%	41,276	-2%	8,391
	Group 6	$60,000-$74,999	8%	20,238	7%	26,268	0%	6,030
High	Group 7	$75,000-$99,999	10%	25,296	10%	37,523	0%	12,227
	Group 8	$100,000+	11%	27,826	10%	37,523	-1%	9,697
	Total	-	**100%**	**252,963**	**100%**	**375,239**	-	**122,276**

Source: Metroscope, Gamma 2012

Figure 28: Household Types



Affordability and Cost Burden by Household Type

The nature of the housing stock, both existing and new, will influence the housing choice that households make today and in the future. Not every new household will be matched to a new unit. Older housing stock tends to be more affordable than new construction in many areas, and Portland's existing housing stock will continue to be the predominant housing stock in the market. Market demand, amenity level and location can put increased market pressure on these areas due to low vacancy rates and lack of choice within a particular segment of stock (i.e. family housing, studios, etc.).

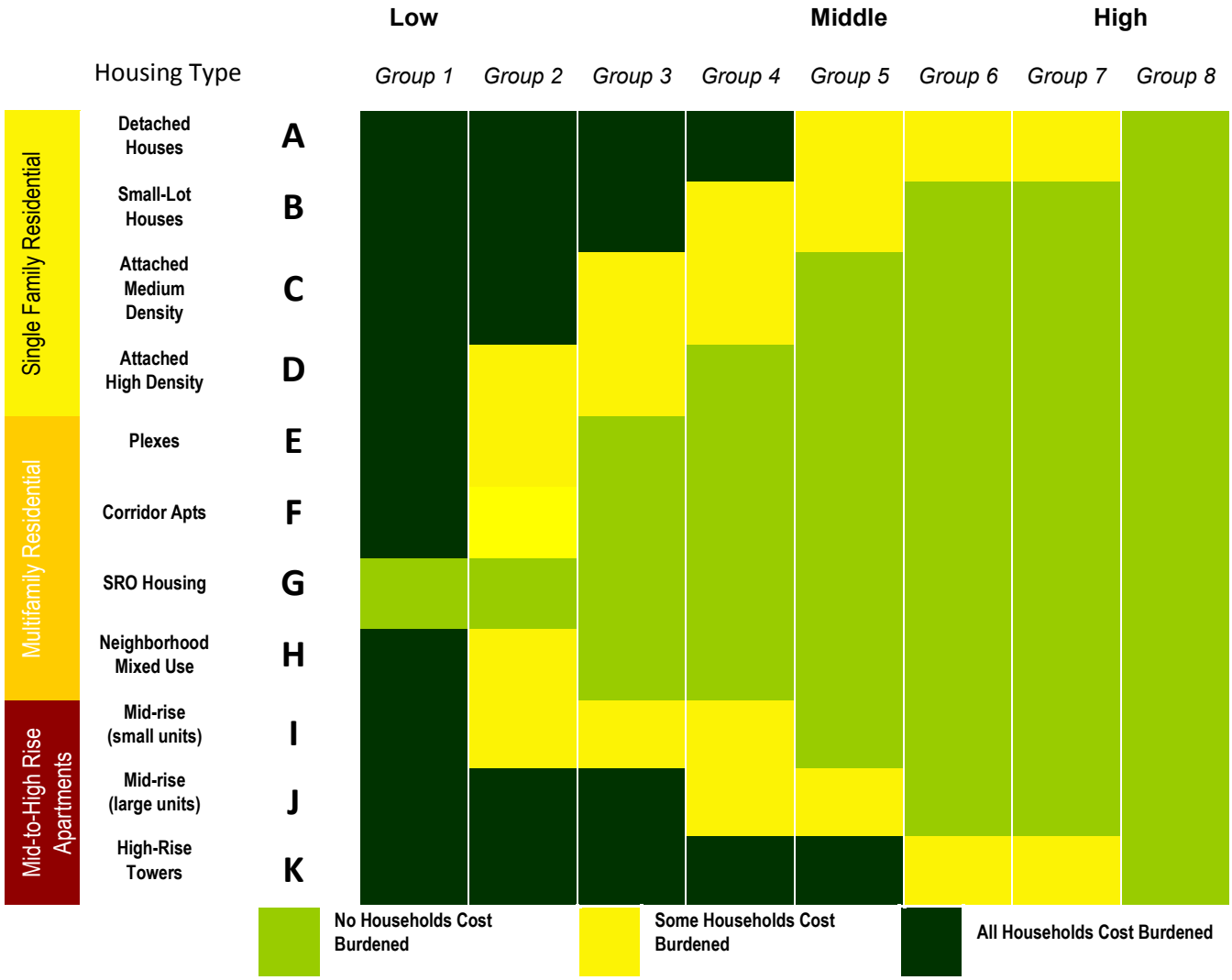
In general, the diversity of the housing type production should be sufficient to produce enough housing units to meet the future demand, except for the low-income groups, which will have fewer choices from new development. The illustration (Table 14) provides a cross match between housing unit types and the eight household types based on prevalent housing costs to help us understand the need for types of affordable housing units that will be required. For example, the number of Group 1 households is expected to grow by 25,000, but the scenarios expect to develop only another 8,000-10,000 units of SRO/small studio housing (the only housing type projected to be affordable to that group). This gap will put pressure on the existing affordable units and increase the number of cost-burdened households in this category. For Groups 2 and 3, the housing situation is a little better – they are expected to grow by another 45,000 households by 2035 with the expectation that an additional 68,000 housing units will be developed in categories that could be suitable and affordable to them. However, these households will face competition for that housing from the other higher income groups that will limit their housing choices. Ensuring that excess capacity exists in those housing types could help protect against upward price pressure.

Table 15: Household Types

GROUP 1 **<$15,000**	These are the lowest income households, whether they are renters or owners. Of the renters in this group, all live alone, and most are elderly. Among owners in Group 1, age and the number of people in the household are more evenly distributed. Example: A woman in her seventies renting an apartment, living alone on a very low income.
GROUP 2 **$15,000<$25,000**	These households can be any age, but their income is among the lowest. There are more renters than owners. About two-thirds are childless. However, one-third of the renter households in this group have school-age children, while only about one in six of the owners in this group have school-age children. Example: A family renting a home, two adults working at low-wage jobs, raising young children.
GROUP 3 **$25,000<$35,000**	With a bit more income than Group 2 households, these people are primarily in the 25-44 age bracket. The renters are mostly single-person households. Among owners, about half are two-person households, approximately one-third of which are families with school-age children. Example: Two thirty-somethings, both of whom work, and who have just bought their first home.
GROUP 4 **$35,000<$45,000**	With a broad age distribution, these households are usually childless, especially if they are renters. Owner households in Group 4 have more residents than renter households, and almost 40 percent of the group include school-age children. Example: Two people renting a home, both working, and with children who are grown up and living elsewhere.
GROUP 5 **$45,000<$60,000**	Group 5 households are larger and wealthier. People in the renter households of this category are not only older than those in the owner households, but also have smaller household sizes. The owners are more likely than not to have children. Example: Two parents in their late thirties, living in a home they own with children in junior high and high school.
GROUP 6 **$60,000<$75,000**	With more income than Group 5 households, almost half of the people in this group are between 25 and 44. Although the majority do not have school-age children, two- and three-person households are most common. The owner households are larger and more likely to have school-age children. Example: Two adults with well-paying jobs, one working full-time, the other part-time, raising elementary-school-age children and living in a home they own.
GROUP 7 **$75,000<$100,000**	Mostly without children, these households include the very high-income couples, especially for owners. Interestingly, the renter households in Group 7 are more likely to have children than the owner households in the group. Example: Two early-fifties adults working at well-paying jobs, owning their home.
GROUP 8 **>$100,000**	Among owners, most of these households have children; about 60 percent of renter households have children. They are the highest earners, in their prime earning years. Example: A family with two parents in their late forties or early fifties, both working fulltime in high-paying jobs, raising children who are still in school and living with them in the home they own.

Source: City of Portland. Housing Demand and Supply Background Report, October 2012

Table 16: Housing Affordability by Household Type.



Performance of the Proposed Comprehensive Plan

The Proposed Comprehensive Plan does not yet ensure a supply of affordable units to the lowest income groups.

For example, while the projected supply of SRO/studio sized apartments has increased slightly relative to other scenarios, it is not yet meeting projected demands. The projected increase in SRO/Studio units can be attributed to the creation of the Campus Institution Zone which significantly increases the capacity for student housing at educational institutions and supportive housing for medical institutions. Additional increases in SRO/Studio units can be attributed to recent development trends in centers and corridors (such as the increasing number of studio and micro apartments being built) that are reflected in the allocation of housing through the Mixed Use Zones project.

Down-designations from R5 to R7 in the Proposed Plan have slightly reduced the supply of more affordable small lot single family development. Down-designations in East Portland and Southeast Portland have also decreased the capacity for duplexes, townhomes, and lower

density multifamily development types. However, these down-designations were made to respond to infrastructure capacity challenges in East Portland including David Douglas School District capacity issues, access to frequent transit, and access to daily needs services.

Ideally these reductions in the supply of affordable single family and low-cost multifamily options would be offset by increasing the amount of land available for this kind of development in more opportunity-rich locations. For example, adding more R2.5 or R2 zoning near neighborhood centers could increase the supply of small lot single family homes, duplexes, townhomes, and low density multifamily development types. This should be a consideration as refinement plans are developed for centers and corridors.

Options for Improving Performance

Affordability will continue to be an issue that will need to be addressed, especially to meet the needs of low-income households, communities of color, aging populations and people with disabilities.

Keep Housing Affordable

The City needs to focus on keeping housing affordable and increasing the ability of the most vulnerable households to live in complete neighborhoods. This can be achieved through meeting the housing needs of households which will not be met by the market, building more affordable units in accessible amenity-rich locations, lowering transportation costs and increasing household prosperity, and improving services in areas that are affordable but not well served.

School Enrollment

A growing community raises concerns about school enrollment and the impact on school facilities. The share of households with children is expected to decline by 3 percent, but given the overall growth in households, the total number of children is expected to increase. Forecasting accurate long-range school enrollment is complicated, but to meet the anticipated need it will be important to align strategies to expand choice for households with children while making upgrades to existing school facilities. The Bureau of Planning and Sustainability has been working closely with Portland Public Schools and David Douglas Schools to coordinate growth forecasts.

Create a Wide Range of Housing Choices

Producing a diverse supply of housing creates diverse communities with the opportunity for households to remain in their neighborhood as their lifestyles and housing needs change, especially in allowing older adults to age within their community.

Support Development of New and Innovative Housing Types

Changing household needs and preferences will create demand for new and different housing types. Recently, Portland has seen the development of innovative housing types such as co-housing, micro-apartments and accessory dwelling units.

GENTRIFICATION RISK AREAS

PORTLAND PLAN

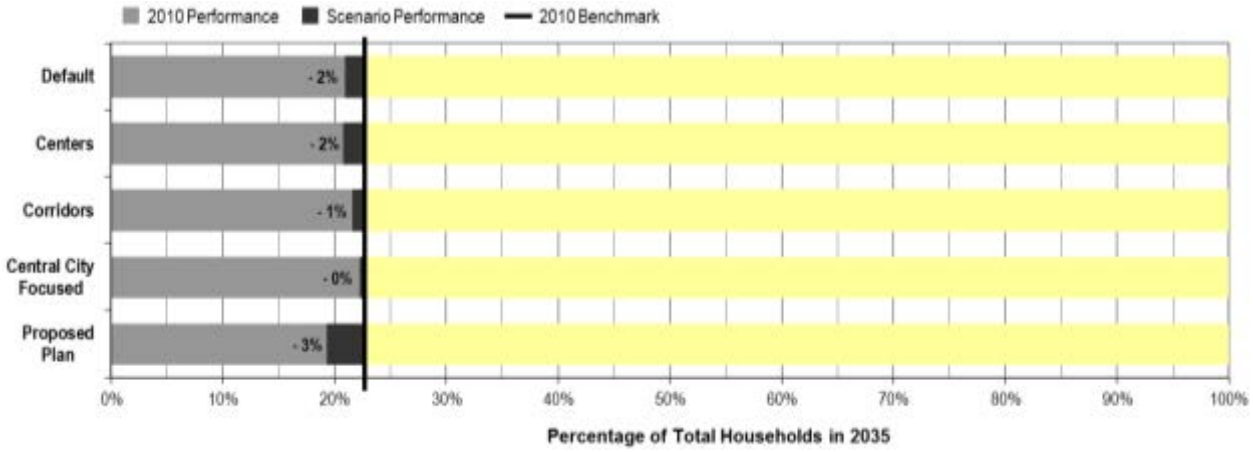
By 2035, no more than 30 percent of city households (owners and renters) are cost burdened, which is defined as spending 50 percent or more of their household income on housing and transportation costs.

The Portland Plan provides new direction on the issue of balancing neighborhood revitalization with the ability of residents to stay in place to enjoy the new amenities and benefits of that revitalization. The City has committed to ensuring that all communities are prosperous, healthy and accessible—but with increasing numbers of highly educated and more affluent newcomers coming to Portland, housing pressures rise. As some neighborhoods become more desirable, long-time residents with lower incomes, particularly in communities of color, have found themselves priced out and moving out—often to areas with fewer services, amenities and institutions. A risk assessment based on demographic and housing market changes that are indicators of changes in neighborhood character has identified areas of Portland that are at increased risk of gentrification or displacement. This performance measure assesses the level of risk based on the number of households that are in these areas.

Gentrification Risk Areas identify places where there is risk of gentrification or displacement.

Stable Neighborhoods identify places where the risk of gentrification is less. These areas represent areas that have had relatively consistent indicators on property values, ownership and rental rates, household income and diversity.

Chart 4: Performance Measures: Gentrification – Households in Gentrification Risk Areas.



Performance of the Proposed Comprehensive Plan

In 2010, the risk of gentrification posed to households was 22 percent. Relative to other scenarios, the Centers and Corridors growth strategy of the Proposed Comprehensive Plan spreads growth allocation more evenly across all parts of Portland with marginally less impact to communities at risk of gentrification. The City of Portland must continue to evaluate the impacts that investment decisions have on communities at risk of gentrification, develop and implement tools to increase the production of affordable housing, and support equitable economic development initiatives.

Options for Improving Performance

Develop more affordable housing

Development of affordable housing is at the heart of displacement mitigation strategies. The City should focus on creating more affordable housing and increasing the ability of low-income and minority households, and the most vulnerable households, to have the opportunity to stay in the neighborhood.

Lesson Learned: More Affordable Housing

Making investments to focus growth in high-performing areas can create more gentrification pressure. This means Portland will need to do a better job of aligning growth management and public investment strategies with affordable housing strategies.

Business development

As development or public investment occurs in at-risk neighborhoods, businesses facing gentrification need assistance through programs such as the City's Neighborhood Prosperity Initiative. The City also could focus workforce development and job training programs to enable lower income residents to qualify for a better job that would enable them to afford the increased housing costs.

Tracking and Program Evaluation

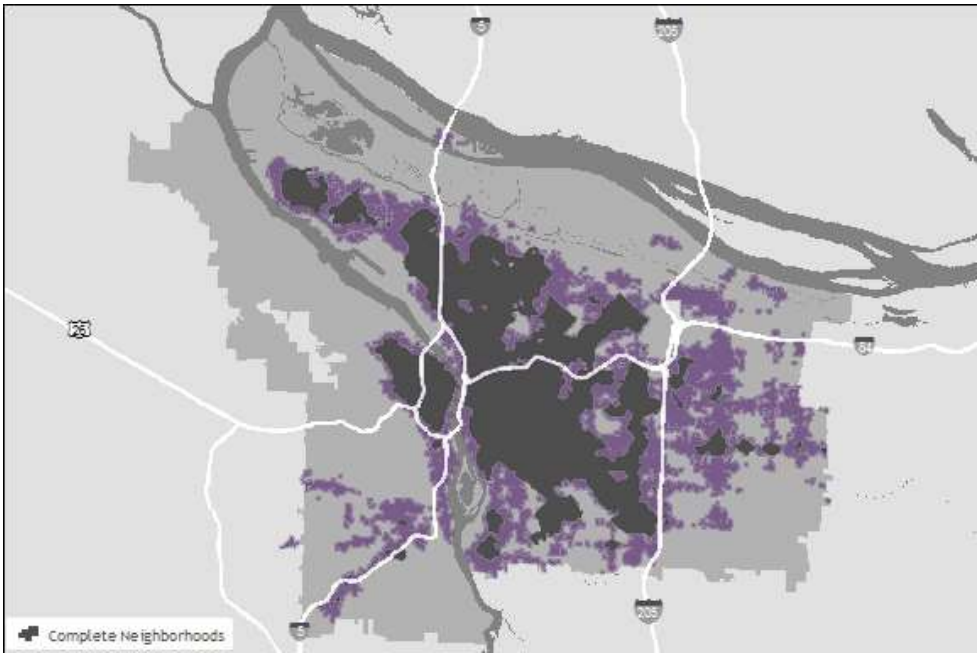
Using the Portland Plan's Framework for Equity as a guide to track neighborhood change, including changes in race, age, disability, ownership and other factors, could help the City anticipate the impacts of new policies and programs.

COMPLETE NEIGHBORHOODS

PORTLAND PLAN

By 2035, 80 percent of Portlanders live in a complete neighborhood with safe and convenient access to the goods and services needed in daily life. At least 80 percent of Portland's neighborhood market areas are economically healthy. They promote economic self-sufficiency of households through the strength and performance of local retail markets, job and business growth, and access to transit and nearby services that lower household

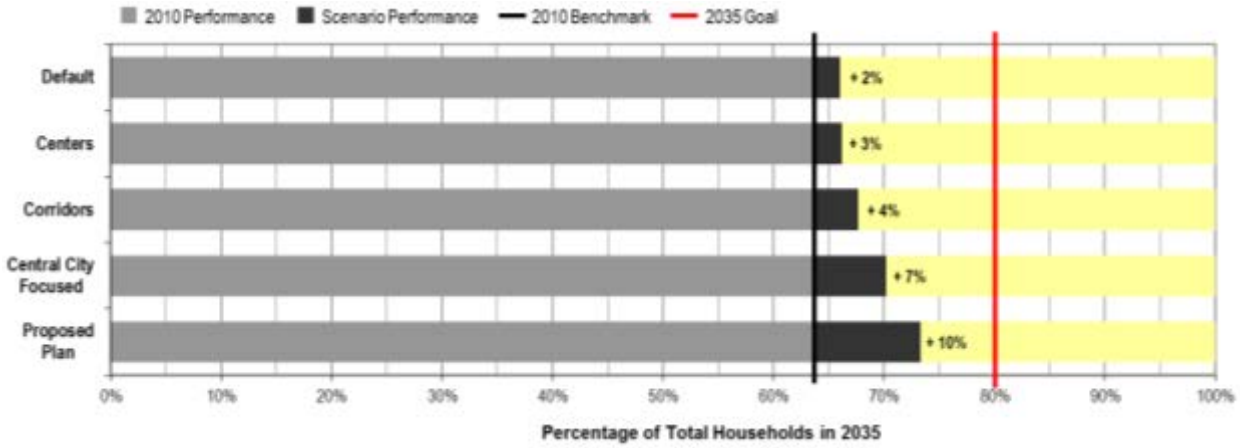
A "complete neighborhood" is a neighborhood where people have convenient access to the goods and services needed in daily life, which includes a variety of housing options, grocery stores and other commercial services, high-quality public schools, public open spaces, active transportation options and civic amenities. Providing more opportunities for more households to live in complete neighborhoods can help reduce household transportation costs, improve public health by making it easier to incorporate exercise into daily life and reduce carbon emissions. This performance measure is based on the City's 20-minute neighborhood index. The performance measure is based on the number of households located in a complete neighborhood.



Complete Neighborhoods identify places that are considered relatively complete on the 20-minute neighborhood index. Prioritizing development in these high-performing areas will take advantage of the existing infrastructure and services. These areas have a good active transportation system that connects neighborhood business districts, schools, parks and other amenities.

Complete Neighborhood Gap Areas identify places that lack access to one or more of the key components of a complete neighborhood. Some areas lack a strong neighborhood business district. Other areas lack a complete transportation system (sidewalks are missing, streets are unimproved, etc.), which can make it take longer or be more difficult to access the services one needs for daily living.

Chart 5: Performance Measures: Complete Neighborhoods – Households in a Complete Neighborhood.



Performance of the Proposed Comprehensive Plan

Today, nearly two-thirds (63 percent) of all Portland households live in complete neighborhoods. Performance of the Proposed Comprehensive Plan increased significantly relative to this measure. This 10% increase in complete neighborhoods is the result of several things. First, the proposed plan places more growth in existing complete neighborhoods than some of the other scenarios. Second, the proposed plan brings more non-conforming commercial uses into conformance - expanding access to commercial services. Finally, investments in frequent transit, the low-stress bike network and parks in parks deficient areas (in the CSP and TSP) also increased the complete neighborhood measure. Completeness increased the most in East Portland due to these investments in infrastructure.

Lesson Learned: More Complete Neighborhoods

Portland's legacy development pattern means that to fully achieve this goal requires creating more complete neighborhoods, especially in East and Southwest Portland.

Options for Improving Performance

Create More Complete Neighborhoods in East Portland

The success in meeting this performance measure is dependent on creating more complete neighborhoods in East Portland, by providing more frequent transit, more sidewalks and bikeways and stronger business districts that serve neighborhood needs.

Create More Complete Neighborhoods in Southwest Portland

Much of Southwest Portland is challenged by topography, densities too low to support frequent transit, a relative scarcity of neighborhood commercial services and an incomplete street network. However, there are opportunities to create more complete neighborhoods along the Barbur Boulevard corridor and existing neighborhood business districts in Hillsdale, Multnomah Village and West Portland.

Expand Access and Create More Housing Options in Complete Neighborhoods

An important element of a complete neighborhood is that it has housing options to accommodate the needs of people of all ages and abilities. Neighborhoods in areas of North, Northeast and Southeast Portland present an opportunity to increase access to existing neighborhood business districts that will expand the coverage of complete neighborhoods. Also, encouraging the development of a range of housing types in these areas can expand the diversity of households that live in these areas.

FREQUENT TRANSIT ACCESS

PORTLAND PLAN

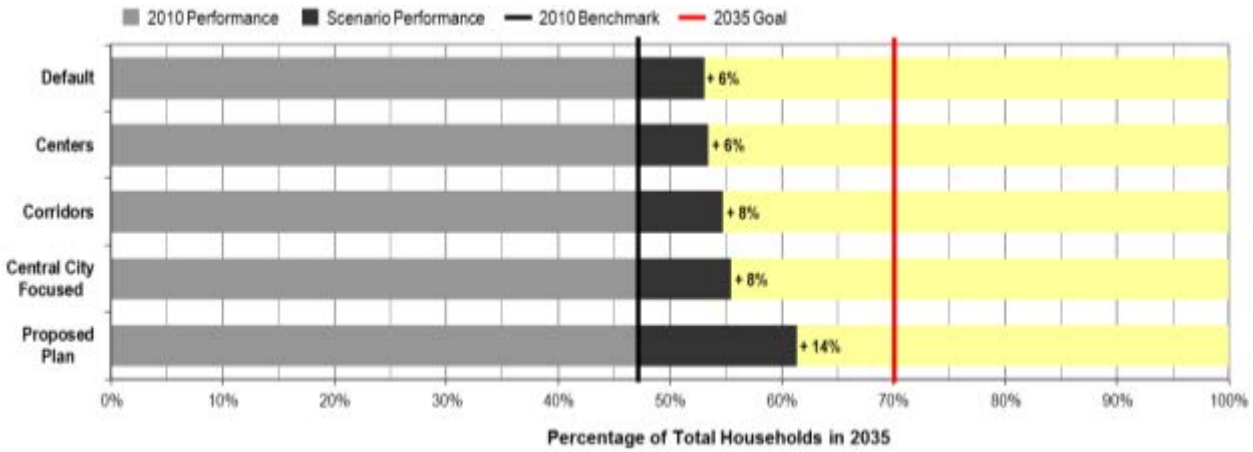
By 2035, Portlanders have reduced the number of miles they travel by car to 11 miles per day on average and 70 percent of commuters walk, bike, take transit, carpool or telecommute to work

Portland has adopted policies to increase the share of trips made using active transportation modes and to make transit the preferred mode for longer commute trips. The goal of having 70 percent of commuters use active transportation is rooted in the climate action/carbon reduction, air quality and public health goals. The performance measure is based on convenient access to the highest quality elements of the transit network – MAX, Portland Streetcar and frequent TriMet bus service. Providing access by a short, ¼-mile walk can make it convenient for residents to use the transit system for many of their daily needs. This measure is a simple method of determining access to transit based on proximity to the frequent transit network.

Frequent Transit Access Areas identify places within ¼ mile of the frequent transit, which represents the best service that Portland has to offer. Development in these areas will have better access and presumably greater transit use than in other areas of the city.

Transit Access Gap Areas identify places that lack access to the frequent transit network. A bus route may be available in some areas, but the service levels or frequency may not be enough to represent a true alternative to the automobile.

Chart 6: Performance Measures: Frequent Transit Access – Households within ¼ Mile of Frequent Transit.



Performance of the Proposed Comprehensive Plan

In 2010, 47 percent of Portland households had good access to the frequent transit network. Expansion of the network through projects identified in the TSP increased access to frequent transit by 8 percent over the Default scenario. This analysis shows that 62% of households in 2035 will be within ¼ mile of frequent transit. The proposed addition of north/south frequent transit on 122nd Avenue contributed the most to increasing access to frequent transit by filling in transit gap areas in East Portland. Active transportation and safety projects also play a significant role in connecting residents from housing to frequent transit through the creation of low-stress and dedicated bike facilities, sidewalks, and other pedestrian safety projects.

Options for Improving Performance

Expand the Frequent Transit Network

The existing network does not cover all parts of Portland, even if people are willing to walk longer distances. Even with increased service on 122nd Avenue, there are significant gaps in East Portland, especially on north-south routes such as 136th Avenue and 148th Avenue.

Lesson Learned: More Transportation Choices

Increasing transportation choices has multiple benefits beyond the transportation system. Access and mobility play a significant role in creating complete neighborhoods and increasing access to family-wage jobs.

Provide Better Access to Transit

Completing a network of sidewalks and bicycle facilities to and from transit routes can make it easier and more convenient for people to ride transit and can extend the coverage area of a frequent transit route.

LOW-STRESS BIKE NETWORK ACCESS

PORTLAND PLAN

By 2035, Portland residents have reduced the number of miles they travel by car to 11 miles per day on average and 70 percent of commuters walk, bike, take transit, carpool or telecommute to work.

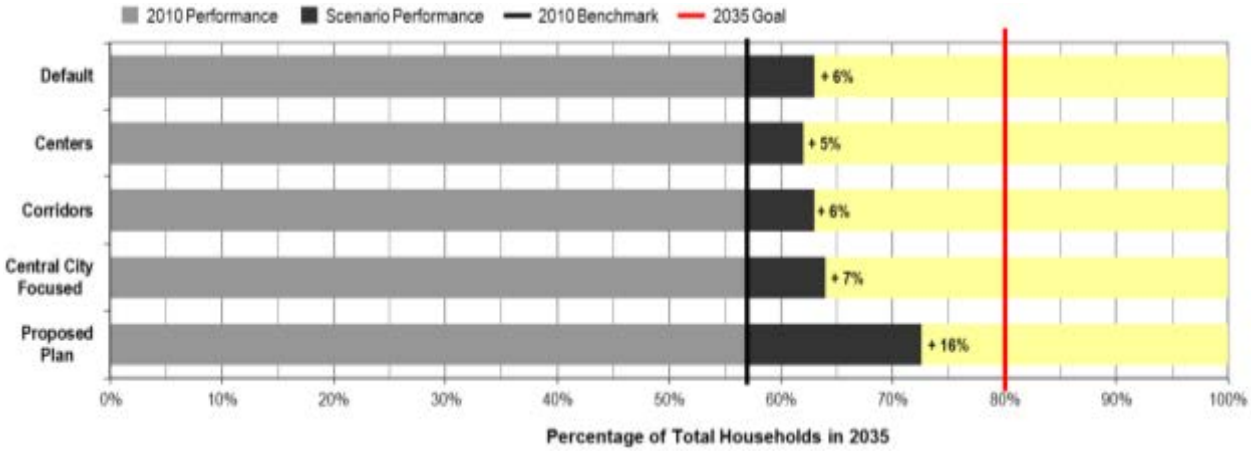
By 2035, all Portlanders have safe and reliable transportation choices.

The Portland Bicycle Plan for 2030 sets the goal that all Portlanders have equal access to the benefits of bicycling. A low-stress or family-friendly bicycle network, based on the best design practices of great bicycling cities around the world, creates safe, comfortable and attractive bikeways that can carry more bicyclists and serve all types and ages of users. In many parts of Portland, the common destinations of daily life are already within a 20-minute bicycle ride, but some areas lack the bicycle facilities to support such trips. When supported by a well-designed network, the bicycle offers residents a transportation alternative that allows them to access basic services safely and efficiently without reliance on an automobile. Adopted City policies seek to increase the share of trips made using green and active transportation modes and to make bicycling more attractive than driving for short trips. A comprehensive bike network provides equity and access to viable, affordable transportation options and creates fun, vibrant and livable neighborhoods. The performance measure is based on convenient (¼-mile) access to the highest quality elements of the bicycle network.

Low-Stress Bikeway Access Areas identify places that are within ¼-mile of a low-stress bike facility that support the widest range of users. These facilities include separated bikeways, neighborhood greenways, and trails.

Low-Stress Bikeway Gap Areas identify places where bicycle facilities may be missing, connectivity is poor or the existing bike infrastructure may be attractive only to more confident cyclists due to safety concerns.

Chart 7: Performance Measures: Low-Stress Bike Network – Households within ¼ Mile of Low-Stress Bike Network.



Performance of the Proposed Comprehensive Plan

The share of Portland households in 2010 that had good access to the existing low-stress bicycle network was 56 percent. The bike projects in the TSP project list provides a 16 percent increase over the 2010 benchmark. While, low-stress bike projects in the TSP are located across Portland, the biggest increase in performance is from expanding the network in East Portland, along with St. Johns and parts of Northeast Portland.

Options for Improving Performance

Expand Neighborhood Greenways and Bikeway Network to Fill Gaps

The Bicycle Plan for 2030 identifies a network of low-stress facilities to ensure that all neighborhoods have adequate low-stress bicycle facilities that connect to neighborhood commercial corridors and centers so that local residents can safely and comfortably access the destinations by bicycle or on foot.

Strategic Considerations (Age, Income, Communities of Color)

Designing these low-stress facilities to meet the needs of the communities they serve may emphasize connections to neighborhood business districts, parks and open spaces, or community destinations like banks, places of worship and community centers. These considerations will ensure that these places will support transportation choice, recreational opportunities that lead to better health outcomes and expanded access to services or transit.

TRANSPORTATION: VEHICLE MILES TRAVELED AND MODE SHARE

PORTLAND PLAN

By 2035, Portlanders have reduced the number of miles they travel by car to 11 miles per day on average and 70 percent of commuters walk, bike, take transit, carpool or telecommute to work.

For Portland to achieve the health and carbon reduction goals in the Portland Plan and the Climate Action Plan (CAP), more Portlanders will need to choose alternatives to driving a car to meet their transportation needs. Today, approximately 29 percent of Portland residents walk, bike, take transit to work or work from home, which is a higher level than many other U.S. cities, but it is far below leading cities in Europe and North America.

Performance measures tracking the growth scenario impacts on the transportation system include vehicle miles traveled and mode share. Vehicle miles traveled (VMT) is a measure that is commonly used to describe automobile use on a daily or annual basis. It incorporates both the number of vehicle trips and the length of those trips by residents and businesses (excluding buses, heavy trucks and through trips). Mode share describes the number of trips or the percentage of travelers using a particular mode (or type) of transportation, such as driving alone, carpooling, walking, biking or riding transit.

These measures are calculated using the Metro and City of Portland's transportation models to estimate the changes in travel behavior that result from the different development patterns.

Vehicle Miles Traveled (VMT)

VMT is reported as a total number of miles per weekday. With all of the previous scenarios, the model results suggested that by 2035 total daily VMT increases by 25 to 30 percent, but not as fast as the household or employment growth rates (33 and 43 percent, respectively). The Proposed Plan performs significantly better than previously evaluated scenarios and shows a 3% reduction in VMT from 2010 to 2035.

Table 17: Total Change in Vehicle Miles Traveled 2010 to 2035.

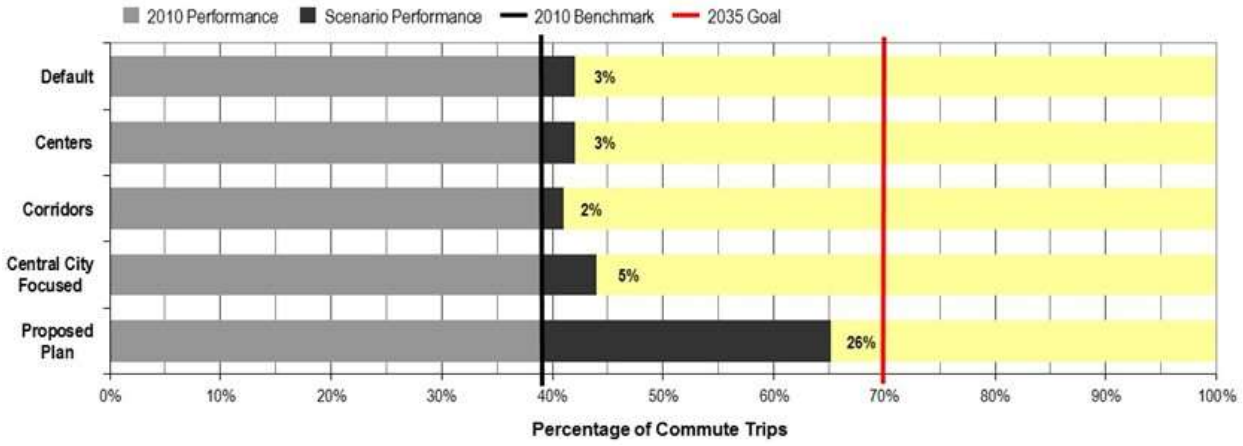
	Daily VMT	2010-2035 Change	Daily per Capita VMT	2010-2035 Change
2008	19,300,000	-	-	-
2010	16,210,000	-	27.8	-
2035				
Default	21,148,000	+ 30%	27.3	-2%
Centers	20,786,000	+ 28%	26.9	-3%
Corridors	20,754,000	+ 28%	26.8	-3%
Central City Focused	20,337,000	+ 25%	26.3	-5%
Proposed Comprehensive Plan	15,707,000	- 3%	20.3	-27%

The Climate Action Plan set a target of reducing 2030 per capita daily vehicle miles traveled by 30 percent from 2008 levels. This reduction must occur in addition to vehicle fuel efficiency improvements and the development of cleaner fuels. Model results project that VMT on a per capita basis drops 27 percent for Portland from 2010 to 2035.

Mode Share

Mode share measures the share of Portland's travel that is made by different modes of transportation, including driving alone (single-occupancy vehicles), carpooling, transit, biking and walking. In this case, mode share is defined as the share of trips that are not single occupancy vehicle trips. The Portland Plan set an objective that 70 percent of commuters use transit or active transportation, carpool, or work from home. The simple model analysis includes all types of trips, but uses the same overall goal of 70 percent mode share for transit, active transportation and carpool trips. The Proposed Plan indicates a significant increase in mode share for transit, active transportation and carpool trips in 2035.

Chart 8: Performance Measure: Mode Share – Percent of Trips by Transit, Active Transportation or Carpool



Performance of the Proposed Comprehensive Plan

The Proposed Comprehensive Plan performs significantly better than all other scenarios for total change in VMT by 2035. The Proposed Plan indicates a 3% decrease in VMT while accounting for a 33 percent increase in population over the same period of time. Per capita VMT declines by 27 percent of total trips from 2010 to 2035 through the Proposed Plan. Decreases in VMT for the Proposed Plan compared to other scenarios can be attributed to the following changes in development trends and infrastructure investment:

- A post-recession shift in new development from the suburbs to more compact urban areas in Portland
- Continued changes in vehicle ownership patterns. Car ownership rates are declining for younger generations and new residents in Portland.
- Significant investments in bike and transit networks in the TSP. TSP projects that decrease VMT include new low stress bikeways, SW Corridor Rapid Transit, Powell-Division Rapid Transit, and new/enhanced transit service in East Portland.
- A more balanced household to employment ratio in Portland that generates shorter trip distances. Increased housing demand and production in the Central City and inner neighborhoods in close proximity to Central City employment and new employment land in and near East Portland in close proximity to housing.

Table 18: Change in Automobile Commute Mode Share 2010 to 2035

	Share of Trips by Automobile	Change from 2010
2010	79.6%	-
2035		
Default	77.2%	-2.4%
Centers	76.7%	-2.9%
Corridors	77.8%	-1.8%
Central City Focused	74.6%	-5.0%
Proposed Plan	64.3%	-15.3%

The model results project a 15 percent decrease in auto mode share (including both single occupancy and carpool trips) between 2010 and 2035. Single occupancy vehicle mode share declines 26% while bicycle mode share increases by 10% and walking by 5%.

Options for Improving Performance

Reducing vehicle miles traveled and increasing non-automobile mode share can be achieved by shifting vehicle trips to active transportation trips — walking, bicycling and taking transit — and by shortening trips by providing more destinations close to households.

A variety of land use and transportation strategies, including better transit services, bicycling facilities, pedestrian facilities and amenities, can make these modes more attractive than autos. These measures are closely related to the Complete Neighborhood measure in that improving connectivity and providing more attractive destinations will have complementary impacts on VMT and mode share.

GREENHOUSE GAS EMISSIONS

PORTLAND PLAN

By 2035, Portland's transportation-related carbon emissions are 50 percent below 1990

Portland and Multnomah County have achieved considerable success in limiting the growth of greenhouse gas or carbon emissions. Land use and transportation policies have resulted in almost no increase in emissions from transportation since 1990, despite a population increase of more than 25 percent. Overall, the Climate Action Plan (CAP) set the goal of an 80 percent reduction of all types of carbon emissions from 1990 levels by 2050. While the CAP identified strategies to reduce emissions from a wide range of sectors, the growth scenarios influence the carbon emissions related to transportation and residential buildings. There are a variety of other City actions that influence emissions, which are outlined in the 2015 Climate Action Plan.

Transportation

Reducing per capita VMT while maintaining the mobility of Portlanders will require significant increases in walking, bicycling and transit. This shift is expected to produce community health and economic benefits as well. Portland-area residents and businesses reap a "green dividend" of more than $1 billion annually in reduced transportation costs as a result of people driving less than do residents of other comparable American cities. Similarly, evidence is increasingly emerging of the health benefits of reducing vehicle miles traveled, both in terms of improved air quality and increased levels of physical activity.

Total VMT decreased 3% below 2010 levels as the result of the land use and transportation investments in the Proposed Plan. Additionally, improvements in vehicle fuel efficiency standards across all vehicle classes and a reduction of the carbon content of fuels result in a projected 55 percent reduction in carbon emissions from cars and light trucks. While the CAP set a goal of reducing per capita VMT by 30 percent by 2030, the Proposed Plan results show a per capita VMT reduction of 27% by 2035.

Table 19: Transportation Emissions.

	Carbon Emissions (metric tons/year)	Percentage Reduction from 2010
1990	2,231,000	
2010	2,340,000	
2035		
Default	1,149,000	-51%
Centers	1,128,000	-52%
Corridors	1,127,000	-52%
Central City Focused	1,105,000	-53%
Proposed Comprehensive Plan	934,000	-60%
2050 Target	596,000	-80%

Household energy

Buildings are the single largest contributor to carbon emissions in Multnomah County, accounting for more than 40 percent of total emissions. Reducing carbon emissions from building energy use can result from two types of changes: improving energy efficiency and reducing the carbon intensity of energy supplies, such as by increasing renewable sources of electricity like solar and wind power.

The different variations in housing types in each scenario impacts the overall carbon emissions. The trend to more multifamily housing types leads to lower carbon emissions because those types of units are more likely to be small and have shared walls, which is more energy efficient. There is no significant difference in the projected overall housing mix for each of the scenarios. For the Proposed Plan, this analysis suggests that total residential carbon emissions will increase by only 9 percent, which is far less than the anticipated 45 percent increase in the number of households.

Table 20: Residential Carbon Emissions

	Carbon Emissions (metric tons/year)	Share of 2035 Carbon Emissions
1990	1,292,000	
2010		
Existing Single Family	905,000	54%
Existing Multifamily	328,000	19%
2010-2035		
New Single Family	111,000	9%
New Multifamily	226,000	18%
2035 Total	1,343,000	
2030 CAP Target	517,000	

It is important to note that the majority of Portland's 2035 residential carbon emissions are expected to come from the existing (pre-2010) housing stock, which is not affected by the different growth scenarios. The key to meeting the CAP residential reduction goals is through home energy efficiency retrofits on existing housing. Achieving the combination of objectives identified in the CAP could make it possible to reduce residential building carbon emissions by 36 percent, while the number of households increases by 45 percent.

Table 21: Strategies to Reduce Residential Sector Carbon Emissions.

	CAP Reduction Goal	Carbon Emissions (metric tons/year)
Existing Building Retrofits	25%	400,000
Onsite Renewable Energy	10%	190,000
Energy Code Improvements	20%	140,000
Net Zero Buildings after 2030		100,000
Total		**830,000**

Performance of the Proposed Comprehensive Plan

The share of housing allocation to single family development types and multifamily development types remains largely the same and performs similar to scenarios that were previously evaluated. The Proposed Plan shows slight performance increases for household energy due to the removal of single family housing capacity that was re-allocated to more energy efficient multifamily housing types in the Central City, centers. And corridors. Mode split and VMT performance scores 4 percent better for the Proposed Plan which reduces the carbon footprint relative to the previous Comprehensive Plan. Additional opportunities to reduce greenhouse gas emissions are accounted for through actions in the CAP through existing building retrofits, onsite renewable energy, energy code improvements, and new standards for energy efficiency in new construction.

Options for Improving Performance

Over the long term, land use and transportation planning can greatly influence transportation-related carbon emissions. Emissions reduction depends critically on coordinated land use policies and the development of infrastructure for low-carbon modes of transportation.

Expand Complete Neighborhoods

A critical and basic step to reducing automobile dependence is to ensure that residents live in complete neighborhoods, meaning that they can comfortably fulfill most of their daily needs within a 20-minute walk from home. This means providing a wide range of destinations near a diversity of housing types that are connected by a network of sidewalks, bicycle facilities and transit service. Expanding complete neighborhoods involves (1) identifying the land use planning changes and infrastructure investments, including public-private partnerships that are needed for each mixed-use center to achieve a highly walkable and bikeable neighborhood, and (2) developing an implementation action plan.

More Active Transportation Trips

Expanding pedestrian and bicycle facilities as well as transit service will make these modes more attractive, especially for short trips. Shifting trips to active transportation modes will help reduce emissions. This network expansion also can decrease travel costs for lower income households.

More Efficient Homes

Because buildings last for many decades, efforts to reduce emissions by improving the energy efficiency of existing buildings will be critical to meeting the reduction goals. The City of Portland, Energy Trust of Oregon, Oregon Department of Energy, utilities and other organizations already have undertaken significant work to increase energy efficiency and decrease energy-related carbon emissions. Much work remains to be done, and it will be important to leverage existing efforts and expertise to accelerate this work.

Maximize Energy Performance of New Buildings

Buildings that have been designed and built with low-carbon performance as a primary goal can significantly outperforming similar, previously built buildings that have been retrofitted for efficiency. Because total emissions from buildings must be reduced by more than can be accomplished with retrofits alone, it is critical that buildings built after 2030 generate more energy from clean sources than they consume, resulting in a net emissions reduction. The CAP has a goal of net-zero energy use for all new buildings after 2030.

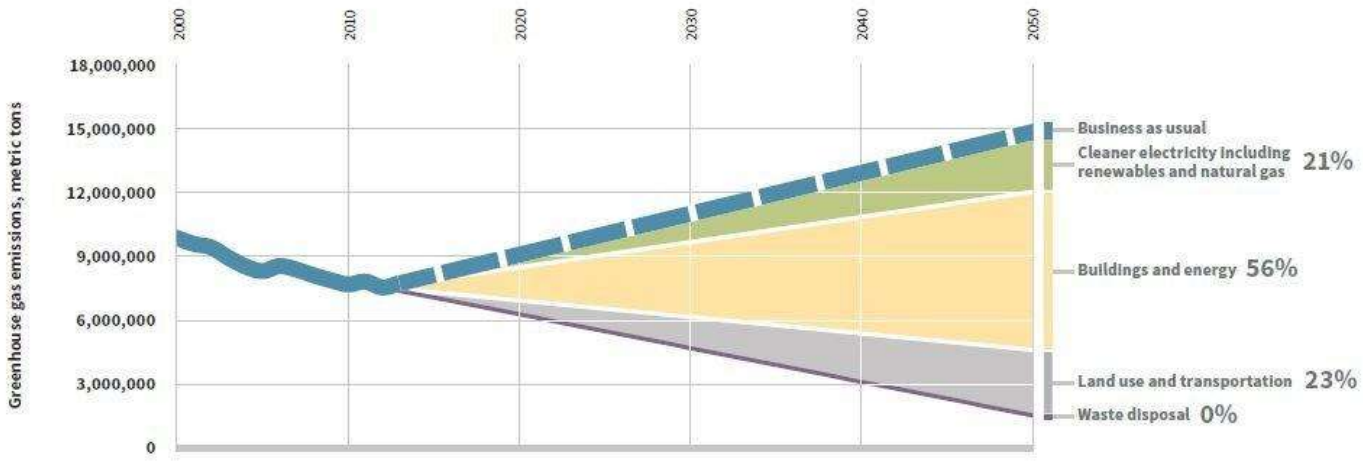
Onsite Renewable Energy

In parallel with the improvements to the building stock, CAP objectives seek to produce 10 percent of the total energy used from on-site renewable sources and clean district energy systems. District- and neighborhood-scale energy systems, as well as on-site renewables and distributed generation sources, also provide opportunities for efficiency gains by reducing transmission losses.

Connection to the Climate Action Plan

This report finds that land use choices made in the Proposed Comprehensive Plan and investments made in the TSP significantly improve performance for VMT reduction, carbon emission reduction and mode share goals. The Climate Action Plan identifies additional City and County actions to reduce emissions and move Portland closer to the 2050 goal of an 80 percent reduction in carbon emissions below 1990 levels. The City of Portland and Multnomah County must take additional actions beyond planned land use and transportation investments. The CAP identifies many additional policy and program actions including; carbon pricing, building energy performance reporting, renewable energy, net zero energy buildings, low carbon transportation fuels, electric vehicles, waste prevention and recovery, and green infrastructure.

Figure 28: Sources of Energy Reduction in Portland for Meeting CAP's 80% Reduction Target.

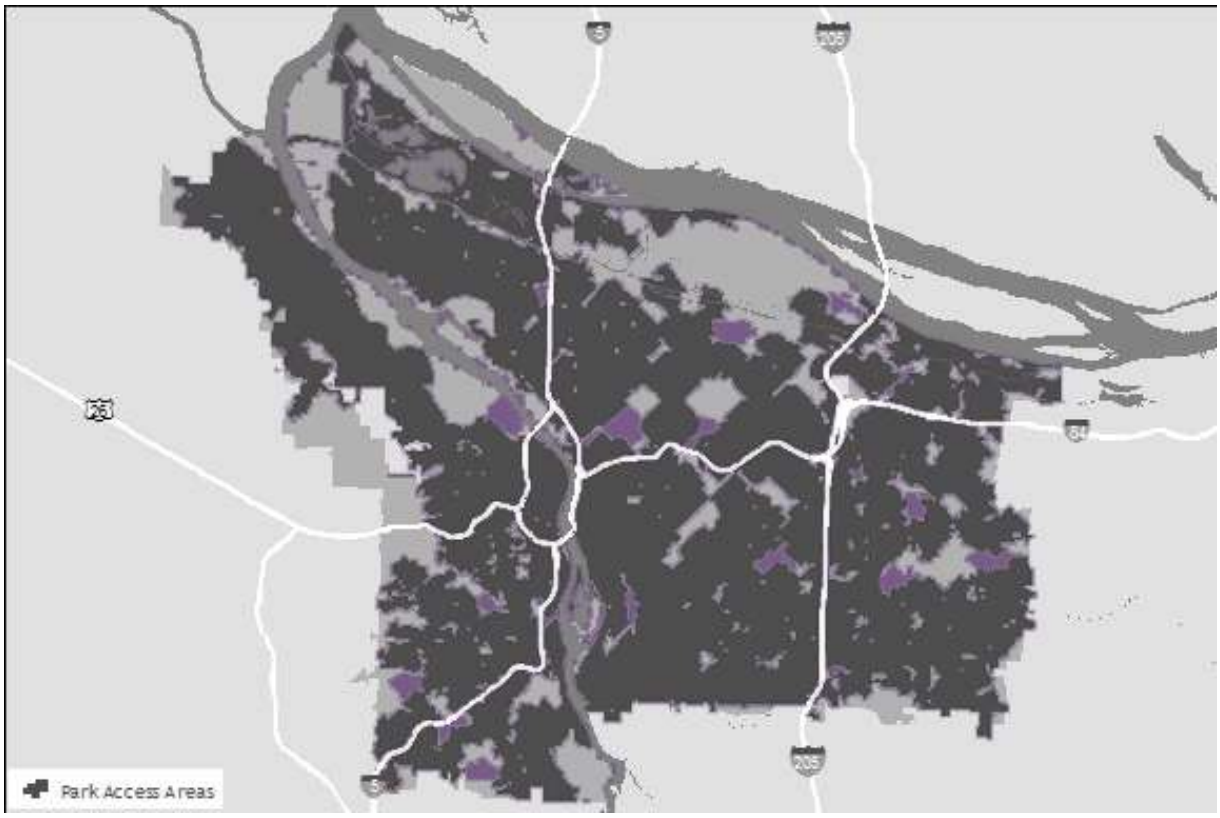


PARKS ACCESS

PORTLAND PLAN

By 2035, all Portlanders live within a half-mile safe walking distance of a park or greenspace. All Portlanders can conveniently get to and enjoy the Willamette and Columbia Rivers. The regional Trail System is substantially complete and is an integrated component of a Healthy Connected City network.

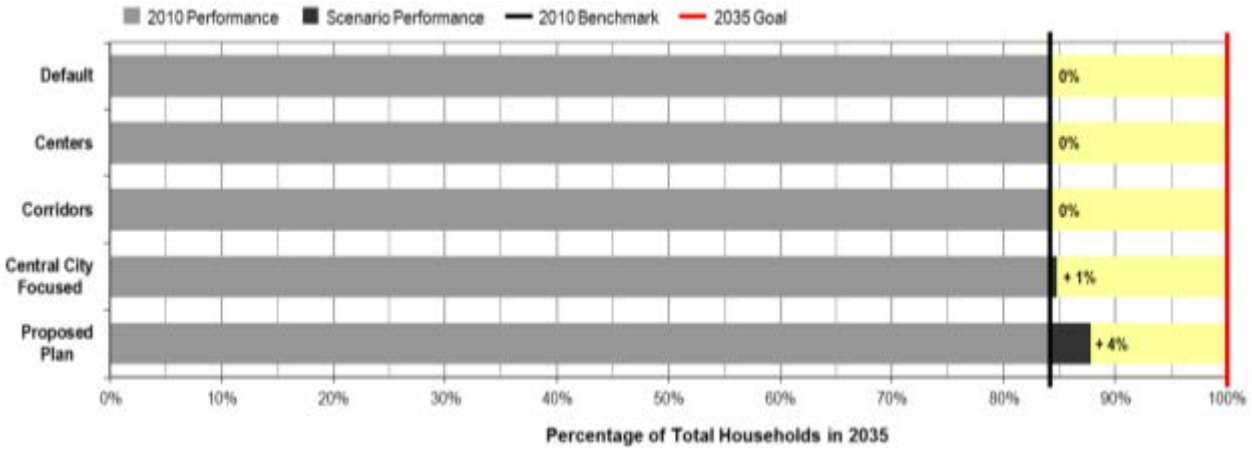
Access to parks and greenspace is a critical component of a healthy complete neighborhood. Nearby parks and natural areas give Portlanders places to recreate, relax and spend time with friends and family. The City of Portland's Parks 2020 Vision set the goal of providing all Portlanders with a recreational opportunity – such as a developed park or access to a natural area – within a ½-mile walk (approximately 15 minutes). The performance measure is about access and is based on the number of households located within a convenient, ½-mile walking distance to a park or greenspace. Parks and greenspace areas used in this analysis are more than one-eighth of an acre and include existing parks, as well as land acquired by Portland Parks and Recreation that will be developed as parks in the future. Public school playgrounds and playing fields are not included in this analysis, although they do supplement the City's park system. Distance was determined from park and greenspace public access points via streets and trails.



Park Access Areas identify places with walkable ½-mile access to parks. These areas take into account network connectivity and true walking distance.

Park Gap Areas identify places that are lacking convenient access.

Chart 9: Performance Measures: Parks Access – Households within ½ Mile of a Park or Natural Area.



Performance of the Proposed Comprehensive Plan

The Proposed Comprehensive Plan shows an increase in performance for access to parks. This increase can be attributed to parks investment areas identified in the CSP that fill gaps in areas underserved by parks to reduce disparities, especially in East Portland. The Proposed Comprehensive Plan and CSP indicates priority for East Portland to increase access to parks.

Options for Improving Performance

Develop Parks in Gap Areas

New park development will help fill gaps and meet the needs of rapidly developing areas. As well-served areas experience growth, existing parks may require more maintenance or re-designed for higher-intensity uses. They will be used more heavily, require additional operations and serve more people.

Create Opportunities for Urban Plazas and Community Gathering Areas

Development of urban plazas and squares can fill gaps in areas where larger parcels may not be available. These smaller community gathering areas can fill in gaps where park needs are high and where other options are not feasible.

Increase Access to Parks through Transit, Trails, Sidewalks and Bicycling Facilities

Improving sidewalks, bicycle lanes, and transit can enable park users to more safely and conveniently access existing park facilities.

Parks in Emerging Centers

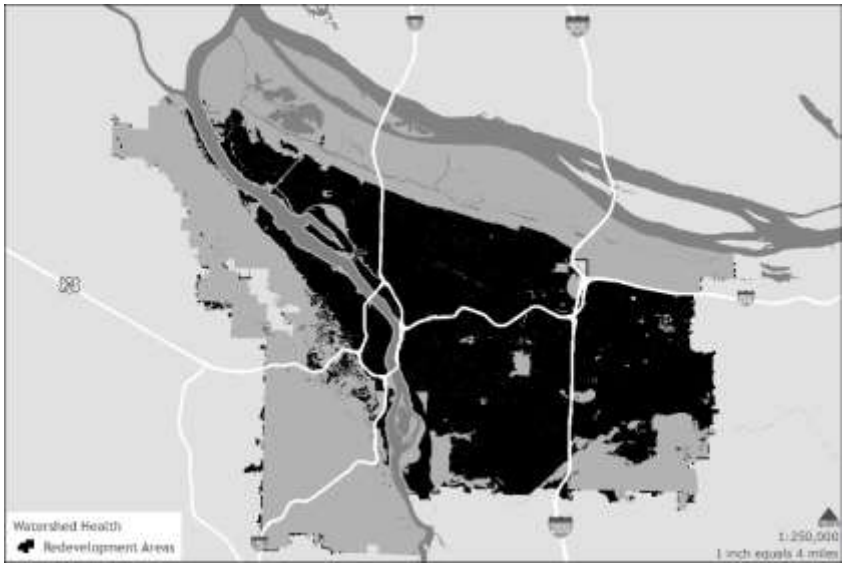
Places like Gateway, Hollywood and the Lloyd District have access convenient access to parks, but these higher density mixed-use neighborhoods may need additional park space or consider park designs intended for more high-intensity use.

WATERSHED HEALTH

PORTLAND PLAN

By 2035, watershed health is improved, and the Willamette River and local streams meet water quality standards. Tree canopy covers at least one-third of the city and is more equitably distributed. Fewer homes and businesses are at risk from flooding. A diversity of critical habitats (including floodplains, riparian areas, wetlands, oak groves, native forests and remnant meadows) are protected, connected and enhanced to support a rich diversity of native and migratory wildlife.

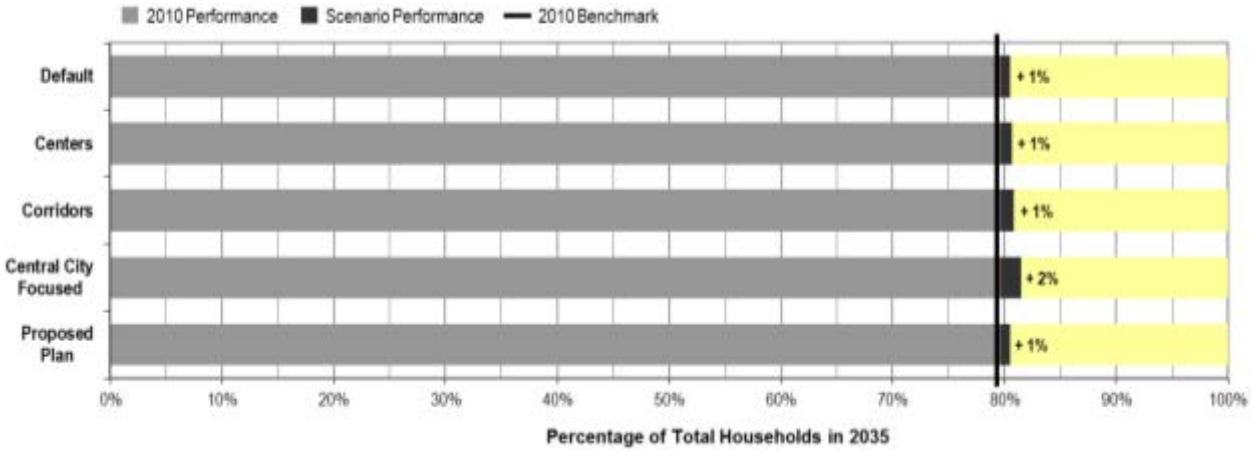
Healthy watersheds support clean air and water, help moderate temperatures, reduce the risk of flooding and landslides, preserve places to enjoy nature, and help the city adapt to climate change. Many factors affect the health of Portland's watersheds: the interaction of rainwater with the land, the amount of impervious surface covering the land, chemicals and bacteria that are carried into groundwater and streams, the extent and characteristics of the tree canopy and the number and type of invasive species. This performance measure identifies parts of Portland where, from a watershed health perspective, development may improve conditions by incorporating sustainable stormwater management and other citywide greening efforts. The performance measure is based on the number of households located in these development opportunity areas.



■ **Development Opportunity Areas** identify places that in general have the ability to accommodate additional growth without significant impact. Future development would trigger stormwater management requirements that would improve conditions by increasing on-site sustainable stormwater infiltration, tree canopy and vegetation.

■ **Constrained Areas** identify places where natural resources and green infrastructure, such as streams, wetlands, soils and vegetation- have limited capacity to accommodate new growth without detrimental impacts on watershed health. In the most sensitive areas, encroachment from development would likely have negative impacts on natural ecological functions, habitat connectivity and the risk of landslides or flooding.

Chart 10: Performance Measure: Watershed Health – Households in Development Opportunity Areas.



Performance of the Proposed Comprehensive Plan

Most of the available growth capacity would be accommodated in urbanized areas that have a high proportion of existing impervious surface. The majority of development capacity is located in the Central City, Centers and along Corridors. Some household growth is allocated to single family residential areas, the majority of which are located in development opportunity areas. Evaluation of the Proposed Plan shows that no significant growth capacity was increased in constrained areas and that 81 percent of growth from 2010 to 2035 will occur in Development Opportunity Areas.

Options for Improving Performance

Limit Development Impacts in Constrained Areas

Growth in constrained areas needs to be carefully considered because of drainage and infiltration issues, the risk of natural hazards and potential adverse impacts on significant natural resources. Development impacts could be avoided by limiting development in these areas. Where development is allowed, impacts could be minimized by encouraging ecologically sensitive site design, purchasing of land from willing sellers or using of conservation easements.

Encourage Growth in Development Opportunity Areas

Overall, much of North, Northeast and Southeast Portland is well-suited to accommodate new development because of natural conditions and the availability of infrastructure. The City can encourage growth in Development Opportunity areas by promoting development on underutilized sites through a combination of land use plans, infrastructure investments, and by establishing public-private partnerships, such as the EcoDistrict efforts.

Shift in Development Approaches

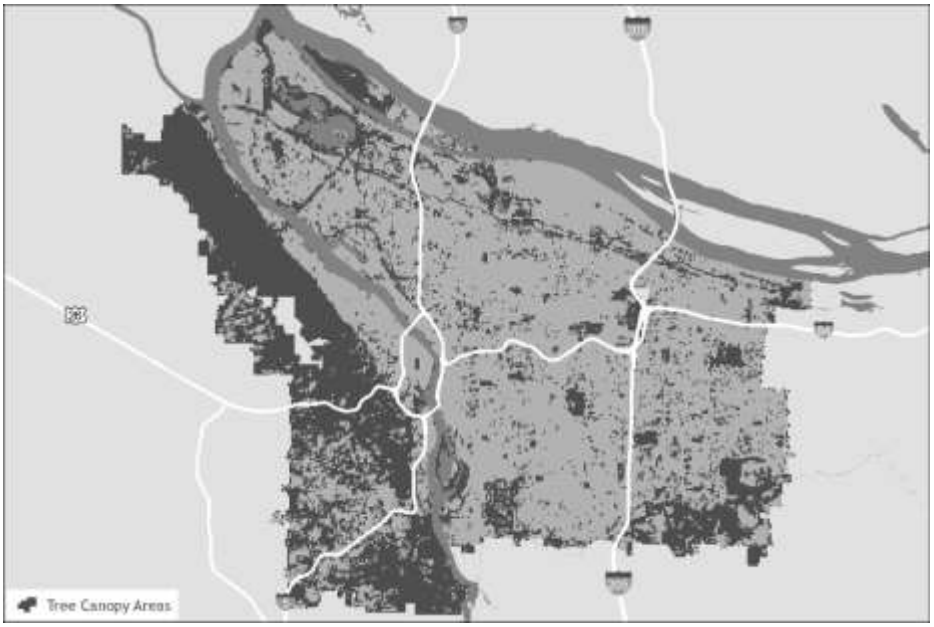
Some development types are better suited to reducing impacts than others. Focusing growth in key centers and corridors could relieve pressure on the most sensitive environmental areas and take full advantage of existing infrastructure. The City can facilitate this by designing with nature, updating development standards and streamlining permitting for ecologically sensitive development. Additional tools include incentives such as the Portland Ecoroof Incentive Program.

TREE CANOPY

PORTLAND PLAN

By 2035, watershed health is improved, and the Willamette River and local streams meet water quality standards. Tree Canopy covers at least one-third of the city and is more equitably distributed. Fewer homes and businesses are at risk from flooding. A diversity of critical habitats (including floodplains, riparian areas, wetlands, oak groves, native forests and remnant meadows) are protected, connected and enhanced to support a rich diversity of native and migratory wildlife. High quality trees are routinely preserved and planted on development sites.

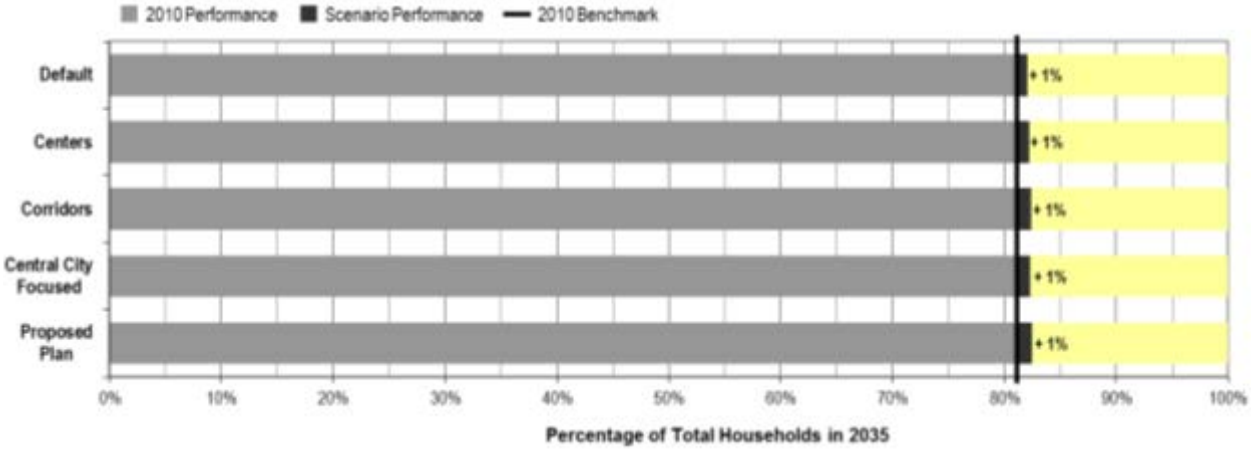
Portland's trees provide more than a sense of identity as a "green city" – they help manage stormwater, reduce pollution, capture carbon dioxide, decrease flooding and erosion, cool and clean the air and water, provide wildlife habitat and improve neighborhood appearance. The Portland Watershed Management Plan (2005) and the Climate Action Plan (2015) call for protecting and expanding the urban forest to improve watershed health and reduce greenhouse gas emissions. The Urban Forestry Management Plan (2004) establishes tree canopy targets for different types of development in Portland. The performance measure is based on the number of households located in areas that do not meet these tree canopy targets. Development in these Canopy Opportunity Areas would have less of an impact on Portland's existing tree canopy than development in areas with more existing canopy and should help add tree canopy over time through new development standards that require additional tree planting.



Tree Canopy Areas are places that meet or exceed tree canopy targets identified in the Urban Forestry Plan. Development in these areas may result in loss of tree canopy that could hamper the ability to meet citywide tree canopy targets.

Canopy Opportunity Areas are places that do not currently meet the tree canopy targets and where development may result in an increase in canopy over time through tree preservation and mitigation planting. Focusing development in these areas will have less impact on the existing canopy.

Chart 11: Performance Measures: Tree Canopy – Households in Canopy Opportunity Areas.



Performance of the Proposed Comprehensive Plan

Like previously evaluated scenarios, the Proposed Plan locates the majority of new growth in Canopy Opportunity Areas. In many cases redevelopment of underutilized paved areas leads to an increase in tree canopy as new street trees and on-site landscaping standards. With the Proposed Comprehensive Plan:

- 72 percent of the growth capacity is on land with less than 10 percent tree canopy coverage.
- 30 percent of the residential capacity is in the Central City, which has about a 6 percent canopy coverage.
- Half of the City's growth capacity is in the mixed use zones, which as a whole have slightly above a 7 percent canopy coverage.
- In contrast, the R5 zone land has only 2 percent of the total residential growth capacity, but has a 21 percent canopy coverage.
- The other lower density single family zones (R7-RF) represent only 3 percent of the residential growth capacity, but typically have high canopy coverages from 30 to 65 percent. This points to the importance of having tree codes that apply in non-development situations, and rules that prevent needless tree removal on large lots.

Options for Improving Performance

Plant and Preserve

Many established single family neighborhoods across the city could increase the level of canopy with more tree planting. As development occurs in high-canopy areas, the City can promote design solutions that seek to preserve and maximize the existing canopy.

Shift Growth to Canopy Opportunity Areas

Focusing development in low canopy areas helps preserve the existing canopy while potentially increasing canopy on development sites. As key civic corridors and centers develop, tree plantings can support place-making, enhance the street experience, shade and cool the street and extend the benefits of trees into more urban areas

Design with Nature

New development can provide opportunities to incorporate new tree plantings onto the site and streetscape. Focusing development along key corridors that lack significant tree canopy, like SW Barbur Boulevard and NE Sandy Boulevard, could increase tree coverage.

NATURAL AREA ACCESS

PORTLAND PLAN

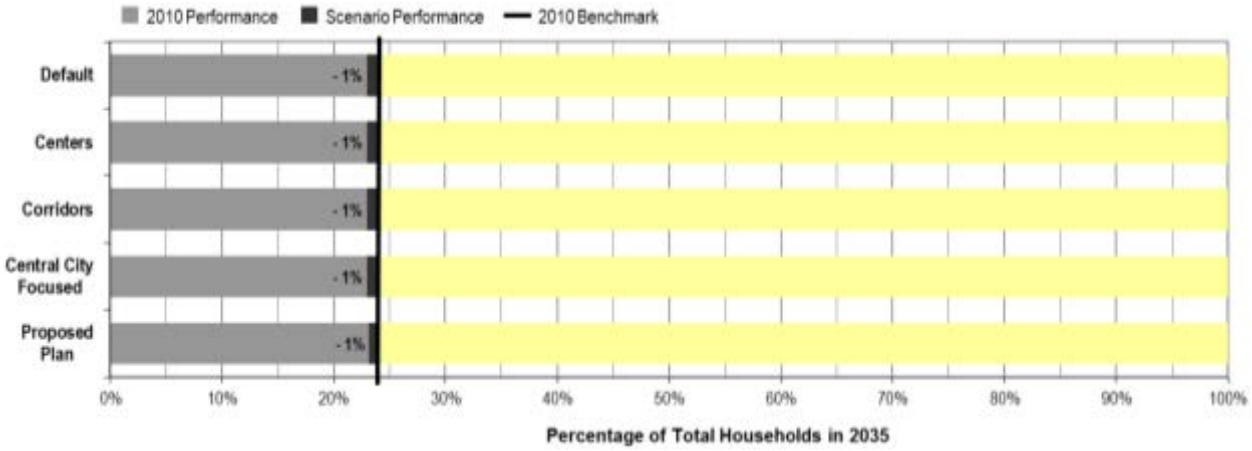
By 2035, all Portlanders can conveniently get to and enjoy the Willamette and Columbia Rivers. All Portlanders live within a half-mile safe walking distance of a park or greenspace. The regional Trail System is substantially complete and is an integrated component of a Healthy Connected City network.

Access to natural areas is a critical component of a healthy complete neighborhood. Nearby natural areas give Portlanders places to recreate, relax and spend time with friends and family. The Portland region's 40-mile loop and other elements of The Intertwine — the regional trail park system — provide access along rivers and through major natural areas like Forest Park, Johnson Creek and the Columbia Slough. However, this system of trails is incomplete and has few connections to neighborhoods. This performance measure is similar to the Park Access measure but is more focused on access to nature and is based on the number of households located within a convenient, ½-mile walk of a natural area or river.

Natural Area Access Areas identify places within a ½-mile walkable distance of natural areas, including the Willamette and Columbia Rivers and Portland's large natural area parks.

Natural Area Gap Areas are outside of a ½-mile walkable distance to a major river or a natural area. These areas present a range of opportunities to improve transportation and trail access to natural areas and weave nature into the neighborhoods.

Chart 12: Performance Measures: Natural Area Access – Households within ½ Mile of a River or Natural Area.



Performance of the Proposed Comprehensive Plan

Overall, only 25 percent of Portland households in 2010 had convenient access to a river or natural area. Like other scenarios, the Proposed Comprehensive Plan locates the majority of new growth in mixed-use corridors and centers away from natural areas. Access to Natural Areas decreased under all scenarios, including the Proposed Plan. This decrease in access is due to the fact that the majority of new growth is allocated to amenity rich locations with a more urban character throughout Portland that are further away from Natural Areas. Additionally, some down designations have been applied to reduce density in areas near Natural Areas such as Powell Butte that have decreased overall access.

Lesson Learned: Connect to Nature

Development in more urban locations means less impact on natural habitat areas and sensitive watersheds. But these urban locations do not provide direct access to nature for residents. We will need to do more in the future to create other opportunities for Portlanders to experience nature.

Options for Improving Performance

Weave Nature into the City

Developing habitat corridors, promoting backyard habitats and enhancing neighborhood tree canopy can weave nature into the city. Actions could include enhancement of existing parks through native plantings and creation of habitat for birds, pollinators and other beneficial wildlife.

Habitat Enhancement in Large Parks

Large neighborhood parks can serve as anchor habitats that provide significant natural functions within the city. For example, Mt. Tabor, Powell Butte and Oaks Bottom all are important habitat areas that also provide access to nature for many Portlanders. Coverage gaps between these areas are an opportunity to create connections between places like Alameda Ridge and Rocky Butte.

Development of Neighborhood Greenways and Transit Connections

Neighborhood greenways and civic corridors should be designed to improve public access to Portland's largest natural areas and improved public access to the Willamette and Columbia Rivers. Greenways can provide park-like experiences along streets, paths and trails that emphasize large trees and green streets, modeled after programs like Tabor to the River, which integrate the function of natural areas into urban environments and assist the movement of people, water and wildlife.

5. KEY FINDINGS

The Portland Plan set the expectation that there will be more strategic and more intentional actions in how growth and public investment are made to achieve the vision for a future Portland. The Measures of Success adopted with the Portland Plan established some specific numerical goals. This report examines how growth management can influence those outcomes over the long term and how the Proposed Comprehensive plan advances these goals through land use and infrastructure investment.

Choices for Prioritizing Growth – Portland's existing zoning allows for more than enough development capacity to accommodate the future growth forecast of 123,000 new households. This capacity creates an opportunity to make choices about where to focus or prioritize that growth.

A Legacy Landscape – As an already urbanized city, Portland's existing development pattern defines many of the challenges. The forecasted growth represents roughly one-third of the total households and employment that will make up Portland in 2035, which means that two-thirds of the future built environment is already in place. This legacy development pattern will have a significant impact and moderating influence on how well future development patterns perform over the next 25 years. Large improvements in performance from land use changes will take more time. Other interventions will be necessary to achieve the goals identified in the Portland Plan.

Investment Priorities – The performance of the Proposed Comprehensive Plan shows that most of the anticipated new growth occurs in a way that provides significant progress towards meeting the objectives. However, it also shows that additional planning and investment is needed in order to meet the Portland Plan's 2035 Measures of Success.

Two Investment Strategies – Through the Comprehensive Plan Update, Portland has identified a two track public investment strategy to meet multiple objectives. One strategy supports growth in high-performing areas that already have a relatively complete infrastructure support system. The other fills infrastructure gaps in historically underserved areas to reduce disparities and increase equity. This two track strategy will allow Portland to improve performance across the board by focusing growth in high-performing areas, while at the same time improving conditions in areas previously neglected.

Transportation Choice – Transportation investment priorities emphasize active transportation, transit, and freight mobility. Investing in sidewalks, bicycle facilities and transit significantly improves performance across several measures, such as reducing carbon emissions, improving affordability, and improving access to jobs for more Portlanders. Expansion of the frequent transit network will mean that 62 percent of Portland households will have convenient access to frequent transit. Investment in the low-stress bicycle network will mean that 72 percent of Portland households will live within ¼-mile of a bike facility.

The projects in the Proposed TSP create a transportation system that will decrease reliance on automobiles by reducing the single occupant vehicle (SOV) commute rate to 35 percent of trips, which in turn helps reduce per capita daily vehicle miles travelled (VMT) by 27 percent.

Complete Neighborhoods – The Portland Plan set the goal of providing most Portlanders with safe, walkable access to services. While most (77%) of the new development is expected to

take place in complete neighborhoods, this goal cannot be achieved simply by only focusing growth in existing complete neighborhoods – Portland needs infrastructure investments to create more complete neighborhoods. The combination of the growth pattern and the infrastructure investments in the Proposed Comprehensive Plan increase the number of households in complete neighborhoods to 73 percent by 2035.

Reducing Carbon Emissions – The land use and transportation choices made in the Proposed Comprehensive Plan lead to a reduction in per capita daily VMT, increase in non-automobile mode share, and help make progress towards Portland's carbon reduction goals. The City of Portland and Multnomah County will need to take additional action beyond planned land use and transportation investments in order to meet our carbon reduction goals. The Climate Action Plan identifies additional policy and program actions that go beyond the Comprehensive Plan to help achieve this goal, such as: carbon pricing, building energy performance reporting, renewable energy, net zero energy buildings, low carbon transportation fuels, electric vehicles, waste prevention and recovery, and green infrastructure.

A Central Role for the Central City – The Central City is expected to accommodate 30 percent of future growth. Focusing growth in and around the Central City may be the most cost-effective way to provide the greatest level of service to the greatest number of Portlanders; each incremental investment in this service-rich area has disproportionate benefits. However, in order to grow as a residential area, it will be necessary to ensure that the needs of a variety of families can be met within the Central City.

Jobs and Better Transit Connections in East Portland – East Portland has Portland's largest pool of affordable housing and is home to a large number of families with children. However, the area does not have many family-wage jobs, and it is not easy or quick to travel from East Portland to major job centers. Convenient and reliable access to work is one of the major contributors to job success (others include overall employment opportunities and relevant education and training). The Proposed Plan includes policies, map changes and transit investments that will increase the number of households with convenient access to jobs by at least 2 percent. Developing more jobs in East Portland and providing better connections to and from East Portland are critical to improving household economic self-sufficiency.

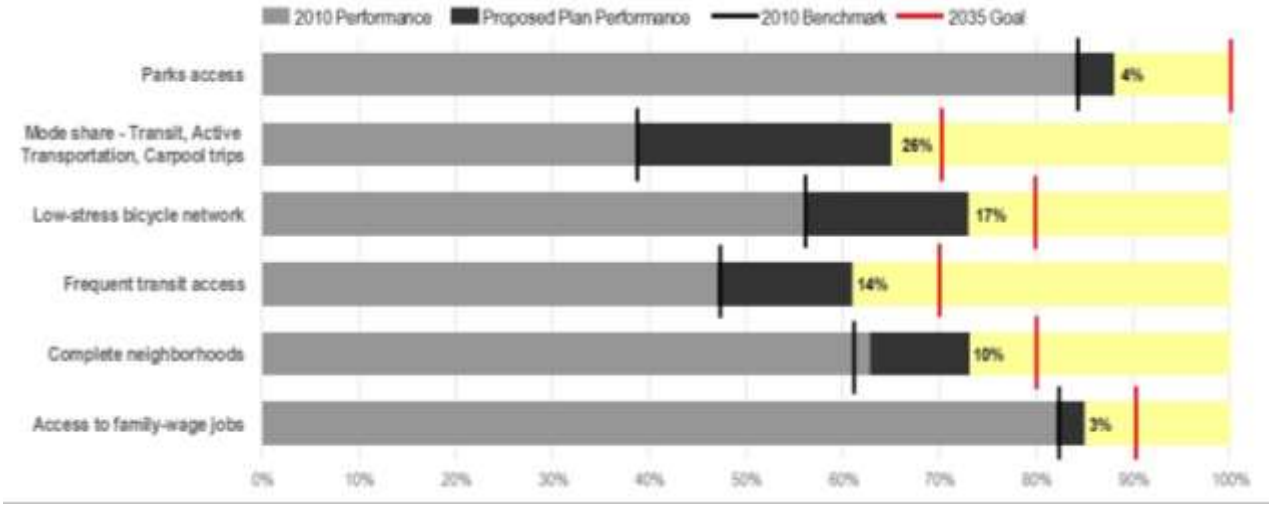
More Affordable Housing – Providing enough affordable housing, especially for the lowest income households, will be a challenge. Public investments to increase services can create gentrification pressure. Portland will need to better align growth management, public investment and affordable housing development, anticipate the consequences of investments, minimize displacement and engage communities.

Prepare for the Future – While short-term development trends show a market preference for the Central City and Inner Neighborhoods, East Portland has significant growth potential and is home to many households with school-age children. Today, there is a window of opportunity to address the infrastructure gap in East Portland. The timing and location of East Portland infrastructure investments are a pressing issue.

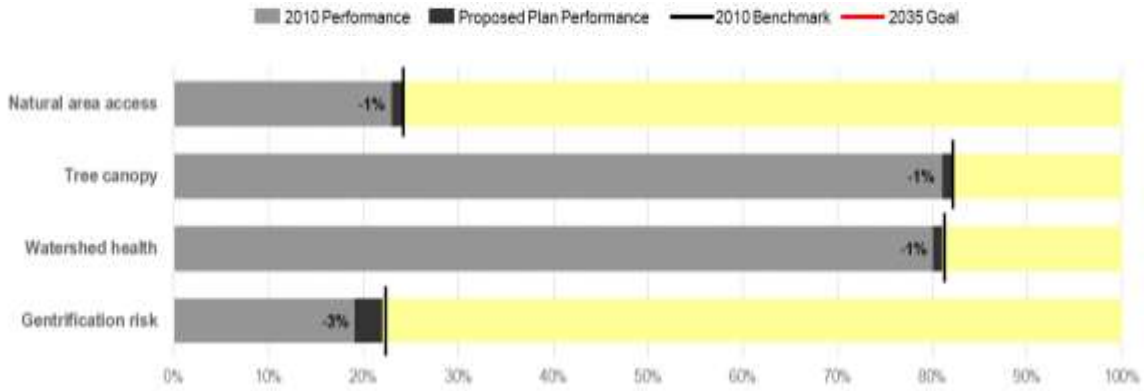
Access to Parks – The Proposed Comprehensive Plan shows an increase in the number of households with good access to parks. This increase can be attributed to parks investment areas identified in the CSP that fill gaps in areas underserved by parks to reduce disparities, especially in East Portland.

SUMMARY OF PERFORMANCE MEASURES

Household Performance Measures



Track and Monitor Performance Measures



Carbon Reduction Performance Measures