Metro | Draft Discussion Guide

Choices

Land Use and Investment Scenarios

The Portland metropolitan region is an extraordinary place to live. Our region has diverse communities with inviting neighborhoods. We have a robust economy and a world-class transit system. The region features an exciting nightlife and cultural activities as well as a variety of beautiful scenery, parks, trails and wild places close to home.

Over the years, the diverse communities of the Portland metropolitan area have taken a collaborative approach to planning that has helped make our region one of the most livable in the country. We have set our region on a wise course – but times are changing. Climate change, rising energy costs, economic globalization, aging infrastructure, population growth and other urgent challenges demand thoughtful deliberation and action.

MAKING THE GREATEST PLACE

November 2008

Choices for the future: understanding the possibilities and trade-offs

Our choices include:

1. **Urban Form**
   How and where do we grow?
2. **Transportation**
   How do we travel?
3. **Investments**
   How do we prioritize needed investments?

The following pages summarize the results of research conducted during the summer of 2008 to frame the land use and public investment choices that lay before us. The research was conducted to help policy makers think and talk about what actions to take – locally and regionally – to achieve community and regional goals. Together, we must answer some pivotal questions:

- What is the right mix of land use and transportation investments and strategies?
- What funding sources should the region focus on to pay for needed investments?
- How should limited dollars be prioritized?
- How do we protect what we have?
- What areas and outcomes are priorities for investments?
- How much revenue is the region willing to raise?

Our region has come a long way since 1995 when regional leaders adopted the 2040 Growth Concept as our long-range blueprint for managing growth. We've seen success around the region in accommodating growth within our existing communities, but we can do more to build vibrant downtowns and main streets that attract residents and businesses and enhance the character and vitality of our communities. By the end of 2009, we have several important and interdependent decisions to make that will set us on the path for how we grow, how we travel and what our communities will look like in the next 20 to 50 years.

By the end of 2009, the region's elected officials will prioritize investments in the Regional Transportation Plan, establish areas for possible future urban expansion, identify areas reserved for rural and natural resource protection, and identify local and regional strategies to guide the next 50 years of growth. In 2010 and 2011, local governments and the Metro Council will begin taking actions necessary to implement these decisions.

Metro has examined a set of "cause and effect" scenarios. These scenarios are intended to demonstrate the relative effectiveness of different policy tools and public investments to better implement the region's long-range vision. This discussion guide frames land use and investment choices including

land supply, infrastructure needs and targeted investments in centers and corridors. A second discussion guide will explore transportation investment choices in terms of their effects on land use patterns, air quality, greenhouse gas emissions, traffic congestion, travel behavior and public finance.

Megatrends: planning for uncertain times

Making these decisions can be difficult in these uncertain times. The region will need to exercise good judgment in how we plan for both known and unknown futures with:

- Rising energy and materials costs
- Infrastructure funding shortage
- Population growth and changing demographics
- Economic turmoil
- Global warming

What makes a successful region?

To ensure that we are making the right choices, we need to have a clear sense of what success looks like. In the spring of 2008, the Metro Council, advised by its local partners, adopted "A Definition of a Successful Region" to guide policy and investment choices. This articulation of desired outcomes is intended to focus the region's attention on how to better implement the region's long-range plan.

Desired outcomes

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

How can scenarios help the region make the best choices?

What is a scenario?

A scenario is a hypothetical sequence of possible events or set of circumstances.

How can scenarios help the region to make choices?

An integrated transportation and land use computer simulation model called MetroScope can help illustrate possible effects of different land use, transportation, and investment choices.

Given a set of assumptions regarding the transportation system, zoning, population and employment forecasts, and market factors, the model predicts a number of outputs for the year 2035, including:

- Locations of new households (including distribution in centers, corridors, existing neighborhoods, and neighboring communities)
- Locations of new jobs (at a broad scale)
- Future real estate prices
- Number of single-family and multi-family housing units
- Average commute distances
- The combined annual cost of transportation and housing per household
- Public costs of infrastructure
- Developed acres in recent and potential future urban growth boundary (UGB) expansion areas
- Residential-source greenhouse gas emissions

What questions were explored with scenarios?

▶ **Reference scenario:** What are the implications of continuing to grow as the region has in the past? What if the region invests in a mix of transportation, infrastructure and land use plans that currently adopted polices would require?

▶ **Tight UGB scenario:** To date, the UGB has been used as an effective tool for managing growth on the region's edge. Could the UGB also be used as a tool for directing more growth to centers and corridors? What might happen if the UGB were not expanded between now and the year 2035? Since UGB expansion areas cannot be developed without public infrastructure funding, this scenario can also be interpreted as a scenario that tests what might happen if there were no funding for infrastructure in future UGB expansion areas.

▶ **Infrastructure funding delay scenario:** Recently, there has been a shortage of public funding for infrastructure. This shortage has been particularly evident in recent (since 2002) UGB expansion areas. What are the implications of further delays in funding infrastructure in areas like Damascus and North Bethany?

▶ **Corridor amenity investment scenario:** Our region's corridors hold great potential. Would public investments in amenities such as sidewalks, street trees, or street cars bring corridors to life? What share of the region's growth might be attracted to corridors with those investments?

▶ **Center amenity investment scenario:** Public places are essential to creating great communities. Might investments in amenities like plazas or libraries attract more residents to the region's centers?

Defining scenario terms

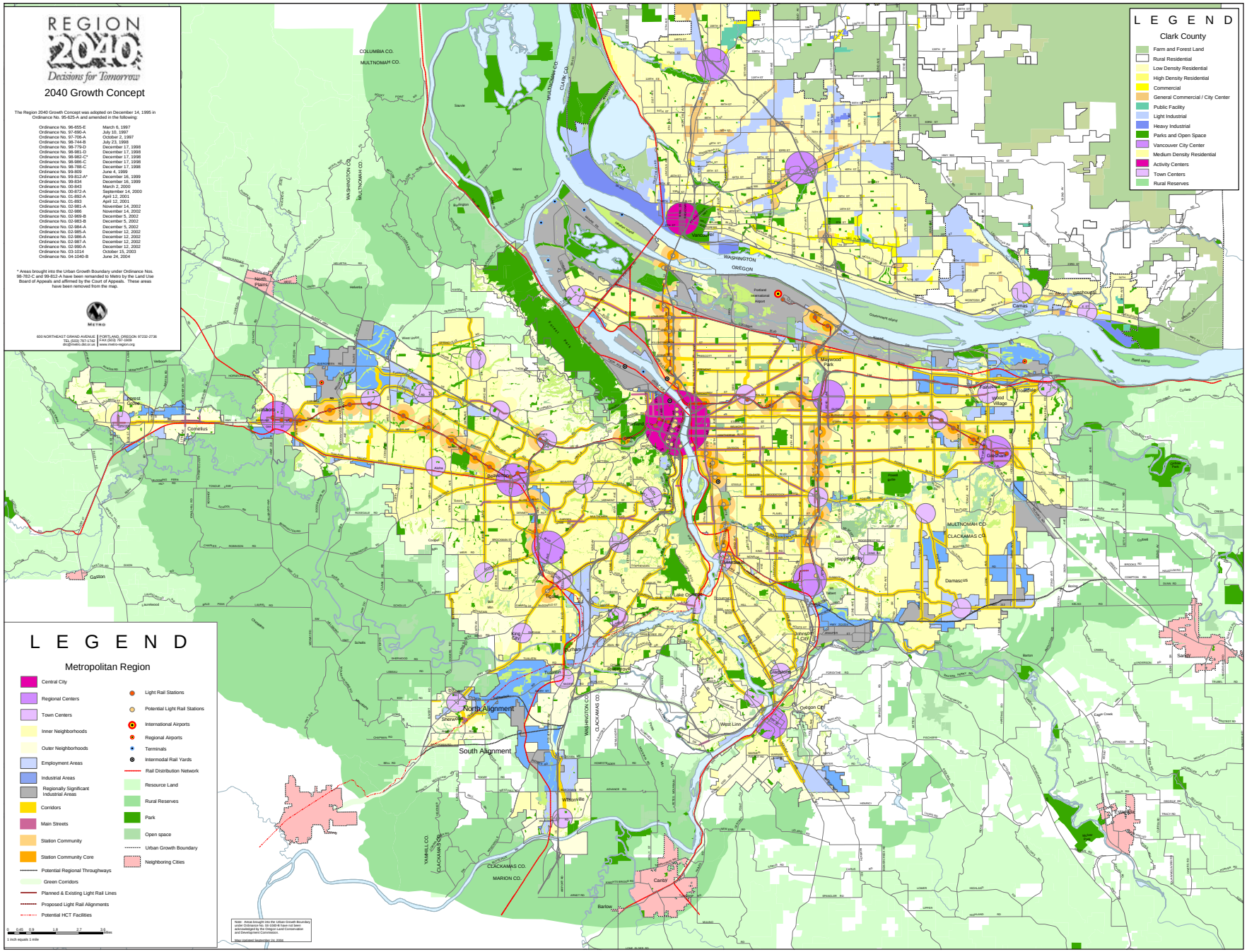
Seven-county area refers to the larger geography that MetroScope scenarios use. This geography extends beyond Metro's jurisdictional boundary and includes: all of Washington, Multnomah, Clackamas, Columbia and Clark counties; most of Yamhill County; and a small portion of Marion County. As the region considers the results of these scenarios, it is important to consider possible implications for a larger geography than just the Metro urban growth boundary.

Centers and corridors are envisioned as higher density areas that combine housing, employment, retail, and cultural and recreational opportunities in a walkable environment that is well-served by transit. The region decided with the 2040 Growth Concept that centers and corridors are the areas where we want to focus growth.

Existing neighborhoods are largely single-family neighborhoods within the Metro urban growth boundary. Most existing neighborhoods are planned to remain largely the same. As the region's population has increased, redevelopment and infill development have occurred in existing neighborhoods, raising concerns about change to neighborhood character.

Neighbor cities are communities outside the Metro UGB such as Vancouver, Sandy, Canby, Newberg and North Plains that have a significant number of residents who work or shop in the metropolitan area. Cooperation between the Metro region and these communities is critical to address common transportation and land-use issues.

Future UGB expansion areas are the locations that are currently outside of the Metro urban growth boundary, but that are added to the UGB in the scenarios for research purposes. These UGB additions follow the existing state hierarchy of lands for expansion and are not intended to represent future policy direction. Locations for future UGB expansions will from urban reserve areas once these areas are designated.


REGION 2040
Decisions for Tomorrow
2040 Growth Concept
The Region 2040 Growth Concept was adopted on December 14, 1995 in Ordinance No. 95-625-A and amended in the following:
Ordinance No. 96-655-E March 6, 1997
Ordinance No. 97-690-A July 10, 1997
Ordinance No. 97-706-A October 2, 1997
Ordinance No. 98-744-B July 23, 1998
Ordinance No. 98-779-D December 17, 1998
Ordinance No. 98-881-B December 17, 1998
Ordinance No. 98-882-C* December 17, 1998
Ordinance No. 98-886-C December 17, 1998
Ordinance No. 98-788-C December 17, 1998
Ordinance No. 99-809 June 4, 1999
Ordinance No. 99-812-A* December 16, 1999
Ordinance No. 99-834 December 16, 1999
Ordinance No. 00-843 March 2, 2000
Ordinance No. 00-872-A September 14, 2000
Ordinance No. 01-892-A April 12, 2001
Ordinance No. 01-893 April 12, 2001
Ordinance No. 02-981-A November 14, 2002
Ordinance No. 02-986 November 14, 2002
Ordinance No. 02-989-B December 5, 2002
Ordinance No. 02-983-B December 5, 2002
Ordinance No. 02-984-A December 5, 2002
Ordinance No. 02-985-A December 12, 2002
Ordinance No. 02-988-A December 12, 2002
Ordinance No. 02-987-A December 12, 2002
Ordinance No. 02-990-A December 12, 2002
Ordinance No. 03-1014 October 15, 2003
Ordinance No. 04-1040-B June 24, 2004
* Areas brought into the Urban Growth Boundary under Ordinance Nos. 98-782-C and 99-812-A have been remanded to Metro by the Land Use Board of Appeals and affirmed by the Court of Appeals. These areas have been removed from the map.
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LEGEND
Clark County
Farm and Forest Land
Rural Residential
Low Density Residential
High Density Residential
Commercial
General Commercial / City Center
Public Facility
Light Industrial
Heavy Industrial
Parks and Open Space
Vancouver City Center
Medium Density Residential
Activity Centers
Town Centers
Rural Reserves
LEGEND
Metropolitan Region
Central City
Regional Centers
Town Centers
Inner Neighborhoods
Outer Neighborhoods
Employment Areas
Industrial Areas
Regionally Significant Industrial Areas
Corridors
Main Streets
Station Community
Station Community Core
Potential Regional Throughways
Green Corridors
Planned & Existing Light Rail Lines
Proposed Light Rail Alignments
Potential HCT Facilities
Light Rail Stations
Potential Light Rail Stations
International Airports
Regional Airports
Terminals
Intermodal Rail Yards
Rail Distribution Network
Resource Land
Rural Reserves
Park
Open space
Urban Growth Boundary
Neighboring Cities
0 0.45 0.9 1.8 2.7 3.6 Miles
1 inch equals 1 mile
Note: Areas brought into the Urban Growth Boundary under Ordinance No. 04-1040-B have not been acknowledged by the Oregon Land Conservation and Development Commission.
Map Updated September 29, 2004
COLUMBIA CO.
MULTNOMAH CO.
WASHINGTON CO.
CLARK CO.
WASHINGTON
OREGON
Vancouver
Portland International Airport
Camas
Washougal
Troutdale
Gresham
Maywood Park
Wood Village
Forest Grove
Hillsboro
Cornelius
Beaverton
Tigard
Lake Oswego
King City
Tualatin
Sherwood
Happy Valley
Damascus
Johnson City
Milwaukie
Oregon City
West Linn
Wilsonville
Canby
Barlow
Gaston
Banks
Sandy
North Alignment
South Alignment
MULTNOMAH CO.
CLACKAMAS CO.
YAMHILL CO.
MARION CO.

Reference scenario

Given the uncertainties facing us today, it is difficult to predict future trends and conditions. With that limitation in mind, a reference scenario was conducted with the following assumptions that reflect current policies:

Assumptions

Forecast

- 550,000 new households in the seven-county area by the year 2035.
- 825,000 new jobs in the seven-county area by the year 2035.

Transportation system

Transportation system and funding as defined in the 2035 Financially-Constrained Regional Transportation Plan, including:

- An increase of one cent per gallon per year in the statewide gas tax.
- Projects for which there is an identified source of construction funding (for instance, a new bridge at the I-5 Columbia River Crossing is not included).

Land supply

- Zoning as it exists today. The region's central city, centers and corridors have capacity for about 355,000 new households (includes vacant land, infill capacity, and redevelopment capacity).
- Future Metro UGB expansions through the year 2035 add about 35,000 acres (in keeping with the past rate of expansion).
- 19 square miles of urban expansion area is available in Clark County, Washington (as designated by Clark County – this decision was overturned in the courts, but is currently under appeal).
- Neighboring cities grow at rates that are similar to historic rates.

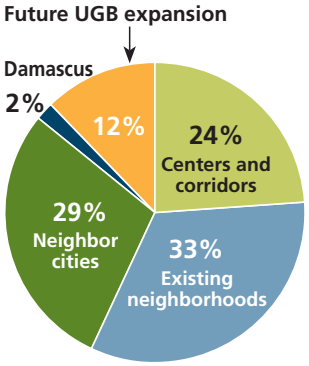
Investments and costs

- Flat system development charges (SDCs) are assessed at $25,000 per new residence.
- Public investments of $50,000 per dwelling unit in urban renewal areas, similar to those that exist today.
- Funding for public infrastructure (capital costs as well as the costs of maintenance and upgrade) is available in all areas to accommodate new jobs and housing.
- Funding for infrastructure in recent (since 2002) UGB expansion areas such as Damascus and North Bethany becomes available in 2015.

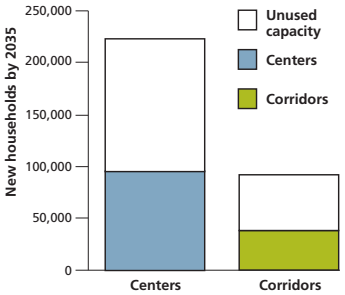
Findings

- Centers and corridors attract a greater share of residential growth than they have historically.
- Rough estimates are that, in recent years, about 15 percent of residential growth has occurred in centers and corridors.
- But, by the year 2035, about 62 percent of the capacity in centers and corridors could remain unused.
- Strategic land use policies and investments could attract a greater share of new households to centers and corridors.
- About one-third of new households could locate in existing neighborhoods inside the Metro UGB.
- About one-third of new households could locate in neighbor cities outside the Metro UGB.
- These households will often have long car commutes back to the Portland Metro region.

New household locations



Unused center* and corridor capacity by 2035 under the reference scenario



* including central city

What we tested and what we learned

Tight Urban Growth Boundary (UGB) scenario or no infrastructure funding for future UGB expansions scenario

This scenario tested whether a tight boundary scenario could support centers and corridors and what other effects might result.

Because boundary expansion areas can only be developed at urban densities with sizable public investments in infrastructure, this scenario could also be interpreted as a scenario that tests a lack of taxpayer funding for infrastructure in those areas.

Assumptions

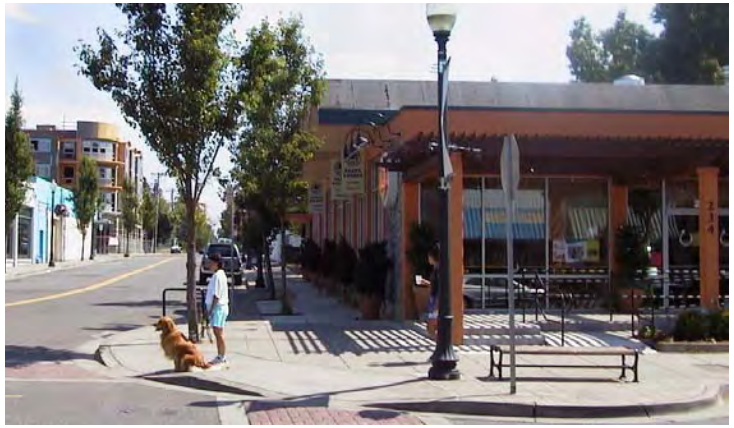
- No prospective boundary expansions are made through the year 2035 (UGB as it is today).
- All other assumptions are the same as the reference scenario.

Infrastructure funding delay scenario

Recently, it has proved difficult to fund infrastructure throughout the region, particularly in urban growth boundary expansion areas, which lack established revenue streams. This scenario tested the implications of a delay in funding infrastructure in recent UGB expansion areas such as Damascus.

Assumptions

- Infrastructure funding in recent (since 2002) UGB expansion areas such as Damascus is delayed until the year 2020 (from 2015 in the reference scenario).
- Prospective boundary expansions are delayed by five years
- All other assumptions are the same as the reference scenario.



Corridor amenity investment scenario

When choosing where to live, people often look for good schools, parks, tree-lined streets with sidewalks, access to transit, and restaurants. Yet many of our corridors have been designed with the primary goal of moving cars through as quickly as possible. This scenario tests the effectiveness of investments in urban amenities in corridors.

Assumptions

- Fifteen corridors throughout the region were identified for testing.
- The corridors that were tested have mixed-use, commercial, or multi-family zoning and are located outside of centers. No change to this zoning is assumed.
- Existing building height limits were raised.
- As a proxy for the typical effects of public investments in amenities, land values along these corridors were artificially increased. Amenities could include street trees, plazas, sidewalks, traffic-calming elements, or streetcars.
- Additional research is being conducted into which types of amenity investments could be most effective.
- All other assumptions are the same as the reference scenario.

Center amenity investment scenario

As with many corridors, some of the region's centers have been slow to come to life. In some cases, investments in urban amenities such as parks, plazas, and traffic-calming design elements could be used to great effect. This scenario tested the effectiveness of investments in urban amenities in regional centers.

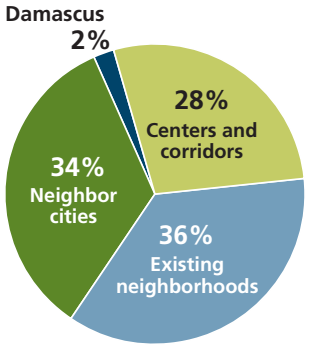
Assumptions

- Amenity investments were tested in regional centers.
- Building height limits in these test centers were raised, but existing zoning was not changed.
- As a proxy for the typical effects of public investments in amenities, land values in these centers were artificially increased. Amenities could include, for example, street trees, plazas, sidewalks, traffic-calming elements, or streetcars.
- Additional research is being conducted into which types of amenity investments could be most effective.
- All other assumptions are the same as the reference scenario.

What we tested and what we learned

Tight UGB scenario

New household locations

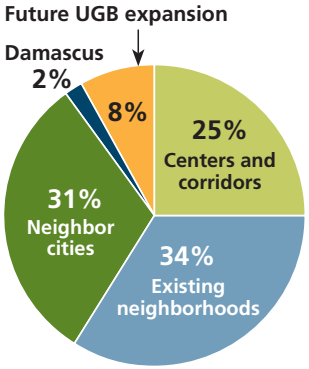


Findings

This scenario indicates that a tight urban growth boundary could be a powerful policy lever for shifting a larger share of new households to centers and corridors. However, used on its own, a tight boundary policy could have unintended consequences. Barring changes in housing preferences due to higher fuel costs or other factors, a tight boundary could lead to an increase in the number of new households that choose to locate in existing neighborhoods inside the boundary or in neighboring communities. Households in neighboring communities will often have long car commutes back to the Metro region, potentially canceling out reductions in greenhouse gas emissions achieved through the shorter commutes of residents inside the boundary.

Infrastructure funding delay scenario

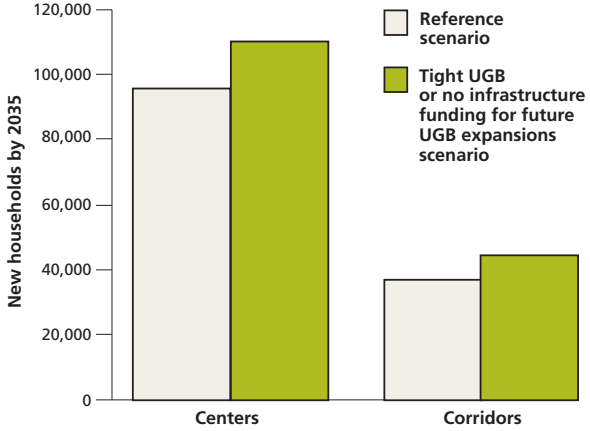
New household locations

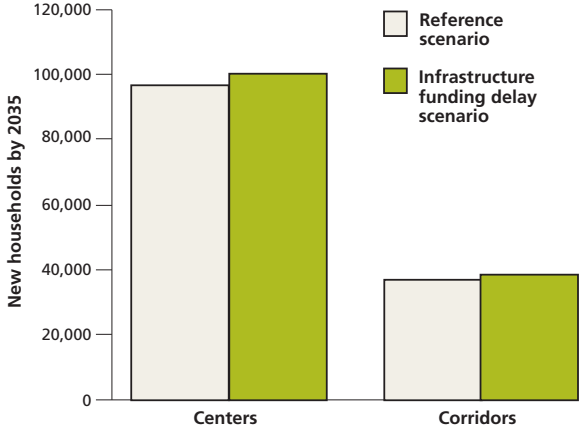


Findings

When infrastructure is unavailable in recent UGB expansion areas, those areas are effectively not available for development, creating a dynamic that is similar, though on a smaller scale, to a tight urban growth boundary scenario. An infrastructure funding delay could lead to a larger share of new households in centers and corridors, but it could also have the unintended consequence of shifting a share of new households to existing neighborhoods and neighboring communities outside the boundary. These changes are perhaps not as substantial as they are in the tight urban growth boundary scenario because the assumed funding delay is only five years, which is relatively short in the context of the time that it takes to build new communities

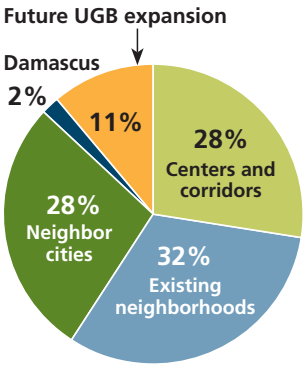
New households in centers and corridors compared to the reference scenario





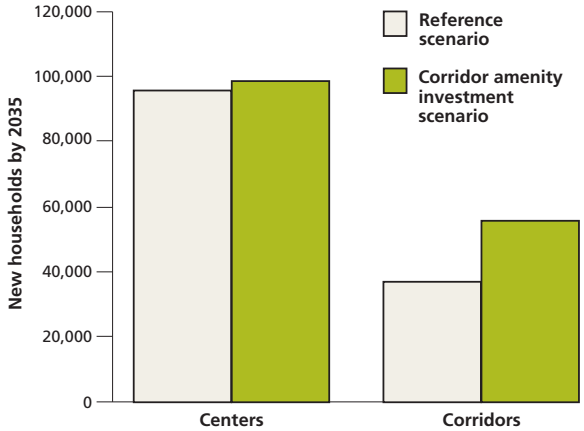
Corridor amenity investment scenario

New household locations



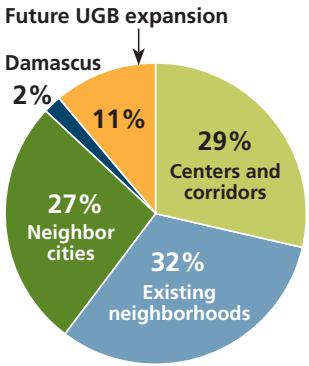
Findings

Investments in urban amenities could be effective for attracting a greater share of households to the region's corridors. Existing residents and employees would also benefit from increased amenities. These investments could also reduce housing demand outside of the urban growth boundary and in existing neighborhoods. These investments appear to be particularly effective in close-in corridors that currently lack such amenities. Amenity investments in corridors could also attract slightly more households to centers. These investments require funding in a time of limited resources.



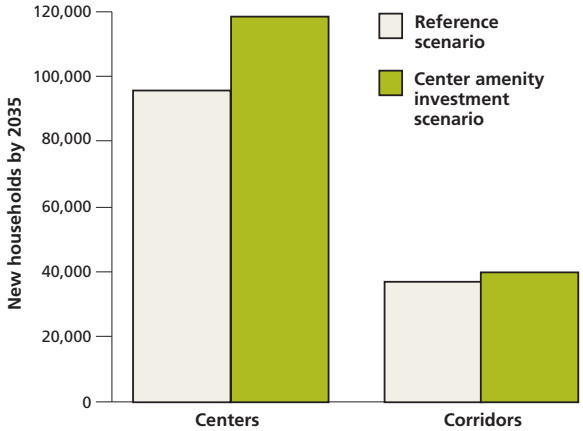
Center amenity investment scenario

New household locations



Findings

This scenario indicates that investments in urban amenities could be effective for attracting a greater share of households to the region's centers. Existing residents and employees would also benefit from increased amenities. The attractiveness of centers reduces housing demand outside of the urban growth boundary and in existing neighborhoods. This scenario indicates that amenity investments in centers could also have the effect of attracting slightly more households to corridors. These investments require funding in a time of limited resources.

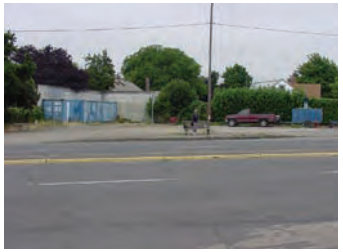


By the year 2035 how would the scenarios compare?

Scenario performance comparison for new households using 11 measures

Scenario	1 Percent of new households in centers and corridors	2 Acres developed in future UGB expansion areas	3 Percent of future UGB expansion undeveloped by 2035	4 Average one-way commute distance (miles)	5 New households total daily commute miles	6 Total infrastructure cost for new households/ jobs (in UGB)	7 Total infrastructure cost for new households/ jobs (in 7 county area)	8 Average infrastructure cost for one new Metro UGB household	9 Average new household cost of housing and transportation (per year)	10 Average percent of income spent on housing and transportation	11 Residential source greenhouse gas emissions (lbs per year)
Historic (*or 2005 estimate from Metroscope model)	**15% (estimated)**	**NA**	**NA**	**11.4***	**NA**	**NA**	**NA**	**$71,000***	**$24,900**	**43.9%**	**21.25 billion***
Reference scenario	**24%**	**11,000**	**69%**	**12.3**	**13,495,901**	**$36.8 billion**	**$56.1 billion**	**$70,000**	**$27,400**	**47.5%**	**32.73 billion**
Tight UGB	**28%**	**0**	**0%**	**12.1**	**13,275,202**	**$34.3 billion**	**$55.9 billion**	**$68,000**	**$26,100**	**47.0%**	**32.35 billion**
Infrastructure funding delay	**25%**	**7,600**	**68%**	**12.2**	**13,405,897**	**$35.9 billion**	**$56 billion**	**$69,200**	**$27,600**	**47.4%**	**32.59 billion**
Corridor amenity investment	**28%**	**10,200**	**71%**	**12.0**	**13,241,894**	**$37.1 billion**	**$55.2 billion**	**$68,500**	**$26,700**	**47.0%**	**32.45 billion**
Center amenity investment	**29%**	**10,200**	**71%**	**11.9**	**13,131,554**	**$37.2 billion**	**$54.9 billion**	**$68,000**	**$26,600**	**46.8%**	**32.35 billion**

Gauging how the scenarios perform requires more than just predicting how many households may choose to locate in centers and corridors. A number of other measures can give us a sense of the possible implications for quality of life and cost of living. Because these policies and investments were tested independently and we are working from more than one hundred years of existing urban development, we don't see stark differences in these results. These subtle differences are a useful reminder of the challenges before the region. Additional research will be needed to refine these measures for use in selecting land use, transportation and investment strategies that support the region's desired outcomes.



Public investments in corridor amenities like light rail can spur private development as shown in these before (top) and after photographs.

Measure 1. Percent of new households in centers and corridors (share of seven-county household growth from 2000 to 2035)

Why does this measure matter? Centers and corridors are areas that are most likely to provide people with walkable access to everyday needs, access to jobs, and access to transportation choices. These characteristics reduce transportation costs to the individual and will be crucial to reducing greenhouse gas emissions.

Scenario results: Historically, about 15 percent of new household growth has been in centers and corridors. All of the scenarios tested, including the reference scenario, increased the number of new households in centers and corridors when compared with historic data. Housing preferences can change over time. New housing types, such as courtyard housing, could attract additional new households to centers and corridors.

Measure 2. Acres developed in future UGB expansion areas (by the year 2035)

Why does this measure matter? Growth in UGB expansion areas necessarily entails the conversion of agricultural or habitat lands. Ecologists posit that when only 10 percent of a watershed is covered with impervious surfaces there are detrimental effects on water quality. Typically, urbanization involves far greater impervious surface coverage than 10 percent.

Scenario results: Scenarios that direct more growth to centers and corridors help to minimize impacts on habitat and water quality. Though the tight UGB scenario does not result in development in possible future UGB expansion areas, it may lead to additional demand for expansion of neighboring cities.

Measure 3. Percent of future UGB expansion areas undeveloped by 2035

Why does this measure matter? The long-term intent of a UGB expansion is that the area be developed for new housing and jobs. This measure indicates the degree to which that has happened by the year 2035. Because, in the scenarios, there are a number of expansion areas that do not become available until the year 2030, it is not reasonable to expect that all UGB expansion areas will be developed by 2035.

Scenario results: This measure is somewhat ambiguous; a higher percentage can either indicate that UGB expansion locations and sizes are mismatched with market demand or it can mean that efforts to attract households and jobs to existing urban areas inside the UGB have been successful, thereby reducing demand in UGB expansion areas.

By the year 2035 how would the scenarios compare?

Measure 4. Average one-way commute distance (for the seven-county area in the year 2035)

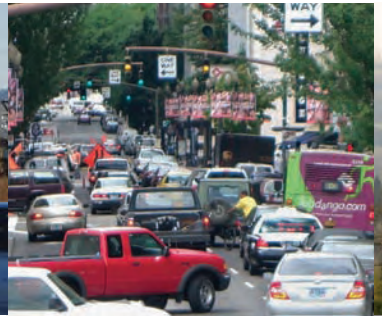
Why does this measure matter? Commute miles are a useful indicator of overall travel behavior. Longer commutes tend to be an outcome of living in suburban or exurban locations. These same location choices also tend to produce long trips for meeting other needs, such as going to the grocery store. Longer travel distances could mean a higher public cost to build and maintain the roads and transit necessary to accommodate those trips.

Scenario results: All of the scenarios indicate that, in 2035, the average commuter will have a slightly shorter commute than they have today. A tight UGB could result in a greater share of new households in centers and corridors. Households in centers and corridors (particularly those that are in more central locations) are likely to have shorter commutes than their suburban or exurban counterparts. But a tight UGB could shift a portion of new households to neighboring cities. Residents of neighboring cities will often have long car commutes back to the Metro region. Taken together, a tight UGB could produce a slight reduction in the average commute distance. Investments in centers and corridors hold greater promise for attracting households to central locations and reducing average commute distance.

Measure 5. Total daily commute miles (new households in the seven-county area in the year 2035)

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

Scenario results: Even though the scenarios indicate that in 2035 the average household will have a shorter commute than today, there will simply be more people commuting, resulting in an increase in the total daily commute miles for the seven-county region. It appears that the region will need to take much more ambitious and coordinated steps to meet state greenhouse gas reduction targets.



Measure 6. Total infrastructure cost for new households and jobs (in UGB from the year 2000 to 2035)

Why does this measure matter? The region faces challenges to pay for infrastructure, not just to accommodate growth, but for ongoing maintenance and replacement. One way to address this challenge is to reduce demand for infrastructure. Shorter commutes require fewer miles of road or transit service per household. Likewise, higher densities lead to more efficient use of infrastructure. MetroScope estimates infrastructure costs using national construction cost data and a formula that is based on development densities and commute distances. These estimated costs are just the capital costs of building new infrastructure to serve new households and jobs and do not include maintenance of these new facilities or the maintenance and upgrade of existing facilities. Costs are in 2005 dollars and are not adjusted for inflation.

Scenario results: Scenarios that attract more new households inside the Metro UGB could mean that the total costs of infrastructure inside the UGB are higher. If the public is not able to pay these costs, it could result in lower levels of service.

Measure 7. Total infrastructure cost for new households and jobs (in seven-county area from the year 2000 to 2035)

Why does this measure matter? Infrastructure costs inside the Metro UGB are only part of the picture. We should also consider the costs of providing infrastructure for the larger seven-county region that includes our neighboring cities. These costs are calculated in the same manner as measure number 6, but for a larger geographic area.

Scenario results: Policies, such as a tight UGB used on its own, that shift a share of growth to neighboring cities could increase costs for those cities. Whether neighboring cities are able to pay these costs is unknown and could lead to lower levels of service.

Measure 8. Average infrastructure cost for one new Metro UGB household (averaged for all new households from 2000 to 2035)

Why does this measure matter? Different growth patterns produce different costs and different benefits. The equitable distribution of costs and benefits should be kept in mind as policies and investments are considered. The benefits of spending public money wisely can include, for instance, the creation of walkable communities and transportation choices. This measure includes estimated costs for all facilities, including local, community and regional facilities, needed to serve a household. Household demand for infrastructure varies according to commute distance and residential density. Costs are in 2005 dollars and are not adjusted for inflation.

Scenario results: Strategies such as a tight UGB or amenity investments that attract a greater share of households to centers, corridors, and other central locations produce shorter commute distances and higher densities. Though these same strategies, by attracting more households to the UGB, could increase the total cost of infrastructure, they reduce the average cost of serving a household.

By the year 2035 how would the scenarios compare?

Measure 9. Average household cost of housing and transportation (per year, per new household in Metro UGB)

Why does this measure matter? When people sign a lease or buy a house, the cost of the residence itself is clear. However, the longer term costs of transportation are not always so obvious and, in fact, are often underestimated (particularly when gasoline prices are volatile). These two costs should be thought of as a budgetary bundle as the region considers how to provide more people with transportation choices and how to address housing affordability. For this measure, a comprehensive set of costs are tallied that are derived from the U.S. Bureau of Labor Statistics' Consumer Expenditure Survey. These costs include, for instance, rent or mortgage payments, utilities, the costs of buying, maintaining and operating a car, and transit fares. Costs are expressed in 2005 dollars and are not adjusted for inflation.

Scenario results: These scenarios indicate that a tight UGB and amenity investments can attract a greater share of households to centers and corridors. Accompanying that shift to centers and corridors are shorter commutes and a shift in preference towards smaller residences, both of which amount to a lower average combined cost of housing and transportation.

Measure 10. Average percent of income spent on housing and transportation (per year, for a new household in Metro UGB)

Why does this measure matter? A household's total cost of housing and transportation is best understood as a percentage of a household's income. Costs (and income) are estimated in the same manner as in measure number 9.

Scenario results: A tight UGB helps to create a more compact urban form while amenity investments attract a greater share of new households to centers and corridors. Both result in a smaller percentage of household income going to transportation and housing costs.

Measure 11. Residential-source greenhouse gas emissions (billion pounds per year)

Why does this measure matter? Residential sources are responsible for a large portion of greenhouse gas emissions. The region faces a challenge to reduce its carbon footprint while also creating great communities.

Scenario results: In the scenarios, no technological improvements in energy efficiency are assumed. Greenhouse gas emissions are calculated based on historic residential energy consumption patterns for various housing types and sizes. Reductions in residential-source greenhouse gas emissions are a result of smaller residential square footages. Smaller square footages tend to accompany shifts to multi-family housing. With more households in the region by the year 2035, all scenarios tested show an increase in greenhouse gas emissions. And there are only marginal differences in residential-source greenhouse gas emissions from scenario to scenario. These small changes alone will be insufficient to meet state targets. Along with shifts to smaller residences, technological improvements in energy efficiency will be essential.

What might happen if we combine strategies?

These scenarios tested single, isolated strategies that attempt to change the course of over 100 years of existing urban development patterns. Consequently, changes in performance are often on the margins. Forthcoming transportation scenarios may produce greater changes in center and corridor performance, particularly when accompanied by well-considered land use and investment strategies.

In order to give a sense of how combined policies and investments might reinforce one another and build synergy, two scenarios in which amenity investments were combined with a tight UGB were tested. All other assumptions were the same as the reference scenario.

These two scenarios illustrate an increase in the share of households that could choose to locate in centers and corridors. That increase in households in centers and corridors is accompanied by reductions in total commute distance, decreases in public infrastructure costs, and savings for households on the costs of housing and transportation.

Hybrid scenario performance for new households comparison

Scenario	1	2	3	4	5	6	7	8	9	10	11
	Percent of new households in centers and corridors	Acres developed in future UGB expansion areas	Percent of future UGB expansion undeveloped by 2035	Average one-way commute distance (miles)	Total daily commute miles	Total infrastructure cost for new households/ jobs (in UGB)	Total infrastructure cost for new households/ jobs (in 7 county area)	Average infrastructure cost for one new Metro UGB household	Average household cost of housing and transportation (per year)	Average percent of income spent on housing and transportation	Residential source greenhouse gas emissions (lbs per year)
Reference scenario	**24%**	**11,000**	**69%**	**12.3**	**13,495,901**	**$36.8 billion**	**$56.1 billion**	**$70,000**	**$27,400**	**47.5%**	**32.73 billion**
Corridor amenity investment *plus* tight UGB	**31%**	**0**	**0%**	**11.9**	**13,131,645**	**$34.7 billion**	**$55 billion**	**$66,900**	**$25,600**	**46.6%**	**32.09 billion**
Center amenity investment *plus* tight UGB	**32%**	**0**	**0%**	**11.9**	**13,068,359**	**$34.7 billion**	**$54.8 billion**	**$66,500**	**$25,500**	**46.5%**	**32.01 billion**

Next steps:
an outcomes-based approach

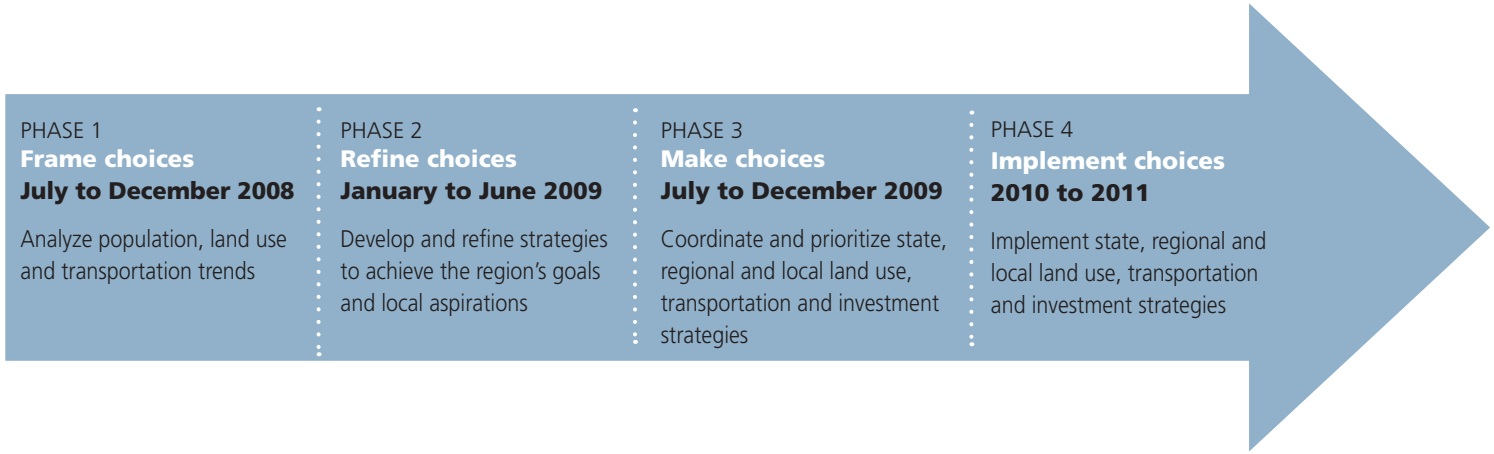
By the end of 2009, the region's leaders will need to weigh the trade-offs and define the combination of local and regional actions they can support to achieve the region's desired outcomes. Regional and local decisions made in 2009 and 2010 will shape the region's ability to implement this blueprint for growth during the next 40 to 50 years.

As we refine choices and make decisions, we will want to consider the effect of combinations of transportation, land use and investment choices as well as the possible effects of different choices at the local or regional level. A forthcoming discussion guide will describe four different transportation investment scenarios in order to further inform those considerations.

These scenarios are a first step in a regional conversation about how best to achieve the region's desired outcomes:

- Which land use actions are we willing to take?
- What are the region's investment priorities?
- How do we measure success?

In the coming months, we will need to refine and make choices that affect the success of the region and continue implementation of the 2040 Growth Concept.



Metro | *People places. Open spaces.*

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

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

Metro representatives

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MAKING THE GREATEST PLACE