



Appendix 7 to Draft 2024 Urban Growth Report

Goal 14 Boundary Location Factors
Analysis of UGB Expansion Candidate Areas

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GOAL 14 BOUNDARY LOCATION FACTORS ANALYSIS OF UGB EXPANSION CANDIDATE AREAS

INTRODUCTION

The Metro Council will consider how to accommodate the Metro region’s forecasted 20-year population and employment growth in the Council’s 2024 growth management decision. One option the Council has for accommodating forecasted growth is an amendment to Metro’s urban growth boundary (UGB). A decision to amend the UGB must be supported by a comparative analysis of alternative locations for expanding the UGB, if an expansion is needed to accommodate future growth projected in the 2024 Urban Growth Report. The alternative locations that are analyzed are Metro’s 27¹ urban reserves.

Both Statewide Planning Goal 14, as well as provisions of the Metro Code, identify factors that analysis must consider. Metro staff completed the alternatives analysis in two parts: Part 1, which considers the factors of Goal 14; and Part 2, which considers the factors in the Metro Code.

The results of this Goal 14 boundary location factors analysis described here in Appendix 7 ultimately identify seven of the 27 urban reserves as unsuitable for urbanization in the short term. Those seven areas are therefore not considered further in the Metro Code Factors analysis in Appendix 7A.

Statewide Planning Goal 14

Statewide Planning Goal 14, *Urbanization*, lists four factors that must be considered to determine the location of, and changes to, the UGB:

- Factor 1 – Efficient accommodation of identified land needs
- Factor 2 – Orderly and economic provision of public facilities and services
- Factor 3 – Comparative environmental, energy, economic and social consequences
- Factor 4 – Compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB

While the Goal 14 boundary location factors are evaluated separately in this analysis, each factor is not necessarily as important as the others for determining the appropriate UGB location; the analysis weights certain factors above others and provides an overall assessment of the suitability of each urban reserve to accommodate future growth.

¹ The 27 analyzed urban reserves, listed on Page 18, do not include Urban Reserve 8A located between the cities of North Plains and Hillsboro, because the approximately 35-acre area is comprised only of Hwy 26 right-of-way and connecting onramps and offramps to and from NW Jackson School Rd. It therefore is not capable of accommodating any new urban residential or employment uses if included in the UGB.

Contributors

As was done ahead of previous growth management decisions, Metro staff completed the majority of the Goal 14 analysis, assessing each reserve according to Factors 1, 3, and 4 above.

The “public facilities and services” referred to in Factor 2 include water, sanitary sewer, stormwater, and transportation services. Metro staff completed the transportation element of the Factor 2 analysis following a review of local transportation system plans and consultation with transit service providers, including TriMet; the methodologies used in the transportation-related analysis are detailed further in Pages 7-10. Metro also contracted with Mackenzie, Inc., a Pacific Northwest multidisciplinary design firm with expertise in civil and structural engineering, land use planning, and architecture, to assist with background research on water, sanitary sewer, and stormwater system capacities and needs; Mackenzie’s assumptions and methodology are detailed in Attachment 4.

BUILDABLE LAND ASSESSMENT

The analyses for Goal 14 Factors 1 and 2 were based on assumptions of each reserve’s potential future urban development, which began with an assessment of the amount of “buildable” (i.e., developable) land.

The buildable land assessment followed general procedures used for most buildable lands studies: vacant portions of the study areas (i.e., the urban reserves) are first identified; those vacant portions that are unbuildable due to topographical or environmental constraints, such as steep slopes, flood hazards, and wetlands, are then removed from vacant lands inventory; specific categories of public and other tax-exempt lands that are unlikely to be developed for residential or employment uses are also considered unbuildable and are therefore removed from the inventory; and, finally, the inventory is further reduced to account for future streets and public facilities needed to accommodate urbanization.

Most tabular data used in this analysis has been generated from Geographic Information Systems (GIS). In GIS, digital, coordinate-based spatial data layers are used to represent real world features, such as tax lots, wetlands, floodplains, and zoning areas. All the GIS data used in this analysis are from Metro’s Research Center.

Of course, electronic data representing real world features are rarely perfect. Data representing features such as floodplains and tax lots will have some positional inaccuracies, which, in turn, will be reflected in numbers representing them. In addition, much of the assessment information that is included in Metro’s Regional Land Information System (RLIS) database and used to identify tax-exempt lands comes directly from county assessment offices, where local updates may be conducted at different intervals. For a variety of reasons such as these, this Goal 14 boundary location factors analysis helps to illustrate *general patterns* and to make *overall comparisons* of each reserve’s potential suitability for urban development using consistent methodology, but cannot be expected to be highly precise at small levels of geography, especially prior to comprehensive local planning.

Additional details on the various steps used to conduct the buildable land assessment follow below.

Step 1: Determine “vacant” lands

The first step in conducting the buildable lands assessment is to determine which lands within the study areas (i.e., the 27 urban reserves) are vacant and available for new urban development following inclusion in the UGB. It is understood that some existing uses, such as high-value rural residences, will remain even as an area is urbanized; however, whether a rural land use is discontinued to accommodate new urban development is generally dependent on a property owner’s personal and unpredictable interests, so it is not practicable to determine with meaningful certainty which existing rural uses in each reserve would actually remain or for how long. Therefore, for the purposes of this higher-level Goal 14 analysis, *all* land in each urban reserve is assumed at first to be “vacant”, with the working supposition that even existing rural land uses in the urban reserves would *most likely* redevelop with urban uses, at least eventually.

There are approximately **20,212 acres** considered “vacant”, equal to the total combined area of all 27 analyzed urban reserves.

Step 2: Subtract topographically and environmentally constrained areas

Lands that are considered vacant may not necessarily be buildable for new urban land uses. Therefore, the next step in a buildable lands assessment is to subtract those areas from the vacant lands inventory that are topographically or environmentally constrained. The following constrained areas were not considered buildable in this analysis and were removed from the vacant lands inventory:

1. Urban Growth Management Functional Plan (UGMFP) Title 3, *Water Quality and Flood Management Areas*, consisting of:
 - Flood hazard areas (e.g., FEMA “100-year” floodplains and 1996 flood inundation areas)
 - Wetlands (e.g., from an enhanced National Wetlands Inventory and local wetlands inventories)
 - Wetland areas, measured 50 feet from the edge of a wetland or up to 200 feet from the edge of wetland located adjacent to slopes greater than 25 percent
 - Vegetated corridors between 15 feet and 200 feet in width, depending on the area drained by the water feature and the slope of the land adjacent to the water feature
2. UGMFP Title 13, *Nature in Neighborhoods*, areas identified as riparian habitat Class I and II and upland habitat Class A and B on the Metro Regionally Significant Fish and Wildlife Habitat Inventory Map

3. Areas with slopes greater than 25 percent

Metro’s Title 13 regulations do not preclude all development within inventoried areas, so an additional step described below (Step 5) recognizes that some limited development will likely occur even in these locations. Additionally, in almost all circumstances, the identified Title 13 significant riparian and upland habitats already encompass the Title 3 Water Quality and Flood Management Areas, meaning areas removed from the vacant lands inventory for having a Title 3 classification are typically the same areas that would otherwise be removed for having a Title 13 classification.

The requirements of Titles 3 and 13 apply only to areas within the Metro service district (i.e., jurisdictional) boundary. Some of the urban reserves analyzed are currently located outside of the boundary, but would be annexed in when they are added to the UGB.² The Title 13 Regionally Significant Fish and Wildlife Habitat Inventory already extends beyond the jurisdictional boundary and shows environmental constraints in all urban reserves. Metro has also compiled a supplemental data layer representing Title 3 protections for urban reserves outside the jurisdictional boundary to understand how much land in each reserve could potentially be constrained; however, as noted above, these Title 3 areas are generally already encompassed in the Title 13 areas.

In total, approximately **6,741 acres** were removed from the vacant lands inventory due having topographic or environmental constraints.

Step 3: Subtract other areas not considered buildable

Certain urban reserve lands considered “vacant” and not constrained by topographic or environmental features are nonetheless highly unlikely to (re)develop with urban uses and, therefore, also warrant being removed from the vacant lands inventory.

Tax-exempt lands (e.g., federal-, state-, county-, and city-owned properties, school properties, and places of worship) identified from the tax assessment database were removed from the inventory, as it is reasonable to assume such properties would not be readily available for development with urban residential or employment land uses if included in the UGB. Lands already occupied by cemeteries, golf courses, parks, home owners association (HOA) owned common areas, existing road rights-of-way, and tax lots smaller than 1,000 square feet were removed for similar reasons.

Step 3 removes a total of approximately **3,134 additional acres** from the vacant lands inventory.

Step 4: Add back some Title 13 constrained land

Metro’s Title 13 data layer was created almost 20-years ago at the regional scale, largely relying on aerial imagery available at that time. A key step in planning for areas added to the UGB is the

² ORS 268.390(3)(b)

development of an *updated* environmentally constrained land data layer, using current GIS tools and other resources that allow for a more accurate assessment of the localized landscape and the riparian and upland wildlife habitat areas. As documented in recent UGB expansion area plans, the natural resource protected areas identified by the refined mapping analysis often differs from the areas originally mapped by Metro. In addition, experience has shown that it is not uncommon for some of the originally mapped upland habitat areas to have been degraded through forestry practices and other rural land use activities prior to inclusion in the UGB, potentially resulting in additional unconstrained (i.e., buildable) land. Furthermore, Title 13 provides that development may sometimes encroach into even still-existing natural habitat, depending on the specific circumstances of the site and the development proposal.

Recognizing the expected change in mapped habitat areas and the possibility of encroachment, 10 percent of the mapped Metro Title 13 constrained land (**363 acres**) is added back into the vacant lands inventory.

Resulting gross vacant buildable land

Table 1 below shows the results of Steps 1-4 above, as applied to the 27 analyzed urban reserves. The table shows that there are approximately **10,700 acres of gross vacant buildable land** in Metro’s urban reserves that are available for urban development when added to the UGB.

Table 1 – Gross Vacant Buildable Urban Reserve Land		
Step #	Land Type	Acres
Step 1	Urban reserves (i.e., “vacant”)	20,212
Step 2	Topographically/environmentally constrained	6,741 (-)
Step 3	Otherwise constrained (e.g., tax-exempt, ROW)	3,134 (-)
Step 4	10% of Title 13 areas	363 (+)
Total Gross Vacant Buildable Land:		10,700 acres

Step 5: Subtract lands needed for certain future land uses

As urbanization proceeds, some gross vacant buildable land will be used for different types of new public facilities, such as streets/roads, parks, and schools, as well as for other non-residential and non-employment uses, such as places of worship and assembly. Estimates of future land needed to accommodate these uses, listed in Table 2 below, are therefore subtracted from the gross vacant buildable land. The reduction estimates are the same as the reductions used in Metro’s 2010, 2018, and 2023 Goal 14 analyses. Refined acreage needs will be developed through the concept planning requirements of UGMFP Title 11, *Planning for New Urban Areas*.

The calculations in Table 2 demonstrate that approximately **7,971 acres** of land in all of Metro’s 27 analyzed urban reserves could potentially accommodate new urban residential and employment land uses, referred to as “net buildable land”.

Table 2 – Portion of Gross Vacant Buildable Land Subtracted for Future Land Uses		
Subtracted Future Land Use	Percent	Acres
Streets/roads	18.5	1,980
Parks	2.2	235
Schools	2.9	310
Places of worship/assembly	1.9	203
Total Subtracted for Future Land Uses:	25.5	2,729 (rounded)
Total Net Buildable Land in Analyzed Urban Reserves (Gross Vacant Buildable Land – Total Subtracted for Future Land Uses): 7,971 acres		

EXPLANATION OF GOAL 14 BOUNDARY LOCATION FACTORS

Following is an explanatory summary of how each of the four Goal 14 boundary location factors were applied to Metro’s urban reserves. The results of the analysis for each urban reserve can be found in Attachment 3.

Factor 1: Efficient accommodation of identified land needs

The 27 urban reserves were analyzed for how efficiently they could accommodate an identified land need, based on a number of considerations.

Some primary considerations were the overall amount of gross and net buildable land in each reserve, and whether that land is cohesive or dispersed in disconnected pockets/sub-areas.

Parcelization (i.e., the number of tax lots), tax lot sizes and locations, existing development patterns and their assessed value, and potential transportation connections to the existing UGB were considered as well. Tax lot data was sourced in February 2024. Given the potential for discrepancies between, and regular updates to, surveys, county tax maps, and GIS layers, and inevitable shifts in geodetic controls over time, tax lots that were observed to have less than five percent of their area in an urban reserve, and tax lots smaller than 1,000 square feet with less than 10 percent of their area in an urban reserve, were not considered to be located within an urban reserve at all for purposes of this evaluation.

The analysis for Factor 1 also considered whether each urban reserve is located near existing/planned residential or employment areas, major transportation corridors (e.g., highways), schools, or parks, trails, or other recreational facilities that could support residential and/or employment land uses.

However, the primary consideration in evaluating whether an urban reserve could efficiently accommodate an identified land need is whether it has an adopted concept plan under Title 11 of Metro’s Urban Growth Management Functional Plan. The purpose of concept planning is to ensure that there is a detailed local plan for future urban development, including estimated costs

of infrastructure and potential methods for financing, prior to an area being added to the UGB. Also, having a concept plan that has been formally adopted by local officials following public engagement indicates a local willingness to urbanize and significantly increases the likelihood that the reserve will develop and efficiently accommodate identified land needs within a reasonable timeframe. As noted in the following pages, only one urban reserve, the Sherwood West Urban Reserve, has a locally-adopted concept plan. Accordingly, in the analysis of which urban reserve demonstrates the highest likelihood of efficiently accommodating the identified land needs under Factor 1, the Sherwood West Urban Reserve rises to the top of the list.

Factor 2: Orderly and economic provision of public facilities and services

For the purposes of Factor 2, and consistent with Oregon Administrative Rules (OAR) chapter 660, division 24, “public facilities and services” means water, sanitary sewer, stormwater management, and transportation facilities and services. The analysis under this factor requires an evaluation and comparison of the relative costs, advantages, and disadvantages of alternative UGB expansion areas with respect to the provision of these public facilities and services as needed to urbanize alternative boundary locations. The evaluation and comparison considers:

1. The impacts to existing water, sanitary sewer, stormwater, and transportation facilities that serve nearby areas already inside the Metro UGB;
2. The capacity of existing public facilities and services to serve areas already inside the UGB as well as areas proposed for addition to the UGB;
3. The need for new transportation facilities such as highways and other roadways, interchanges, arterials and collectors, additional travel lanes, other major improvements on existing roadways and the provision of public transit service; and
4. Whether there is a locally-adopted concept plan for the expansion area that identifies how water, sanitary sewer, stormwater management, and transportation facilities could be extended to serve urban development and how such facilities and services could be financed, as such a preliminary plan will facilitate the orderly and economic provision of these facilities and services in the future.

As noted earlier, Metro contracted with Mackenzie for background research (Attachment 4) that was needed to address the first two topics above for water, sanitary sewer, and stormwater management services, including development of preliminary cost estimates for providing these services to urban residential and employment land needs. The water, sanitary sewer, and stormwater analysis focused on the larger components of the systems and preliminary cost estimates for the urban services addressed, at a minimum, the following:

- For water service, availability of source, availability of treatment capacity, storage, pump station and transmission line requirements, and existing local system improvements;
- For sanitary sewer service, availability of treatment capacity, trunk line and pump station requirements, and existing local system improvements; and

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- For stormwater management service, existing local system improvements, including a need for sub-regional systems.

Metro staff completed the transportation-related components of Factor 2. Preliminary conceptual future arterial/collector level road networks that may be needed to serve urban development of each reserve were developed based on a review of local jurisdictions' plans, topography, existing rights-of-way, and the connectivity standards in the Regional Transportation Plan (RTP). The preliminary road networks recognize that the ideal spacing for arterials is one mile apart, and that the ideal spacing for collectors is one-half mile from another collector or arterial, as this spacing can provide significant benefits to the multimodal transportation network by spreading out motor vehicle traffic on multiple roadways and providing options for walking, biking, and transit connectivity. Arterials were assumed to be an 80-foot-wide roadway within a 120-foot-wide right-of-way; collectors were assumed to be a 50-foot-wide roadway within an 80-foot-wide right-of-way.

The preliminary road network was also used to develop rough cost assumptions for future roadway system improvements in each urban reserve, though more detailed estimating (e.g., during comprehensive planning following addition to the UGB) will of course be necessary to determine exact costs and phasing of construction. The roadway cost assumptions in this analysis are only for the arterials and collectors and do not include local roads that are assumed to be paid for by future developers.

The roadway cost assumptions are per mile and include construction of surface elements for a "complete street" (i.e., sidewalks, bike lanes, curbs, and gutters) and right-of-way acquisition, but do not include stormwater pipes, as stormwater system costs were calculated separately by Mackenzie and included with the stormwater services analyses. Each arterial was assumed as either a four-lane divided roadway or five-lane roadway, 80 feet in width within a 120-foot-wide right-of-way; each collector was assumed as either a two-lane divided roadway or a three-lane roadway, 50 feet in width within an 80-foot-wide right-of-way. The assumed roadway costs are expressed in ranges ("normal" expected costs and "high" expected costs) in Table 3 on the next page; higher per-mile costs were assumed for elements that traverse steeper topography or water bodies. The per-mile costs in the table are the same as used in Metro's Goal 14 boundary location factors analysis in 2018, but with an additional 40 percent to account for increased construction/materials costs and general inflation. This approach is consistent with the project cost inflation factoring used for the 2023 RTP. The proposed road network and a summary of the expected transportation costs for each separate urban reserve can be found in Attachment 2.

Table 3 – Roadway Per-Mile Cost Assumptions³			
Arterials			
	Surface Elements	ROW Acquisition	Total Cost
Normal:	\$35,280,000	\$26,040,000	\$61,320,000
High:	\$108,780,000	\$26,040,000	\$134,820,000
Collectors			
	Surface Elements	ROW Acquisition	Total Cost
Normal:	\$22,540,000	\$17,360,000	\$39,900,000
High:	\$58,380,000	\$17,360,000	\$75,740,000

Additional elements of the Goal 14 transportation analysis concern: the capacity of the existing transportation system to serve areas already inside the UGB; the capacity of that existing transportation system to serve urban development of each reserve; and impacts of each reserve’s urbanization on existing transportation facilities.

Metro’s 2018 Goal 14 analysis addressed these factors primarily by considering the peak evening two-hour volume-to-capacity ratio (“V/C ratio”) targets adopted in the 2018 RTP for roadways near and connected to each urban reserve.⁴ Notably, the 2018 RTP failed to meet its V/C-based mobility targets, particularly for the region’s throughway system, prompting Metro and the Oregon Department of Transportation (ODOT) to consider alternative approaches for measuring mobility in the region.

From 2019 to 2023, Metro and ODOT worked together to develop a new regional mobility policy that no longer uses the V/C ratio to measure adequacy of the transportation system. Adopted in Chapter 3 of the 2023 RTP, the new policy identifies three mobility performance measures:

1. Vehicle miles traveled (VMT) per capita;
2. System completion for all modes (including transportation demand management and transportation system management and operations); and
3. Throughway reliability using travel speed.

The new policy is a critical step toward developing more housing, jobs, and services in designated growth areas across the region and ensuring those areas and existing communities have improved access to safe and affordable transportation options. The policy represents an important advancement in measuring mobility for all modes and reliability of the region’s

³ The per mile cost assumptions are a range of potential costs, from a typical estimated cost per mile to higher-end per-mile estimates. The actual per-mile costs are expected to vary due to location-specific factors, such as existing development, environmental impacts, complexity of design, and other engineering issues.

⁴ The V/C ratio is a measure of vehicle congestion on roads and at intersections, specifically the number of motor vehicles relative to the motor vehicle capacity of a given roadway during peak travel times (e.g., 4:00-6:00 PM on weekdays).

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interstates and major highways. The policy also prioritizes the development of a complete and well-connected transportation system that gives people safe and reliable transportation options and helps reduce the region's climate pollution.

The Factor 2 assessment in this 2024 Goal 14 analysis applies the new 2023 RTP mobility policy rather than the 2018 RTP V/C ratio in the analysis of the transportation system's adequacy. Consistent with the 2023 RTP mobility policy, the assessment considers whether urban development of each reserve would increase home-based VMT per capita of the area, the availability of transportation options, existing safety deficiencies, and the reliability of the throughway system in the area.

Home-based VMT per capita is limited when people are able to meet their daily needs closer to where they live; therefore, evaluating the capacity of the existing transportation system warrants considering whether a given urban reserve and areas adjacent to it do/can contribute to more "complete" communities, with their own mixture of residential, employment, institutional, and recreational uses. The amount of VMT per capita is further limited when multiple transportation options are available (e.g., transit service, bike lanes, sidewalks, crosswalks, and trails). Generally, areas along the "urban edge" are often the least likely to have a mixture of land uses and well-connected network of multimodal transportation options to serve daily needs of the people living and working there. Some urban reserves are also not close to urban centers or higher density development and some are also too small, fragmented, and/or constrained by topography or other environmental features to likely develop as, or contribute to, a "complete" community. Accordingly, many reserves do not score high on this factor. However, it is worth noting there is typically less road congestion at the urban edge, and urbanization of an urban reserve is unlikely to create additional motor vehicle traffic that causes travel on nearby throughways and other roadways to slow below performance standards.

A variety of data sources were used to assess transportation system adequacy and potential impacts for Factor 2, including maps of the following from Chapter 4 of the 2023 RTP:

- Existing regional network gaps in: the planned regional transit service; the planned regional pedestrian and bicycle facilities, and trails; and the planned regional motor vehicle network;
- Existing regional high injury corridors and intersections; and
- Existing throughway reliability performance (2019).

Aerial photos from 2022 and GIS data layers showing existing roadways, on-street bike and sidewalk facilities, off-street trails, transit lines, and transit stops were also used.

TriMet and South Metro Area Regional Transit (SMART), which are the transit agencies that may potentially serve the analyzed urban reserves, completed preliminary evaluations of the feasibility and potential costs of providing future transit service to urban development of each reserve. The findings of those evaluations were incorporated in the assessments under Factor 2. These are only high-level, preliminary findings are intended as a tool for policymakers to

understand, to some degree, the feasibility and costs associated with providing additional transit service to each of the analysis areas; they do not guarantee transit service to any particular area in the future. Ultimately, any investment in new transit service will depend on the actual level of development that occurs in an area and the corridors leading up to it, as well as other variables.

Only one urban reserve, the Sherwood West Urban Reserve, has a locally-adopted concept plan. That plan identifies how water, sanitary sewer, stormwater management, and transportation facilities could be extended to serve urban development of the reserve and how such facilities and services could be financed.

Factor 3: Comparative environmental, social, energy, and economic consequences

Factor 3 requires an assessment of the long-term environmental, social, energy, and economic (ESEE) consequences that could result from urbanization of land considered for inclusion within the UGB. The four ESEE consequences must be evaluated for each urban reserve and the results of this ESEE analysis help to inform which lands should be selected for inclusion in the UGB.

Statewide Planning Goal 2, *Land Use Planning*, suggests that, when considering the conversion of land from rural to urban uses, the ESEE analysis should consider the positive and negative effects of urbanization on the study areas and the advantages and disadvantages of urbanizing a particular site versus another site. The analysis must demonstrate that, on balance, the lands being considered for inclusion in the UGB are no worse than other areas under consideration for urbanization.

The four ESEE consequences were all evaluated in this Goal 14 boundary location factor analysis, but only the environmental consequence is reported out separately in Attachment 2, as it is more quantitative in nature, whereas the other three consequences are more qualitative and merit being reported together. Outlined below are general descriptions of the expected ESEE consequences and the expected consequences to each factor because of urbanization.

Environmental

Environmental features such as streams and wetlands can be relatively easily identified and their characteristics (e.g., size, proximity) can be quantified, which helps in determining their importance and in assessing the potential effects of urbanization on those features. Additionally, there are often regulatory programs in place to ensure that urbanization will occur in a regionally consistent manner through required protection standards.

UGMFP Title 3, for example, provides performance standards to protect and improve water quality and to reduce the risk and impacts of flooding. Land added to the UGB is subject to the requirements of Title 3 through the concept planning and comprehensive planning requirements of UGMFP Title 11. UGMFP Title 13 provides performance standards to protect, maintain, enhance, and restore significant fish and wildlife habitat through a comprehensive approach that includes voluntary, incentive-based,

educational, and regulatory elements. Land brought into the UGB is also subject to the requirements of Title 13 through the concept planning and comprehensive planning requirements of Title 11.

However, even with protection requirements, urbanization may still impact natural resources through the degradation of water quality and wildlife habitat, the loss of floodplain functions, and increased instability of steep slopes. Urbanization can also affect the function of these areas when vegetated corridors are reduced, and when impervious surfaces are increased and lead to additional storm sewer runoff that impacts stream water quality.

Still, inclusion of land into the UGB and subsequent urbanization do not necessarily mean greater negative impacts to natural resources. Indeed, *rural* uses can impact natural resources in ways that are not allowed in an urban setting. For instance, in many places, agricultural activities occur right up to the edge of a stream corridor, effectively providing no natural riparian habitat. In an urban context, however, the same stream would typically have a required vegetative riparian corridor where development could not occur, with urbanization thereby resulting in a positive impact on the longer-term health of that stream. In other words, lands included in the UGB can be subject to greater natural resource productions than land outside the UGB.

Social

There can be both positive and negative social consequences of urbanizing a previously rural area, due to changes to the built environment, the natural landscape, and the area's demographics. Urbanization can also positively and negatively impact the lifestyles of current residents and employees of the area, as well as cultural and historic resources valued by both those living both inside and outside the UGB.

For example, development of a new urban area can create new social, commercial, recreational, and educational opportunities for both current and new residents of the area and for nearby established residential communities already inside the UGB. This is particularly so when there is a more compact urban form with mixed-use areas that are part of a planned "complete community" because, in these areas, people can live closer to and more easily access jobs, businesses, needed services, recreational opportunities, places of worship, and other social gathering places. Such proximity can also increase the feasibility and attractiveness of active transportation (e.g., walking and bicycling) and the use of transit, which can have their own social benefits.

However, urbanization can also degrade the rural character of the area, which is a negative social impact at least on those who desire preservation of rural lifestyles and environments. Those currently engaged in farming nearby land may also feel pressure from encroaching urbanization to curtail their farming activities.

Energy

Statewide Planning Goal 13, *Energy Conservation*, states:

“Priority consideration in land use planning should be given to methods of analysis and implementation measures that will assure achievement of maximum efficiency in energy utilization”.

Depending on density, mix of land uses, roadway layout, availability of transit and active transportation facilities, and other factors, urbanization can increase VMT and increased VMT, particularly by internal combustion engine vehicles, can increase energy consumption. Maintaining a compact urban form, providing both service and employment opportunities near residential development, and increasing density along high-capacity transportation corridors will result in smaller increases in energy consumption than disjointed, unplanned large-lot development.

OAR 660-023-0190(1) states that energy sources, for the purposes of Goal 5, may include naturally occurring locations, accumulations, or deposits of one or more of the following resources used for the generation of energy: natural gas, surface water (i.e., dam sites), geothermal, solar, and wind areas. Energy sources applied for or approved through the Oregon Energy Facility Siting Council (EFSC) or the Federal Energy Regulatory Commission (FERC) are deemed to be significant energy sources that could be impacted by urbanization of the surrounding area. Protection of energy sources necessitates adopting comprehensive plan provisions and implementing land use regulations that both limit new conflicting uses within the impact area of the site, and that authorize future development or use of the energy source of the site. There are no known sources of energy in the urban reserves as defined in OAR 660-023-0190(1), although some areas contain easements for electric power, petroleum, and natural gas transmission facilities.

Economic

The land in Metro’s urban reserves is currently being used for rural uses that include farming and forestry activities, larger-lot single-family residential uses, schools, places of worship, and limited commercial and industrial uses. Permitted commercial uses are generally confined to wholesale and retail sales of farming and forestry related products, as well as other incidental uses, including convenience stores, or service-based businesses, under prescribed conditions. Industrial uses are mainly related to farm crop and timber processing and wholesaling and other resource-based industries, such as sand and gravel mining and equipment storage.

Urbanization allows for a concentration of residential, commercial, industrial, and office uses that benefit from economies of scale. As land is brought into the UGB, the range of uses and development types increase. The resulting diversified urban economy will serve both the current and new residents of the area, as well as the nearby established residential communities already inside the UGB.

Inclusion in the UGB, and the addition of public facilities and infrastructure, can increase the economic value of the land by providing the opportunity to divide and sell off property and to develop it with new uses. These development options would not be available without inclusion of the land in the UGB and the subsequent urban services that are provided.

However, as land values increase with urbanization, activities that are land-intensive, such as agriculture, forestry, and equipment storage, may be preferred less and even be less economical. As mentioned above, urbanization can also put pressures on nearby commercial agriculture to curtail their farming practices.

Oregon's agriculture industry continues to be a major component of the state's economy, so these impacts are worth considering. According to the Oregon Department of Agriculture (ODA), there were 37,200 farms in Oregon in 2020, with a value per crop land acre of \$3,120. The top five agricultural commodities based on value of production that year were: greenhouse and nursery products (\$1.19 billion); cattle and calves (\$588 million); hay (\$569 million); milk (\$557 million); and grass seed (\$458 million). Oregon has been one of highest-ranking states in the nation, if not the highest, for production of hazelnuts, onions, potatoes, pears, blueberries, cherries, cranberries, hops, nursery stock, Christmas trees, and many types of peas, clover, and seed.⁵

Urbanization of land that is currently in agricultural production, particularly nursery stock, hay, and caneberry (e.g., raspberry and blackberry) production, which is common in the three-county Metro region, could be economically significant. Loss of agricultural land to urbanization can also adversely impact agricultural processors (e.g., wineries) and agri-tourism.

Timber harvesting and related forest product activities have been important components of Oregon's economy as well. According to the Oregon Forest Resources Institute, in 2019, Oregon was the top softwood lumber-producing state in the country, as well as the top plywood-producing state, and Oregon had more than 61,000 forest sector jobs.⁶ In fiscal year 2022, the Oregon Department of Forestry harvested approximately 198 board feet of timber, generating \$95 million in net revenue; 36,900 (nearly 20 percent) of those board feet were harvested in Clackamas and Washington Counties.⁷ Loss of productive timber lands to urbanization, and pressures of urbanization on forestry practices, can have adverse consequences on the state's and Metro region's forestry-related economy.

As also noted previously, there can be greater regulatory protections on the natural environment inside the UGB than in rural areas. When environmental protections of an area are increased by including the area in the UGB, that can be perceived as a loss of

⁵ Oregon Agricultural Statistics, October 2021:
https://www.nass.usda.gov/Statistics_by_State/Oregon/Publications/facts_and_figures/facts_and_figures.pdf

⁶ https://site.oregonforests.org/sites/default/files/2021-01/OFRI_2021ForestFacts_WEB3.pdf

⁷ <https://www.oregon.gov/odf/Documents/workingforests/cftlc-annual-report-2022.pdf>

some development/use potential. But this perceived loss must be balanced with the value – including economic value – of protecting open spaces and wildlife habitat. Metro’s Goal 5 Phase 1 ESEE Analysis explains in detail how the ecological functions of fish and wildlife habitat provide ecosystem services that have economic value and benefit society. Based on this information, it is considered cost effective to concentrate development in areas where impacts to natural resources can be minimized and to avoid impacts that would require expensive restoration and mitigation.

The vast majority of mining sites in Oregon are aggregate mines. Aggregate is the main ingredient in concrete and asphalt pavement and is used as a base on which roads and buildings are placed. Other important uses include gravel roads, dams, landscaping, drainage control, and railroad ballast. Due to the finite nature of aggregate and the limited supply of aggregate mines located in the region, its value is expected to increase. Moreover, because of high transportation costs, it is most economical for the construction industry to use resources that are closest to where development is occurring. The value of the aggregate resource, the importance of this resource to the construction industry, and the costs involved with extraction and transportation underscore the economic importance of preserving aggregate mining. Furthermore, aggregate resource extraction uses are temporary in nature, due to the limited supply of the resource within a mining site; once a site is no longer economically viable, it can be reclaimed for a number of uses including recreation, open space, or general development. The presence of mineral and aggregate resource sites in reserves is noted as appropriate.

Factor 4: Compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB

The fourth Goal 14 factor requires an analysis of the compatibility of proposed urban land uses (e.g., urban residential and employment-related development) with nearby agricultural and forest activities occurring on farm and forest land outside the UGB. The methodology for the analysis in this factor is the same as that which accompanied the legislative amendments to the UGB in previous years, including in 2018 and 2023.

The ODA’s January 2007 study titled “*Identification and Assessment of the Long-term Commercial Viability of Metro Region Agricultural Lands*”⁸ expands on the needs for edges and buffers to protect and moderate adverse impacts between agriculture and other non-compatible land uses, and is useful in helping to identify those transition areas between urban and rural uses. In addition, in 2014 and 2015, Washington County completed issue papers that addressed natural buffers and compatibility between urban uses and agricultural practices that provide additional

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https://www.oregon.gov/aviation/AVB/Documents/2019/10_30/Read%20Ahead%20Materials/Board%20Packet%20of%202/Agenda%20Item%2020/12_City%20of%20Aurora%2010.1%20to%2010.4.2019/Comments%20from%20City%20of%20Aurora%2010.1.2019/20.%20Foundation%20Ag%20Land.pdf

information for determining compatibility between the two uses. The concepts and importance of buffering support the methodology used in this analysis.

Resource Land Zoning Data

The analysis in Factor 4 requires a review of certain land use activity on rural lands outside the UGB. Counties designate these lands as either resource land (farm and/or forest land) or “exception land” through their comprehensive planning processes, and their designations must be acknowledged by Oregon Department of Land Conservation and Development (DLCD). The term “exception land” refers to rural lands that have been granted an exception to the requirements in Statewide Planning Goals 3, *Agricultural Lands*, and 4, *Forest Lands*, for protection of lands for farming and forestry activities; exception lands are generally used for rural residential, rural commercial, or rural industrial purposes. Counties must go through a formal process of having these exception lands acknowledged. For purposes of Factor 4, farm and forest lands are those natural resource lands that are not exception lands.

Metro has identified these lands according to local zoning, which was obtained from regularly updated county records in Metro’s RLIS. The zoning types and associated labels used differ from county to county. The resource land zoning designations shown in Table 4 below were used for this analysis.

Table 4 – County Resource Land Designations	
County	Resource Land Designations
Clackamas	Exclusive Farm Use (EFU)
	Ag/Forest (AG/F)
	Timber (TBR)
Multnomah	Exclusive Farm Use (EFU)
	Multiple Use Forest (MUF)
	Commercial Forest Use (CFU, CFU-1, CFU-2, CFU-3, CFU-4, and CFU-5)
Washington	Exclusive Farm Use (EFU)
	Agriculture and Forest (AF20)
	Exclusive Forest and Conservation (EFC)

Agricultural and Forest Activities

Agricultural and forest activities occurring on these resource lands outside the UGB were interpreted from computerized aerial photographs taken in the year 2022. Metro recognizes that, depending on the season and the weather patterns of when a particular area’s aerial images was taken, some crops may be young and difficult to identify. Agricultural crops that were observed were generally grouped into broad categories of

nursery stock, orchards, Christmas tree farms, row crops (e.g., corn, vineyards, caneberrries, etc.), and field crops (e.g., grasses and grains).

Commercial forestry activities are particularly difficult to detect from aerial photos that represent a snapshot in time due to the very long timber harvest cycle, but some timber lots are nonetheless discernible from tax assessor ownership records and historic aerials. Metro staff recognizes that this evaluation may not precisely identify all commercial forestry activities.

Considering “Compatibility”

When evaluating the compatibility of urban land uses with agricultural and forestry activities, the following were considered:

- Increased traffic resulting from urbanization that may impede the movement of farm or forestry equipment and hinder the transport of agricultural goods to market.
- Urbanization may result in the isolation of certain agricultural areas from the greater farming community. This may hinder normal practices of sharing equipment and knowledge among farmers.
- Nuisance conflicts may arise between urban residents/business and rural farmers/foresters due to the dust, noise, and odors generated from and pesticides/chemicals used in farming and forestry practices.
- An increase in impervious surface generates additional stormwater runoff that can impact the water quality of streams, prevent ground water infiltration and re-charge, and scour streambeds that nearby agricultural activities are dependent upon.

The agricultural practices used in the production of the identified crop categories can generate different levels and kinds of impacts. In addition, a farmer’s crops may change over time to reflect market conditions, changes in weather trends, and other factors. For these reasons, the intensity of the agricultural uses occurring within the surrounding areas and the degree to which active farming of these crops may be hindered by nearby urban development was not ranked. Metro staff simply noted when the potential for such conflicts existed. The base assumption was that areas that support intensive and uninterrupted agricultural uses would be most impacted by the proximity of new urban development.

RESULTS

A table summarizing the results of the Goal 14 boundary location factors analysis of all 27 urban reserves can be found in Attachment 3. The analysis clearly identifies the following seven urban reserves as unsuitable for urbanization in the short term:

- Boring
- Boring – Highway 26
- Damascus
- Norwood
- Rosemont
- Stafford
- Tonquin

These urban reserves are therefore not further evaluated for possible inclusion in the UGB in the Metro Code Factors analysis in Appendix 7A.

There are significant infrastructure hurdles that would need to be addressed prior to urban services, such as water and sanitary sewer services, being available for new urban development in the seven urban reserves listed above. For instance, the closest sanitary sewer services to the Boring and Damascus urban reserves is well over a mile away and sanitary sewer service for the Rosemont and urban reserves would need to flow through the Borland Urban Reserve, thus requiring the Borland urban reserve to be urbanized first.

As noted, the Goal 14 analysis’s preliminary cost estimates for providing water, sanitary sewer, stormwater, and transportation services to new urban development in the 27 urban reserves were estimated using very general assumptions on future growth expectations. Detailed concept plans consistent with the requirements UGMFP Title 11 will develop refined cost estimates that better reflect the expected development pattern and uses and that take into consideration costs for infrastructure materials at the expected time of construction, which may be a number of years ahead.

ATTACHMENTS

Attachment 1: Map of Urban and Rural Reserves

Attachment 2: Goal 14 Boundary Location Factor Analysis Narratives (27, with maps):

- Beaver Creek Bluffs
- Bendemeer
- Bethany West
- Boring
- Boring – Highway 26
- Borland
- Brookwood Parkway (8B)
- Damascus
- David Hill
- Elligsen Road North
- Elligsen Road South
- Grahams Ferry
- Gresham East
- Henrici
- Holcomb
- Holly Lane – Newell Creek Canyon
- I-5 East – Washington County
- Maplelane
- Norwood
- Rosa
- Rosemont
- Sherwood North
- Sherwood South
- Sherwood West
- Stafford
- Tonquin
- Wilsonville Southwest

Attachment 3: Goal 14 Boundary Location Factors Analysis Results

Attachment 4: Mackenzie Utility Analysis Report