
www.oregonmetro.gov

Appendix 8 – Preliminary Analysis of Potential UGB Expansion Areas

August 2010

 **Metro** | *People places. Open spaces.*

About Metro

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

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

Metro representatives

Metro Council President – David Bragdon

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

Auditor – Suzanne Flynn

Metro

600 NE Grand Ave.
Portland, OR 97232
503-797-1800

www.oregonmetro.gov

TABLE OF CONTENTS

Introduction	1
Methodology.....	3
Results.....	19
Figures and Attachments.....	22

ANALYSIS OF POTENTIAL UGB EXPANSION AREAS

INTRODUCTION

As part of an integrated community investment strategy, the Metro Council will be considering how to accommodate the region's forecasted 20-year population and employment growth while supporting the region's six desired outcomes, listed below.

- **Vibrant communities** – People live and work in vibrant communities where they can choose to walk for pleasure and to meet their everyday needs.
- **Economic prosperity** – Current and future residents benefit from the region's sustained economic competitiveness and prosperity.
- **Safe and reliable transportation** – People have safe and reliable transportation choices that enhance their quality of life.
- **Leadership on climate change** – The region is a leader in minimizing contributions to global warming.
- **Clean air and water** – Current and future generations enjoy clean air, clean water, and healthy ecosystems
- **Equity** – The benefits and burdens of growth and change are distributed equitably.

The urban growth report (UGR), endorsed by the Metro Policy Advisory Committee (MPAC) and accepted by the Metro Council in December 2009, identified the capacity of the region's UGB to accommodate the next 20 years of expected population and employment growth. The 2009 UGR was intended to foster the development of an outcomes-based approach to growth management decision-making by discussing tradeoffs among various policy and investment choices. The UGR identified a gap between the forecast demand and the amount of zoned capacity that is likely to be developed in the next 20 years for residential and large-site industrial parcels that support the traded-sector. No gap was identified in the middle third of the demand forecast for non-industrial and general industrial employment.

The region can fill the identified capacity gap through actions that promote more efficient use of zoned capacity inside the current UGB, or by expanding the UGB, or a combination of both. Metro has been working with local governments individually and through the Metro Technical Advisory Committee (MTAC) and MPAC to identify and adopt local and regional actions that will achieve greater efficiencies within the existing UGB and minimize the need for UGB expansion at the end of the year.

As part of the process to maintain a 20-year land supply for residential and employment uses, Metro completed an assessment of approximately 8,298 acres of urban reserve land adjacent to the current UGB. These 8,289 acres are a subset of the 28,615 acres of urban reserves that Metro, in conjunction with Clackamas, Multnomah and Washington Counties adopted in June 2010 (Attachment 1). The designation of these areas as urban reserves is essentially the first filter in determining that the areas are suitable for urbanization. Metro staff, utilizing information from past studies such as the Great Communities Report and the findings from the urban and rural reserve

process, as well as local jurisdiction input and Metro policies that call for equity and balance in UGB expansions and to consider lands in all parts of the region, narrowed down the urban reserve lands to the 8,298 acres of analysis areas evaluated in this report.

Metro's Chief Operating Officer, Michael Jordan, issued a letter to the mayors and county commission chairs on August 2, 2010, inviting them to submit any additional urban reserve areas that they would like considered as part of the policy discussions in the fall 2010. All additional areas for consideration must be sponsored by local governments, as their support is critical for provision of infrastructure, governance, planning, and more. The additional areas will be considered by MPAC and the Metro Council prior to a final recommendation in October and subsequent public hearings in November.

The purpose of this analysis is to inform the Metro COO Recommendation, 2010 Growth Management Assessment (August 2010), and assist the Metro Council in evaluating the potential expansion areas to meet any identified residential and large-site industrial land need that they determine cannot be met through efficiencies on land inside the UGB. The information in this analysis will help the Metro Council determine which of the selected analysis areas merit further consideration as candidates for inclusion in the UGB. Finally, additional information regarding the effect of the final proposed UGB amendments on existing residential neighborhoods will be developed and sent to all households within one mile of the proposed UGB amendment areas, consistent with Metro Code Section 3.01.015. Figure 1 provides an overview of the UGB analysis area process.

It is beyond the scope of the analysis to provide a detailed, site planning level of analysis for each of the 18 areas. Furthermore, it is not possible to evaluate each potential sequence of urbanization, and the likely effects on surrounding areas under each sequence. This analysis does not compare the results of the UGB amendment factors for the potential expansion areas with the potential for refill or redevelopment of locations that are currently in the UGB.

The structure of this report is based on Metro's UGB Legislative Amendment factors located in Metro Code Section 3.01.020, which implement the boundary locational factors of Statewide Planning Goal 14. The following list identifies the Goal 14 and Metro UGB amendment factors:

- *Metro UGB Amendment Factor & Statewide Planning Goal 14 Factor 1 – Efficient accommodation of identified land needs.*
- *Metro UGB Amendment Factor & Statewide Planning Goal 14 Factor 2 – Orderly and economic provision of public facilities and services.*
- *Metro UGB Amendment Factor & Statewide planning Goal 14 Factor 3 – Comparative environmental, energy, economic and social consequences.*

- *Metro UGB Amendment Factor & Statewide Planning Goal 14 Factor 4 – Compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB.*

In addition, Metro Code Section 3.01.020 provides five additional factors that must be considered when evaluating land for inclusion in the UGB:

- *Equitable and efficient distribution of housing and employment opportunities throughout the region;*
- *Contribution to the purposes of Centers;*
- *Protection of farmland that is most important for the continuation of commercial agriculture in the region;*
- *Avoidance of conflict with regionally significant fish and wildlife habitat; and*
- *Clear transition between urban and rural lands, using natural and built features to mark the transition.*

The essence of the six desired outcomes is embodied in these urban growth boundary (UGB) assessment factors and the state legislation and administrative rules which enabled the region to pursue urban and rural reserves.

The report begins with an explanation of the methodology used to evaluate each analysis area for the factors listed above. Please note that Statewide Planning Goal Factor 1 and the first additional Metro factor, are not evaluated for each analysis area, but findings for these two factors are made on the final UGB expansion decision. Following the methodology section is a brief summary of the results, including a table indicating the ratings applied to most of the factors noted above. The individual analysis area summaries that include basic quantitative information for each area, as well as descriptive information about site characteristics, development patterns, physical attributes, environmental features and the feasibility of providing urban services are found in Attachment 2.

METHODOLOGY

PRODUCTIVITY ASSESSMENT

The productivity assessments conducted for this study follow general procedures used for most buildable lands studies. Vacant areas are first identified. Areas that are unbuildable such as power line easements and environmentally sensitive areas are then removed from vacant lands. Specific categories of tax-exempt lands are also considered unbuildable. The inventory of vacant land is then reduced to account for future streets and public facilities needed to accommodate urbanization.

The majority of 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 and floodplains, and zoning areas. All of 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 like 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 comes directly from county assessment offices, where local updates may be conducted at different intervals. For a variety of reasons such as these, the study helps to point out general patterns, but is not intended to be accurate at extremely small levels of geography.

Step 1: Determine which lands within the study areas are vacant

For this study all of the land in the analysis areas was assumed to be "vacant", meaning all of the non-public land area that is not constrained by environmental resources or other constraints such as power line easements or parks is available for development. This determination is based on a comparison of land value to improvement value completed by Metro Economic & Land Use Forecasting staff that indicated the existing rural residences would most likely redevelop due to a substantial increase in land value as the rural lands are added to the UGB. In addition, Metro Planning staff's experience with concept planning of new urban areas generally validates this assumption. It is understood however, that some high valued residences will remain as rural lands are urbanized, but it is beyond the scope of this project to complete a more detailed economic analysis of all the parcels under evaluation to determine this small amount of land that would remain in the future. Metro's most recent vacant lands analysis, completed for the land inside the UGB, does not extend to the urban reserve areas.

Step 2: Remove environmentally constrained areas from vacant areas

Lands that are considered vacant may not necessarily be buildable. Therefore, the next step in a buildable lands study is to subtract those areas that are environmentally constrained. The following environmentally constrained areas are removed from vacant lands.

- Urban Growth Management Functional Plan Title 3 Water Quality and Flood Management Areas, consisting of:
 - Flood Hazard Areas
 - FEMA 100-year floodplains and 1996 flood inundation areas
 - Wetlands - From an enhanced National Wetlands Inventory and local wetlands inventories
 - Wetland Areas - 50 feet from the edge of wetland or up to 200 feet from the edge of wetland located adjacent to steep sloped areas (slopes > 25 percent).

Vegetated Corridor - A vegetated corridor between 15 feet and 200 feet depending upon the area drained by the water feature and the slope of the land adjacent to the water feature.

- Functional Plan Title 13 Nature in Neighborhoods Areas consisting of:
Riparian habitat class I & II and upland habitat class A & B - Riparian habitat class I & II and upland habitat class A & B as identified on the Metro Regionally Significant Fish and Wildlife Habitat Inventory Map.
- Slopes greater than 25%

Metro maintains GIS data files representing the features described above. Data layers representing environmentally constrained areas are “clipped” out of the data layer representing vacant areas, leaving only those areas that are vacant and buildable.

Functional Plan Title 3 and Title 13 regulations apply only to areas within the Metro jurisdictional boundary. As some of the area under study extends beyond this boundary, Metro has constructed a supplemental data layer representing Title 3 protections for the areas outside the jurisdictional boundary. The Regionally Significant Fish and Wildlife Habitat Inventory, adopted September 29, 2005, extended beyond the jurisdictional boundary. If and when any of these analysis areas are added to the urban growth boundary, they would also be annexed to the Metro jurisdictional boundary, making Title 3 and Title 13 effective. Title 13 regulations apply to both riparian and upland habitats for UGB expansions. In almost all circumstances, the identified Title 13 significant riparian and fish habitats encompass the Title 3 Water Quality and Flood Management Areas. Metro’s Title 13 regulations do provide for limited development impacts to the habitat areas, thus under step 7 below some additional capacity is added back into the process for determining overall residential capacity of the analysis areas. It is assumed that large site industrial development is more flexible in terms of its footprint on the ground, resulting in the ability to better avoid significant habitat. Thus additional capacity for large site industrial uses is not added back. In addition, the definition for large site industrial is 50 acres of buildable land, essentially assuming that environmental constraints have already been removed from the calculation. However, as development occurs in the future it is expected that some impact to environmental resources may occur.

Step 3: Remove some categories of tax-exempt parcels

Some categories of tax-exempt lands, consisting of Federal, State, County or City-owned properties, schools and cemeteries are identified from the assessment database and removed from consideration.

Step 4: Remove parks and open spaces, power line, natural gas and petroleum easements

There are a number of other land categories that are considered unbuildable and need to be removed from the vacant land supply. All park types are removed, including developed parks with amenities, open space or natural areas, common areas of subdivisions, cemeteries, golf courses, school grounds, pool, tennis courts, fairgrounds, community centers, trails and paths, and community gardens. In addition, utility easements are removed from the vacant land supply.

The following table shows the amount of constrained land identified in steps 2-4 that have been removed from the vacant lands supply of the analysis areas. This represents the amount of gross vacant buildable land.

Table -1 Gross Vacant Buildable Land

Land Type	Acres
Total Vacant Land	8,298
Constrained Land	2,266
Gross Vacant Buildable Land	6,032

Step 5: Remove future land needed for streets, parks, schools and churches/fraternal organizations

As urbanization proceeds, some additional land will be necessary to accommodate different types of public facilities. In particular, future streets, parks and schools should be expected to absorb some of the vacant land supply. In this analysis an estimate of future land needed to accommodate these uses is applied to analysis area as a whole. The reduction estimates are consistent with the percentage reductions used in Metro’s 2002 UGB Alternatives Analysis. Refined acreage needs based will be developed through the planning requirements of Functional Plan Title 11: Planning for New Urban Areas.

- *Future Streets:* A global estimate of 18.5 percent is removed from all areas to account for future streets.
- *Future Parks:* A global estimate of 2.2 percent is removed from all areas to account for future park needs, except those areas being evaluated for large-site industrial use.
- *Future Schools:* A global estimate of 2.9 percent is removed from all areas to account for future school land needs, except those areas being evaluated for large-site industrial use.
- *Future Churches/Fraternal Organizations:* A global estimate of 1.8 percent is removed from all areas to account for future land needs for churches and fraternal organizations, except those areas being evaluated for large-site industrial use

The following table represents the net vacant buildable land.

Table -2 Net Vacant Buildable Land

	Acres Removed	Total Acres
Gross Vacant Buildable Land		6,032
Future Streets	1,116	4,916
Future Parks	86	4,830
Future Schools	111	4,719
Future Churches & Fraternal Organizations	71	4,648
Net Vacant Buildable Land		4,648

Step 6: Estimate residential build out on net vacant buildable acres

The Metro Chief Operating Officer’s Urban Reserve Recommendation (September 15, 2009) indicated that over the life of the urban reserves, an average density of 15 dwelling units per net buildable acre should be achieved. Based on this expectation, staff has applied 15 dwelling units per net buildable acre for the analysis areas, except for two areas that are small and geographically limited (Beaver Creek Bluffs and Sherwood South) which had 10 dwelling units per net buildable acre allocated to them.

The following table represents the preliminary number of dwelling units expected from the residential analysis areas.

Table -3 Residential Dwelling Units

Expected Density	Net Buildable Acreage	Expected Dwelling Units
10 units/net buildable acre	259	2,590
15 units/net buildable acre	3,393	50,895
Total dwelling units		53,485

Step 7: Estimate dwelling units occurring in environmentally constrained areas or from possible density transfers out of environmentally constrained areas

Metro’s Title 13: Nature in Neighborhoods program is intended to conserve, protect and restore a continuous ecologically viable streamside corridor system that is integrated with upland wildlife habitat and the surrounding urban landscape. The program balances and integrates goals of protecting and enhancing fish and wildlife, building livable Region 2040 communities and supporting a strong economy. Provisions within Title 13 do allow for limited impacts to identified fish and wildlife habitat from urban development through both clear and objective and discretionary development standards. Any impact to the habitat is expected to be mitigated for on-site, which could inhibit the amount of impact that occurs.

Title 13 also requires local jurisdictions to provide for the opportunity for the transfer of development rights on-site for identified habitat areas. However, it is assumed that not all of the potential development would be transferred due to the expected inability of the real estate market to absorb a higher density housing product on many of these lands at the edge of the UGB as a result of the transfer of development rights.

As noted previously Metro’s Regionally Significant Fish and Wildlife Habitat Inventory Map extended to the urban reserve analysis areas. This mapping occurred at a regional scale based on 2002 aerial photos and is intended to be a guide for more detailed analysis as protection programs are developed. A review of the mapped habitat inventories on these rural lands reveals inconsistencies on how areas were mapped. Based on the potential for mapping inaccuracies and the fact that Title 13 does allow for some impacts to the habitat areas, it is assumed that some development will occur within the habitat areas that were identified through the regional mapping process. It is expected that this development will be at a much reduced density due to on-site mitigation requirements and real estate market realities. Therefore, for those Title 13 habitat areas that are outside of other constraints, such as Title 3 vegetative corridors, floodplains and utility easements, a reduced density of 3 dwelling units per net buildable acre is assumed. The total number of dwelling units on environmentally constrained land is 2,116.

Table -4 Total Estimated Dwelling Units

Land Type	Total Estimated Dwelling Units
Dwelling units from environmentally constrained land	2,116
Vacant Land	53,485
Total dwelling units	55,601

WATER, SEWER, STORMWATER, PARKS & SCHOOL SERVICES FEASIBILITY

This analysis is a preliminary study for developing cost estimates for providing specific public infrastructure components to the analysis areas. This work was completed by Group MacKenzie, under contract to Metro, and focuses on three topic areas: public utilities, parks, and schools. For this analysis, public utilities means sanitary sewer, water and storm sewer services and the review focuses on trunk lines, main lines, and other large components of the systems. This analysis assumes the vast majority of smaller laterals and individual service lines will be paid for by development. System component sizing and costs are derived from review of adjacent and similar sites with equivalent land use and development patterns.

Using the buildable acreage and estimated dwelling units calculated for the analysis areas, pipe lengths and sizes are translated from adjacent or similar sites of development to determine a large component system for each utility. Unit costs are based on recent industry-wide construction data

and recent project estimates. Each area is reviewed, assuming the service will be provided by adjacent cities and/or service districts, for likely points of connection and any supply, downstream capacity or treatment issues. This work is completed primarily through review of existing master plans, and existing system capacity is reviewed for general availability to the proposed expansion area – both in terms of access and any limitation due to prior commitment of service to other areas already within the UGB. The review of public utilities is similar for both residential and industrial uses.

For residential uses, an analysis of park and school services was also completed. Again, comparable development types are reviewed, and master plans and planned expansions by the park provider and school district are noted. For parks, the comparison is done on a developable acreage basis for each area, while schools are considered and compared on both an acreage and dwelling unit basis. See Attachment 3 for the Group Mackenzie report. Attachment 4 contains a summary of the costs for all of the analysis areas.

This analysis does not include an evaluation of electrical power. Power companies such as Portland General Electric (PGE) have an obligation to serve and power rates are monitored by the Oregon Public Utility Commission; therefore the rate differences between the different analysis areas, especially for residential use will not be considerable. One exception is the City of Forest Grove Light and Power Company, which is a preferred company of the Bonneville Power Administration. This preferred company status allows Forest Grove Light and Power to purchase power at a lower rate, thereby resulting in a lower base power rate for their customers.

The main cost of serving an area is the extension of the line and whether or not any specific equipment is necessary to provide power for specialized uses. That level of detail regarding specialized uses is not available at this time. The greatest challenge for PGE is community resistance to siting of new substations, power lines and other power system infrastructure.

TRANSPORTATION SERVICES FEASIBILITY

This analysis is a preliminary study for developing total cost estimates (public and private) for a road network consisting of an arterial/collector level system for the analysis areas, using the connectivity standards in the Regional Transportation Plan (RTP). The cost estimates reflect a RTP consistent network necessary for the complete build-out of the analysis area, which would take a number of years to complete. It is not intended to depict the level of investment necessary at the onset of development. In addition, a RTP consistent network would serve a larger area beyond just the UGB amendment area, resulting in the potential for a range of funding options.

Using GIS-level data, a rough cost comparison can be made among analysis areas. The analysis is not meant to depict an actual complete urban roadway network or reflect detailed costs for construction of such a system, but rather provide preliminary information on how certain analysis areas compare relative to other analysis areas. More detailed cost estimating will be necessary to determine exact costs and phasing of construction. The analysis does not include the local road network as this is assumed to be paid for by development.

To facilitate the analysis, the following GIS data was used:

- Analysis area boundaries
- Existing rural and urban road network
- Existing railroad lines
- Topographical information
- Floodplains, streams, significant riparian and upland habitat, & wetlands
- Proposed High Capacity Transit corridors

An arterial and collector level system was developed for each analysis area using the connectivity standards in the RTP. The ideal spacing for arterials is one mile apart, and the ideal spacing for collectors is one-half mile from another collector or arterial. This spacing reflects the evidence outlined in the RTP that such a connected system best accommodates an urban-level development pattern including vehicular, transit, bicycle and pedestrian travel.

The road network was digitized and a database was created to query the number of lane miles, both existing and added, number of intersections and distance to existing network. This information was used to develop a rough capital cost estimate of the improved network for each analysis area. The proposed road network for each analysis area can be found in the Analysis Area Summary Sheets. A summary of the transportation costs for all of the analysis areas can be found in Attachment 5.

The cost estimating approach was derived from the ODOT Highway Economic Requirements System (HERS), which is used for planning-level capital costs for roadway projects. The approach includes assigning higher roadway costs to major bridge crossings, floodplains, wetlands and steep slope areas. It includes a standard right of way cost factor and is expressed as a unit cost per lane mile for a complete street section that includes bike lanes, sidewalk, curb and gutter. The cost estimates were completed using 2007 dollars, consistent with the RTP. Additional information on the HERS cost estimating approach can be found at

<http://www.fhwa.dot.gov/infrastructure/asstmgmt/hersindex.cfm>

Tri-Met, the regional transit agency is currently completing a preliminary transit evaluation of the analysis areas. The results of this analysis will be available in August 2010.

ESEE ANALYSIS

Environmental, Social, Energy and Economic Consequences of adding land to the Urban Growth Boundary

Purpose of the ESEE Analysis

The purpose of this analysis is to assess the long-term environmental, social, energy and economic consequences that would result from urbanization of land considered for inclusion within the UGB and to guide the selection of lands from among those considered. The analysis must find that urbanization may occur in a manner consistent with any special protection of resources or hazards,

as identified in a local comprehensive plan and implemented by land use regulations. Any complimentary and adverse economic impacts must also be identified. Evaluation of these factors, on balance, must demonstrate that the lands being considered are no worse than other areas under consideration for urbanization. Each of the ESEE factors (Environmental, Social, Energy & Economic) must be evaluated for each study area or groups of study areas under consideration

Evaluation of ESEE Factors

Statewide Planning Goal 2: Land Use Planning, Part II Exceptions, suggests that when considering the conversion of land from rural to urban uses that the evaluation be based on the “Positive/Negative Effects” of the impacts of urbanization on the study areas and the “Advantages/Disadvantages” of a particular site versus another site.

ESEE Analysis Process

The environmental factor of the ESEE analysis was completed separately as the elements of this factor are easily quantified (stream length, acreage of wetlands, floodplain size) and there are specific regulatory programs in place to ensure that urbanization will occur in a manner consistent with the regulatory programs. Each of the environmental elements described below was evaluated to determine an overall environmental consequence rating that considered the individual element ratings equally. The overall environmental consequence rating for each analysis area can be found in Attachment 3. A summary of the environmental consequences for each analysis area can be found on the Analysis Area Summary Sheets following this section of the report.

The energy, social and economic factors were analyzed together. This was done to better understand and evaluate the components of these three factors, as they are not easily quantified and their consequences extend beyond the boundary. A summary of the energy, social and economic consequences can be found on the Analysis Area Summary Sheets.

Outlined below are general descriptions of the elements of each of the ESEE analysis factors and the expected consequences to each factor as a result of urbanization.

General Description of Factors

Environmental

Urbanization may impact natural resources through the degradation of water quality and wildlife habitat, the loss of floodplain functions and through increased instability of steep slopes. One way to maintain water quality is to protect the vegetated corridors adjacent to streams and wetlands. Urbanization can affect the function of these areas through either direct removal of vegetation or by increasing nearby impervious surface. This increase in impervious surface generates additional storm sewer run-off that in turn increases natural stream flows, which can impact the water quality of streams by washing sediments and impurities from impervious surfaces into the natural waterways. Additional stream flow may also prevent ground water infiltration and re-charge as well as scour streambeds due to the increased volume and velocity of the flow. Increased stream flows and associated transport of sediments and impurities reduce the ability of the vegetated

corridor to provide important functions, such as stream bank stability and regulation of water temperature.

A properly functioning floodplain allows for the storage and conveyance of natural floodwaters, thereby reducing the risk of flooding and preventing or reducing risk to human life and property. Floodplains impacted by urbanization through the placement of structures will have less storage and conveyance capacity for flood events, thereby increasing the likelihood of downstream flooding and health, welfare and safety issues. Attachment 6 contains a summary of the environmental factors for each analysis area.

Metro's Title 3 program as Functional Plan provides performance standards to protect and improve water quality and reduce the risk of flooding. Land added to the UGB is subject to the requirements of Title 3 through the concept planning requirements of Title 11 of the Functional Plan.

Metro's Title 13 program as defined in the Functional Plan 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 subject to the requirements of Title 13 through the concept planning requirements of Title 11 of the Functional Plan.

The Metro UGB Amendment factor relating to the avoidance of regionally significant fish and wildlife was evaluated simultaneously with the environmental consequences factor. As noted previously the adopted Regionally Significant Fish and Wildlife Habitat Inventory extended beyond the jurisdictional boundary, allowing for the evaluation of whether urbanization could occur in an area in way that avoided the identified habitat.

Inclusion of land into the UGB does not necessarily mean a negative impact to inventoried natural resources. Often the existing rural uses impact the resource in a way that is 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 riparian habitat. In an urban context, the same stream would have a required vegetative corridor along it, where development could not occur, thereby resulting in a positive impact on the resource. As part of the required planning of new urban areas, a concept plan shall identify water quality resource areas and habitat conservation areas that will be subject to performance standards under Titles 3 & 13 of the Functional Plan, effectively providing more protection of the resource.

Social

The social consequences of urbanization relate to changes to the built environment, the natural landscape, demographics and an influx of population, which can impact those living both inside and outside the UGB. As the character of an area changes from rural to urban the natural landscape is impacted by a denser built environment. Through the required planning of new urban areas an efficient and compact urban form can be created that will provide additional social, commercial, recreational and educational opportunities to serve both current and new residents of the area and nearby established residential communities inside the UGB. Mixed-use areas that are part of a

planned complete community have the greatest potential to provide social gathering places and community centers, or become the focus point for a neighborhood. The closer proximity to services, jobs and recreational opportunities due to an efficient and compact urban form will result in shorter trips by residents and provide opportunities for other modes of transportation such as transit, bicycling and walking.

Numerous national studies indicate there are several health impacts attributed to development of communities that are dependent on the automobile. These impacts range from air pollution and related illnesses to automobile accidents and a sedentary lifestyle, all based on increased vehicle miles traveled and commuting time. However, urbanization utilizing a compact urban form can help alleviate some of these health impacts and contribute in a positive nature to the overall health of the community by providing transportation options, nearby services, and opportunities for exercise that can reduce the time spent in an automobile.

As noted, urbanization will affect the rural character of the area, which is a negative social impact for those residents who desire such a lifestyle and rural environment. Residents within the UGB may also be negatively affected by the loss of nearby rural landscapes, the loss of the perception of easy access to open spaces and the perceived loss of protection of natural resources. Those individuals currently engaged in farming nearby land may feel pressure from encroaching urbanization to curtail farming activities.

Affordable Housing

The region functions as one housing market as people may live in one area, work in another and shop in yet another part of the region. In many areas there are few affordable housing options for the people who work there, resulting in long commute distances and times, while increasing congestion and pollution. This also leads people to purchase or rent more expensive homes than they can afford. The social factors of having an affordable home – shelter, safety and security – are fundamental to the livability of the region. The availability of a range of affordable homes throughout the region helps provide the stability needed to develop and maintain complete communities. A population that has access to housing choices near employment and services will spend less time traveling and may quite possibly be more aware of and involved in their immediate community. Title 11 of the Functional Plan requires that the planning for areas brought into the UGB demonstrate measures that will provide a diversity of housing stock that will fulfill needed housing requirements as defined by ORS 197.303. The intent of this requirement is to provide affordable housing options throughout the region.

Archeological Sites

State and federal laws prohibit the disturbance of Native American burial sites. Approximately six percent of the state has been formally surveyed for the presence of Native American artifacts, most often having to do with federally funded projects. As long as state and federal laws are observed during the planning and development processes there would not be any social consequences realized. Based on known settlement patterns and the level of disturbance that has already

occurred due to farming and rural development, it is unlikely that many significant archeological resources remain.

Historic Sites

The analysis study areas may contain historic resources that have been listed as a historic resource of statewide significance or on the National Register of Historic Places. Non-surveyed historic resources are best addressed through the local jurisdiction's Goal 5 survey, inventory and protection ordinances. As an area urbanizes the local government assuming governance will be responsible for the protection of all historic resources.

Clackamas County has identified a number of historic properties that are designated as historic landmarks in the rural portion of the county. Multnomah County's West of Sandy River Plan has identified a number of properties that could be designated as historic resources. Washington County has identified historic resources in the rural area as part of the county's Rural/Natural Resource Plan. The presence of historic resources identified or inventoried in any of the above referenced documents is noted on the appropriate Analysis Area Summary Sheet.

Aggregate Resources

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, landfills, sanding icy roads, and railroad ballast.

Due to the generally finite nature of these resources and the limited supply of aggregate mines located in the region, its value is expected to increase. Because of high transportation costs it is most economical for the construction industry to use resources that are closest to the region. The relationship between the value of the aggregate resource, the importance to the construction industry and the costs involved with extraction and transportation makes it important to preserve these uses. 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 recreational, open space or general development.

Aggregate resource sites in the analysis areas were identified utilizing the State of Oregon Department of Geology and Mineral Industries (DOGAMI) Special Paper 3 "Rock Material Resources of Clackamas, Columbia, Multnomah and Washington Counties, Oregon". In addition, Washington County identifies mineral and aggregate resources in the rural area through the use of two district overlays contained in the Rural/Natural Resource Plan. The District A overlay designation applies only to sites upon which extraction, processing, and stockpiling activities are currently undertaken and to sites which may be utilized for such activities in the future. The District B overlay designation applies to land within 1000 feet of District A with the intent to regulate the establishment of new noise sensitive uses to help reduce conflicting land uses. Clackamas County has inventoried significant mineral and aggregate resource sites, based on the DOGAMI report in their comprehensive plan. The presence of mineral and aggregate resource sites identified or

inventoried in any of the above referenced documents is noted on the appropriate Analysis Area Summary Sheet.

Energy

Statewide Planning Goal 13: Energy Conservation, states that “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”. Energy impacts are related to additional consumption of fossil fuels to heat and cool buildings and power motor vehicles. As an area urbanizes the number of buildings increases, resulting in an increase in natural gas, electricity and heating oil use.

The addition of residential dwelling units and non-residential uses in a new urban area also increases the number of vehicles in that area. Increased vehicle miles traveled (VMT) increases gasoline consumption and emissions output associated with internal combustion engines. The total increase in vehicular trips is based on the productivity of the individual study areas in terms of the number of dwelling units or the amount of employment that the area is expected to create through urbanization. Although an increase in energy consumption is inevitable, the urbanization of some study areas may improve transportation connectivity and efficiency for areas inside of the existing UGB. Furthermore, maintaining a compact urban form, providing both service and employment opportunities and increasing density along high capacity transportation corridors will result in smaller increases in energy consumption than disjointed unplanned large lot development.

ORS 660-23-190(1) states that energy sources 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 means to adopt plan and land use regulations that limit new conflicting uses within the impact area of the site and authorize future development or use of the energy source of the site. There are no known sources of energy in the study areas as defined in the ORS 660-23-109(1), although some of the areas contain easements for electric power, petroleum and natural gas transmission facilities.

Economic

The land in the analysis areas is currently in rural uses that include large lot residential, farm and forest activities, and limited commercial and industrial uses. Permitted commercial uses are generally confined to wholesale and retail sales of farm and forest products and other incidental uses including convenience stores or service based businesses under prescribed conditions. Industrial uses are mainly related to resource based industries such as sand and gravel, mineral extraction, and equipment storage.

Urbanization allows for a concentration of residential, industrial, commercial and office uses that benefit from economies of scale. As land is brought into the UGB, the range of uses and

development types increase. As land values increase activities that are land intensive such as agriculture, forestry and equipment storage may become less economical. The resulting diversified urban economy will serve both the current and new residents that will locate there as well as the nearby established residential communities inside the UGB.

The addition of public facilities and infrastructure increases the value of rural residential land by providing the opportunity to divide property into smaller lots for higher density residential use or by converting rural residential uses to either commercial or industrial uses. These development options would not be available without inclusion of the land in the UGB and the subsequent urban services that are provided.

Although there is economic value in converting land from rural to urban uses as noted above, there also is a cost associated with protecting natural resources in terms of lost development productivity and/or replacement or mitigation of development impacts on natural resources. The cost of lost development productivity from the protection of natural resources must be balanced with the immeasurable value of lost open spaces and the degradation of 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 seems to be cost effective to concentrate development in areas where impacts to natural resources can be minimized and to avoid impacts that would require restoration and mitigation.

The Oregon Department of Agriculture reported that in 2008, two of the top five agriculture producing counties were in urban Oregon. Clackamas and Washington counties ranked fourth (\$364 million) and fifth (\$302 million), respectively, in gross farm and ranch sales. The top commodity in 2008 was greenhouse and nursery products, with an \$808 million value. Three of the top five counties producing greenhouse and nursery products are Clackamas (first), Washington (third) and Multnomah (fifth). In addition all three counties are also in the top five for cane berry production. Urbanization of land that is currently in agricultural production, particularly in the nursery stock and cane berry production could have a significant effect on the regional economy, especially if they are part of a larger block of agricultural activity.

AGRICULTURAL/FOREST COMPATIBILITY ANALYSIS

The basic methodology for this compatibility analysis is similar to the analysis that accompanied the legislative amendments to the UGB in 2002. However, the adoption of rural reserves by Clackamas, Multnomah and Washington counties shifts the focus of the analysis away from the protection of farmland that is most important for the continuation of commercial agriculture in the region, to the compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB and whether or not there is a clear transition area, utilizing natural and built features, between urban and rural lands. It is assumed that the rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Certainly some high value farm land was designated as urban reserves; however the balancing of the urban and rural

reserve factors resulted in the determination that the farm land was more suitable for an urban reserve designation.

The Oregon Department of Agriculture’s 2007 Study, Identification and Assessment of the Long-term Commercial Viability of Metro Region Agricultural Lands 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.

Data Sources - Zoning

Zoning data was obtained from regularly updated county records from Metro’s RLIS. Counties designate land as resource land or exception land through the comprehensive planning process, which must be acknowledged by Oregon Department of Land Conservation and Development (DLCD). Counties must go through an exception process to remove resource land from protected status. Metro is required to utilize this local zoning that has been acknowledged by the State when completing an agricultural compatibility analysis.

The zoning within each county that qualifies as resource land and exception land is somewhat different. The exception land and resource land zone designations shown below were used for the agricultural compatibility analysis.

Table -5 County Resource & Exception Land Designations

County	Resource Land Designation	Exception Land Designation
Clackamas	EFU Exclusive Farm Use AGF Agriculture/Forest District TBR Timber District	RA1 Rural Residential RA2 Rural Residential RRFF5 Rural Residential/Farm Forest 5 Acre FF 10 Farm Forest 10 Acre RC Rural Commercial RTC Rural Tourist Commercial
Multnomah	EFU Exclusive Farm Use MUF Multiple Use Forest CFU-1, CFU-2, CFU-3, CFU-4 and CFU-5 Commercial Forest Use districts	RR Rural Residential RC Rural Center MUA 20 Multiple Use Agriculture
Washington	EFU Exclusive Farm Use AF20 Agriculture/Forest 20 Acre EFC Exclusive Forest and Conservation	RR 5 Rural Residential 5 Acre AF 5 Agriculture & Forest District 5 Acre AF 10 Agriculture & Forest District 10 Acre RC Rural Commercial RI Rural Industrial

Agricultural and Forest Activities

Agricultural and forest activities occurring on nearby farm and forest land outside the UGB were interpreted from computerized aerial photographs taken in the year 2009. Aerial photos are generally taken in June or July; thus many crops may be young and difficult to identify at the time the photo was taken. Crops were grouped into general categories of nursery stock, orchards, row crops (corn, vineyards, cane berries, etc) and field crops (grasses and grains). Forest activities are basically impossible to detect based on aerial photos that represent a snap shot in time due to the very long harvest cycle. Metro staff recognizes that this evaluation may not precisely identify all crops being cultivated or whether forest harvesting is expected to occur.

Compatibility Factors

Compatibility considerations include:

- Increased traffic resulting from urbanization may impede the movement of farm or forest 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.
- Conflicts due to dust, noise, odor and chemical spray resulting from urban development being located in close proximity to active farming.
- An increase in impervious surface generates additional storm water run-off 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 vary somewhat in the levels of pesticide use, noise produced, etc., which may conflict with urban development in close proximity. In addition, one of the strengths of agriculture is its ability to change crops over time to reflect current market conditions. 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.

Clear Transition between Urban and Rural Lands

Finally, the presence of buffers or transitions areas in the form of natural and man-made features such as rivers, steep slopes, highways and golf courses may serve to limit impacts of urbanization on agricultural practices were identified.

Each of the compatibility factors and the presence or not of natural and man-made buffers or transition areas was evaluated for each analysis area. The starting point for the analysis was whether or not any agricultural activities were occurring on adjacent land. The size or extent of the

adjacent agricultural activity, the number of streams that flowed from the study area through active farming areas and local traffic patterns were additional factors in consideration of the overall compatibility determination. A summary of the compatibility factor and the urban to rural transition factor can be found on the Analysis Area Summary Sheets.

CONTRIBUTION TO THE PURPOSES OF CENTERS

The Metro 2040 Growth Concept was adopted as a vision to guide growth and development over the coming decades. A key component of the Growth Concept is concentrating growth in the 37 designated Centers across the region with a focus on redevelopment, multi-modal transportation and concentrations of households and employment. Centers vary greatly in geographic size, urban form and transportation access, making each center truly unique. Metro completed a State of the Centers Report, January 2009, which was intended to help communities understand their current conditions and develop their aspirations for the future.

Using the information from the State of the Centers Report, along with the numerous locally adopted plans and visions for the designated Centers and downtown areas, staff evaluated whether or not the addition of residential or large site industrial land to the UGB would support, negatively impact or have no effect on the identified local and regional visions for the Centers. Additional information for those Centers that are near the MAX Light Rail Line was obtained from Metro's Transit Oriented Development (TOD) Group's forthcoming strategic plan that is expected to be finalized in September 2010.

RESULTS

Individual ratings were determined for the following Goal 14 Factors: ESEE analysis, Significant Fish and Wildlife Habitat, Agricultural Analysis and Contribution to Centers and can be found in Table 6 below. The preliminary cost estimations developed for providing sanitary sewer, water, storm sewer, parks, schools and transportation services are intended to provide additional information and are found in Attachment 4. These cost estimates were made using very general assumptions on future growth expectations. Detailed concept plans, consistent with the requirements of Metro's Functional Plan Title 11 will be necessary to develop more refined cost estimates that better reflect the expected development pattern and uses, and take into consideration more current costs for infrastructure materials at the expected time of construction as some of these areas may not urbanize for a number of years.

An additional consideration that should be included in determining the best places for potential expansion of the UGB is the current level of local jurisdiction support for including the area in the UGB. Staff feels that this is a key ingredient in determining the appropriate locations for expansion, given the results of the 2007 Great Communities study that highlighted the need for governance, the focus of the reserves analysis on the efficient use of existing and future public and private infrastructure investments, and the results of the recent Washington County Urbanization Forum that concluded new urban areas would be governed by cities. In addition, Functional Plan Title 11: Planning for New Urban Areas requires provision for annexation to a city and to any necessary service district prior to, or simultaneously with, application of city land use regulations. If a new

urban area has local support, there is accountability and buy in from the local government that the area will develop into a great community that supports the vision of the 2040 Growth Concept. A new urban area that lacks local willingness for governance and providing urban services will result in the land remaining in its rural condition, thereby reducing the overall expected capacity of the UGB in future growth management decisions.

Table 6

Summary of results for each Analysis Area

<i>Analysis Area</i>	<i>Environmental Consequences</i>	<i>Energy, Economic, Social Consequences</i>	<i>Impact to Significant Habitat</i>	<i>Agricultural Compatibility</i>	<i>Natural Transition/Buffer</i>	<i>Contribution to Centers</i>
1C - East Gresham	Low	Moderate	Low	Compatible*	Partial	No
3D - Maplelane	Moderate	Low	Low*	Compatible	Yes	No
3G - Beaver Creek Bluffs	Moderate	Low	Low	Compatible	Yes	No
4D - Norwood	Low	Moderate	Low*	Mitigation Required	Partial	No
4E - I-5 East	Moderate	Moderate	Substantial	Mitigation Required	No	No
4F/G - Elligsen	Moderate	Moderate	Low*	Mitigation Required	Limited	No
4H - Advance	Low	Low	Low	Partially Compatible	Partial	No
5B - Sherwood West	Low	Low	Low	Compatible	Yes	No
5D - Sherwood South	Moderate	Moderate	Moderate	Compatible	Yes	No
5F - Tonquin	Low*	Low	Low	Compatible	Yes	No
5G - Grahams Ferry	Low	Moderate	Moderate	Compatible	Partial	No
6A - South Hillsboro	Low*	High	Low*	Not Compatible	Partial	New Center**
6C - Roy Rogers West	Low`	Low	Low	Not Compatible	No	No
7B - Forest Grove North	Low	Low	Low	Not Compatible	No	No
7D - Cornelius South	Low	Low	Low	Partially Compatible	Partial	New Center**
7I - Cornelius North	Low	Low	Low*	Not Compatible	No	New Center**
8A - Hillsboro North	Low	Moderate	Moderate	Partially Compatible	Partial	No
8B - Shute Road Interchange	Low	Low	Low	Not Compatible	No	No

*Area is generally compatible or impact is minimal, with potential exceptions. See summary for specific details.

**A new center had been proposed as part of the South Hillsboro Community Plan and the City of Cornelius is proposing a center designation for their downtown.

FIGURES AND ATTACHMENTS

FIGURES

Figure 1: Process for Evaluating Urban Reserve Analysis Areas for Inclusion in the Urban Growth Boundary

ATTACHMENTS

Attachment 1: Urban Growth Boundary Alternatives Analysis Areas Map

Attachment 2: Analysis Area Summary Sheets

- East Gresham – 1C
- Maplelane – 3D
- Beaver Creek Bluffs – 3G
- Norwood – 4D
- I-5 East – 4E
- Elligsen – 4F/G
- Advance – 4H
- Sherwood West – 5B
- Sherwood South – 5D
- Tonquin – 5F
- Grahams Ferry – 5G
- South Hillsboro – 6A
- Roy Rogers West – 6C
- Forest Grove North – 7B
- Cornelius South – 7D
- Cornelius North – 7I
- Hillsboro North – 8A
- Shute Road Interchange – 8B

Attachment 3: Group MacKenzie Report – Assessment of Potential Urban Growth Boundary Expansion Areas

Attachment 4: Public Facilities and Services Cost Summary

Attachment 5: Transportation Analysis Cost Summary

Attachment 6: Environmental Analysis Summary

Figure 1

Process for evaluating urban reserve analysis areas for inclusion in the urban growth boundary



