Buildable Lands Inventory – Summary of Residential Capacity

existing units

net new units
allowed by comp plan
(underutlized lots)

net new units with
weighted BLI constraints
(underutilized lots)

net new units on lots
with no BLI constraints
(underutilized lots)

City of Portland Development Capacity Analysis, May 2011

THE PORTLAND PLAN

Acknowledgements

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Susan Anderson, Director, Bureau of Planning and Sustainability
Joe Zehnder, Chief Planner
Eric Engstrom, Principal Planner
Steve Dotterer, Principal Planner
Deborah Stein, Supervising Planner

Alexandria Howard, Program Coordinator
Tom Armstrong, Sr. Management Analyst
Michelle Kunec, Management Analyst
Marty Stockton, Community Outreach Specialist
Eden Dabbs, Communications
Gary Odenthal, Technical Services Manager
Kevin Martin, GIS Analyst
Al Burns, Sr. City Planner
Mark Walhood, City Planner II
Bill Cunningham, City Planner II
Emily Sandy, City Planner II
Uma Krishnan, Demographer
Julie Hernandez, Web design

Courtney Duke, Bureau of Transportation
Marie Johnson, Bureau of Environmental Services

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Buildable Lands Inventory – Summary of Residential Capacity

Managing Change

In recent decades, the Portland metropolitan region and the City of Portland experienced a steady increase in population. In 1980, the city's population was about 368,000 residents. By 2010, the population had grown to more than 584,000 residents. Much of this growth was a result of new city boundaries.

In the 1980s and 1990s, the City of Portland annexed much of the city referred to as East Portland and Cully, as well as some smaller areas in North and Southwest Portland, greatly expanding the city's boundaries. Other growth can be attributed to people having children and new Portlanders arriving from across Oregon, the nation and beyond. In recent years, inner neighborhoods and the central City have experienced significant residential infill development.

In coming years, it is unlikely that Portland's boundaries will change. In another 25 years, how many people will live on Portland's nearly 93,000 acres? Where in the city will people choose to live? What kinds of jobs will Portlanders have? To answer those questions, current Portlanders, their friends and growing families, as well as new Portlanders will need to figure out how to manage change, direct investments and work smarter within existing city limits.

Who develops household and employment forecasts?

Metro, our regional government, is responsible for forecasting the expected population growth for the metropolitan area. Metro is also responsible for developing an employment forecast that estimates the number and types of jobs in Portland in the future.

What is a forecast?

Metro's forecasts are not targets. They are projections or estimates of what is likely to happen in the future, given trends, previous experience and existing policies. Although forecasts are educated estimates of what is likely to happen, they are neither goals nor necessarily descriptions of desired outcomes.

Why are forecasts important?

While forecasts do not always tell Portlanders what they want to hear, they are useful and important. Household and employment forecasts help the City of Portland and other local communities plan responsibly. Population growth triggers the need for new housing and a complex web of additional urban services, from water pipes and sewers to parks and open spaces, roads, railways, schools and hospitals, all of which need to be planned far in advance. Employment forecasts tell the City of Portland what kind of land and work sites are needed to help the economy grow and tell the city which types of businesses are likely to provide jobs over the next generation. The forecasts help Portlanders make informed decisions about how to manage land, where and when to invest in infrastructure – like transportation and utilities – and which policies and programs should be continued and enhanced and which should not.

How do Metro's household and employment forecasts work?

Metro uses data from the forecasting firm Global Insight, and estimates the distribution of households and jobs based on a computer model called **Metroscope**. For information on how Metroscope works, please check out Metro's website: www.metro-region.org.

What is the Buildable Lands Inventory?

The Buildable Lands Inventory (BLI) is a tool to help us understand what Metro's forecasts might mean for Portland. Do our zoning and regulations allow for the development needed to accommodate the projected household and job growth? If the projected growth occurs, where is it likely to happen? What would the impacts of that growth be? To help answer questions like these, the City of Portland uses its own computer model to project "development capacity" and develop scenarios describing how growth might occur in the future. Development capacity is defined as the likely number of new dwelling units or jobs that could be accommodated in the city under existing regulations, assuming the continuation of recent market trends.

Ultimately, the purpose of the BLI is to agree on a plan to shape how Portland grows over the next 25 years. Creating that plan takes several steps. For each step, assumptions must be made, and stated. The development capacity estimate (BLI) is one of the key assumptions in the City's growth management planning process. The BLI will inform development of several different scenarios, each of which will describe a different approach to shaping future growth. From that, a preferred scenario will be developed.

Step 1 estimates the gross acreage of land that is available for development and redevelopment in the city, including:
- Inventory of the vacant sites/acreage in the city (a)
- Selection of other sites that are underdeveloped and likely available for redevelopment (b)
A separate report entitled '**Development Capacity Analysis GIS Model**' describes the methodology used for this step.

Step 2 subtracts constrained lands (c) from the Step I results ((a + b) - c). Constrained lands include sites that lack needed urban infrastructure (for example, sites without sewer service), and also include physical and regulatory barriers to development (such as environmentally sensitive areas, historic landmarks, flood hazards,

etc.). See Appendix A for additional explanation of the specific constraints evaluated. The result of Step II is an inventory of land that has capacity to accommodate additional development (**The BLI**). Steps I and II represent a supply-side analysis. The BLI by itself does not consider or predict market demand for new construction. It only identifies lands that could potentially be available for that construction, should a market demand exist.

Step 3 involves an evaluation of expected near-term infrastructure improvements (investments already in the pipeline). In this step, the capacity estimate for some areas may be adjusted upward or downward by some factor (d). The result of Steps I through IV is an estimate the net acreage of land available for development and redevelopment in the city ((a + b) - c) x d.

Step 4 involves developing a **Default Scenario** — a map showing where we believe the Metro-forecasted growth is most likely to occur over the next 25 years. In other words, considering how much capacity is available in each neighborhood (identified with the BLI) — and considering the overall volume of growth we expect by 2035, market factors, past development trends — where are the expected new housing units and jobs most likely to be? The default scenario is based only on existing policy, development trends, infrastructure plans, and development allowances, and does not attempt to express any preferred new policies.

Step 5 involves developing and evaluating other scenarios based on desired outcomes (Portland Plan Goals and Objectives) and agreeing on a preferred pattern of growth.

What is the Buildable Lands Inventory?

Figure 1, Growth Management Planning Steps
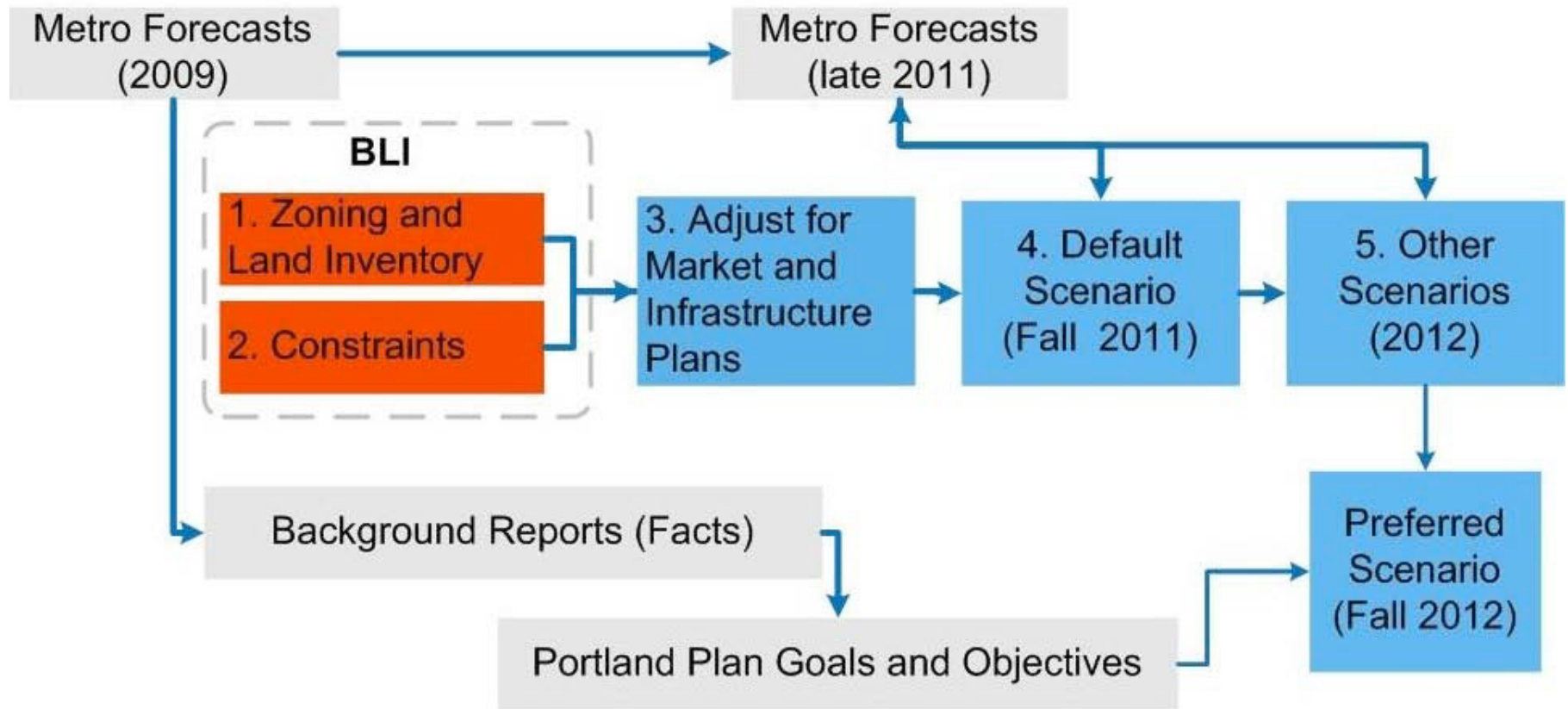
The Comprehensive Plan sets expectations about what kind of future development may occur in different parts of the City. It is implemented through policy, zoning, and public investments (Capital Improvement Plans). The map at right illustrates how much development intensity is allowed under the current Comprehensive Plan and zoning. Darker areas represent areas with the greatest allowances for new development. The Default Scenario uses the current Comprehensive Plan as one of the factors that shape expected development patterns.

Key Term: Constraints

Constrained land is a term used in Oregon's land use planning system to define the features of land, in addition to zoning, which may limit the intensity of future development (and therefore the distribution of future housing or jobs). The State identifies a list of specific constraints that must be considered, at minimum. Additional constraints may also be identified. Constraints could be the market, regulations, infrastructure-related, and/or physical factors that impact development feasibility. The term "constraint" does not imply that these factors are necessarily undesirable or leading to negative outcomes. For example, land near the bank of a river may be considered fully or partly "constrained" from reaching full zoned capacity for housing and jobs, but in reality the closeness to natural areas or a river may increase the desirability of a parcel and likelihood of development. The table beginning on the next page summarizes the constraints considered in this analysis. Maps of the constraints and a more detailed description of how these constraints were evaluated is found in Appendix A.
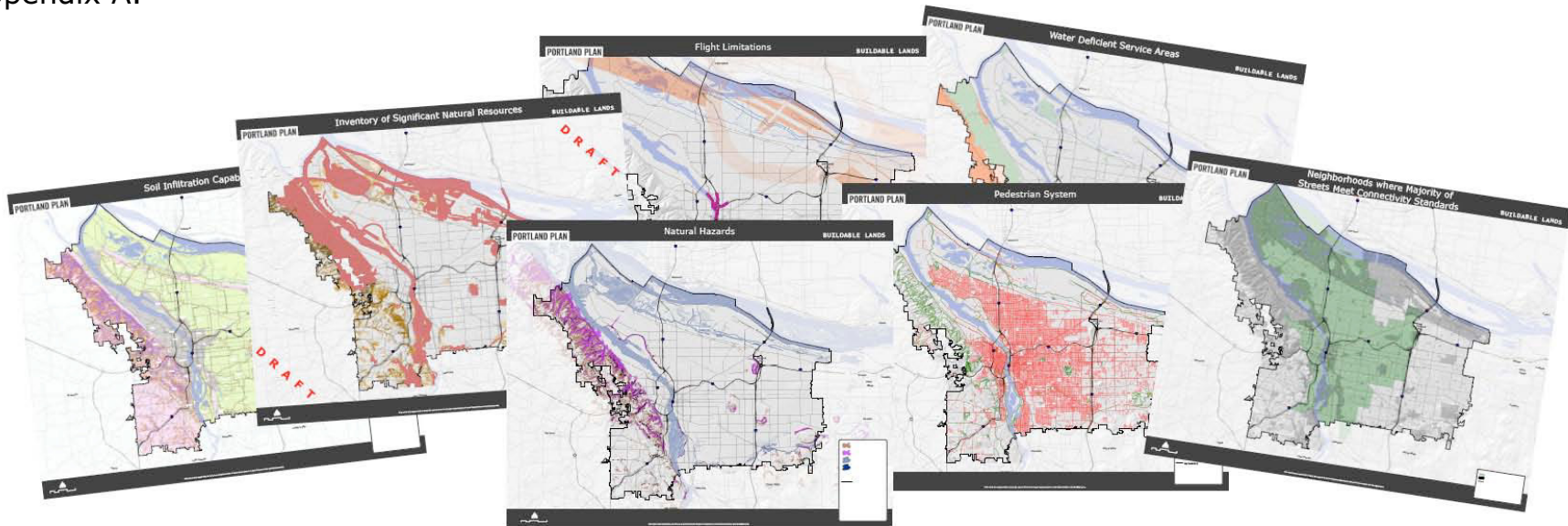
Constraints

Table 1 Infrastructure Constraints Evaluated

ID	Constraint Layer	Impact on Res. Capacity
A	**Transportation (Vehicular Level of Service)**	
A1	2008 Transportation Network PM Peak 2 hours Volume to Capacity Ratio	Some (Low)
A2	Neighborhoods where Majority of Streets Meet Connectivity Standards	Some (Low)
A3	ODOT Highway Interchanges	Some (Low)
B	**Transportation (Other)**	
B1	Improved and Unimproved Streets	Some (Low)
B2	Pedestrian System	Some (Low)
C	**Water**	
C1	Water System	Some (Low)
C2	Water Deficient Service Areas	Some (Low)
D	**Sewer**	
D1	Development Assumptions for Sanitary Sewer	Some (Low)
E	**Stormwater**	
E1	Stormwater System	Some (Low)
E2	Depth to Seasonal Groundwater	Some (Low)
E3	Soil Infiltration Capacity	Some (Low)
E4	Well-field Protection Areas	Some (Low)

The BLI model translates these into the following assumptions: None = No capacity reduction (impacted land area assumed to have full capacity); Some (Low) = Model reduces capacity of impacted area by 15%; Some (Medium) = Model reduces capacity of impacted area by 45%; Some (High) = Model reduces capacity of impacted area by 80%; Full = 100% capacity reduction (no assumed capacity for impacted land area).

Table 2 Land Feature Constraints Evaluated

ID	Constraint Layer	Impact on Res. Capacity
G	**Natural Resource Features**	
G1	Streams. Lakes, rivers, and other water bodies	Full
G2	Wetlands	Some (Medium)
G3	Forests	None
G4	Flood Areas (equivalent to layers N8-N10)	None
G5	Groundwater Recharge Areas	None
H	**Inventory of Significant Natural Resources (NRI)**	
H1	NRI – Low Ranked Resource Areas	None
H2	NRI – Medium Ranked Resource Areas	Some (Low)
H3	NRI – High Ranked Resource Areas	Some (Medium)
H4	NRI – Special Habitat Areas (with no riparian or wildlife habitat ranks)	None
I	**Inventory of Scenic Areas**	
I1	Views	Some (Low)
I2	Sites	None
I3	Corridors	None
L	**Environmental Overlay Zones**	
L1	Environmental Conservation Zones	None
L2	Environmental Protection Zones	Full

The BLI model translates these into the following assumptions: None = No capacity reduction (impacted land area assumed to have full capacity); Some (Low) = Model reduces capacity of impacted area by 15%; Some (Medium) = Model reduces capacity of impacted area by 45%; Some (High) = Model reduces capacity of impacted area by 80%; Full = 100% capacity reduction (no assumed capacity for impacted land area).

Table 3 Hazard Constraints Evaluated

ID	Constraint Layer	Impact on Res. Capacity
N	**Land Hazard Features**	
N1	City of Portland Potential Landslide Hazard Areas	None
N2	All Slopes over 25%	Some (Low)
N3	DOGAMI Digital landslide Database (SLIDO)	Some (Low)
N4	DOGAMI Rapidly Moving Landslide Hazard Zones (IMS-22)	Some (Low)
N5	DOGAMI Database IMS-1 (Earthquake Hazards)	None
N6	DOGAMI Database IMS-16	None
N7	Federal Emergency Management Agency 100-Year Floodplain Map	None
N8	Federal Emergency Management Agency Floodway Map	Full
N9	1996 Actual Flooded	None
N10	Wildfire Hazard Map	None
K	**Air Quality**	
K1	Risk of Exposure to Outdoor Toxic Air Pollutants	None
O	**Potentially Contaminated Lands**	
O1	Identified by DEQ, Environmental Cleanup Sites (ECSI)	Some (Low)
O2	Identified by DEQ, Confirmed Release Sites (CRL)	Some (Low)
O3	Identified by DEQ, Underground Storage Tanks (UST)	Some (Low)

The BLI model translates these into the following assumptions: None = No capacity reduction (impacted land area assumed to have full capacity); Some (Low) = Model reduces capacity of impacted area by 15%; Some (Medium) = Model reduces capacity of impacted area by 45%; Some (High) = Model reduces capacity of impacted area by 80%; Full = 100% capacity reduction (no assumed capacity for impacted land area).

Table 4 Other Constraints Evaluated

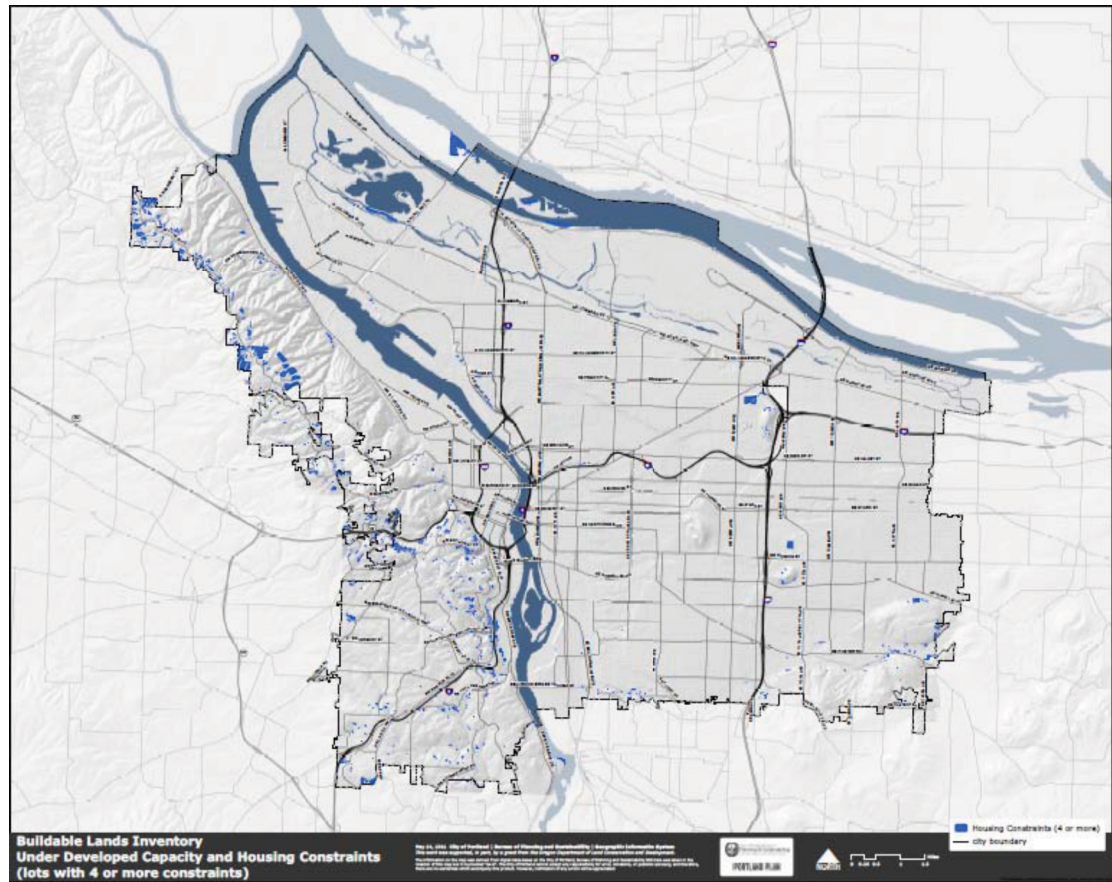| ID	Constraint Layer	Impact on Res. Capacity
F	**Airport Flight Limitations**	
F1	Approach and Departure Cones	Some (Low)
F2	Noise Contours (areas above LDN 65 and 68 noise contours)	Varies - See Appendix A
F3	Heliport Landing (impacts several buildings near Portland Heliport)	Some (Low)
J	**Open Space**	
J1	OS Comprehensive Plan Map Designation	Full
J2	Lots with Open Space Tax Assessment	Full
J3-5	Lots with Riparian, Farm, Forest Tax Assessment	Full
M	**Significant Cultural Resources**	
M1	Historic and Conservation Districts	Some (Low)
M2	Historic and Conservation Landmarks	Some (Med)
M3	Areas Requiring Archeological Scan or Consultation	None
P	**Public Land**	
P1	Publicly Owned Lots/Parcels (excl. those that provide residential uses).	Some (High)
P2	Public and Private Rights of Way	Full
P3	Beds and Banks of Navigable Waterways	Full
P4	Private Common Open Space	Full
P5	Institutional Campuses	Full
Q	**Rural Land**	
Q1	Land within the City but beyond the Urban Growth Boundary	Full

The BLI model translates these into the following assumptions: None = No capacity reduction (impacted land area assumed to have full capacity); Some (Low) = Model reduces capacity of impacted area by 15%; Some (Medium) = Model reduces capacity of impacted area by 45%; Some (High) = Model reduces capacity of impacted area by 80%; Full = 100% capacity reduction (no assumed capacity for impacted land area).

Constraints

In addition to considering the individual constraints noted above, properties subject to multiple overlapping constraints were identified. Specifically, properties were assigned an additional "Medium" constraint if four or more of the following "Low" constraints were present in one location:

- Transportation (A, B)
- Water (C)
- Sewer (D)
- Stormwater (E)
- Environmental Overlays (L)
- Contamination (O)

This additional factor is intended to account for the additional complexity of development on sites with multiple overlapping infrastructure constraints and/or environmental concerns. Natural land feature layers (such as steep slopes, wetlands, large forests, etc.) were not separately incorporated into this evaluation because in most cases these features are found within the Environmental Overlay layer.

Buildable Lands Inventory
Under Developed Capacity and Housing Constraints
(lots with 4 or more constraints)

Key Term: Vacant and Underutilized Land

Additional capacity for housing was calculated only for properties that are considered vacant or underutilized. Assumptions were made to identify these properties based on their zoning and location:

Low and medium density residential parcels were considered vacant or underutilized based on their size and the density allowed by zoning. In the single family (R2.5 through RF), if existing development is 33 percent or less of the allowed density, the property was considered underutilized. Multi-family parcels (R1 through R3 and IR zones) were considered vacant or underutilized if existing development is 20 percent or less of the allowed density.

High-density residential parcels (RH & RX zones) were considered vacant or underutilized if the square footage listed in the tax rolls amounts to 20 percent or less of their allowed floor area under current zoning.

In commercial and mixed-use zones (CM, CS, CX, CN, CO, CG), parcels were considered vacant or underutilized if the square footage listed in the tax rolls amounts to 20 percent or less of the allowed floor area under current zoning.
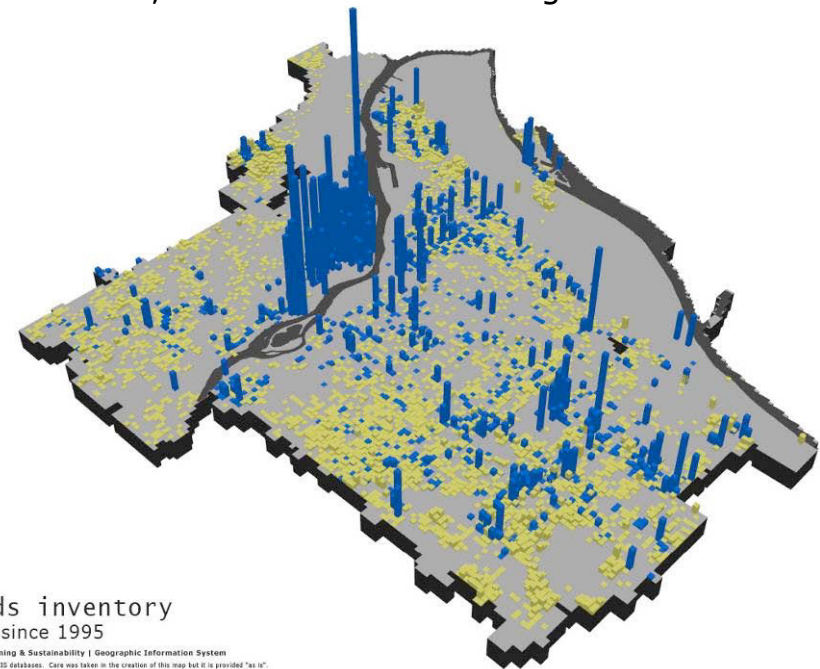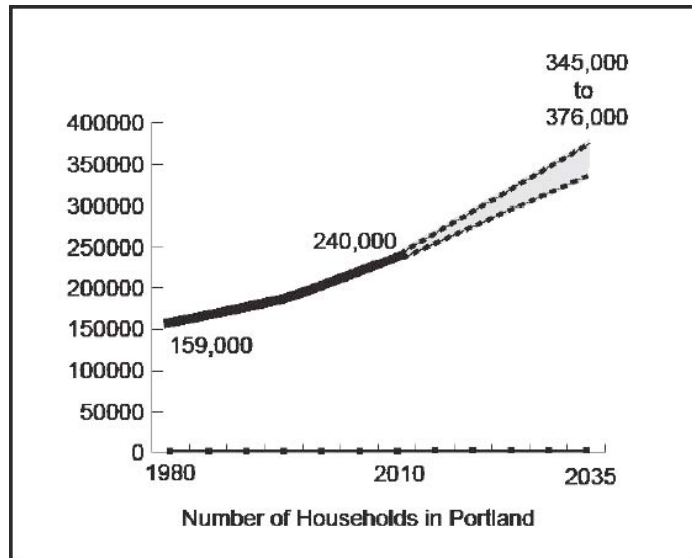
In the Central City, a different model was applied, using both land values and built square footage. In the Central City, if a site was developed to 20 percent or less of the allowed square footage, AND if the site's improvement to land value ratio is 50 percent or less, it was considered underutilized (e.g. $25K building on $50K land is underutilized, but $26K building on $50K land is not). For more information about the methodology used in the Central City, see the **2007 Central City Development Capacity Report**.

For more information about how vacant and underutilized land was identified, see the separate **Development Capacity Analysis GIS Model Report**.

Household Forecast

According to Metro forecasts, Portland is projected to gain 105,000 to 136,000 new households by 2035 (an annual percent rate change of 1.2 - 1.6 percent). This translates into a need for 3,500 - 4,500 new housing units each year. For context, approximately 31,000 new dwellings were built in Portland over the past decade. During the most recent housing boom (2004 to 2008) growth rates reached approximately 4,500 new dwellings each year.

One way to understand what might happen in the future is to evaluate past trends. The map below illustrates where new housing has been developed over the past decade. Taller, darker lines indicate a greater number of new dwelling units.


Number of Households in Portland

buildable lands inventory
new residential units since 1995

January 24, 2011 City of Portland | Bureau of Planning & Sustainability | Geographic Information System

The information on the map was derived from City of Portland GIS databases. Care was taken in the creation of this map but it is provided "as is". The City of Portland cannot accept any responsibility for error, omissions, or positional accuracy, and therefore, there are no warranties which accompany this product. However, notification of any errors will be appreciated.

* 1 unit represented as 40' of vertical height

● multi-family   ● single-family

Household Forecast

Nationally, regionally and within the city, household size is projected to decline in coming years. In 2005, 28 percent of households included children. By 2035, 25 percent of Portland households are expected to include children. As a result, demand is expected to be highest for multi-family units. Currently, about 61 percent of the existing dwellings are single family detached homes. In contrast, during the most recent decade (2001 to 2010) only 28 percent of new housing units in Portland were single family detached homes.

Over 10,000 new dwellings were built in the Central City during the most recent decade (2001 to 2010). This trend is expected to continue, and the number of households in the Central City is projected to nearly triple by 2035.

More information is available in the **Housing Demand and Supply Background Report**.
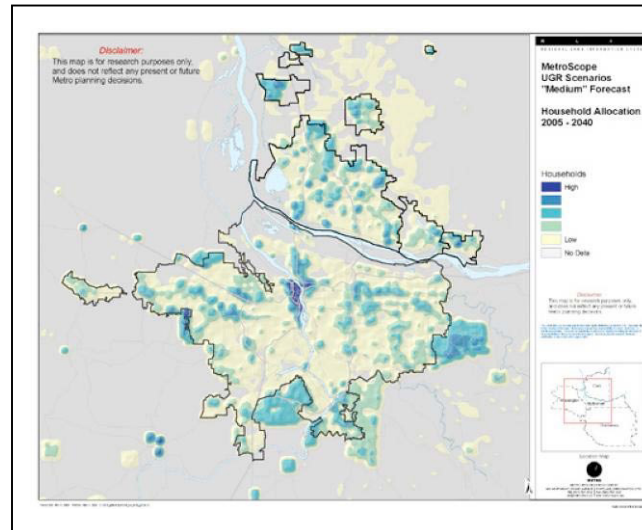
This map shows Metro's projections for the distribution of new households by the year 2040 (medium growth scenario shown). Larger amounts of projected residential growth within Portland are anticipated in and around the Central City, along the Interstate Corridor, and around Gateway and other areas in East Portland. Metro will update this distribution estimate in late 2011.
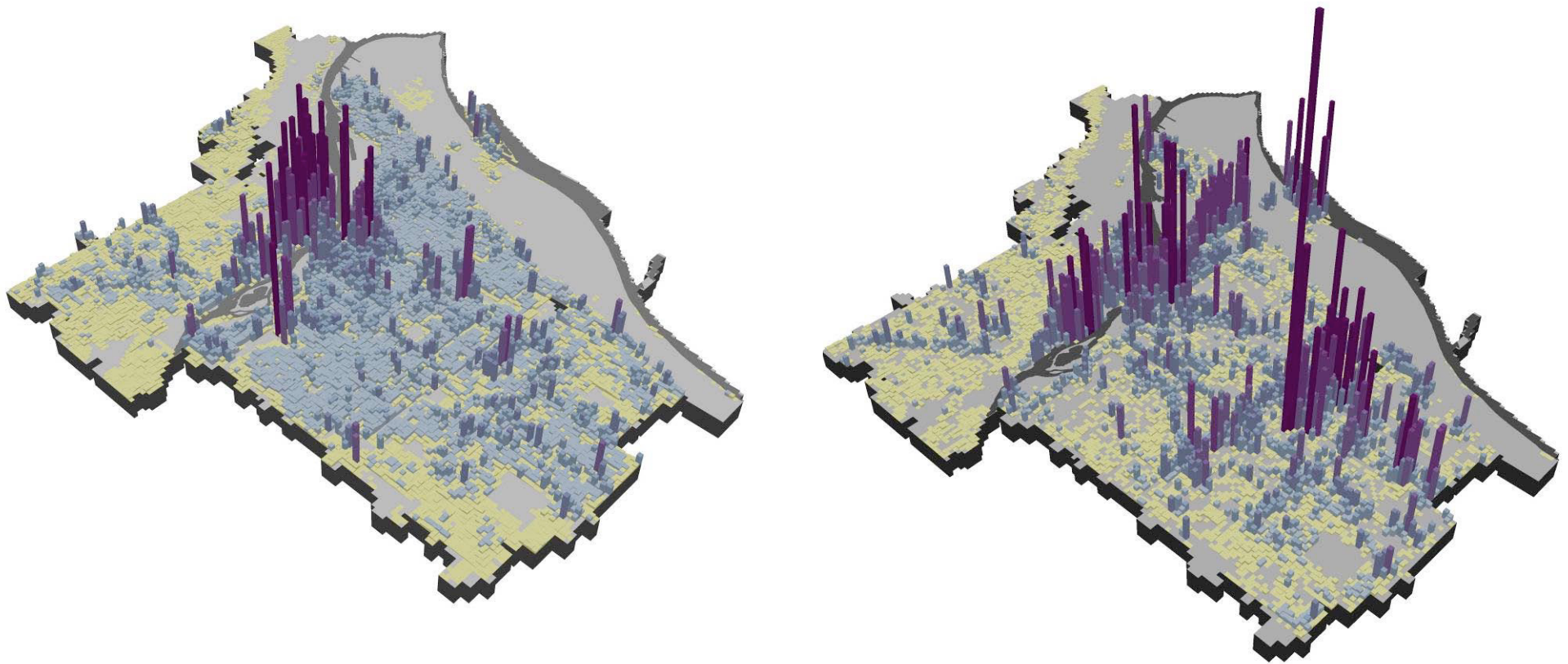
Results

Zoned capacity in Portland is sufficient to meet projected housing need; that is, enough land in Portland is currently zoned to accommodate the projected number of new households. There are approximately 250,000 households in Portland today. The total estimated residential capacity of the city, with the existing Comprehensive Plan and zoning, is between 112,000 and 262,000 additional new units. The low end of that range assumes no "constrained" land is available, no matter how minor the constraint. The higher number is the additional capacity available within the present Comprehensive Plan, ignoring the impact of constraints. A more realistic estimate, based on evaluating in the degree of impact from the constraints is 213,700 units (see Appendix A for more information about those assumptions).

About 16 percent of that capacity is in land available for single dwelling residential development (detached or attached homes on their own lot). The largest concentration of single dwelling capacity is in the Powelhurst-Gilbert area.
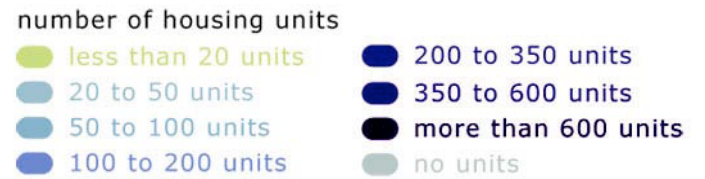
At least 19 percent of Portland's capacity is located in the Central City (approximately 40,000 dwellings). For a more detailed study of the Central City's capacity, see the **2007 Central City Development Capacity Report**. That report estimated a capacity of 50,000 to 60,000 additional housing units, after considering available development incentives and bonuses.

Outside of the Central City, most of the remaining growth capacity is in mixed use corridors and neighborhood centers. Notable areas of high growth capacity are North Interstate Corridor, Gateway, Lents, Hayden Island, Montavilla, and some areas of East Portland. The areas of town with the least capacity for additional growth are some areas in Northeast Portland and most of West Portland.
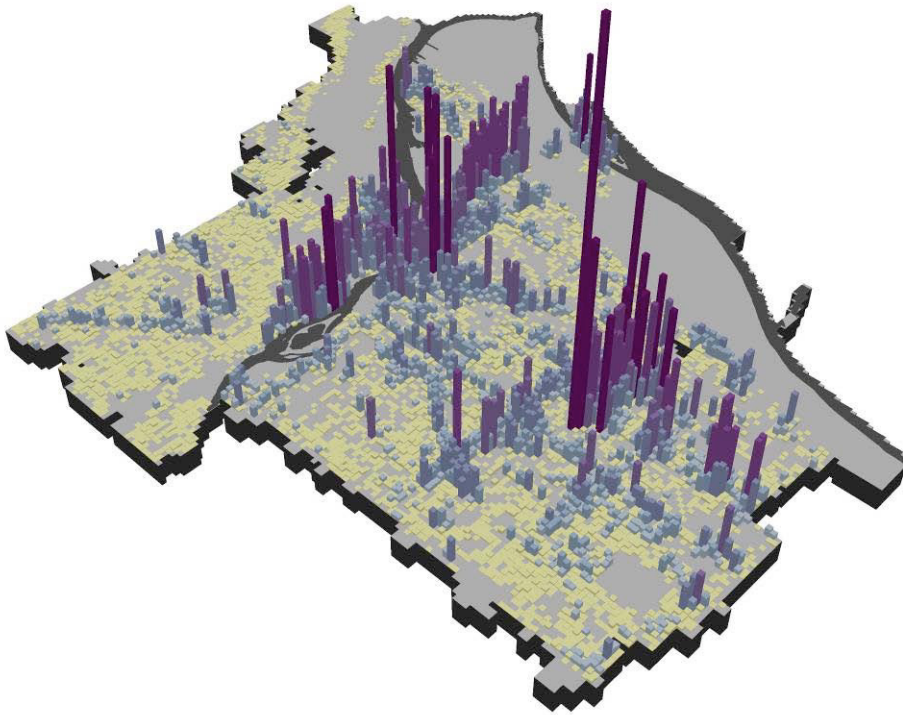
Above Left: The distribution of existing dwelling units in Portland (2010). Above Right: Additional new dwelling units allowed by the Comprehensive Plan, before any deduction to represent constraints.

number of housing units

- less than 20 units
- 20 to 50 units
- 50 to 100 units
- 100 to 200 units
- 200 to 350 units
- 350 to 600 units
- more than 600 units
- no units

Above left: The distribution of potential new housing units after considering the likely impact of the constraints identified on Tables 1 through 4. See Appendix A for more specific explanations of how each constraint was evaluated. Using this approach, there is a remaining capacity of approximately 213,700 potential new dwellings.
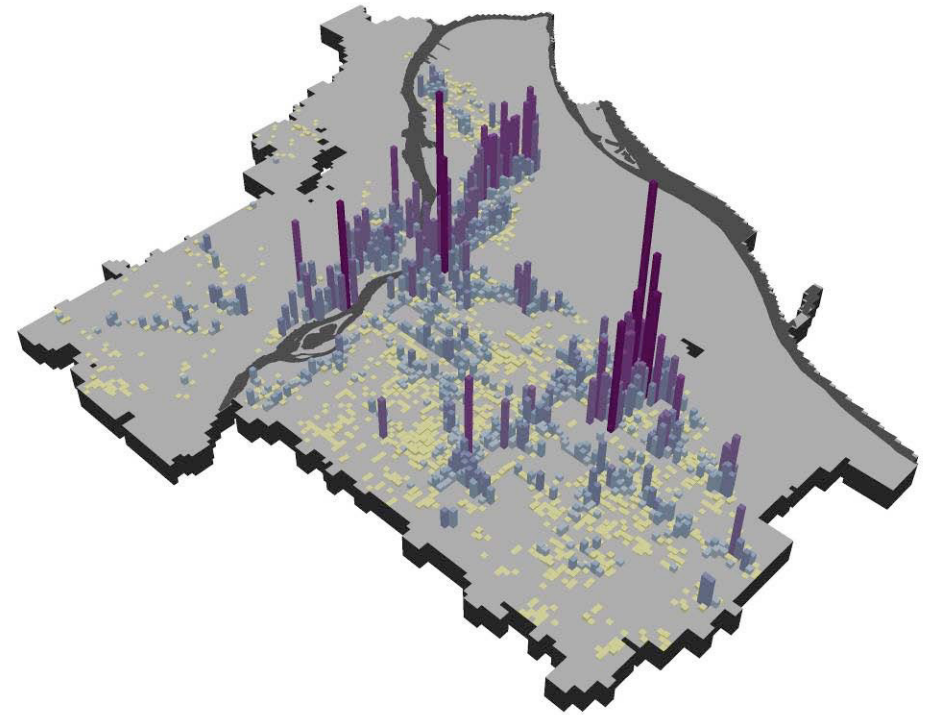
Above right: The distribution of potential new dwellings if all constrained land is removed from consideration. With this map all land with any mapped constraint is assumed to have no capacity, no matter how minor the constraint. Using this more conservative approach, there is a remaining capacity of approximately 112,000 potential new dwellings.

20-Minute Neighborhood Analysis Areas

This map below was created as a framework for examining local data and trends. Most of these areas are centered on an existing commercial center or main street. They are sized to approximate a walkable distance from those centers. Each area includes several Portland Neighborhood Associations. Table 5 summarizes the capacity estimates for each analysis area.
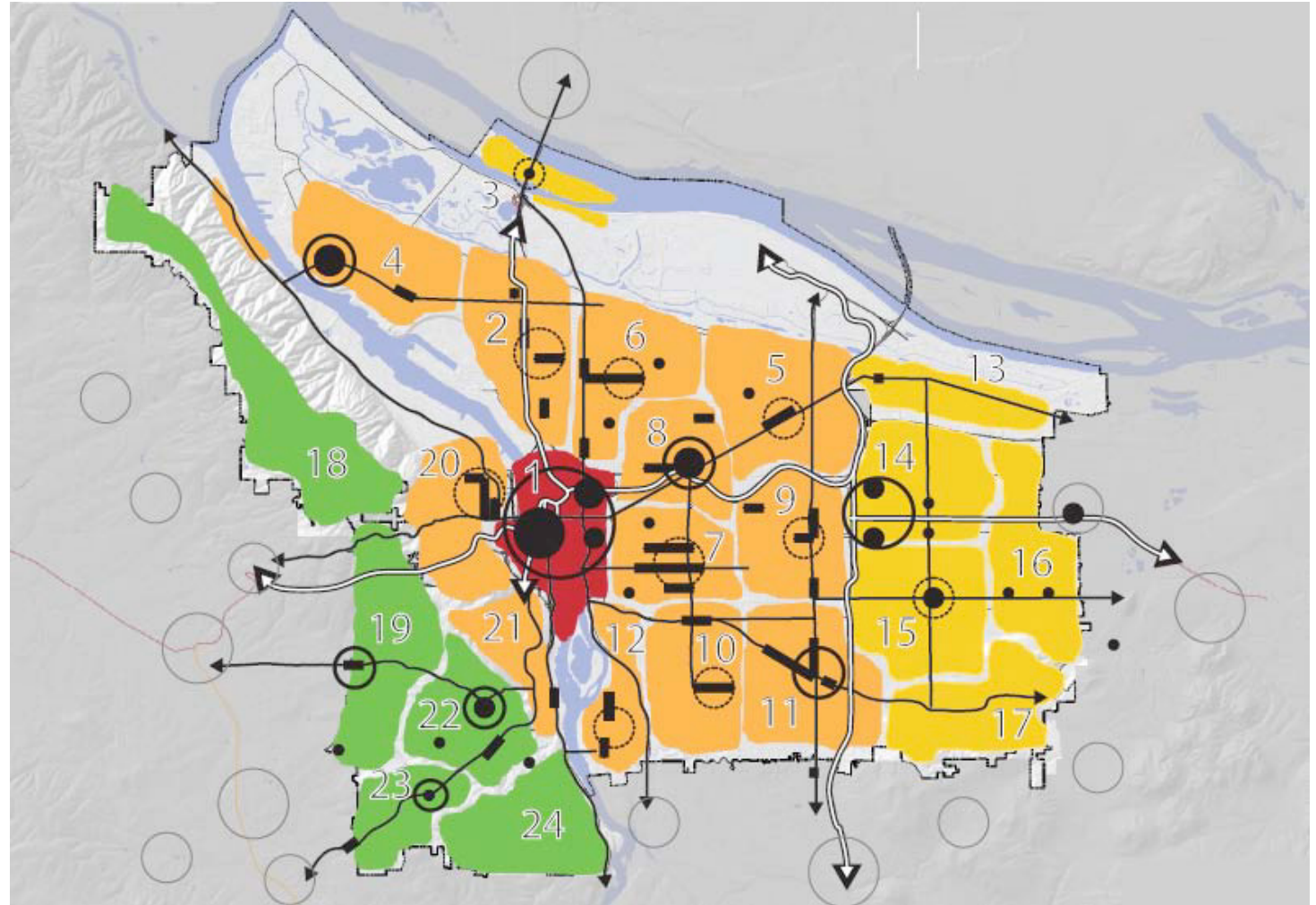
Table 5, Estimated Residential Capacity, by Area (Assumes Current Comprehensive Plan)

Analysis Area	Number of Households today (2010)	Additional Capacity (total number of additional dwellings possible)			Growth Factor (Capacity)
		New Single Family	New Multifamily	Total (SF + MF)	
1*	18,400	31	40,398	40,429	3.2
2	14,400	955	19,502	20,457	2.4
3	2,500	211	4,023	4,234	2.7
4	12,300	1,365	5,390	6,754	1.5
5	13,900	1,339	3,207	4,546	1.3
6	16,500	690	5,708	6,398	1.4
7	17,700	1,584	5,863	7,447	1.4
8	14,000	727	7,147	7,875	1.6
9	13,300	2,028	8,164	10,193	1.8
10	13,200	1,758	2,921	4,679	1.4
11	16,800	2,832	9,598	12,431	1.7
12	7,400	447	2,897	3,344	1.5
13	5,400	627	2,835	3,461	1.6
14	11,000	2,568	26,056	28,624	3.6
15	13,700	4,505	9,392	13,897	2.0
16	11,400	1,925	8,364	10,289	1.9
17	3,800	2,525	530	3,054	1.8
18	3,300	986	125	1,111	1.3
19	6,500	1,786	1,057	2,843	1.4
20	12,800	621	5,564	6,185	1.5
21	4,700	611	4,745	5,356	2.1
22	9,000	1,416	2,789	4,205	1.5
23	4,600	469	1,164	1,633	1.4
24	3,400	815	2	817	1.2
Other	na	432	3,013	3,445	na
TOTAL	**~250,000**	**33,253**	**180,454**	**~213,700**	**1.9**

← **?**

The 'Growth Factor is a way of quantifying the amount of change that is possible in each area. For example, a score of 2.0 would mean that there is capacity to double the number of households in a given area. A score of 1.0 would mean there is little or no capacity for growth. This estimate is based on the amount of vacant and underutilized land available for housing development, how many new dwellings the zoning allows on that land, and factoring in the impact of constraints (e.g., slopes, lack of infrastructure or environmental resources).

* See the 2007 Central City Development Capacity Report for more information about the Central City.
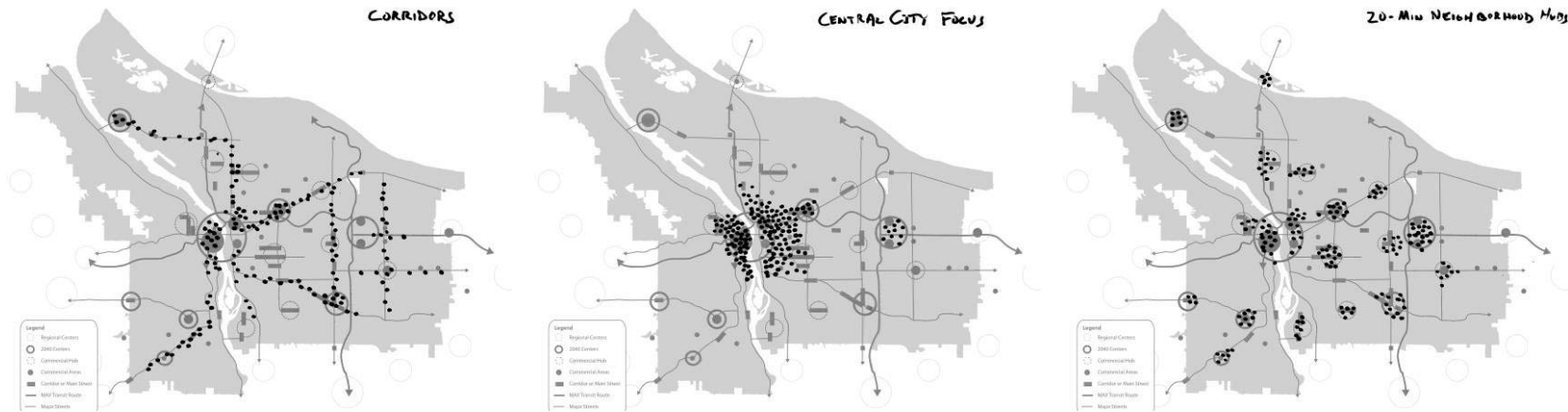
Next Steps

In 2012 Portlanders will weigh the costs and benefits of several different 25-year growth scenarios, and use that information to develop a preferred growth concept. Alternative scenarios are a tool used to explore ways the City might change its growth policies, development regulations and infrastructure investments to impact how and where the City grows over the next 25 years. The Bureau of Planning and Sustainability will produce a default scenario and two or more alternative scenarios, and after public discussion and refinement of the ideas, a "preferred scenario" will be selected to guide the future Comprehensive Plan update.

The **Default Scenario** is an estimate of the growth patterns we would likely see over the next 25 years without any regulatory or investment changes. In other words, how new jobs and housing would likely be distributed by 2035, if we follow our existing zoning and Comprehensive Plan. The Default Scenario is based only on the current land supply (the results of the BLI) and existing policies and planned investments, and does not recommend or explore choices we could make with the Portland Plan to move in a different direction. It will consider how the market will use the supply. For example, our existing plans have more capacity for growth than the likely market demand for housing, so the default scenario will state our assumptions about which areas will most likely be developed over the 25-year horizon. It will also consider how planned but not yet built infrastructure projects could impact land supply. The Default Scenario will be the starting point for consideration of other alternatives.

Other scenarios will illustrate different choices – for example, should we rely on neighborhood infill and main street development, or should we have a more central-city-focused growth strategy? How intensive should development be in neighborhood hubs? Scenarios also allow us to test different sequences of growth or different investment options. For instance, should the Lloyd District be more fully developed before Gateway? How would a Barbur or Powell Boulevard light rail line impact growth patterns?

Next Steps

Subject to approval by the Portland Plan Community Involvement Committee (CIC), we anticipate **Public Involvement** will occur in several stages[*]:

Product	BLI	→ Scenarios Report	→ Preferred Scenario	→ Comp Plan Map and Zoning Map amendments
What is it?	inventory of land that has capacity to accommodate additional development	a map showing where we believe the Metro-forecasted growth is most likely to occur over the next 25 years, assuming the current Comprehensive Plan (Default Scenario) maps showing two other different ways the forecast growth could be allocated (Other Scenarios) an evaluation of the relative performance of the default and alternative scenarios	A concept-level diagram of the city, illustrating the way we prefer growth to be allocated	**A map to be adopted with the new Comprehensive Plan, illustrating desired development patterns and key infrastructure investments necessary to support that pattern**
How can the public weigh in?	Planning and Sustainability Commission hearing	Community conversations/workshops will be organized geographically throughout the city Planning and Sustainability Commission hearings		**Planning and Sustainability Commission and City Council hearings**
When?	**June 28, 2011**	**beginning Fall 2011**	**by Fall 2012**	**by Fall 2013**

[*] This is a tentative work plan, and subject to change

For More Information

About the Portland Plan:

www.pdxplan.com

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About the Buildable Lands Inventory:

www.pdxplan.com/bli

www.pdxplan.com/atlas

About Metro's forecast model, Metroscope:

www.metro-region.org

Staff Contacts:

Eric Engstrom | Bureau of Planning and Sustainability| Portland Plan Project Manager| 503-823-3329
eric.engstrom@portlandoregon.gov

Tom Armstrong | Bureau of Planning and Sustainability| 503-823-3329
tom.armstrong@portlandoregon.gov

Mark Walhood | Bureau of Planning and Sustainability| City Planner II| 503-823-0168
mark.walhood@portlandoregon.gov

Kevin Martin | Bureau of Planning and Sustainability| GIS Analyst | 503-823-7710
kmartin@portlandoregon.gov