









COMMUNITY INVESTMENT STRATEGY

Building a sustainable, prosperous and equitable region

Recommendations from Metro's Chief Operating Officer

Preliminary analysis of potential urban growth boundary expansion areas

July 5, 2011

Metro | *Making a great place*

TABLE OF CONTENTS

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, work and play in vibrant communities where their everyday needs are easily accessible.
- **Economic prosperity** – Current and future residents benefit from the region's sustained economic competiveness 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 adopted by the Metro Council in December 2010, identified the capacity of the region's urban growth boundary (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. In 2009, Metro worked with local governments individually and through the Metro Technical Advisory Committee (MTAC) and MPAC to identify and adopt local and regional actions that achieved greater efficiencies within the existing UGB, which minimized the need for UGB expansion. These efficiencies are documented in Metro Ordinance No. 10-1244B, adopted by the Metro Council on December 16, 2010.

As part of the process to maintain a 20-year land supply for residential and employment uses, Metro completed an assessment of approximately 9,800 acres of urban reserve land adjacent to the current UGB. These 9,800 acres are a subset of the more than 28,000 acres of urban reserves that Metro, in conjunction with Clackamas, Multnomah and Washington Counties adopted in April 2011 (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 government staff 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 approximately 9,800 acres of analysis areas evaluated in this report.

In October 2010 the Land Conservation and Development Commission (LCDC) made an oral decision on urban and rural reserves, remanding a portion of the urban reserves and all of the rural reserves in Washington County. The Washington County Board of Commissioners and the Metro Council held a joint public hearing on March 15, 2011, resulting in a revised Intergovernmental Agreement for urban and rural reserves in Washington County in response to the LCDC oral decision. In late April 2011, Metro and the three counties re-adopted overall findings for urban and rural reserves in the region, reflecting the new urban and rural reserves in Washington County.

As a result of the urban and rural reserves remand, the adoption of new urban and rural reserves in Washington County and Metro's desire to provide a formal opportunity for local governments to submit areas for consideration, a three-step analysis process occurred. Initially, Metro staff analyzed 8,298 acres of land for consideration as outlined in Appendix 8 of the Metro Chief Operating Officer's report, Community Investment Strategy: *Building a sustainable, prosperous and equitable region*. In August 2010 and again in April 2011, Metro's Chief Operating Officer issued a formal letter to the mayors and county commission chairs, inviting them to submit any additional urban reserve areas that they would like considered as part of the growth management policy discussions. All additional areas submitted for consideration must be sponsored by local governments, as their support is critical for provision of infrastructure, governance, and planning, and must include an assessment of how the subject area is responsive to Metro's legislative UGB amendment criteria, contained in Metro Code Section 3.07.1425. Below is a list of the urban reserve analysis areas that were submitted by the local governments through these two requests.

In response to the August 2010 COO invitation, the following additional areas were submitted for inclusion in the UGB analysis process:

- The City of Beaverton submitted a 453 acre portion of urban reserve area 6C. The area is north of SW Scholls Ferry Road and east of SW Tile Flat Road and is identified as South Cooper Mountain Analysis Area (6B) in the report.
- The City of Cornelius submitted a 62 acre portion of urban reserve 7C. The area is north of the Tualatin Valley Highway, east of the current city limits and is identified as the Cornelius East Analysis Area (7C) in the report.
- The City of Forest Grove submitted a 114 acre portion of urban reserve 7B. The area is located at the intersection of NW Purdin Road and NW Thatcher Road and is identified as the Forest Grove North Purdin Road Analysis Area (7B) in the report. A different portion of urban reserve 7B was included as part of Metro staff's original analysis, thus there are two urban reserve 7B sections in the report.

- The City of Forest Grove also submitted urban reserve 7E for consideration. This 37 acre area is located on the south side of Forest Grove at the end of Elm Street and is identified as the Forest Grove South Analysis Area (7E) in the report.
- The City of Hillsboro submitted a 458 acre portion of urban reserve 8A. The area is located east of NW Jackson School Road and south of Highway 26, along NW Meek Road and is identified as the Hillsboro North-Jackson School Road Analysis Area (8A) in the report. A different portion of urban reserve 8A was included as part of Metro staff's original analysis, thus there are two urban reserve 8A sections in the report.

In response to the April 2011 COO invitation, the following two additional areas were submitted for inclusion in the UGB analysis process:

- The City of Tigard submitted a 138 acre portion of urban reserve area 6C. The area is south of SW Scholls Ferry Road, between the current UGB and SW Vandermost Road and is identified as the Vandermost Road Analysis Area (6C) in the report.
- The City of Hillsboro submitted the 352 acre urban reserve north of Highway 26 that was adopted by Metro and Washington County in April of this year. The area is west of existing urban reserve 8B, south of NW West Union Road and east of NW Groveland Road and is identified as the Groveland Road Analysis Area (8B) in the report. The Shute Road Interchange (8B) was included as part of Metro staff's original analysis, thus there are two urban reserve 8B sections in the report.

As noted above, a requirement of the local government submittals was an assessment of how the subject area is responsive to Metro's legislative UGB amendment criteria, therefore the analysis area assessments in the report for these areas submitted in 2010 and 2011 in response to the COO request, were completed by the local government staff with some minor editing by Metro staff for consistency.

The purpose of this analysis is to inform the Metro COO Recommendation for the 2011 Growth Management Decision (July 2011), and assist the Metro Council in evaluating the potential expansion areas to meet any identified shortfalls for residential and large-site industrial land need. 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 3.07.1420 (26-29 Report).

It is beyond the scope of the analysis to provide a detailed, site planning level of analysis for each of the 25 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 3.07.1425, 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 3.07.1425 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	9,799
Constrained Land	2,656
Gross Vacant Buildable Land	7,143

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		7,143
Future Streets	1,321	5,822
Future Parks	95	5,727
Future Schools	1,231	5,604
Future Churches & Fraternal Organizations	78	5,526
Net Vacant Buildable Land		5,526

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 with minimal buildable land (Beaver Creek Bluffs and Vandermost Road) 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[1]	Expected Dwelling Units
10 units/net buildable acre	152	1,519
15 units/net buildable acre	3,874	58,118
Total dwelling units		59,637

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 2,469.

[1] For land evaluated for residential use.

Table -4 Total Estimated Dwelling Units

Land Type	Total Estimated Dwelling Units
Dwelling units from environmentally constrained land	2,469
Dwelling units from Vacant Land	59,637
Total dwelling units	62,105

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. For the original analysis that was initiated by Metro staff in 2010, the work was completed by Group MacKenzie, under contract to Metro, and focused 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. A similar analysis was completed by the local governments for those areas they submitted for consideration in response to the COO requests for additional areas in 2010 and 2011.

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. Attachment 3 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 4.

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

TriMet, the regional transit agency completed a preliminary transit evaluation of the analysis areas that estimated transit costs for each UGB analysis area by comparing the assumed road network to nearby land uses and the existing transit system. Opportunities for line extensions, rerouting, and new service were all considered. Based on these factors, transit service feasibility, headways, and span of service were estimated. It is important to note operating costs will recur annually, and are assumed to grow at 3 percent every year. Bus capital costs are assumed to recur every 14-15 years. Cost estimates, both capital and operating, were calculated using FY 2009 costs. The estimates are intended as a tool for policymakers to understand the feasibility and costs associated with providing additional transit service to each of the analysis areas. The estimates do not guarantee transit service. 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. A summary of the estimated transit costs can be found in Attachment 6 at the end of the report.

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. A breakdown of the environmental factors for each analysis area can be found in Attachment 5. A summary of the environmental consequences for each analysis area can be found on the Analysis Area Summary Sheets.

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's current State of the Centers Report, May 2011, is 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 strategic plan.

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 3. 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.

Table 6

Summary of results for each Analysis Area

Analysis Area	*Environmental Consequences*	*Energy, Economic, Social Consequences*	*Impact to Significant Habitat*	*Agricultural Compatibility*	*Natural Transition/ Buffer*	*Contribution to Centers*
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*	Compatible*	Partial	New Center**
6B - South Cooper Mt.	Low	Low	Low	Compatible*	No	yes
6C - Roy Rogers West	Low`	Low	Low	Not Compatible	No	No
6C - Vandermost Road	Moderate/high	Moderate/high	Moderate/high	Compatible*	Partial	No
7B - Forest Grove North	Low	Low	Low	Not Compatible	No	No
7B - Forest Grove North Purdin	Low	Low	Low	Mitigation Required	Partial	No
7C - Cornelius East	Low	Low	Low	Compatible	Yes	Yes
7D - Cornelius South	Low	Low	Low	Partially Compatible	Partial	Yes
7E – Forest Grove South	Low	Low	Low	Not Compatible	No	No
8A - Hillsboro North	Low	Moderate	Moderate	Partially Compatible	Partial	No
8A – Hillsboro North Jackson School	Moderate	Moderate	Moderate	Moderate	Partial	No
8B - Shute Road Interchange	Low	Low	Low	Not Compatible	No	No
8B – Groveland Road	Low	Low	Low	Marginally Compatible	Partial	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.

ATTACHMENTS

Attachment 1: Urban Growth Boundary Alternatives Analysis Areas Map

Attachment 2: Analysis Area Summary Sheets

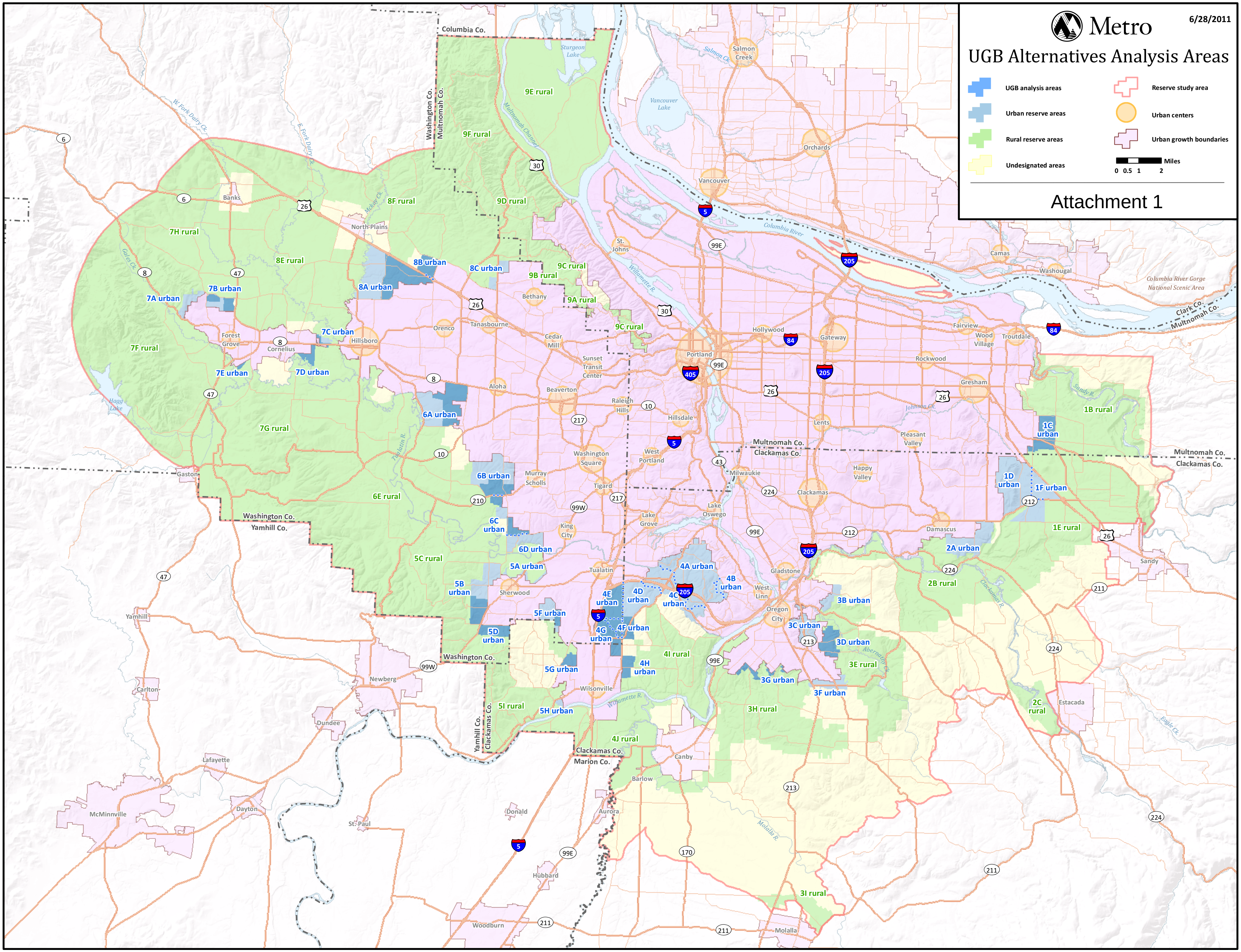
- East Gresham – 1C
- Maplelane – 3D
- Beaver Creek Bluffs – 3G
- Norwood – 4D
- I-5 East – 4E
- Elligsen – 4F/G
- Advance – 4H
- Sherwood West – 5B
- Sherwood South – 5D
- Tonquin – 5F
- Grahams Ferry – 5G
- South Hillsboro – 6A
- South Cooper Mt. – 6B
- Roy Rogers West – 6C
- Vandermost Road – 6C
-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

Attachment 3: Public Facilities and Services Cost Summary

Attachment 4: Transportation Analysis Cost Summary

Attachment 5: Environmental Analysis Summary

Attachment 6: TriMet Preliminary Cost Analysis


Metro
6/28/2011
UGB Alternatives Analysis Areas
UGB analysis areas
Urban reserve areas
Rural reserve areas
Undesignated areas
Reserve study area
Urban centers
Urban growth boundaries
Miles
0 0.5 1 2
Attachment 1
1B rural
1C urban
1D urban
1E rural
1F urban
2A urban
2B rural
2C rural
3B urban
3C urban
3D urban
3E rural
3F urban
3G urban
3H rural
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9F rural
Columbia Co.
Washington Co.
Multnomah Co.
Clackamas Co.
Yamhill Co.
Marion Co.
Clark Co.
Portland
Vancouver
Gresham
Hillsboro
Beaverton
Tigard
Tualatin
Sherwood
Wilsonville
Oregon City
Lake Oswego
Milwaukie
Sandy
Canby
Forest Grove
Cornelius
Banks
North Plains
Columbia River
Willamette R.
Columbia River Gorge National Scenic Area

GRESHAM EAST ANALYSIS AREA (1C)

Gresham East Analysis Area		**Total Acres**	**857**
Gross Vacant Buildable Acres	688	Total Constrained Acres	169
Estimated Dwelling Unit Capacity	7,980	• Title 13 Significant Habitat	117
Estimated Employment Acres		• Public Land	62

General Description (see attached map)

The Gresham East Analysis Area is a boot-shaped rectangular area in east Multnomah County, with 857 total acres. The area is generally bounded by SE Lusted Road to the north and extends out to SE 302nd Avenue to the east. Metro's current UGB forms the western edge, and the entire area lies north of Johnson Creek. The area is served by SE Lusted Road in the north, SE 282nd and SE 302nd Avenues running north-south and by SE Orient Drive in the southern portion of the area. It is primarily flat, with all slopes over 25% occurring in riparian areas surrounding the three drainages running through the area.

Parcelization, Building Values, Development Pattern (see attached aerial photograph)

The analysis area contains 222 tax lots, 187 with improvements. There are two school sites within the area that contain three schools: Sam Barlow High School in the northeastern corner of the area and East Orient Elementary School and West Orient Middle School in the southeast, totaling about 62 acres. Excluding the school parcels, the median value of improvements is over $100,000. Thirty-seven properties have improvements valued above $250,000. The area is predominantly in agriculture use, but has some rural residential and commercial land uses primarily along SE Dodge Park and SE Orient Drive. Available data does not suggest the existence of power lines or other public easements within this area.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had high suitability for sanitary sewer services, medium suitability for water services and medium suitability for transportation connectivity. As part of Multnomah County's urban and rural reserve designation process, the City of Gresham indicated its ability and desire to provide services to this area in the long term.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of residential or large site industrial development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates. A map of the proposed collector and arterial transportation network is attached to this summary.

Sanitary Sewer Services - $15,272,000

Water Distribution Services - $3,240,000

Storm Sewer Services - $2,858,500

Transportation - $260,050,000

Parks - $43,560,000

Schools - $60,000,000 (New Elementary and Middle Schools)

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

Kelly Creek bisects the area, and two other unnamed streams, north and south of Kelley Creek, flow west through the area. Kelly Creek eventually meets with Beaver Creek, as does the small tributary in the northern portion of the analysis area, ultimately flowing into the Sandy River. The second small tributary in the southern part of the area flows into Johnson Creek which travels through Portland to the Willamette River. No 100-yr floodplains are identified within the study area. There is one small wetland of approximately ¼ acre, just south of SE Orient Drive and along the Johnson

Creek tributary. The proximity of flat, developable land surrounding all three streams within the analysis area indicates potential impact from urbanization of this area. However, current agricultural development covers most of the analysis area including some headwater stages of the three creeks, thereby minimizing the additional impact future development will have on the streams and wetlands. Preservation of existing riparian and upland habitat and restoration of degraded stream edges will further protect the streams from urbanization.

Johnson Creek flows along the southern boundary of the study area, separated by a strip of rural land. The 100-yr flood plain lies just outside of the analysis area boundary, so the existing farmland and undeveloped land could provide a buffer between the creek and urban development. Attachment 5 contains a breakdown of the environmental factors.

Energy, Economic & Social

The vast majority of the parcels in this large analysis area are less than five acres in size and 84% have improvements, reflecting the numerous rural residences dispersed throughout the area, mainly along the major roadways. Of the three schools located in the analysis area, the elementary and middle schools serve the rural area while the third, Sam Barlow High School serves the urban and rural area. Urbanization may enhance the opportunity for Sam Barlow High School to become more of a community focal point, while the elementary and middle schools may be negatively impacted as they are not sized to serve an urban population. At the same time, urbanization may provide the opportunity for these two older school facilities to be enhanced. As this area is relatively developed and close to downtown Gresham, urbanization would be less of an impact on the rural way of life for the current residents compared to areas that are farther away from a center. The increased VMT from urbanization of the area would be significantly larger than current levels, although the direct access to the Gresham Regional Center, the Springwater Industrial area and the Max line may reduce the impact compared to other areas that have limited transportation connections to centers or employment areas. There are two main pockets of nursery activity, each approximately 150 acres in size. The loss of the economic impact from these agricultural uses may be considerable; however the potential economic impact of urbanization on these relatively flat lands will outweigh this loss. Approximately 10% of the land is identified as containing environmental resources, mainly in three locations along the stream corridors that traverse the area. The costs for protecting these linear resources will be small in contrast to the potential economic impact of urbanizing the larger areas in between. Overall this analysis area has medium economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

A total of 91 acres adjacent to the three streams in the area are identified as regionally significant riparian habitat, although much of that acreage is currently impacted by active agriculture or development. Regionally significant upland habitat covers an additional 26 acres, almost all of which occurs around the northern-most stream corridor and partially within the Barlow High School property. The proximity of this identified habitat to flat, easily developable land throughout the analysis area could create a conflict between future urbanization and regionally significant fish and wildlife habitat. The City of Gresham, the nearest and expected governing body, has adopted a

habitat conservation area overlay district plan that is compliant with Metro's Title 13 program, which should protect habitat and stream areas from the impacts of urbanization. Given the city's habitat protection program, the level of habitat currently impacted by agricultural activities and the overall limited amount of riparian areas surrounding Kelly Creek and the other streams within the analysis area, urbanization could occur with minimal additional impacts to regionally significant fish and wildlife habitat.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

There are three separate locations where farm and/or forest land is contiguous to the analysis area (see attached resource land map). The first location fronts SE 302nd Avenue for approximately ½ mile and extends east and north of SE Lusted Road all the way to the Sandy River. The area is generally zoned exclusive farm use (EFU) near the analysis area and commercial forest use (CFU) the closer you get to the Sandy River. This area is a large, intact block of land that is actively being farmed, mainly with nursery and field crops but also some dispersed orchard uses. The South Fork of Beaver Creek flows in a northwesterly direction through the area and is about half mile east of 302nd Avenue. This stream corridor, which is a few hundred feet in width, provides a buffer to the agricultural activities further east and thereby makes the proposed urban uses compatible with the outlying areas. The proposed urban uses would not be compatible with the agricultural activities that occur between 302nd Avenue and the South Fork of Beaver Creek as there is no edge or buffer between the two uses. However, mitigation measures could reduce conflicts between urban uses inside the UGB and resource uses outside the UGB.

The farm and/or forest land north of the analysis area, north of SE Lusted Road, is buffered by the South Fork of Beaver Creek ravine and the rural residences along the north side of SE Lusted Road. Thus, the proposed urban uses will be separated from the agricultural activities in this area further to the north.

The second area is a small, isolated pocket (45 acres) of EFU land north of SE Stone Road in the vicinity of SE Short Road that is adjacent to the analysis area. One 14-acre parcel is currently being farmed with nursery and field crops while the remainder of the area is in rural residential use. Johnson Creek flows in an east-west direction through this resource land area, although most of the area that is actively being farmed is between Johnson Creek and the analysis area. As there is

minimal agricultural activity occurring in this pocket of EFU land and Johnson Creek provides a buffer to the remaining agricultural activities, the proposed urban uses will generally be separated from the nearby agricultural activities.

The third area is a 97acre block of EFU land that is north and south of SE Stone Road in the vicinity of Highway 26 and is adjacent to the analysis area and the UGB. This entire area is actively being farmed with nursery crops and all but approximately 18 acres is owned by one family. Johnson Creek flows in an east-west direction through the north portion of the resource land area, on the north side of SE Stone Road. The vast majority of the agricultural activity occurs south of Johnson Creek and north of Highway 26. Since most of the agricultural activity in the EFU area is south of Johnson Creek, it will not be directly impacted by urban uses in the analysis area. Increased traffic along SE Stone Road will probably have some adverse affect, as SE Stone Road provides access to Highway 26. SE 282nd Avenue, which runs along the eastern edge of the EFU area does not provide access to Highway 26 and therefore will most likely not see as much increase in traffic from new urban uses in the analysis area. Highway 26 provides an effective edge on the southwest side of this EFU area, reducing any impacts by urbanization of the analysis area.

Overall the proposed urban uses are compatible with the nearby agricultural and forest activities occurring on farm and forest land outside the UGB with the exception of the portion of area 1 directly adjacent to 302nd Avenue as noted above.

Clear transition between urban and rural lands, using natural and built features to mark the transition

The South Fork of Beaver Creek is located just north of the analysis area and provides a clear transition area between the urban reserve and adjacent rural lands. The rural residences along the north side of SE Lusted Road combined with the 100-foot drop in elevation to Beaver Creek reinforce this transition area. Johnson Creek is located just south of the analysis area. While Johnson Creek itself is not within a ravine, the stream corridor combined with a hill south of SE Stone Road do provide a clear transition area between the analysis area and adjacent rural lands to the south. There are no natural or built features to mark a transition between urban and rural lands east of SE 302nd Avenue beyond the road itself. Even assuming that 302nd Avenue becomes a collector level road in the future, the road itself will still not provide a clear transition area between future urban and rural uses. Additional buffers will need to be incorporated into the planning of the urban reserve area to provide a clear transition from urban to rural uses along this east edge.

Overall, just over half of the analysis area edge has a natural or built feature that provides a clear transition between urban and rural lands.

2040 Growth Concept

Contribution to the purposes of Centers

The Gresham Regional Center is the closest regional center to the Gresham East analysis area. It is 387 acres in size, serves all of eastern Multnomah County and is the eastern terminus of the MAX Blue Line. The regional center is linked to the analysis area by Highway 26/SE Orient Drive (3 miles) and SE Powell Valley Road/SE Lusted Road (2.6 miles). Tri-Met line 84 connects the analysis area to the regional center.

Gresham's Downtown Plan, which includes a significant portion of the regional center, is envisioned to include most significant civic and governmental functions, including public parks and the Center for the Arts. It will also include large numbers of professional sector jobs, medium- and high-density residential development and a thriving and unique entertainment, nightlife and shopping district. According to Metro's State of the Centers Report, January 2009, the Gresham Regional Center's jobs to housing ratio is higher than ideal and the total number of people per acre is low, indicating that the regional center needs to attract more housing to meet the vision in the Downtown Plan. The Gresham Regional Center is considered a strong emerging market that is ripe for infill and enhancement, based on research completed by Metro's Development Center for the TOD Strategic Plan.

Currently the City of Gresham foresees the analysis area urbanizing with a mixture of industrial uses in the south close to Highway 26, to complement the Springwater Industrial Area and mixed use/residential complimenting the three schools in the analysis area. Urbanization of the Gresham East analysis area will not contribute to the vision or purpose of the Gresham Regional Center. While the area may provide some job opportunities for future residents of the center, the undeveloped Springwater Industrial Area is a better fit due to its proximity and more direct transportation connections. In addition, the availability of housing opportunities in the analysis area could impact the emerging market for infill and enhancement and hinder the city's desire for medium and high density residential development in the center.

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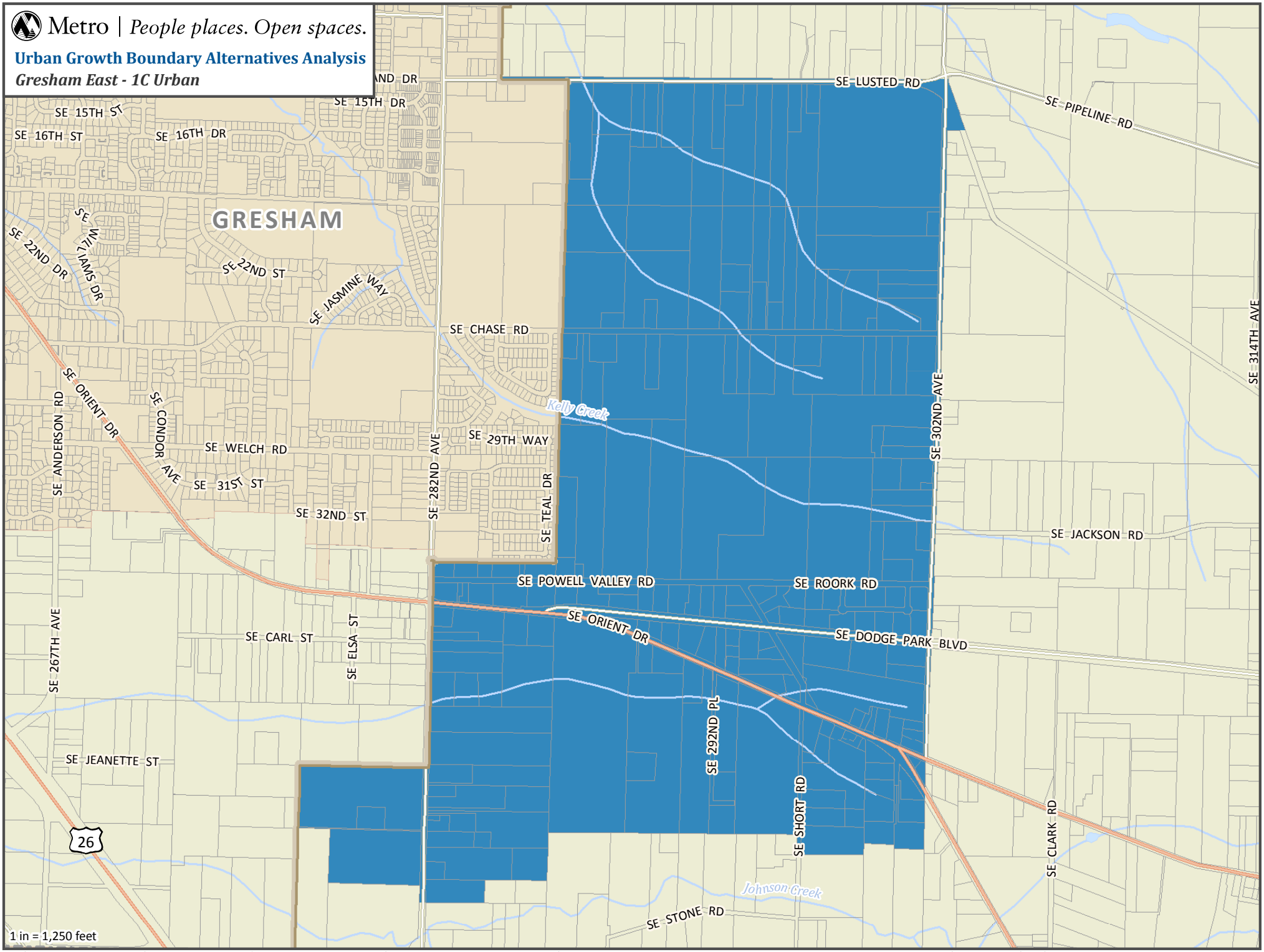
Urban Growth Boundary Alternatives Analysis

Gresham East - 1C Urban



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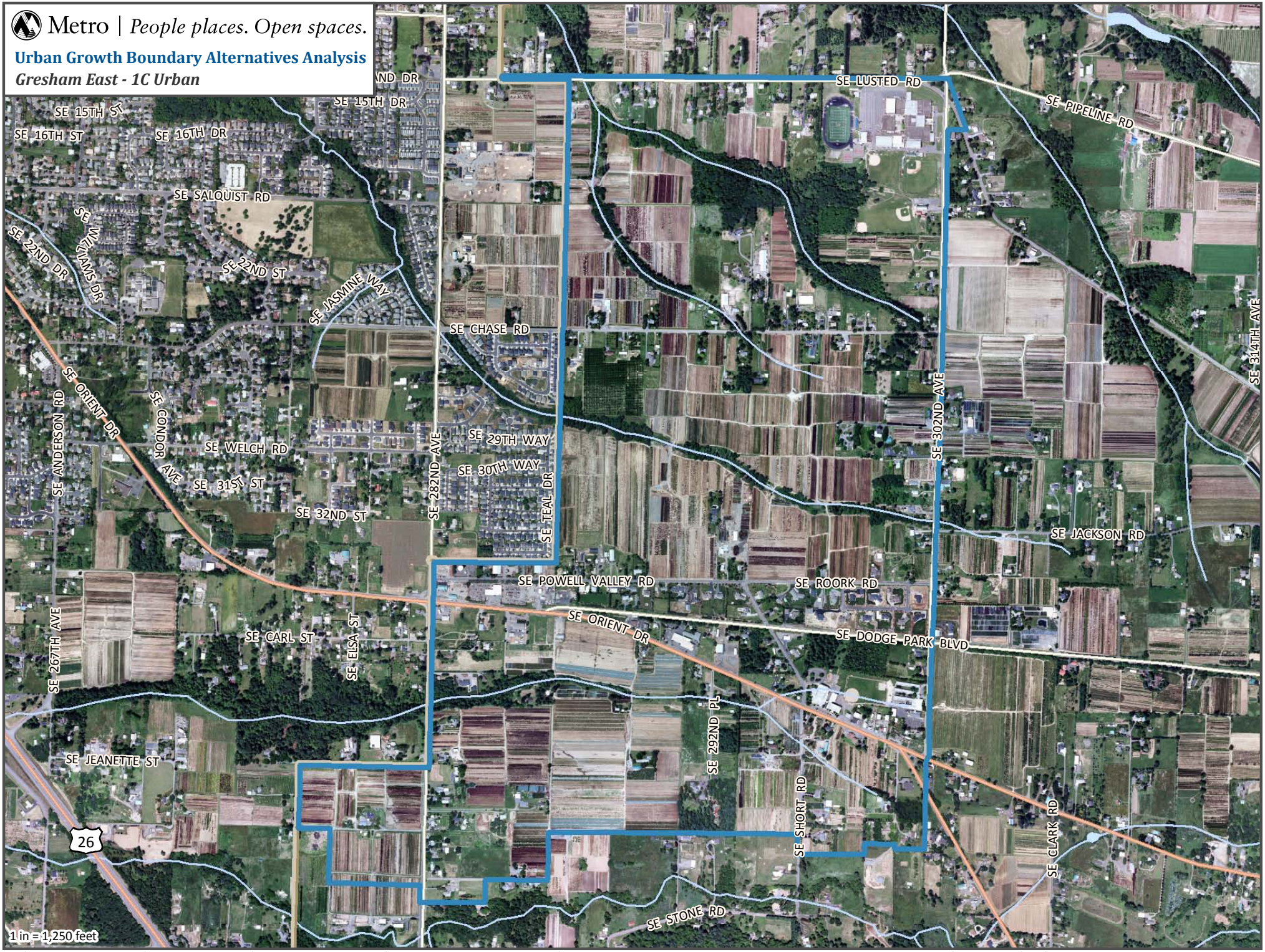
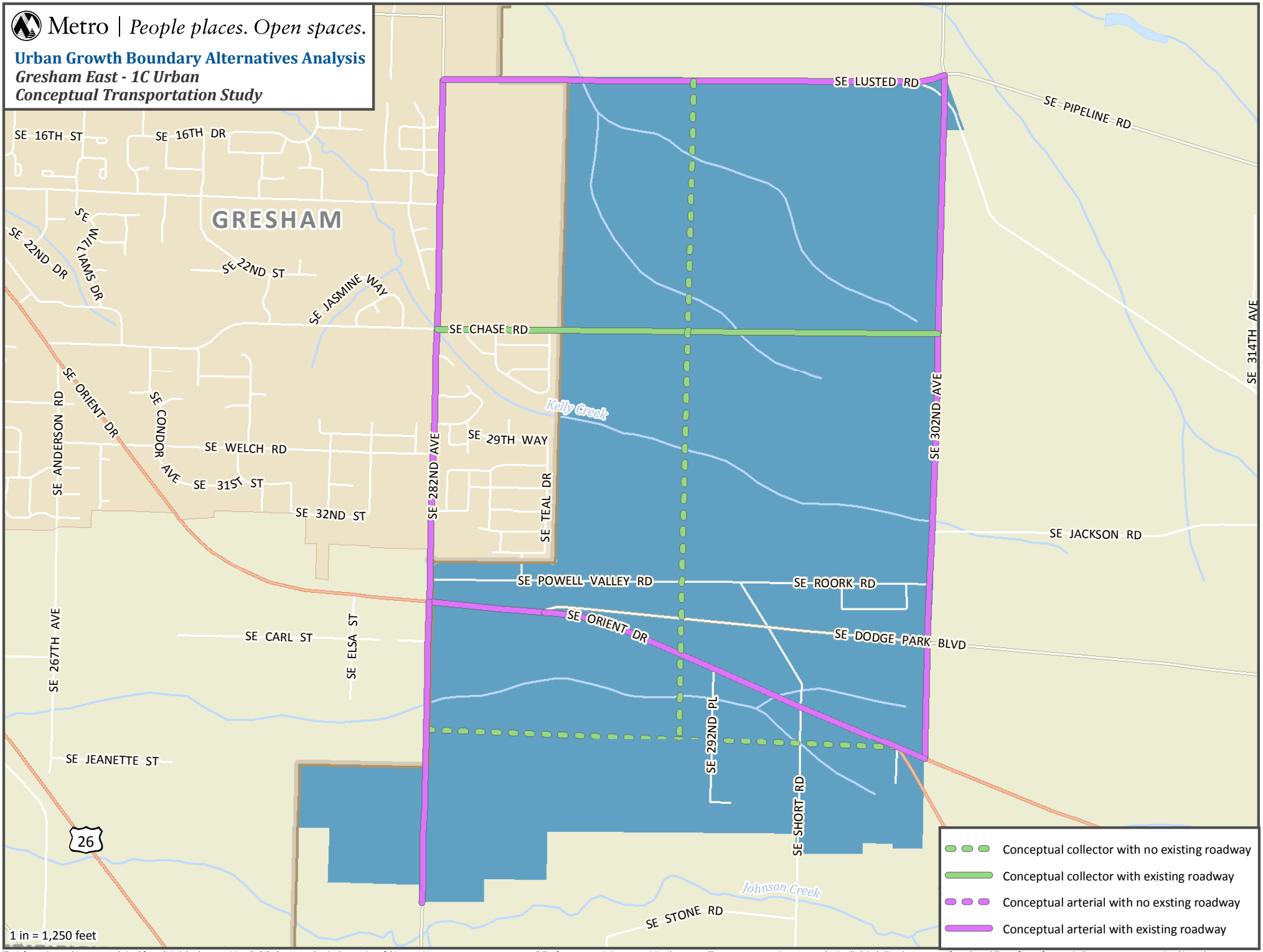
Urban Growth Boundary Alternatives Analysis

Gresham East - 1C Urban





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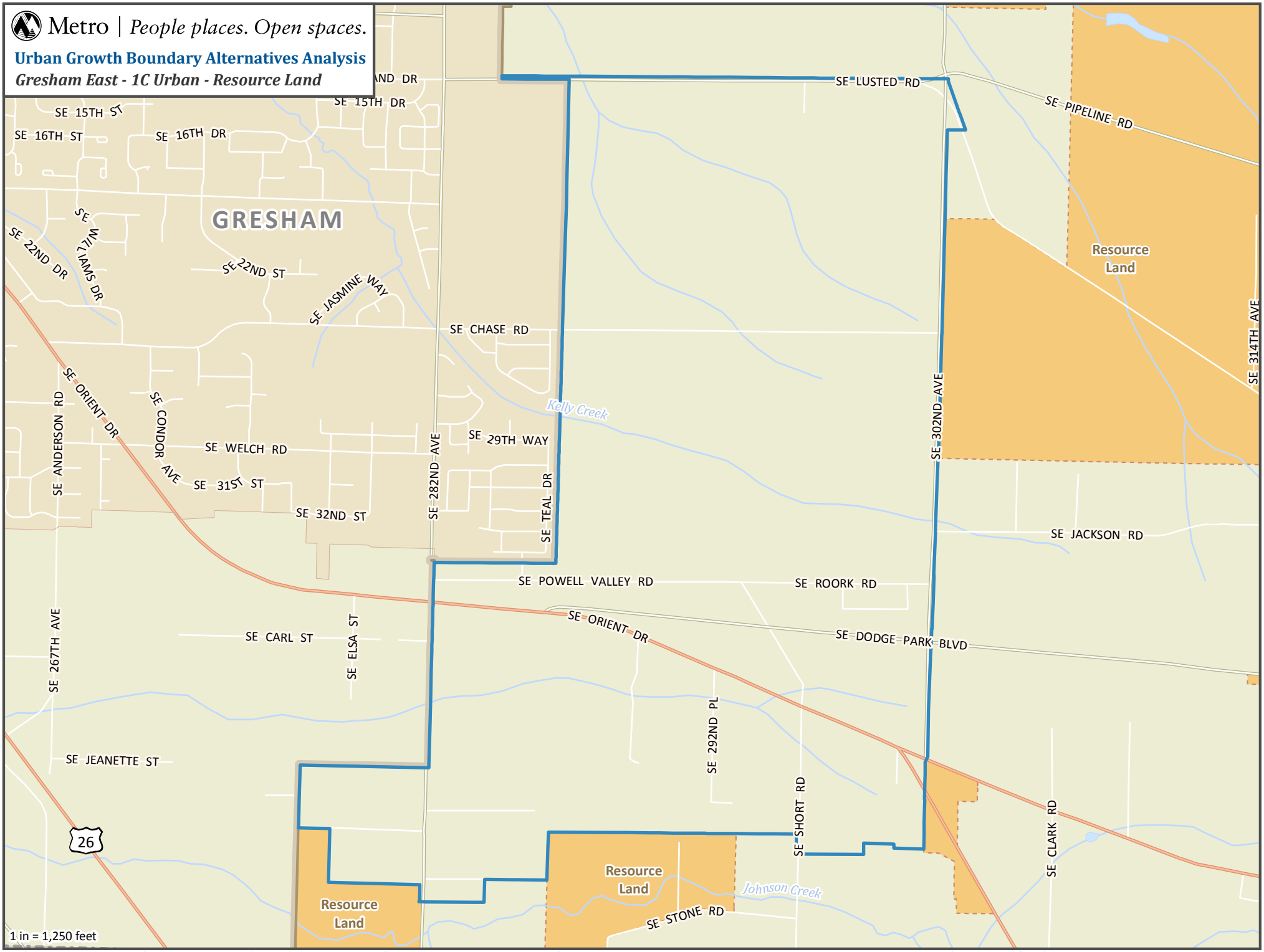
Urban Growth Boundary Alternatives Analysis

Gresham East - 1C Urban - Resource Land



MAPLELANE ANALYSIS AREA (3D)

Maplelane Analysis Area		**Total Acres**	**573**
Gross Vacant Buildable Acres	331	Total Constrained Acres	242
Estimated Dwelling Unit Capacity	3,970	• Title 13 Significant Habitat	181
Estimated Employment Acres		• Public Land	69

General Description (see attached map)

The Maplelane Analysis Area is located to the east of Oregon City and covers 573 acres. The current UGB forms the western and southern edges of the area; the eastern and northern boundaries follow tax lot lines and are within 1000-1500 feet of Abernathy Creek. S Maplelane Road forms part of the eastern edge of the area. The area is primarily flat, with the exception of two tributary riparian areas flowing into Abernathy Creek to the east and a small forested area of steep slopes in the northeastern corner of the analysis area.

Parcelization, Building Values, Development Pattern (see attached aerial photograph)

The analysis area contains a total of 168 parcels, four of which are in public ownership. Of the private parcels, 33 are larger than five acres comprising 376 of the 573 total acres. The remaining 196 acres fall within 135 parcels. A total of 147 parcels have improvements, with an average value of $160,000 and 12 improvements valued over $250,000. One tax lot, in the northwest along S Waldo Road, is cut in half by the analysis area boundary. Rural and single-family residential land uses make up a majority of the area, with a mix of agricultural and forested parcels scattered throughout. Smaller lot single family residential lies primarily along S Maplelane Road and within a development around S Forest Grove Loop (off of S Thayer Road). There is an 18 acre manufactured home development in the center of the study area, off of S Maplelane Road.

There is a power line running north-south through the area, from south of S Thayer Road to a substation just north of S Maplelane Road owned by Portland General Electric (PGE). In addition to the power line easement, a PGE substation sits on a 35 acre parcel adjacent to the current UGB. A natural gas line easement runs in a northeast-southwest direction through the southern portion of the analysis area. There is a 55 acre publicly-owned parcel belonging to the Oregon City School District in the northern portion of the study area

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had high suitability for sanitary sewer services, medium suitability for water services and low suitability for transportation connectivity. As part of Clackamas County's urban and rural reserve designation process, the City of Oregon City indicated both a willingness and capability to provide service to this area.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of residential or large site industrial development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates. A map of the proposed collector and arterial transportation network is attached to this summary.

Sanitary Sewer Services - $8,028,000

Water Distribution Services - $6,600,000

Storm Sewer Services - $6,914,500

Transportation Services - $142,760,000

Parks – $33,200,000

Schools - $20,000,000 (New Elementary School)

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

There are three small wetland areas, totaling two acres mostly along an unnamed tributary of Abernathy Creek, just north of S Maplelane Road. A second stream flows eastward, along S Thayer Road into Abernathy Creek just east of the analysis area. Steep slopes along the streams and particularly in the northeast corner of the analysis area may inhibit development and minimize the impact of future urbanization. Urbanization may impact wetland areas and those portions of the streams that lie near the flatter developable land, outside of the steep sloped areas.

Abernathy Creek flows along the eastern and northern edges of the study area, although the 100-year floodplain does not overlap into the area due to topography. There is approximately a 1,500 foot difference in elevation between the analysis area boundary and Abernathy Creek, providing a buffer of agricultural and forested land between potential future development and the stream corridor. Based on this buffer area, future urbanization would not significantly impact Abernathy Creek or its surrounding environmentally sensitive land. Attachment 5 contains the breakdown of the environmental factors.

Energy, Economic & Social

The majority of the parcels in this medium sized analysis area are less than five acres in size and 88% have improvements, reflecting the numerous rural residences that include two main clusters of half-acre parcels. The area also contains an 18 acre manufactured home park, adding to the developed nature of the analysis area. There is very little agricultural activities occurring in the area and much of the natural resources are located on slopes near the edges of the area, away from the flatter more developable portions. The minimal agricultural activities combined with the locations of the natural resources will reduce the potential negative economic impacts of a lost farming economy and costs for protecting natural resources. The area contains a 55-acre school site, which when developed could provide a community focus point, reducing impacts of the loss of the rural lifestyle for current residents. Much of the land to the west inside the UGB is currently undeveloped. This area is envisioned as a mixture of employment and residential uses that may help reduce the VMT for future residents by providing nearby job opportunities. Overall this analysis area has low economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

The Newell and Abernathy Creek significant natural landscape feature borders the analysis area to the east. Regionally significant riparian habitat exists along both small stream corridors in the analysis area, totaling 35 acres. There is an additional 146 acres of upland habitat, extending out of the riparian areas, the majority of which is in the northeast corner of the analysis area on the Oregon City School District property. Portions of both riparian and upland habitat acreage currently lie within areas of active agricultural activities, particularly along the small stream in the north portion of the analysis area. Oregon City, the expected governing body for the area, has adopted a habitat protection program that is compliant with Metro's Title 13 Nature in Neighborhoods. Based on the location of the majority of the significant habitat along ravines and within publicly owned land, and Oregon City's habitat conservation program, future urbanization could occur with minimal impacts to regionally significant habitat throughout most of the central and western portions of the analysis area. Development in the northeast and southern-most portions of the area may have a higher impact on significant habitat unless it is protected through a conservation program or other preservation option.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. This analysis area is an urban reserve thus the farmland that is most important for the continuation of commercial agriculture in the region is protected.

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

There are two separate locations where farm and/or forest land is contiguous to the urban reserve area (see attached resource land map). The first location is on the north edge of the analysis area and is composed of three timber zoned (TBR) parcels (one single parcel and two contiguous parcels) totaling 36 acres. The single parcel is directly adjacent to the anlaysis area, is partially forested and contains a single family home. Since this timber zoned parcel contains a rural residence and does not appear to be in a commercial forest use, the proposed urban uses of the reserve area would be compatible with this adjacent forest land parcel.

The two contiguous parcels, which are vacant, share a 160-foot edge with the analysis area and have a number of rural residences between them and the main portion of the analysis area. Abernethy Creek cuts through the very southern portion of the area, continuing along the western edge of the two contiguous timber zoned parcels. A steeply forested slope, that is part of the analysis area, lies between the two contiguous timber zoned parcels and the flatter main portion of the analysis area. Since the two contiguous timber zoned parcels are separated from the flat developable portion of the analysis area by a 1,600-foot forested slope, Abernethy Creek and a rural subdivision, the proposed urban uses would be compatible with the forest activities occurring on these forest land parcels.

The second larger resource land area is adjacent to the analysis area in the vicinity of S Forest Grove Loop/S Thayer Road and contains 168 acres of TBR zoned land and 437 acres of land zoned agriculture/forest (AGF). Abernethy Creek flows north through the middle of the TBR zoned land area. The TBR zoned block of resource land has a minimal connection point to the analysis area along the edges of three parcels; otherwise it is separated from the analysis area by rural residential land and a change in elevation of approximately 100 feet. The TBR zoned land contains six rural residences on large acreage with mixed forest and open lands in between. The AGF zoned block of land is separated from the analysis area by rural residences and Thimble Creek. Two parallel power line easements run in an east-west direction through the center of the AGF zoned block of land that contains numerous rural residences on a mixture of forested and open land. It appears that there are minimal active agriculture or forestry activities occurring on the land. Since this large block of resource zoned land is mostly separated from the analysis area by rural residences or a stream corridor and as minimal agricultural or forestry activities are currently

occurring on the land, the proposed urban uses would be compatible with the forest and agricultural activities occurring on these resource land parcels.

Clear transition between urban and rural lands, using natural and built features to mark the transition

Thimble Creek, portions of Abernethy Creek, and extensive forested slopes, some of which occur on the analysis area land provide natural features that mark a clear transition between urban and rural lands.

2040 Growth Concept

Contribution to the purposes of Centers

The Oregon City Regional Center is the closest regional center to the Maplelane analysis area. It is 414 acres in size, serves Clackamas County and some neighboring cities to the south. The regional center is linked to the analysis area by Highway 213/S Maplelane Road (3.2 miles). Tri-Met lines 32 & 33 run from the regional center to Clackamas Community College, approximately one mile from the analysis area.

The Oregon City Downtown Community Plan envisions a community that celebrates Oregon City's historic past while promoting a positive change for the future. The plan emphasizes the creation of pedestrian-friendly places, varied mixed use developments, new open space and civic amenities. It also strives to reestablish Oregon City's historical prominence by protecting and strengthening historic themes and features unique to Oregon City. According to Metro's State of the Centers Report, January 2009, the Oregon City Regional Center's jobs to housing ratio is very high and the total number of people per acre is low, indicating that the regional center needs to attract more housing to meet the city's vision for a pedestrian friendly environment.

Urbanization of the Maplelane analysis area will not contribute to the vision or the purpose of the Oregon City Regional Center. The analysis area is too isolated from to the center to help support the need for more people to meet a higher level of activity. In addition, the availability of housing opportunities in the analysis area could detract from the city's desire for mixed use development in the center.

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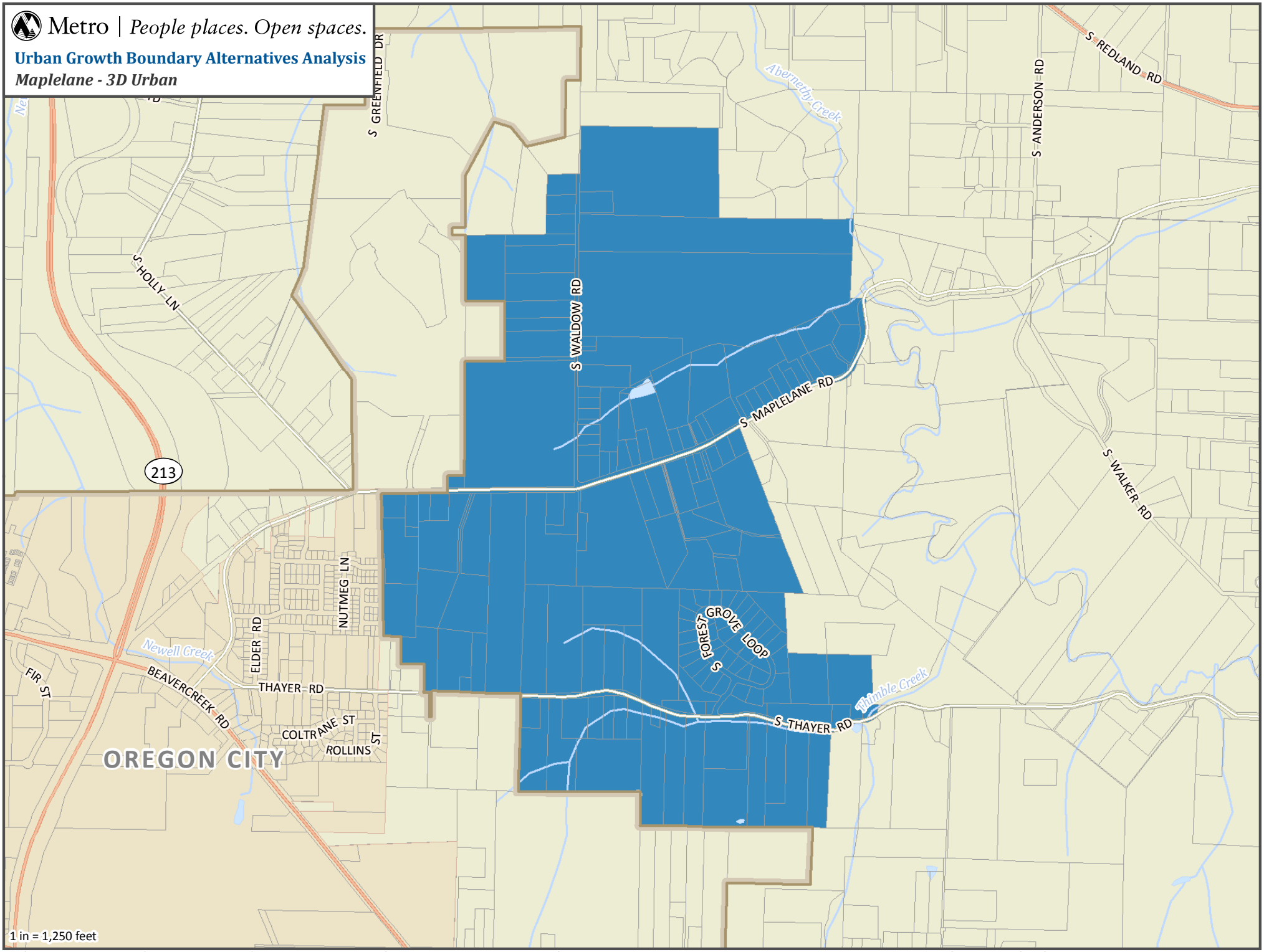
Urban Growth Boundary Alternatives Analysis

Maplelane - 3D Urban



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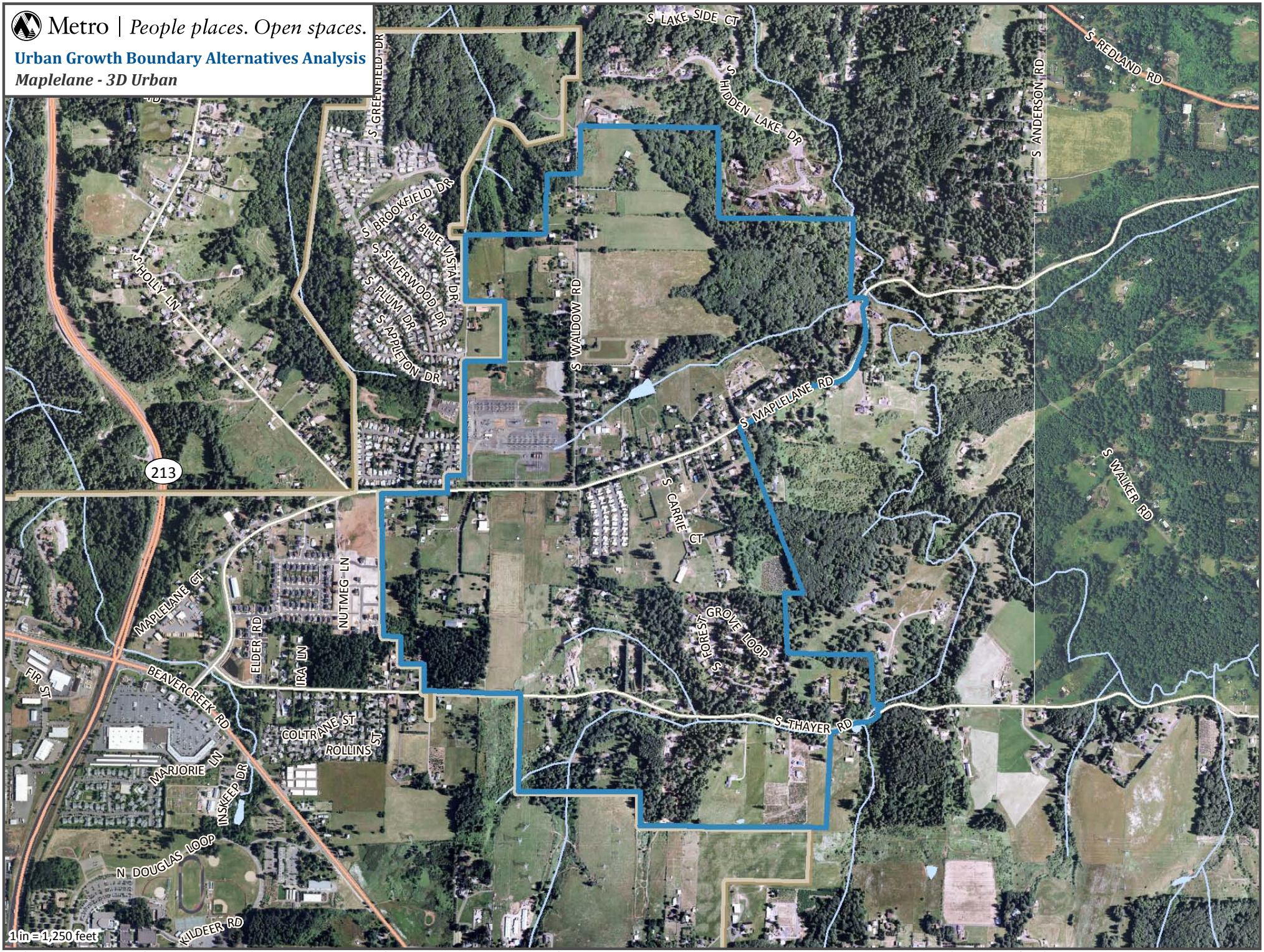
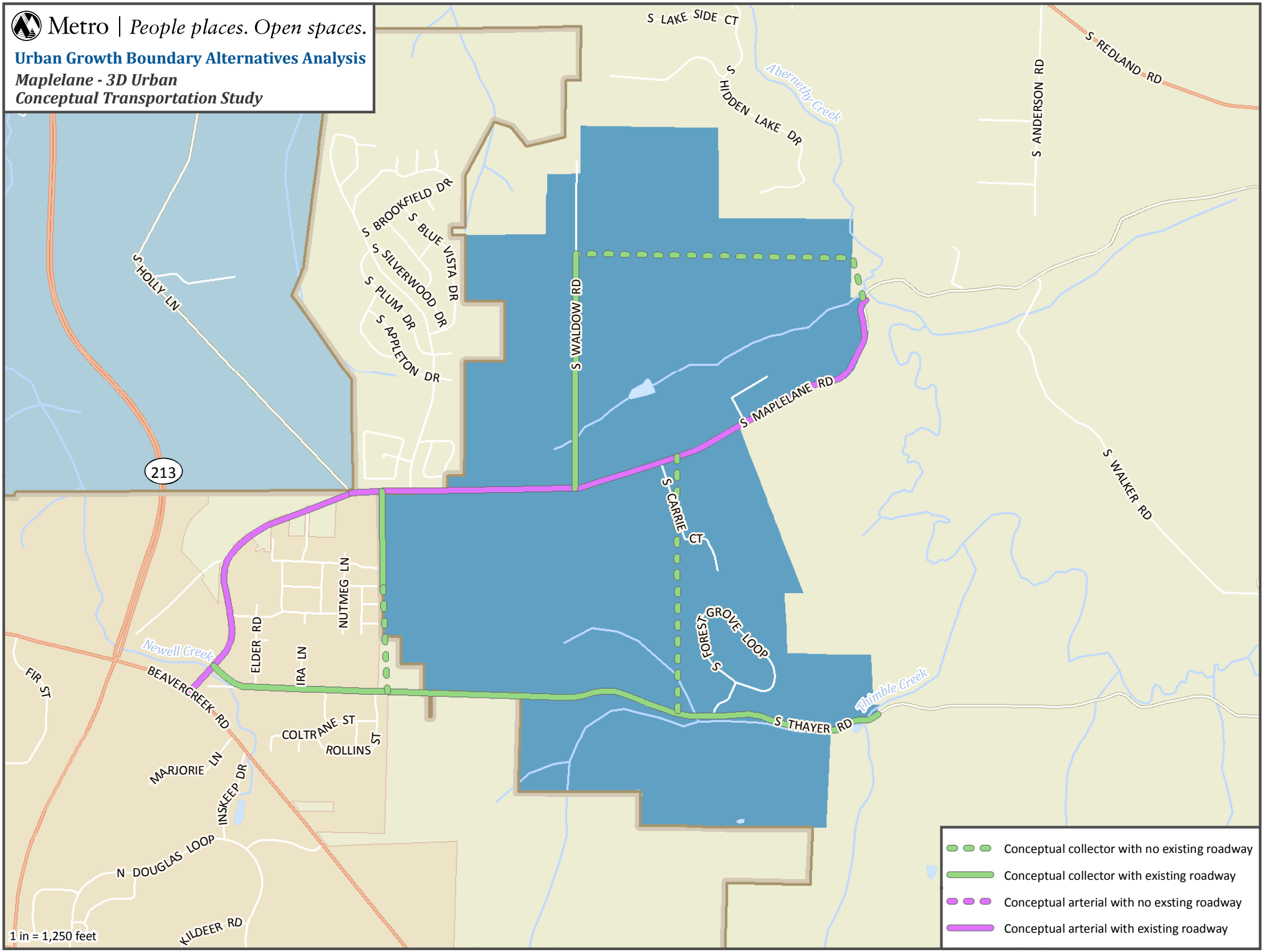
Urban Growth Boundary Alternatives Analysis

Maplelane - 3D Urban





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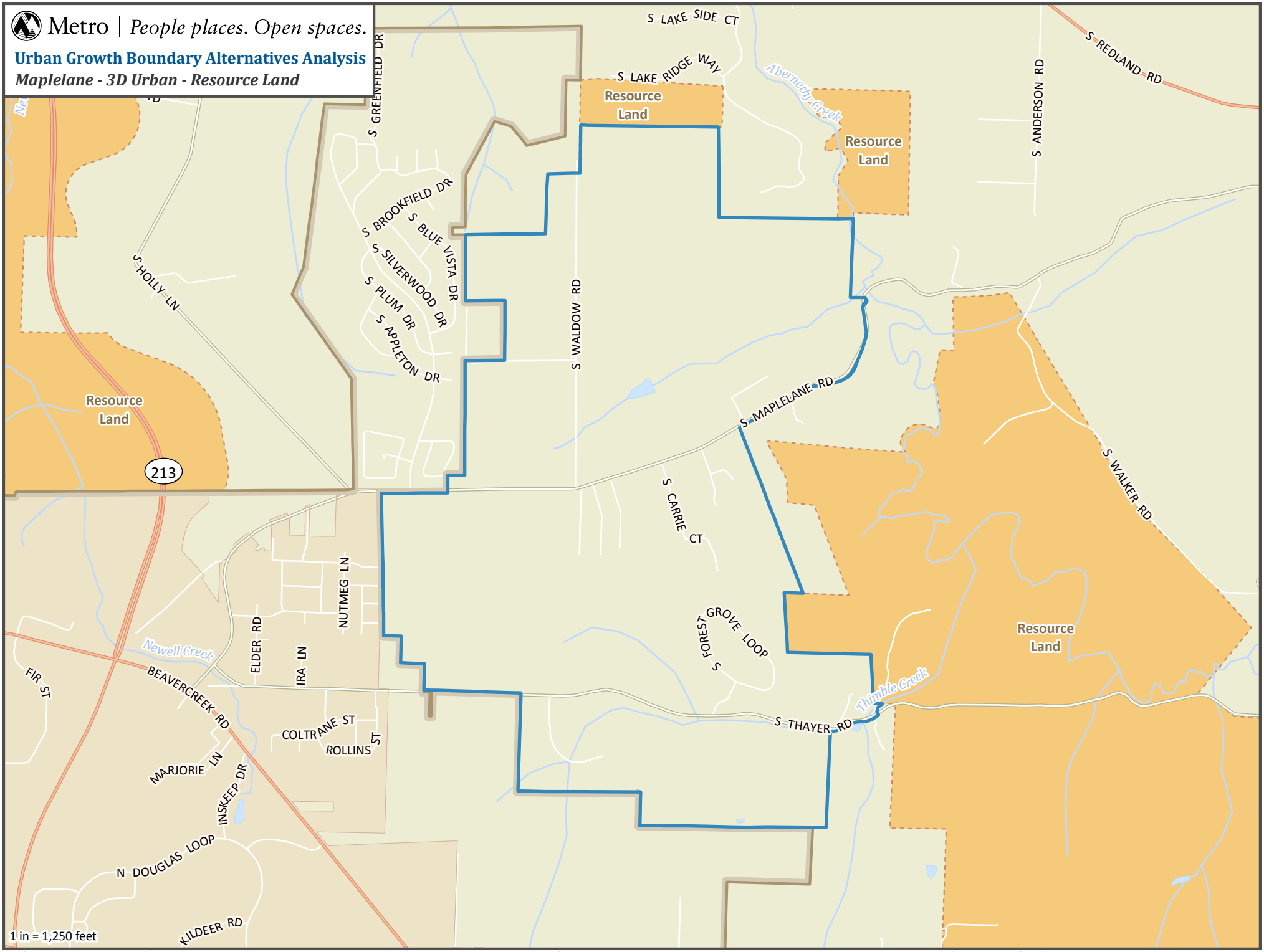
Urban Growth Boundary Alternatives Analysis

Maplelane - 3D Urban - Resource Land



BEAVER CREEK BLUFFS ANALYSIS AREA (3G)

Beaver Creek Bluffs Analysis Area		**Total Acres**	**227**
Gross Vacant Buildable Acres	124	Total Constrained Acres	103
Estimated Dwelling Unit Capacity	1,052	• Title 13 Significant Habitat	83
Estimated Employment Acres		• Public Land	

General Description (see attached map)

The Beaver Creek Bluffs Analysis Area is composed of 3 sub-areas along the bluffs to the south of Oregon City. The eastern sub-area, bounded by the current UGB to the northeast and Mud and Caufield Creek drainages to the southeast and west, has two parts separated by the UGB boundary. The second, central sub-area sits between Mud Creek and another tributary of Beaver Creek, bounded by S Leland Road to the east, bluffs to the south and west, and the UGB to the north. The third western sub-area extends across S Center Point Road, sitting between the bluffs overlooking Beaver Creek and the current UGB to the north. There are a total of 227 acres within these three areas, although 22 of those acres are constrained by steep slopes over 25% along the bluffs. The rest of the areas are generally flat, and form a logical extension of the current UGB up to the edge of the bluffs.

Parcelization, Building Values, Development Pattern (see attached aerial photograph)

The area contains 34 parcels, although three of those within the central sub-area extend out over the bluffs and beyond the boundary of the analysis area. The eastern sub-area contains three parcels ranging from four to ten acres. The central sub-area contains 17 parcels that are mostly less than five acres. The western sub-area contains 14 parcels, ranging from less than one to 40 acres. Overall, 26 of the 34 tax lots have improvements, with a median value of $161,930. Only five of those improvements are valued over $250,000. Thirteen of the tax lots are greater than five acres in size, and 21 are smaller than five acres. Given the location between urban development within the UGB and steep bluffs, there is minimal agricultural activity in the area. Most land uses are rural residential, although a few of the larger parcels do appear to have minor agricultural uses.

There is a power line running through the western sub-area, crossing through five parcels, and covering approximately 16 acres of land within the study area. The Nature Conservancy owns a large parcel that is being preserved as open space immediately adjacent to the eastern edge of the western sub-area. There is no other evidence of public easements.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had low suitability for sanitary sewer services, high suitability for water services and low suitability for transportation connectivity. It should be noted that the transportation and sewer suitability analyses included this small analysis area in with the much larger area south of Oregon City that is located below the bluff. As part of Clackamas County's urban and rural reserve designation process, the City of Oregon City indicated both a willingness and capability to provide service to this area.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of residential or large site industrial development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates. A map of the proposed collector and arterial transportation system is attached to this summary.

Sanitary Sewer Services - $4,116,000

Water Distribution Services - $3,290,000

Storm Sewer Services - $2,587,500

Transportation Services - $64,140,000

Parks - $5,960,000

Schools - $250,000 (No new schools needed)

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

Approximately 327 feet of Mud Creek flows through a ravine on the edge of the eastern sub-area and about 3,200 feet of an unnamed stream flows south through the western sub-area. A 1,200 foot segment of this stream, including an associated 1.5 acre wetland is located on the flat portion of the area above the bluff. Beaver Creek lies below the analysis area, approximately 2,000 ft south of the bluffs that form the southern edge. Urbanization of this area may impact the steam and wetland on

the flatter portion of the western sub-area, but the remainder of the stream is located down the bluff and would be minimally impacted. The eastern sub-area stream would not be impacted by urbanization as it is located over 200 feet from the flat portion of the area. Overall urbanization of the area could occur with some impacts to the stream corridor in the western sub-area along the flat portions where development would be easier. Attachment 5 contains the breakdown of the environmental factors.

Energy, Economic & Social

This area is made up of three very small land areas, half of which are adjacent to urban subdivisions and the other half adjacent to undeveloped urban land zoned single family residential. The main use in the area is rural residential and 76% of the parcels have improvements. Existing urban streets provide the majority of the access points to these parcels. Urbanization of this area will not negatively impact the general activity of the residents as these small isolated areas are in effect more urban than rural due to their location. There are minimal agricultural activities occurring in this area and the majority of the natural resources are located on slopes near the edges of the area. The lack of agricultural activities combined with the locations of the natural resources will greatly reduce the potential negative economic impacts of a lost farming economy and costs for protecting natural resources. The additional VMT generated through urbanization of this very small area will be minimal. Overall this analysis area has low economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

A very limited amount of regionally significant riparian habitat has been identified on 20 acres within the analysis area, along both Mud Creek and the small tributary flowing into Beaver Creek from the western sub-area. Regionally significant upland habitat, covering an additional 63 acres, occurs primarily along the steeper slopes of the bluffs that form the southern boundary of the analysis area, away from the flatter developable portion of the area. Oregon City, the expected governing body for the area, has adopted a habitat protection program that is compliant with Metro's Title 13 Nature in Neighborhoods. Based on the limited amount of riparian habitat, the upland habitat being generally located away from the developable portion of the analysis area, and Oregon City's habitat protection program, urbanization can take place with minimal disturbance of the regionally significant fish and wildlife habitat.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

The entire edge of the Beaver Creek Bluffs analysis area borders resource zoned land (see attached resource land map). The vast majority of the resource land is zoned timber (TBR) except for a small portion of exclusive farm use (EFU) zoned land in the vicinity of S Central Point Road and S Geiger Road. There are significant slopes along almost the entire edge of the analysis area, most of which are forested except in those areas where the reserve abuts an approximate 250-foot power line easement.

The small portion of EFU zoned land that is located between the analysis area and Beaver Creek is being farmed, although there are significant pockets of forest land and some rural residences intermixed. This small area of agricultural activity is mainly in the form of field crops and pasture land. Beaver Creek provides an edge to the larger block of EFU land to the south that also includes nursery stock. The majority of the adjacent TBR zoned land drops steeply to the south from the analysis area. Most of these parcels include rural residences and streams, including Mud and Canfield Creeks.

Due to the very limited nature of the nearby agricultural and forest activities, the relatively small area between the analysis area and Beaver Creek that potentially could be impacted, the significant change in elevation between the analysis area and the resource lands, and the number of rural residences spread throughout, the proposed urban uses would be compatible with the nearby agricultural and forest activities occurring on farm and forest land.

Clear transition between urban and rural lands, using natural and built features to mark the transition

The forested slope south of the analysis area along with Beaver Creek and its tributaries, including Mud and Canfield Creeks, provide a clear transition between urban and rural lands.

2040 Growth Concept

Contribution to the purposes of Centers

The Oregon City Regional Center is the closest regional center to the Beaver Creek Bluffs analysis area. It is 414 acres in size, serves Clackamas County and some neighboring cities to the south. The regional center is linked to the analysis area by S Central Point Road/S Linn Road (3.1 miles) and S Leland Rd/S Linn Rd (3.1 miles). Tri-Met lines 32 & 33 run from the regional center to Clackamas Community College, approximately two miles from the analysis area.

The Oregon City Downtown Community Plan envisions a community that celebrates Oregon City's historic past while promoting a positive change for the future. The plan emphasizes the creation of pedestrian-friendly places, varied mixed use developments, new open space and civic amenities. It also strives to reestablish Oregon City's historical prominence by protecting and strengthening historic themes and features unique to Oregon City. According to Metro's State of the Centers

Report, January 2009, the Oregon City Regional Center's jobs to housing ratio is very high and the total number of people per acre is low, indicating that the regional center needs to attract more housing to meet the city's vision for a pedestrian friendly environment.

Urbanization of the Beaver Creek Bluffs analysis area will not contribute to the vision or the purpose of the Oregon City Regional Center. The analysis area is too isolated from the center to support the need for more people to meet a higher level of activity.

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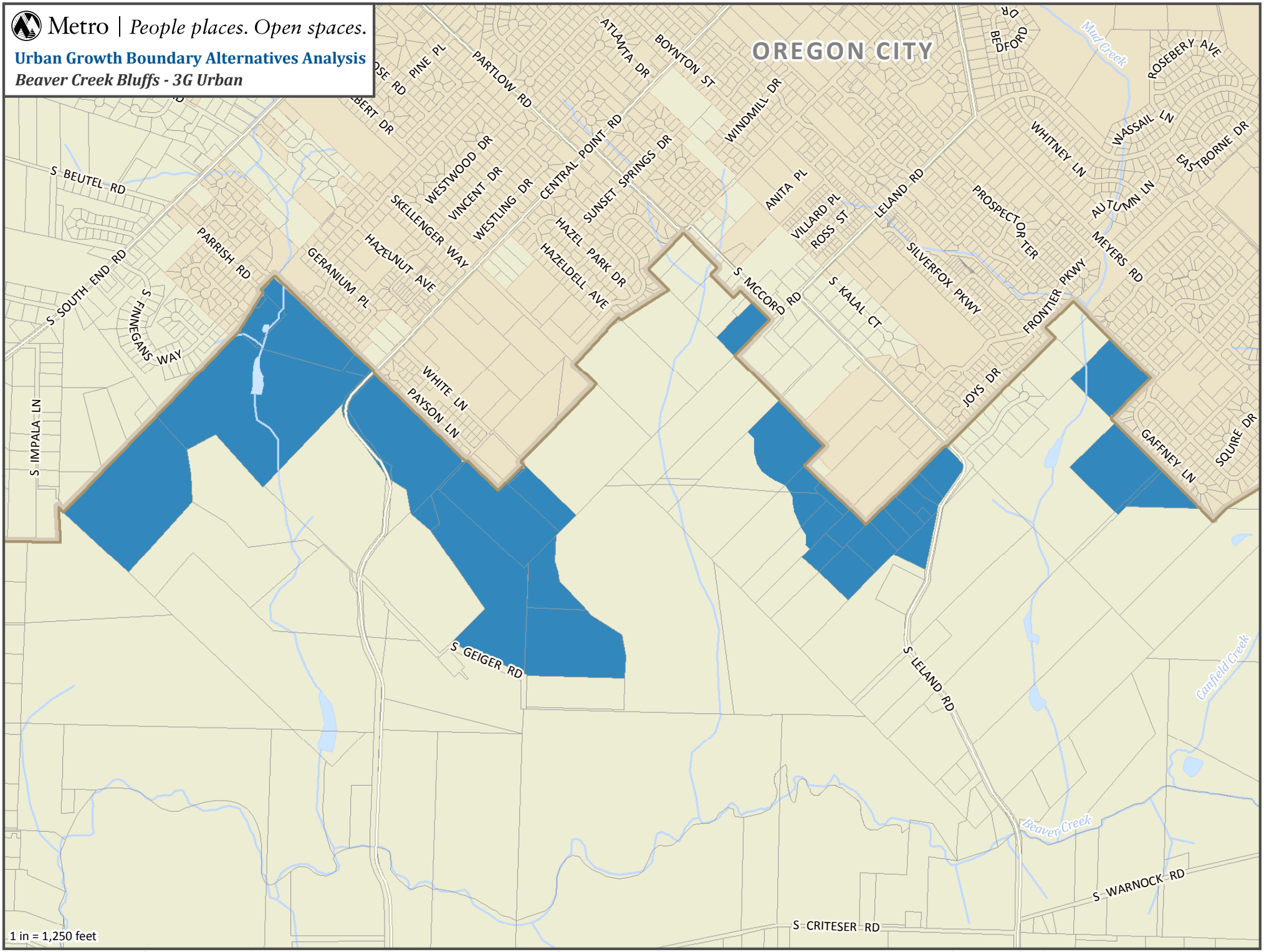
Urban Growth Boundary Alternatives Analysis

Beaver Creek Bluffs - 3G Urban



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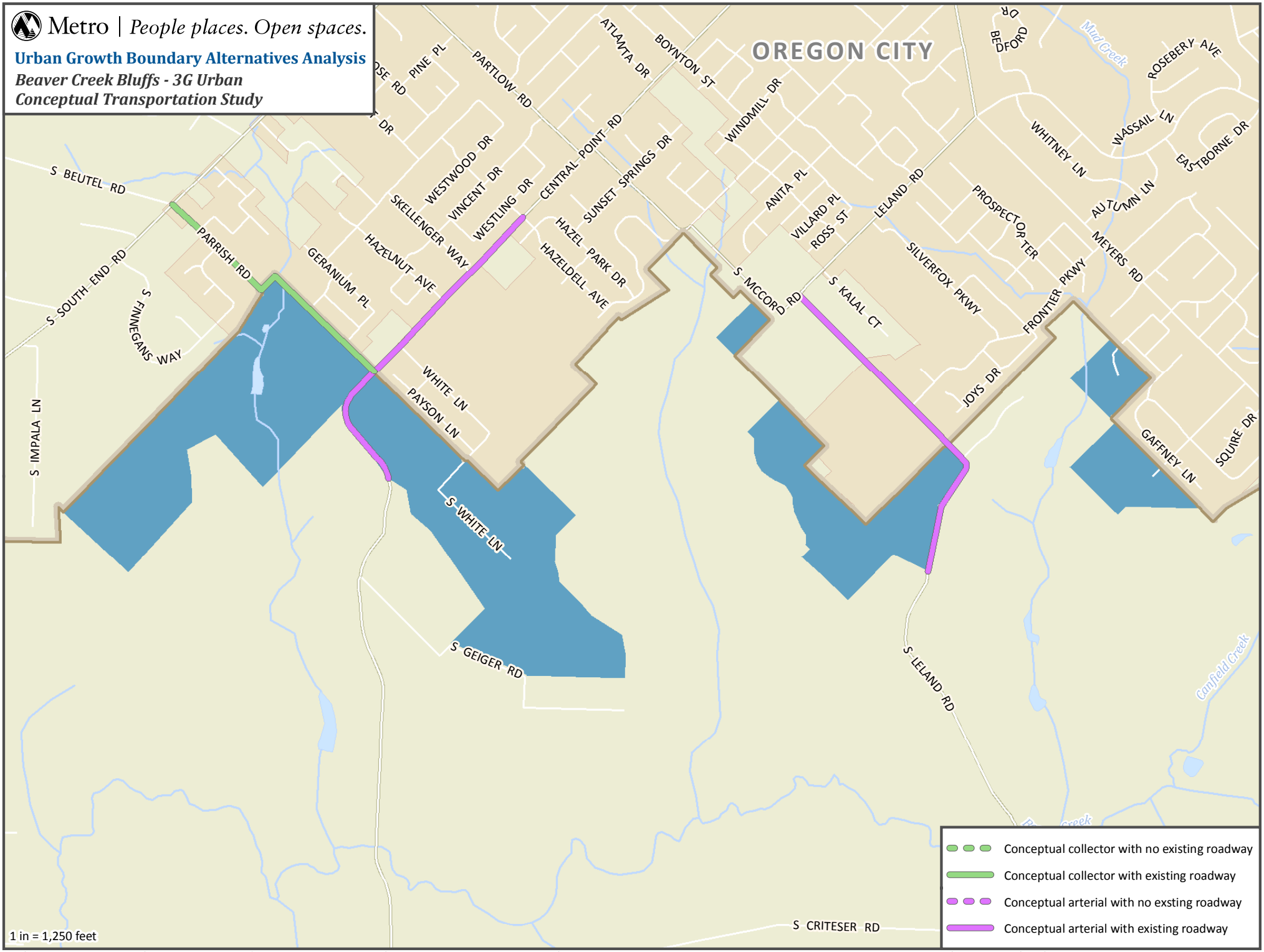
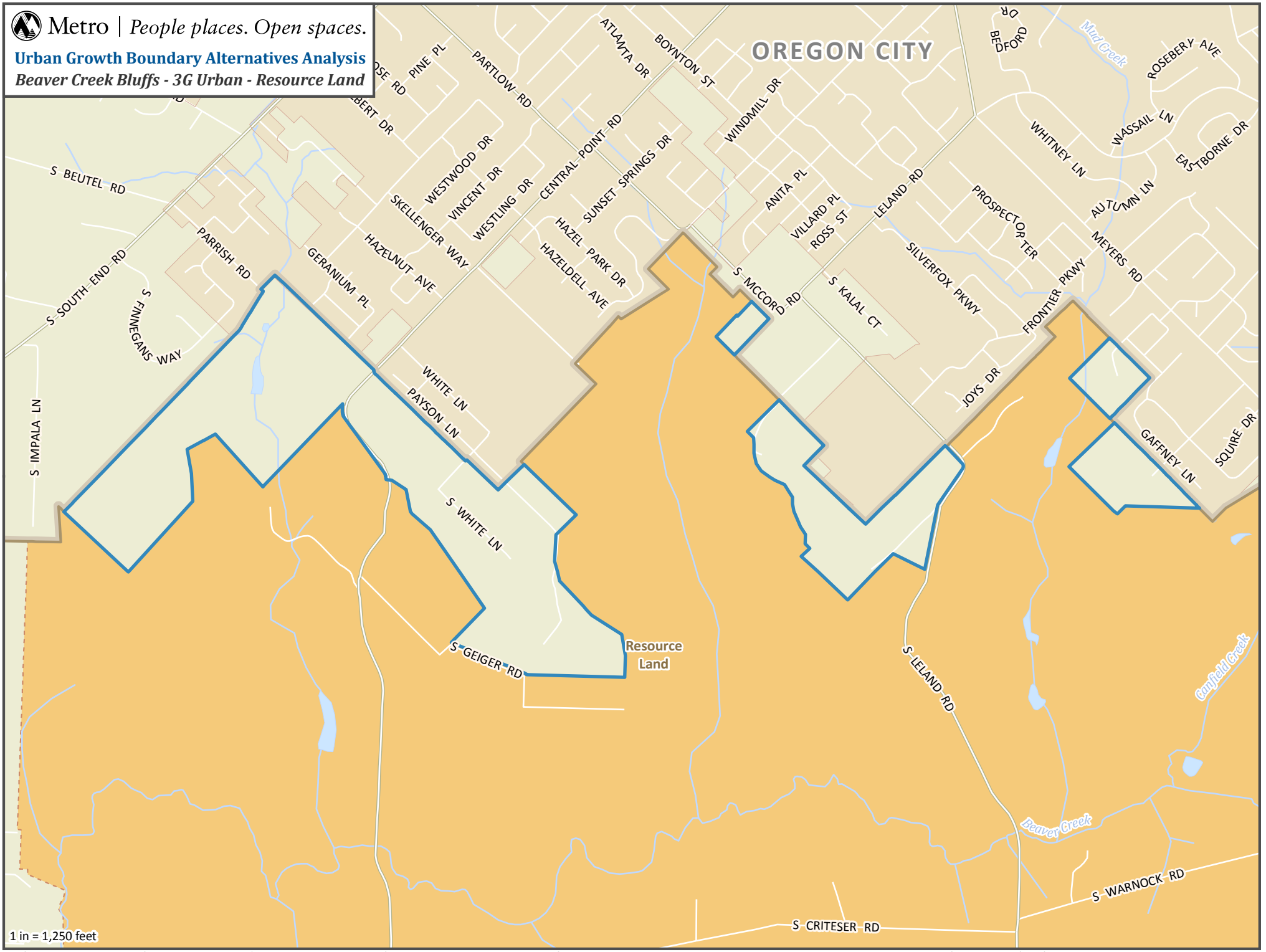
Urban Growth Boundary Alternatives Analysis

Beaver Creek Bluffs - 3G Urban





NORWOOD ANALYSIS AREA (4D PARTIAL)

Norwood Analysis Area		**Total Acres**	**337**
Gross Vacant Buildable Acres	286	Total Constrained Acres	51
Estimated Dwelling Unit Capacity	3,331	• Title 13 Significant Habitat	46
Estimated Employment Acres		• Public Land	0

General Description (see attached map)

The Norwood Analysis Area, a portion of the larger Norwood Urban Reserve Area, is a rectangular area that lies to the east of I-5, in the vicinity of SW Stafford Road. The area is 337 acres in size and is not adjacent to the current UGB. The Clackamas-Washington County line and SW 65th Avenue form the western boundary, with the remaining three edges defined by tax lot lines. The southern edge extends ½ mile east from the intersection of SW 65th Avenue and SW Stafford Road, then extends north for approximately one mile to form the eastern edge. SW Stafford Road bisects the area diagonally from the northeast corner to the southwest. I-5 is easily accessible via SW Elligsen Road, just over one mile to the west.

Parcelization, Building Values, Development Pattern (see attached aerial photograph)

The analysis area contains a total of 64 tax lots, 54 of which have improvements. The median value of improvements on these lots is $273,085, and 31 have building values over $250,000. Parcel sizes range from 0.4 acres to 30 acres, with a median size of 4.5 acres and 31 parcels at least five acres in size. Most of the smaller parcels lie along and between SW Stafford Road and SW Gage Road. Land use within the analysis area is a mix of agriculture, forest and rural residential. Agricultural and forest uses include field crops, christmas tree farms, and nurseries. This analysis area is primarily characterized by larger lot rural residential, consistent with the surrounding development pattern to the north, east and west.

There is no evidence of power lines or other public easements, and there is no identified public land within the study area.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had high suitability for sanitary sewer services, medium suitability for water services and low suitability for transportation connectivity.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of residential or large site industrial development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates. A map of the proposed collector and arterial transportation system is attached to this summary.

Sanitary Sewer Services - $13,170,000

Water Distribution Services - $5,990,000

Storm Sewer Services - $6,303,000

Transportation Services - $80,580,000

Parks - $35,920,000

Schools - $15,000,000 (New Elementary School)

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

There are two identified streams, Boeckman and Newland Creeks that total 1.3 miles in length, although it appears from aerial photography that the upper headwaters remain dry for much of the year. The topography of the area is predominantly flat, with less than three percent of the area having slopes greater than 25%. Given that much of the identified streams and wetlands are already impacted by rural development and the absence of significant riparian areas, future development would have minimal impact on these environmental resources within the analysis area. Attachment 5 contains a breakdown of the environmental factors.

Energy, Economic & Social

About half of the parcels in this small analysis area that is not adjacent to the current UGB are less than five acres in size and 84% have improvements, reflecting the rural residential nature of the area. There are very few agricultural activities occurring in the area. The minimal level of agricultural activity will reduce the potential negative economic impacts of a lost farming economy. Ten percent of the area has been identified as riparian habitat, mainly along Boeckman Creek that flows through the center of the area near SW Stafford Road. Due to the location of these resources in the center of the area, the costs for protecting them will be considerable in contrast to the potential economic impact of urbanizing some of the small areas in between the resources. Urbanization will negatively impact the rural lifestyle for current residents as the area contains the highest median building value and the median size of the parcels is 4.5 acres, which is representative of the many large homes on fairly sizeable sites. In addition, as this area is not directly adjacent to the UGB, additional land to the west will also need to be added to the UGB, resulting in a much larger negative impact on the rural nature of the area. Additional VMT will be generated through urbanization of this small sized area as its average commute distance is larger than the existing average commute distance for the region. Overall this analysis area has medium economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

There are 34 acres of identified riparian habitat surrounding the streams in the area, and a small 0.12 acre wetland in the northwest portion of the study area. Another 12 acres of upland habitat surrounds riparian areas and extends outward in the northwest quadrant of the analysis area. However, much of the identified habitat occurs on parcels currently in active agriculture or developed as single-family residential. The consistently flat topography within the area creates some threat to existing riparian and upland habitat. It is not immediately clear who will act as the governing entity for this analysis area, although Wilsonville and Tualatin, the two nearest cities capable of serving the area, currently have adopted natural resource protection and habitat conservation policies or overlay districts that are in compliance with Metro's Title 13 Nature in Neighborhoods program. Based on these factors there may be some risk to regionally significant riparian and upland habitat, but impacts of urbanization can be mitigated through habitat conservation programs established by the governing body.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

There are two locations where farm land is adjacent to the analysis area (see attached resource land map). The first area is located at the northwest corner of the analysis area and is a 446 acre block of exclusive farm use (EFU) zoned land that connects to the area at SW Frobase Road. This farm land area is a mixture of forested and open parcels that contain a few rural residences, two domestic water storage tanks and field crops. The agricultural activities are concentrated near SW Elligsen Road in the south and SW Frobase Road in the north. The majority of this resource land area is separated from the analysis area by topography and the rural residences along SW 65th Avenue, with the exception of the farm land near the intersection of SW Frobase Road and SW 65th Avenue. SW 65th Avenue provides a western edge to the analysis area and, in combination with the rural residences along the roadway and the change in topography, would make the proposed urban uses compatible with the adjacent agricultural activities occurring on farm land to the west. Increased traffic along SW Frobase Road due to new urban uses within the analysis area may impact agricultural activities on the resource lands fronting the roadway; however it is unlikely that there would be a great increase in traffic as SW Frobase Road does not connect to the regional system. The proposed urban uses would not be compatible with the agricultural activities that occur on the one small section of farm land north of SW Frobase Road. However mitigation measures could reduce conflicts between the proposed urban uses and agricultural activities occurring outside the UGB in this location. As noted previously, this area is not directly adjacent to the UGB, so some of the farm land that is located west of the analysis area will also be added to the UGB to connect this area to the current UGB.

The second location of farm land is south of the analysis area, extending to the Willamette River. This very large block of farm land contains numerous agricultural activities, bisected by forested stream corridors and pockets of rural residences. Newland Creek and its associated riparian corridor provides a buffer to the extensive agricultural activities occurring east of SW 45th Drive, but there is no edge or buffer for the agricultural activities occurring near SW Homesteader Road, SW Briar Patch Lane and SW Kahle Road. Increased traffic along SW Stafford Road due to new urban uses within the analysis area may impact agricultural activities on the resource lands in this area, but the majority of increased traffic would most likely head towards I-205 or I-5, bypassing this farm land. The proposed urban uses would not be compatible with the agricultural activities that occur on this pocket of farm land to the south. However mitigation measures could reduce conflicts between the proposed urban uses and agricultural activities occurring outside the UGB in this location.

There is a third area of farm land located east of SW Newland Road. This farm land area is separated from the analysis area by a significant hill that essentially isolates the agricultural activities from the analysis area, thus the proposed urban uses would be compatible with the agricultural activities occurring on farm land in this location.

Clear transition between urban and rural lands, using natural and built features to mark the transition

Newland Creek provides a clear transition area for the rural lands southeast of the analysis area, however there are no natural or built features to mark the transition for the rural lands directly south of the analysis area. To the east, the change in topography that occurs between the analysis area and SW Newland Road provides a transition area between urban and rural lands. There are no natural or built features that mark a clear transition between urban and rural lands to the south or north. SW 65th Avenue provides an edge between urban and rural land to the west. Even assuming SW 65th Avenue develops as a connector in the future, the road itself will not provide a clear transition area between future urban and rural uses in this location. Additional buffers will need to be incorporated into the planning of the urban reserve analysis area for the rural lands to the north, west and south. The rural lands west of SW 65th Avenue and to the north of the analysis area are included in the 4G/4F and 4D urban reserve areas and may be included in the UGB in the future. Thus, any buffers that are incorporated into the planning study for the analysis area should consider the potential for making urban form connections in these locations in the future.

2040 Growth Concept

Contribution to the purposes of Centers

The Norwood analysis area is located equidistant between the Wilsonville Town Center to the southwest and the Tualatin Town Center to the northwest. Wilsonville's center is 166 acres in size, and serves primarily the City of Wilsonville, and is linked to the analysis area by SW Stafford Road/SW Wilsonville Road (2.6 miles). No Tri-Met services connect the analysis area to this center. The City of Wilsonville's bus system, SMART, also does not connect the analysis area to the center. Tualatin's center is approximately 325 acres in size, and primarily serves the surrounding residential areas in the City of Tualatin. The analysis area is connected to Tualatin via SW 65th Avenue to SW Nyberg Road (3.2 miles). There is no Tri-Met service connecting Tualatin and the Norwood Analysis Area, although the line 96 bus stops at SW Commerce Circle, just west of I-5. Both Wilsonville and Tualatin centers can also be accessed via I-5 (3.4 and 5 miles respectively).

Tualatin's Town Center Plan envisions a mixed use live, work and play center that integrates natural resources like the Tualatin River and incorporates civic, social, economic and cultural functions in a walkable destination community. According to Metro's State of the Centers Report, January 2009, the Tualatin Town Center has a lower than ideal number of people per acre and slightly below average number of dwellings per acre. Wilsonville's Town Center, which includes an area just east of I-5, is envisioned to be a dense, mixed used community that creates a walkable, pedestrian-oriented environment. Metro's State of the Centers Report shows a higher than average jobs to housing ratio, and fewer people and dwellings per acre than desired and needing more infill and redevelopment to boost urban densities.

Urbanization of the Norwood analysis area will not contribute to the vision or purpose of either the Wilsonville or Tualatin Town Center. In order to support either center, additional urban reserve

land would have to be added to create continuous urban development. In addition, the potential for housing development in the analysis area could negatively impact the desire for both town centers to create more infill development and housing to create a more balanced jobs housing ratio.

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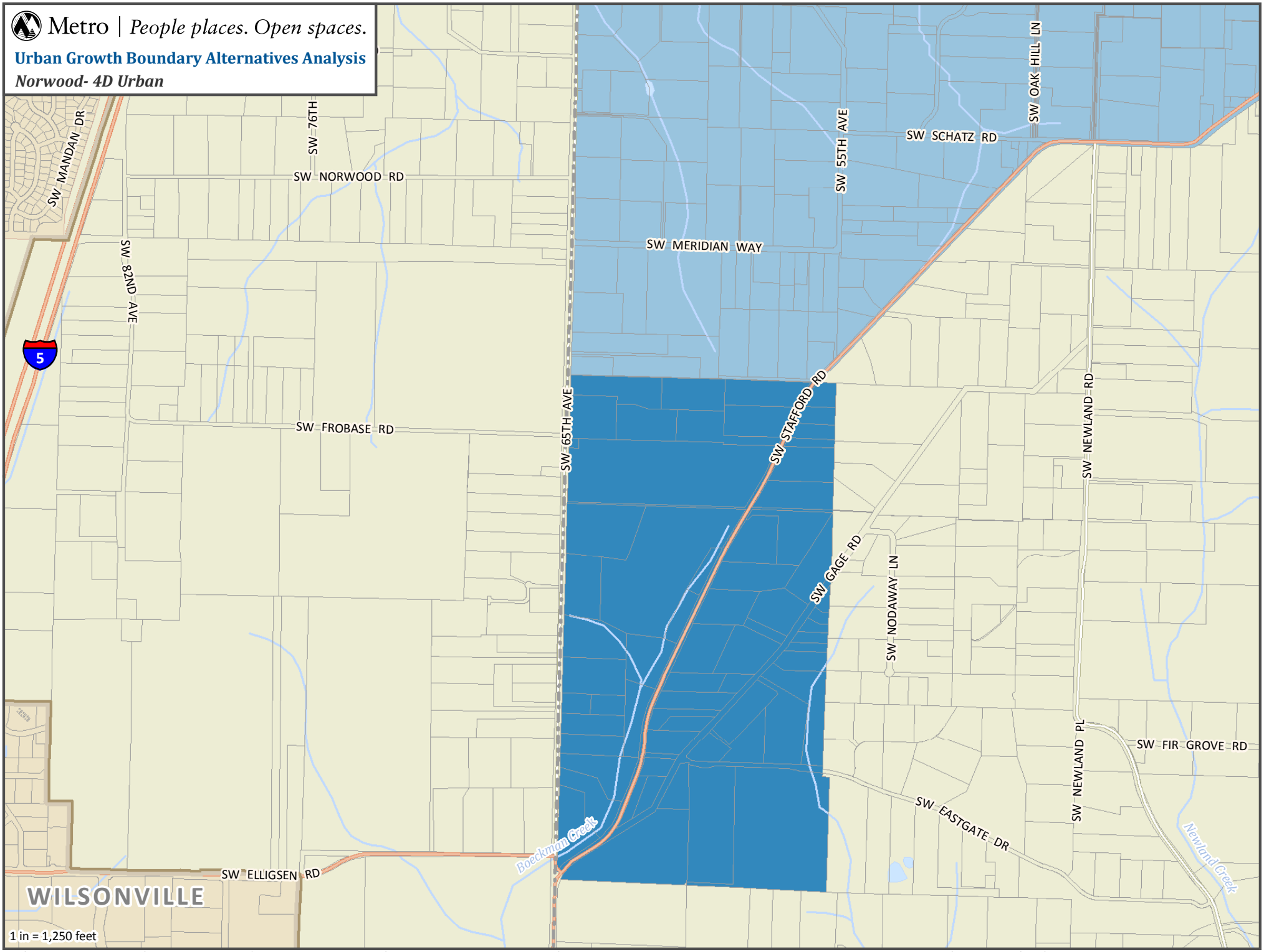
Urban Growth Boundary Alternatives Analysis

Norwood- 4D Urban



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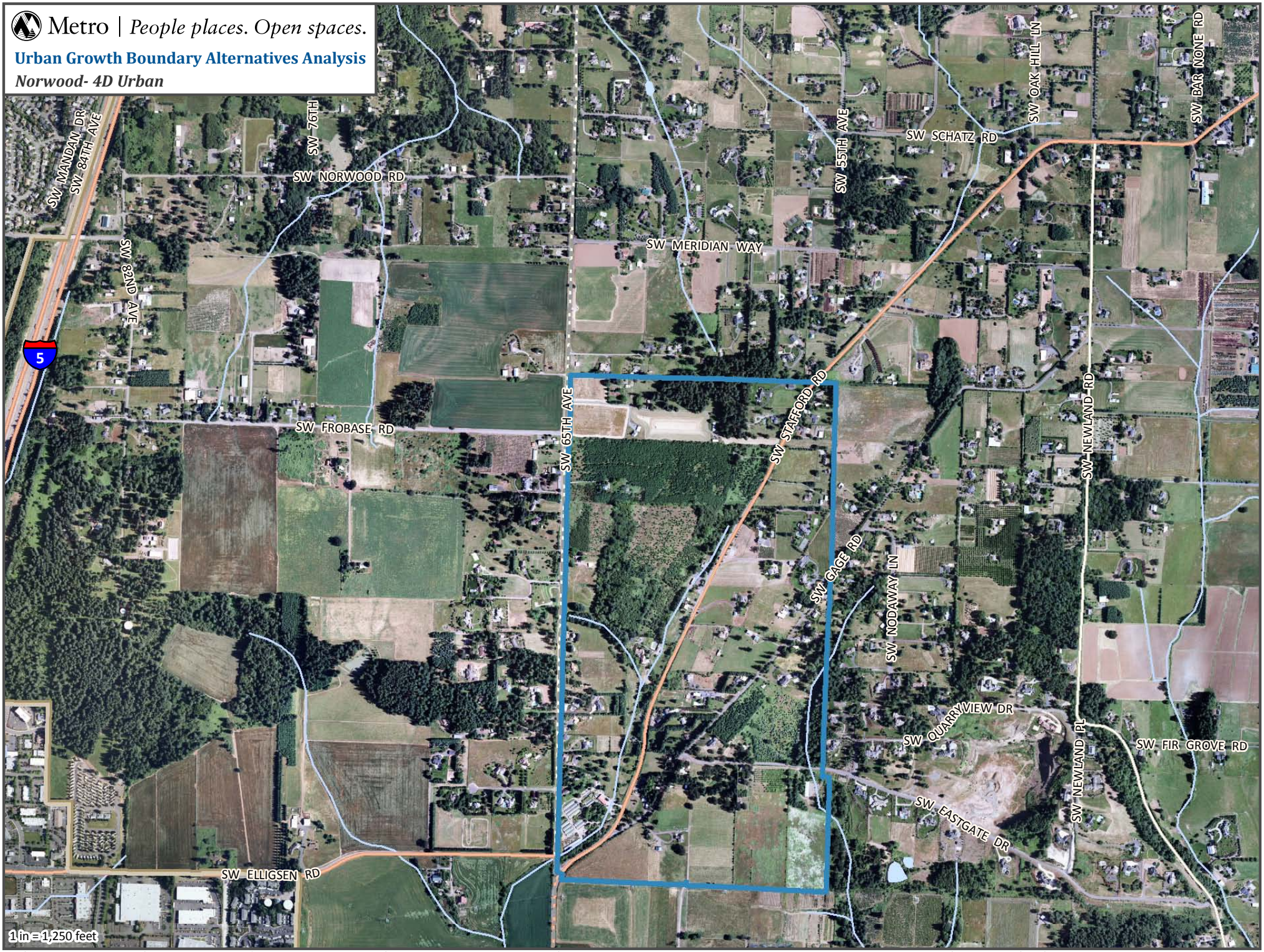
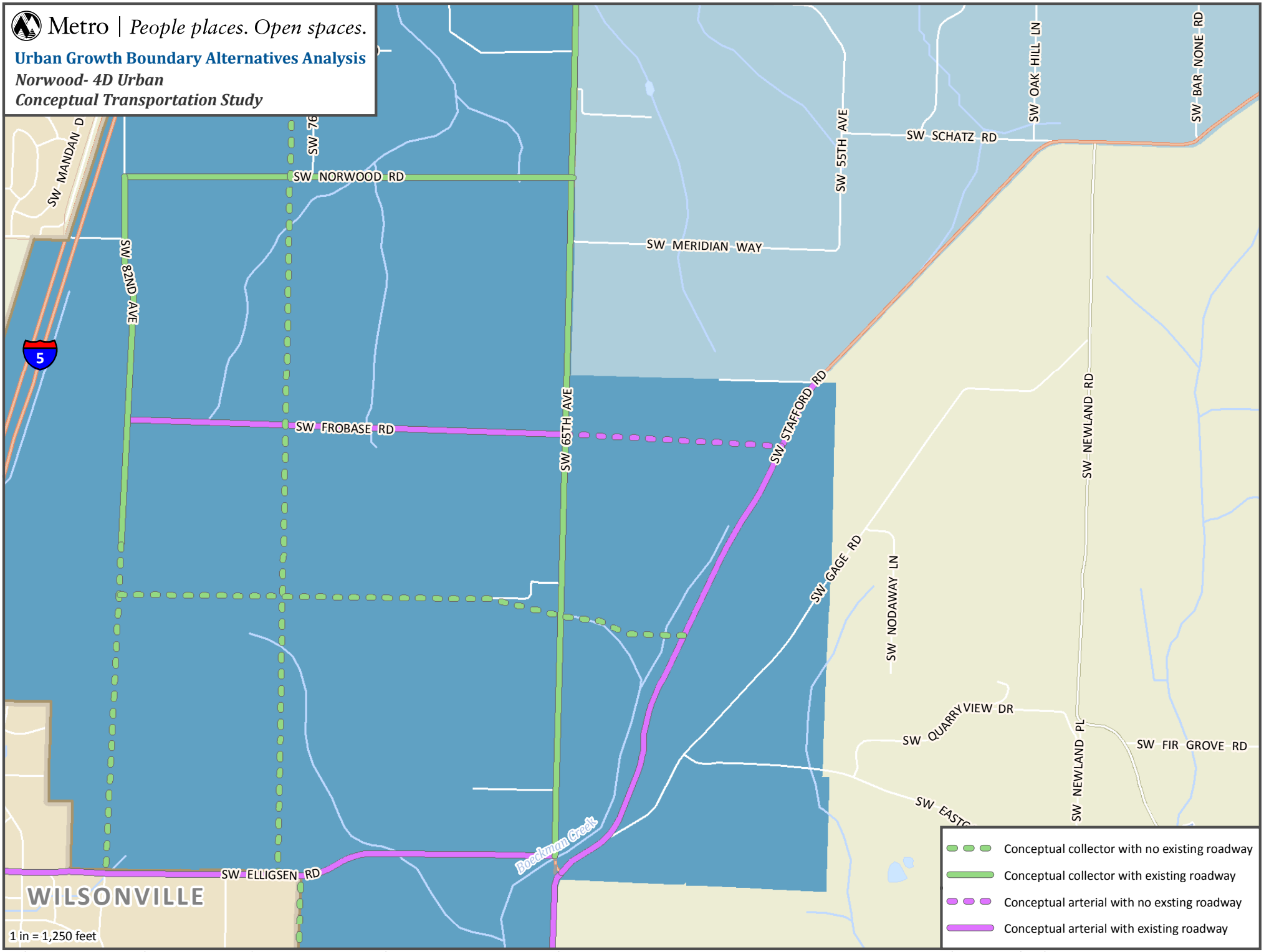
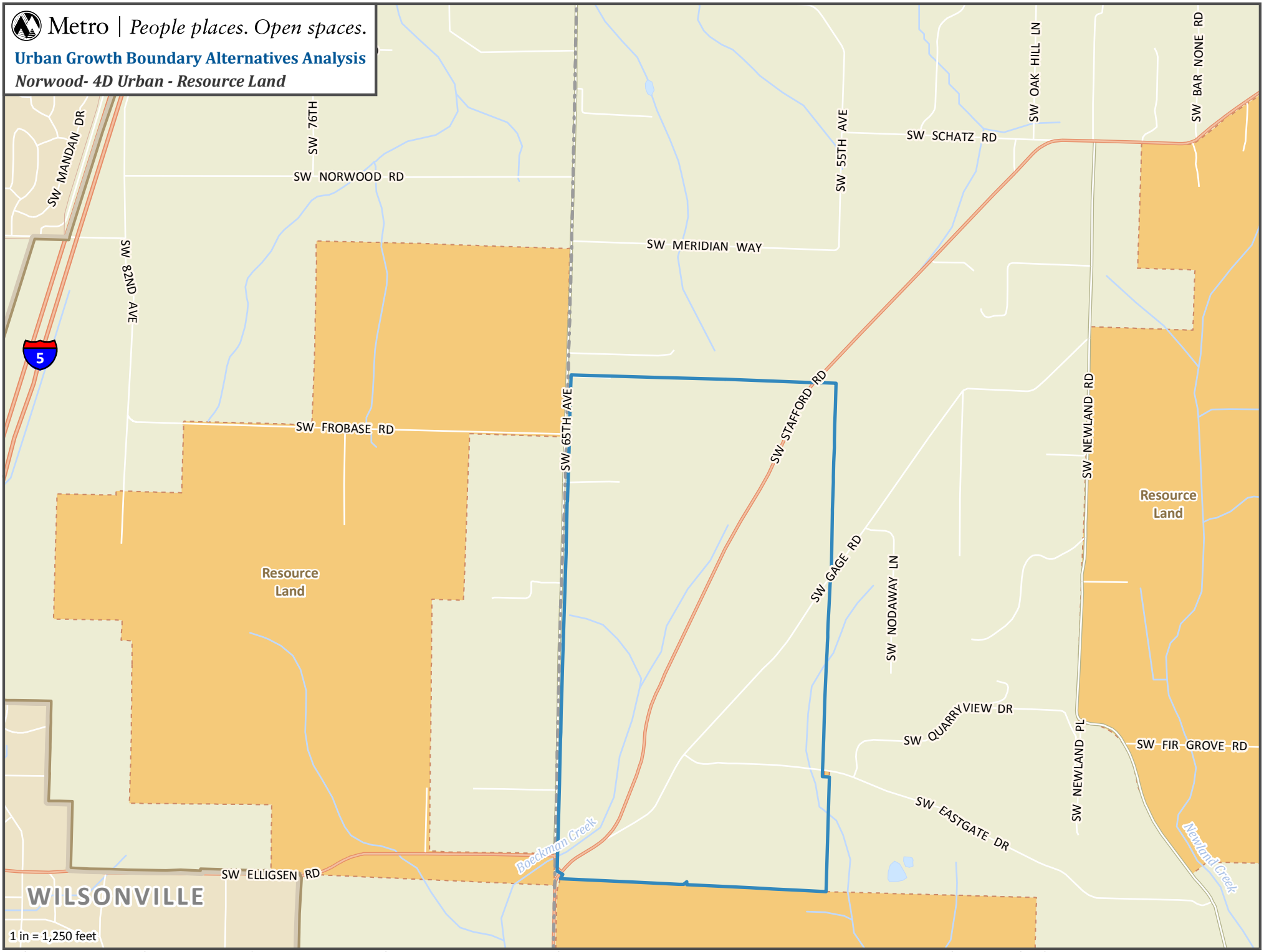
Urban Growth Boundary Alternatives Analysis

Norwood- 4D Urban







I-5 EAST ANALYSIS AREA (4E)

I-5 East (1) Analysis Area		**Total Acres**	**848**
Gross Vacant Buildable Acres	558	Total Constrained Acres	290
Estimated Dwelling Unit Capacity	6,795	• Title 13 Significant Habitat	281
Estimated Employment Acres		• Public Land	0

General Description (see attached map)

The I-5 East Analysis Area is located immediately to the north of the Elligsen Analysis Area and completely within unincorporated Washington County. The total area is 848 acres, and is bounded by I-5 to the west, I-205 to the north, the Clackamas/Washington County line and SW 65th Avenue to the east, and SW Frobase Road to the south. The area is served by primarily by SW 65th Avenue, with access to I-5 to the south via SW Elligsen Road and access to I-205 via SW Stafford Road. Travel across I-5 and I-205 from the study area is limited to SW Norwood Road and SW 65th Avenue respectively. The area contains numerous flat sections located between riparian corridors along Saum Creek and its tributaries. A map of the analysis area is attached.

Parcelization, Building Values, Development Pattern (see attached aerial photograph)

This analysis area contains 158 total parcels. About one-third of the parcels are over five acres, and the median lot size is three acres. More than 85% of tax lots have improvements, though only 30 lots have improvement values over $250,000. The median improvement value is $145,580. Land use in the study area is primarily rural residential, with some agricultural uses along the southern edge and in the northeast that appear to include several lots in active crop production. The development pattern to the east of the study area is almost exclusively large-lot rural residential.

There is no evidence of power lines or other public easements, and there is no identified public land within the study area. An aerial photo of the analysis area is attached.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had high suitability for sanitary sewer services, medium suitability for water services and low suitability for transportation connectivity. The City of Tualatin's Pre-Qualifying Concept Plan, completed as part of the Washington County urban and rural reserve designation process, indicates that the city is interested in providing urban services to this area in the long-term.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of residential or large site industrial development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates. A map of the proposed collector and arterial transportation system is attached to this summary.

Sanitary Sewer Services - $15,852,000

Water Distribution Services - $3,605,000

Storm Sewer Services - $2,652,500

Transportation - $124,290,000

Parks - $70,920,000

Schools - $20,000,000 (New Elementary School)

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

More than five miles of streams run through the area, including Saum Creek and several of its unnamed tributaries. These stream corridors and their associated steeper slopes create a divided landscape in the northern portion of the analysis area, with flatter developable land extending in between the steeper fingers of ravines. Topography across the area, other than ravines, is generally flat, with only 50 acres of land with slopes greater than 25%. Of those 50 acres, 18 lie along stream corridors. These conditions create a fractured development area in the northern half of the analysis

area, limiting the connectivity potential of future urbanization and increasing the pressure on existing environmental resources. Steeper slopes surrounding much of the riparian area could reduce the impact of urbanization; however the associated riparian and upland habitat on the flatter areas may be at risk. There are no identified parks or open space within the study area. Attachment 5 contains the breakdown of the environmental factors.

Energy, Economic & Social

This large analysis area, with 70% of the parcels less than five acres in size, is almost entirely composed of rural residences. Eighty-seven percent of the 158 parcels have improvements. The area is somewhat isolated from the urban area by I-5 and I-205, adding to the rural feel of the area. Urbanization will negatively impact the rural lifestyle for the many current residents. The minimal level of agricultural activities will reduce the potential negative economic impacts of a lost farming economy. The area contains 5.6 miles of streams, the most of any analysis area. There are 280 acres of riparian and upland habitat associated with Saum Creek, flowing north through the center of the area, and its tributaries that divide this large area into much smaller portions of developable land. The costs for protecting these large environmental resource areas will be considerable in contrast to the potential economic impact of urbanizing the developable lands in between in a well connected manner. Additional VMT will be generated through urbanization of this large sized area as the average commute distance for this area is somewhat larger than the existing average commute distance for the region. Overall this analysis area has medium economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

There are 140 acres of regionally significant riparian habitat along Saum Creek and tributary stream corridors, with five acres of wetlands scattered throughout. Overall there are 281 acres of regionally significant fish and wildlife habitat throughout the study area. A portion of this habitat is currently impacted by active agricultural production in the southern portion of the analysis area. Future urbanization poses a higher risk to the upland habitat, which occurs generally on gentler slopes. The riparian habitat is mostly confined to steeper slopes, however development along stream areas or crossings to provide connectivity could threaten the riparian habitat, mainly in the northern portion of the analysis area. The City of Tualatin, the expected governing body for this area, has adopted habitat protection measures in compliance with Metro's Title 13 program through the Tualatin Basin Natural Resource Coordinating Committee's protection, which could help protect these regionally significant habitat areas and mitigate some of the impact from future urbanization. Overall, urbanization of the analysis area in a well connected manner could substantially impact the regionally significant fish and wildlife habitat that is found throughout the area.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

The UGB borders the I-5 East analysis area on the north and west. To the east is a significant segment of rural residential zoned land. A 331 acre block of resource land zoned exclusive farm use (EFU) directly borders the analysis area on the south, extending to SW Elligsen Road (see attached resource land map). The area is a mixture of forested and open parcels that contain a few rural residences, two domestic water storage tanks and field crops. The agricultural activities are concentrated near SW Elligsen Road in the south and SW Frobase Road in the north, adjacent to the analysis area. SW Frobase Road provides a southern edge to the analysis area; however the road itself would not make the proposed urban uses compatible with the adjacent agricultural activities occurring on farm land to the south. In addition, increased traffic along SW Frobase Road due to new urban uses within the analysis area may impact agricultural activities on these resource lands to the south. The proposed urban uses would not be compatible with the agricultural activities that occur on this one section of farm land outside the UGB. However mitigation measures could reduce conflicts between urban uses inside the UGB and resource uses outside the UGB.

Clear transition between urban and rural lands, using natural and built features to mark the transition

There are no natural or built features that mark a clear transition between urban and rural lands. SW Frobase Road and SW 65th Avenue provide the two edges between urban and rural land. Even assuming these two roads develop as arterial roadways in the future, the roads themselves will not provide a clear transition area between future urban and rural uses. Additional buffers will need to be incorporated into the planning of the urban reserve analysis area. The rural lands east of SW 65th Avenue and to the south of SW Frobase Road are included in the Norwood (4E) and Elligsen (4G/4F) urban reserve areas and may be included in the UGB in the future. Thus, any buffers that are incorporated into the planning study for the analysis area should consider the potential for making urban form connections in these locations in the future.

2040 Growth Concept

Contribution to the purposes of Centers

The Tualatin Town Center is the nearest 2040 Growth Concept center to the I-5 East analysis area. It is approximately 325 acres in size, and primarily serves the surrounding residential and commercial areas in the City of Tualatin. The analysis area is connected to the Tualatin Town Center via SW 65th Avenue to SW Sagert Road and SW Nyberg Road (1.5 miles), although I-5 and I-205 present significant visual barriers between the two locations. There is no Tri-Met service connecting the town center and the analysis area directly, although line 76 stops at SW 65th Avenue and SW Sagert Road, just north of I-205 from the analysis area.

Tualatin's Town Center Plan, envisions a mixed use live, work and play center that integrates natural resources like the Tualatin River with civic, social, economic and cultural functions in a walkable community. According to Metro's State of the Centers Report, January 2009, the Tualatin Town Center has a lower than ideal number of people per acre and slightly below average number of dwellings per acre. The Tualatin center has an average jobs to housing ratio, but density is somewhat lower than average for both housing and businesses.

Pre-qualified concept planning by Tualatin indicates that the city foresees primarily residential development in the analysis area with a small amount of employment land and significant protection of parks and open spaces. They also envision new school sites to support the increased residential population. Urbanization of the analysis area will not support the vision or purpose of the Tualatin Town Center, as it may draw residential development away from the center by creating a large market for single family residential units. The analysis area's isolated location across both I-5 and I-205 would not contribute to the compact, pedestrian-oriented environment envisioned for the center.

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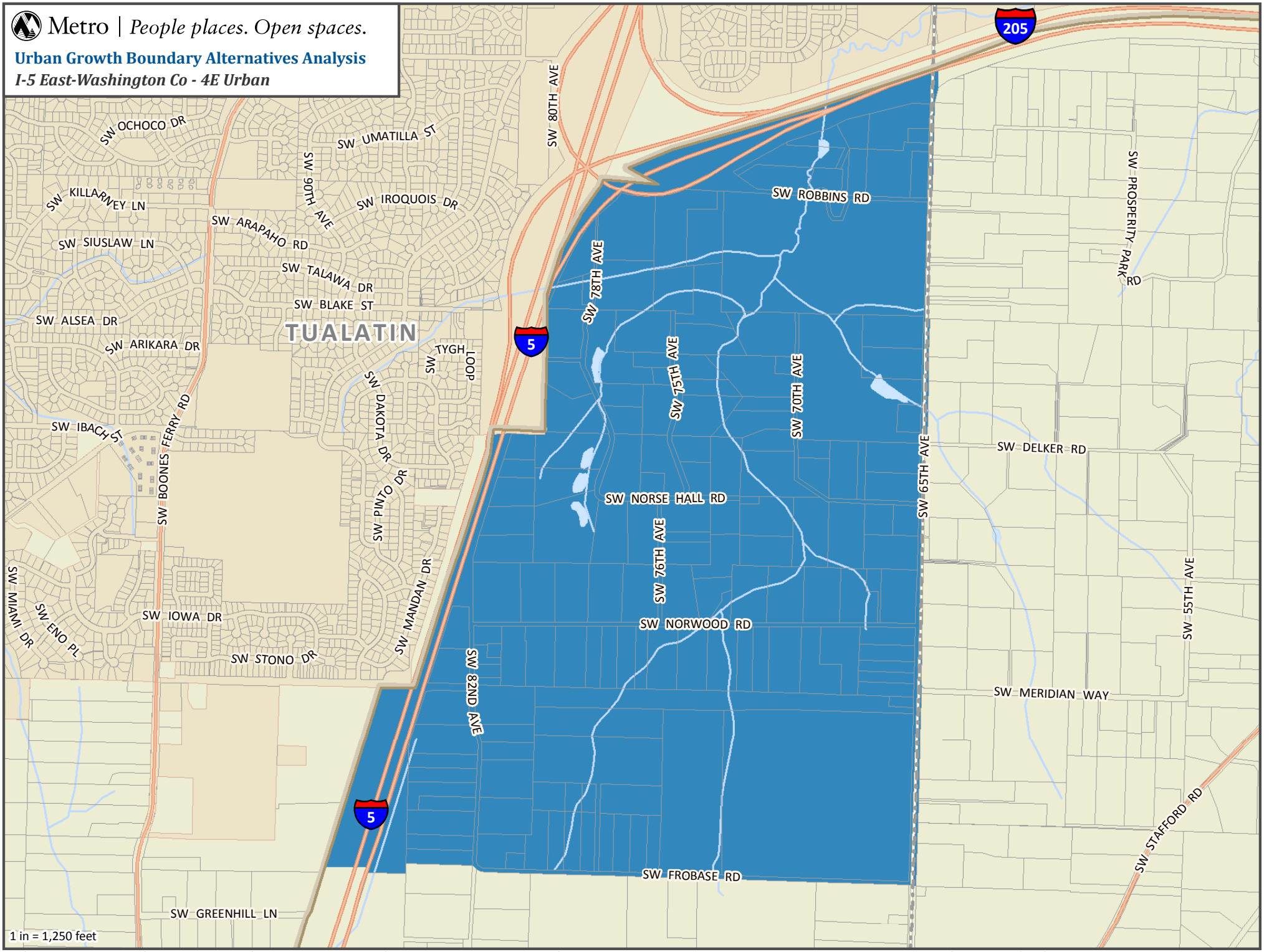
Urban Growth Boundary Alternatives Analysis

I-5 East-Washington Co - 4E Urban



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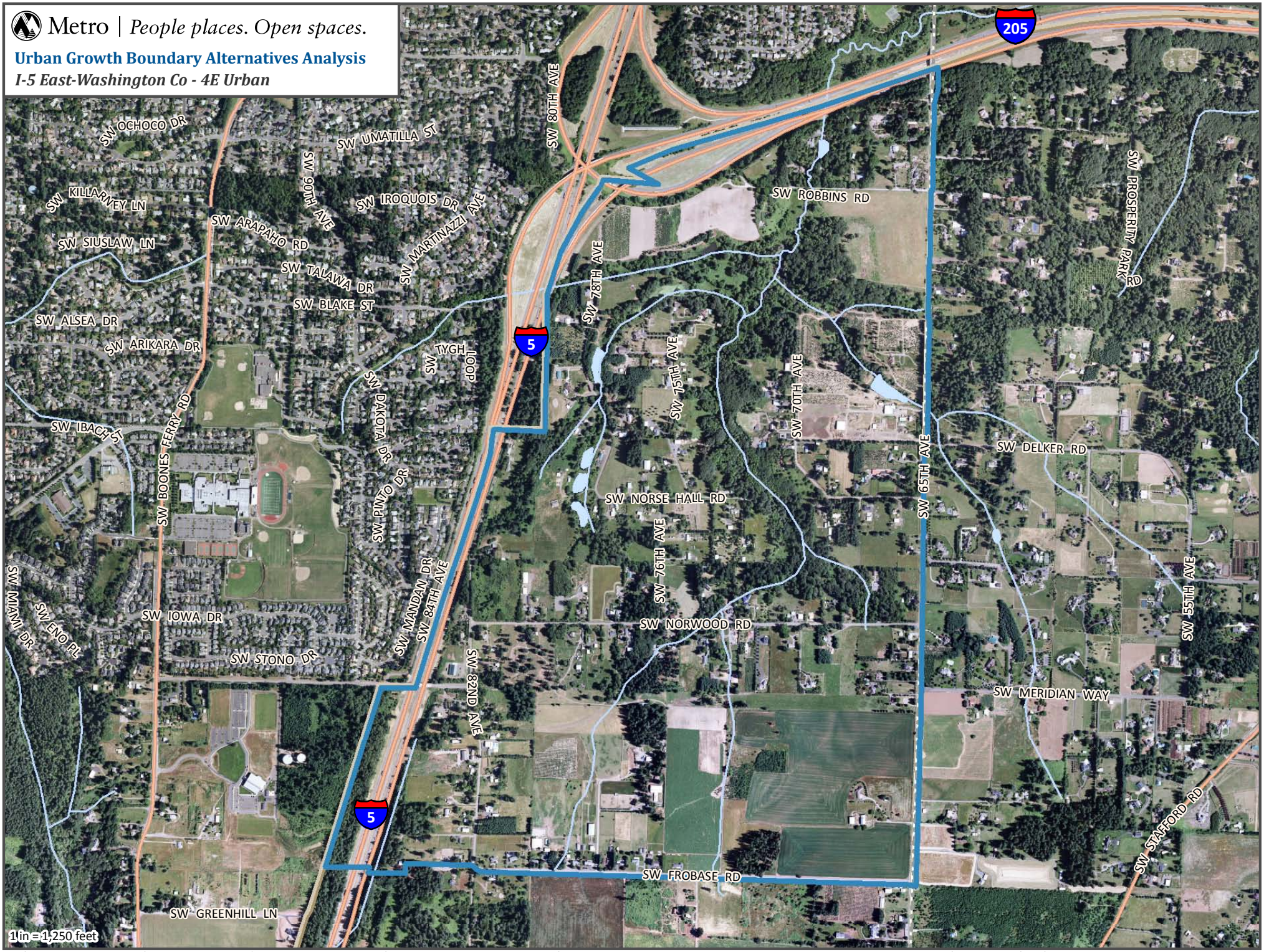
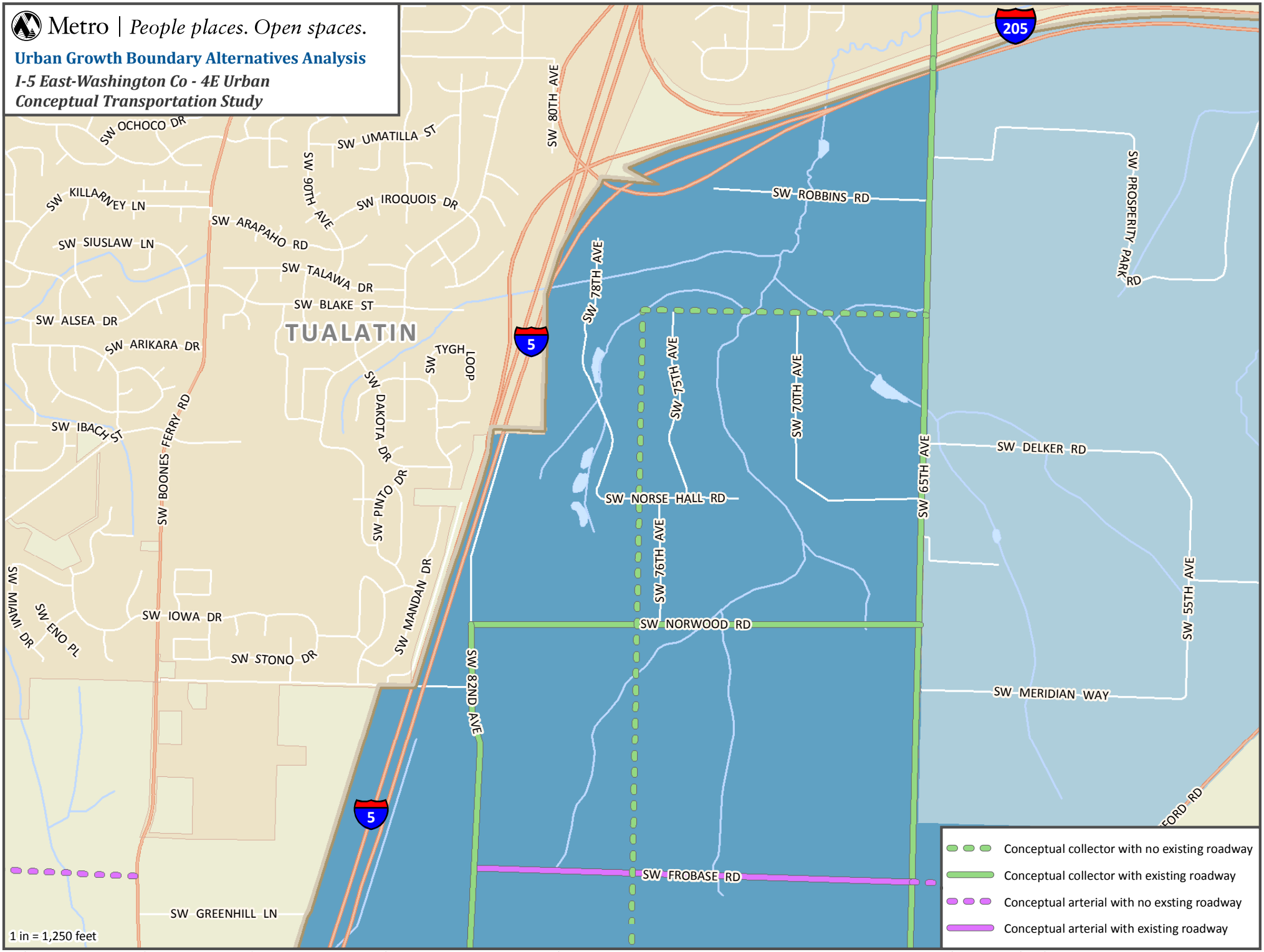
Urban Growth Boundary Alternatives Analysis

I-5 East-Washington Co - 4E Urban





ELLIGSEN ANALYSIS AREA (4F/4G)

I-5 East (2 & 3) Analysis Area		**Total Acres**	**891**
Gross Vacant Buildable Acres	637	Total Constrained Acres	254
Estimated Dwelling Unit Capacity	7,578	• Title 13 Significant Habitat	203
Estimated Employment Acres		• Public Land	4

General Description (see attached map)

The Elligsen Analysis Area is located east of I-5, straddling SW Elligsen Road. It is irregular in shape and is located directly south of the I-5 East Analysis Area. It is bordered by the UGB on the west and south and SW 65th Avenue and SW Stafford Road on the east. The majority of the area is in Washington County with a small portion in Clackamas County. SW Stafford Road, SW 65th Avenue and SW Elligsen Road are the primary routes serving this area, with access to I-5 from SW Elligsen Road. The area is a mixture of farm land, rural residences and forested parcels on rolling hills with Boeckman Creek running through the southern portion.

Parcelization, Building Values, Development Pattern (see attached aerial photograph)

This analysis area contains 67 tax lots, and a total of 891 acres. The median parcel size is five acres, and approximately half of the parcels are at least five acres in size. Improvements are present on 52 of the 67 parcels, with a median value of $313,090. Agriculture and forest are the predominant uses in this study area, with most of the active farming occurring in the southeast and forest covering most of the west and northwest. The northeast portion of the area, along SW 65th Avenue, has a cluster of rural residential development.

This area has a power line easement that runs through the southern end and one small open space owned by the Meridian United Church of Christ Cemetery. The City of Wilsonville owns two parcels in the northwest portion of the area with a water reservoir located on one of the parcels. The analysis area is adjacent to Canyon Creek Park, maintained by the City of Wilsonville. The Pheasant Ridge Recreational Vehicle Resort has developed a large RV lot just off of SW Elligsen Road, in the west side of the analysis area, which includes a large piece of forest land to the north.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had high suitability for sanitary sewer services, medium suitability for water services and low suitability for transportation connectivity. As part of Clackamas County's urban and rural reserve designation process, the City of Wilsonville indicated that the area represented by Urban Reserve Area 4G can be efficiently and cost-effectively provided with public facilities necessary to support urban development in the long term. The City of Wilsonville did not comment on the portion of the analysis area that is composed of Urban Reserve Area 4F.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of residential or large site industrial development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates. A map of the proposed collector and arterial transportation system is attached to this summary.

Sanitary Sewer Services - $27,886,000

Water Distribution Services - $12,150,000

Storm Sewer Services - $14,064,000

Transportation - $238,260,000

Parks - $81,160,000

Schools - $20,000,000

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

Two tributaries marking the origin of Boeckman Creek flow together in the southeastern portion of the analysis area, and then continue on to the Willamette River south of Wilsonville. There are a couple of small wetlands associated with this stream corridor, although most of the northernmost reaches appear to be either under active agriculture activities or little more than seasonal

drainages. There are 42 acres of slopes greater than 25%, with most of these steep slopes in the forested portion of the area. Fourteen of the steep slope acres occur along the riparian corridor of Boeckman Creek. Based on this analysis, urbanization may pose some risk to environmental resources, particularly the forested land east of I-5 and the area along Boeckman Creek as it evenly divides the southern portion of the analysis area, potentially making connectivity difficult. Attachment 5 contains the breakdown of the environmental factors.

Energy, Economic & Social

This large analysis area, with 50% of the parcels less than five acres in size, is a mixture of forested parcels, some significant agricultural sections and rural residences, mainly along SW 65th Avenue, including a RV Park on SW Elligsen Road. Boeckman Creek flows south through the center of the southern portion of the area, south of SW Elligsen Road. Sixty-nine percent of the 67 parcels have improvements. Urbanization will negatively impact the rural lifestyle, mainly for the current residents along SW 65th Avenue as they are located further away from the urban area than the RV Park that is across the street from the current UGB. The loss of the economic impact from the agricultural uses may be considerable; however the potential economic impact of urbanization on these lands will outweigh this loss. Approximately 23% of the land is identified as containing riparian or upland habitat, much of which is in the northwestern portion of the analysis area. The riparian habitat associated with Boeckman Creek divides the southern portion of the area in half. The costs for protecting these large resource areas will be considerable in contrast to the potential economic impact of urbanizing the remaining developable lands in a well connected manner. Additional VMT will be generated through urbanization of this large sized area as the average commute distance for this area is somewhat larger than the existing average commute distance for the region. Overall this analysis area has medium economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

Regionally significant riparian habitat covers 70 acres along the stream corridors, although much of this has already been developed or is currently impacted by active agricultural use. A large concentration of upland habitat, primarily forest, covers 133 acres of land in the northwest portion of the analysis area and remains mostly undeveloped. Much of this habitat is on the relatively flat top portions of the hills land and could easily be impacted by future development. In the south half of the analysis area, Boeckman Creek contains a small amount of significant riparian habitat, although steep slopes forming a ravine around the creek would prevent development up to the stream's banks. The City of Wilsonville, the most likely governing body for this area, has adopted a habitat protection program that is in substantial compliance with Metro's Title 13 Nature in Neighborhoods regulations. As the majority of the riparian habitat is away from the flatter developable portions, combined with the expected natural resource protection programs that will be in place prior to development, future urbanization could occur with only minimal to moderate disturbance to regionally significant fish and wildlife habitat, mostly depending on the level of impact to the upland habitat.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

The UGB borders the Elligsen analysis area on the west and south. A 115 acre block of resource land zoned exclusive farm use (EFU) is adjacent to the analysis area on the north side of SW Frobase Road and contains three rural residences (see attached resource land map). Agricultural activities are mainly field crops with a very small amount of orchards. Increased traffic along SW Frobase Road due to new urban uses within the analysis area may impact agricultural activities on this small segment of resource land. The proposed urban uses would not be compatible with the agricultural activities that occur on this pocket of farm land to the north. However mitigation measures could reduce conflicts between the proposed urban uses and the small amount of agricultural activities occurring outside the UGB in this location.

A much larger area of farm land is adjacent to the southeast portion of the analysis area, south and east of SW Stafford Road. This area extends south and east to the Willamette River and includes extensive agricultural activities. A number of stream corridors bisect the farm land in a north/south direction. Newland Creek, the closest stream to the analysis area, provides a buffer for the farm land to the east and to a lesser extent for the farm land to the south of SW Kahle Road. There is no edge or buffer for the agricultural activities occurring near SW Homesteader Road, SW Briar Patch Lane and SW Kahle Road. SW Stafford Road provides an edge for this portion of the analysis area, but the road itself would not make the proposed urban uses compatible with the agricultural activities occurring on the farm land to the east. Increased traffic along SW Stafford Road due to new urban uses within the analysis area may also impact agricultural activities on these resource lands to the east. The proposed urban uses would not be compatible with the agricultural activities that occur between SW Stafford Road and Newland Creek riparian area. However mitigation measures could reduce conflicts between the proposed urban uses and agricultural activities occurring outside the UGB in this location.

Clear transition between urban and rural lands, using natural and built features to mark the transition

The up and down change in elevation between SW 65th Avenue and SW Gage Road, east of the analysis area, provides a transition area between urban and rural lands for the portion of the analysis area that is north of SW Elligsen Road. There are no natural or built features that mark a clear transition between the analysis area and the rural lands to the north of SW Frobase Road.

Similarly, there are no natural or built features that mark a clear transition between the analysis area and the rural lands to the east of SW Stafford Road, south of SW Elligsen Road. Even assuming both SW Frobase Road and SW Stafford Road develop as arterials in the future, the roads themselves will not provide a clear transition area between future urban and rural uses. Additional buffers will need to be incorporated into the planning of the urban reserve analysis area. The rural lands north of SW Frobase Road are included in the I-5 East Urban Reserve and may be included in the UGB in the future. Thus, any buffers that are incorporated into the planning study for the analysis area should consider the potential for making urban form connections in this location in the future.

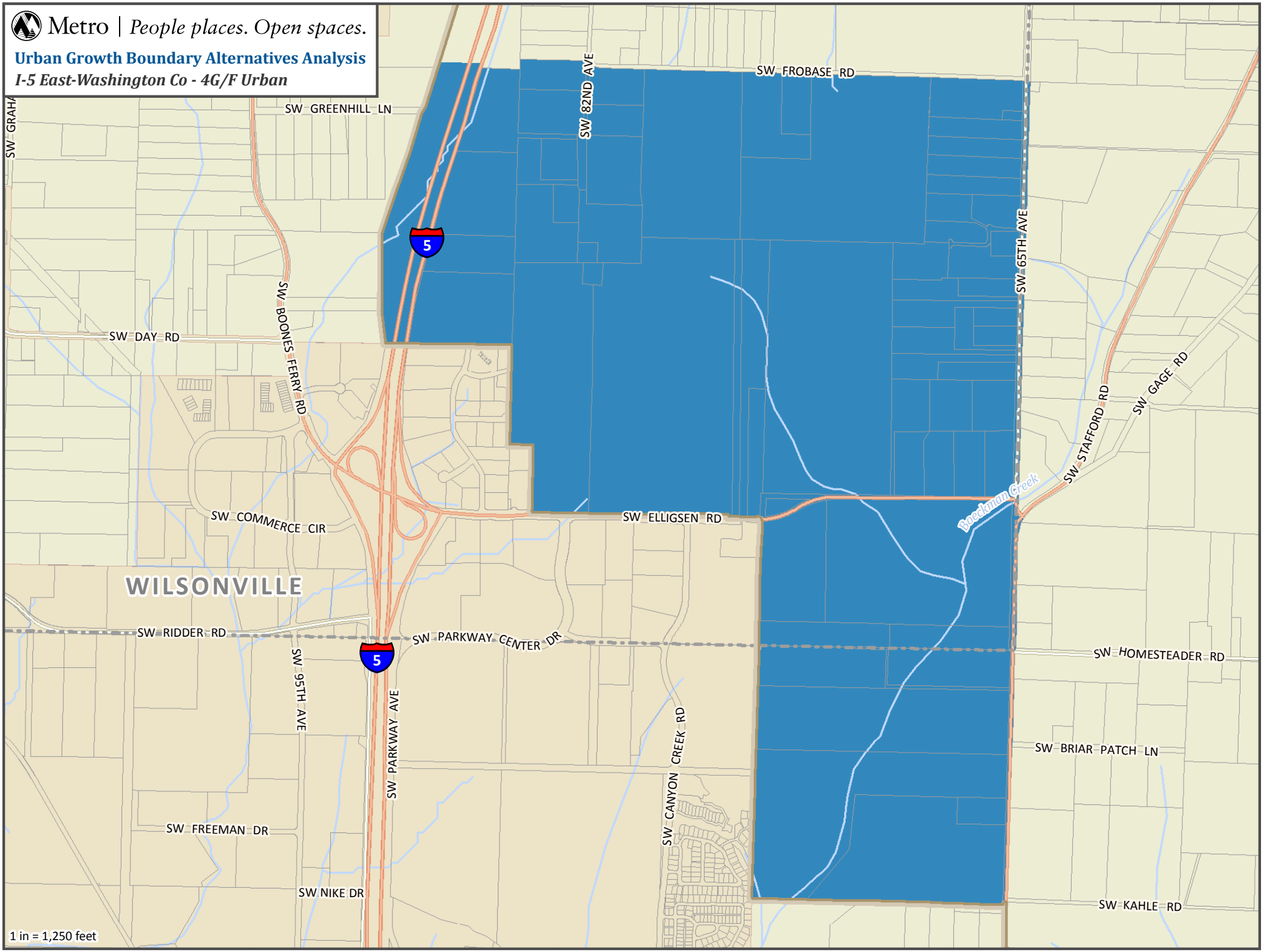
2040 Growth Concept

Contribution to the purposes of Centers

The Wilsonville Town Center is the nearest center, located to the south of the Elligsen Analysis Area. Wilsonville's center is 166 acres in size, and serves primarily the City of Wilsonville in this southern-most extent of the region. The town center is linked to the analysis area by SW Stafford Road/SW Wilsonville Road (2 miles) or by I-5 from the SW Elligsen Road interchange (2.3 miles). No Tri-Met services currently connect the analysis area to the center. Route 6, Canyon Creek of SMART, the City of Wilsonville's bus service does provide service adjacent to a small portion of the analysis area on SW Elligsen Road.

Wilsonville's Town Center, which is east of I-5, is envisioned to be a dense, mixed used community that creates a walkable, pedestrian-oriented environment. The center is located a short distance from the terminus of the WES Commuter Rail line. Metro's State of the Centers Report shows a higher than average jobs to housing ratio, fewer people and dwellings per acre than desired, and needing more infill and redevelopment to boost urban densities.

The Elligsen Analysis Area was identified by Wilsonville as a site for long-term future urbanization. The city's 20 Year Look process identified this area as a potential mixture for employment and residential use north of SW Elligsen Road and residential use south of SW Elligsen Road. The portion of the analysis area that is made up of Urban Reserve Area 4F has not been identified by a city as a location for future development. Urbanization of the analysis area will not contribute to the purpose and vision of the Wilsonville Town Center as a dense mixed-used environment due to the distance between the two areas and the potential to negatively impact residential markets for developing density within the center by providing an alternative housing market.



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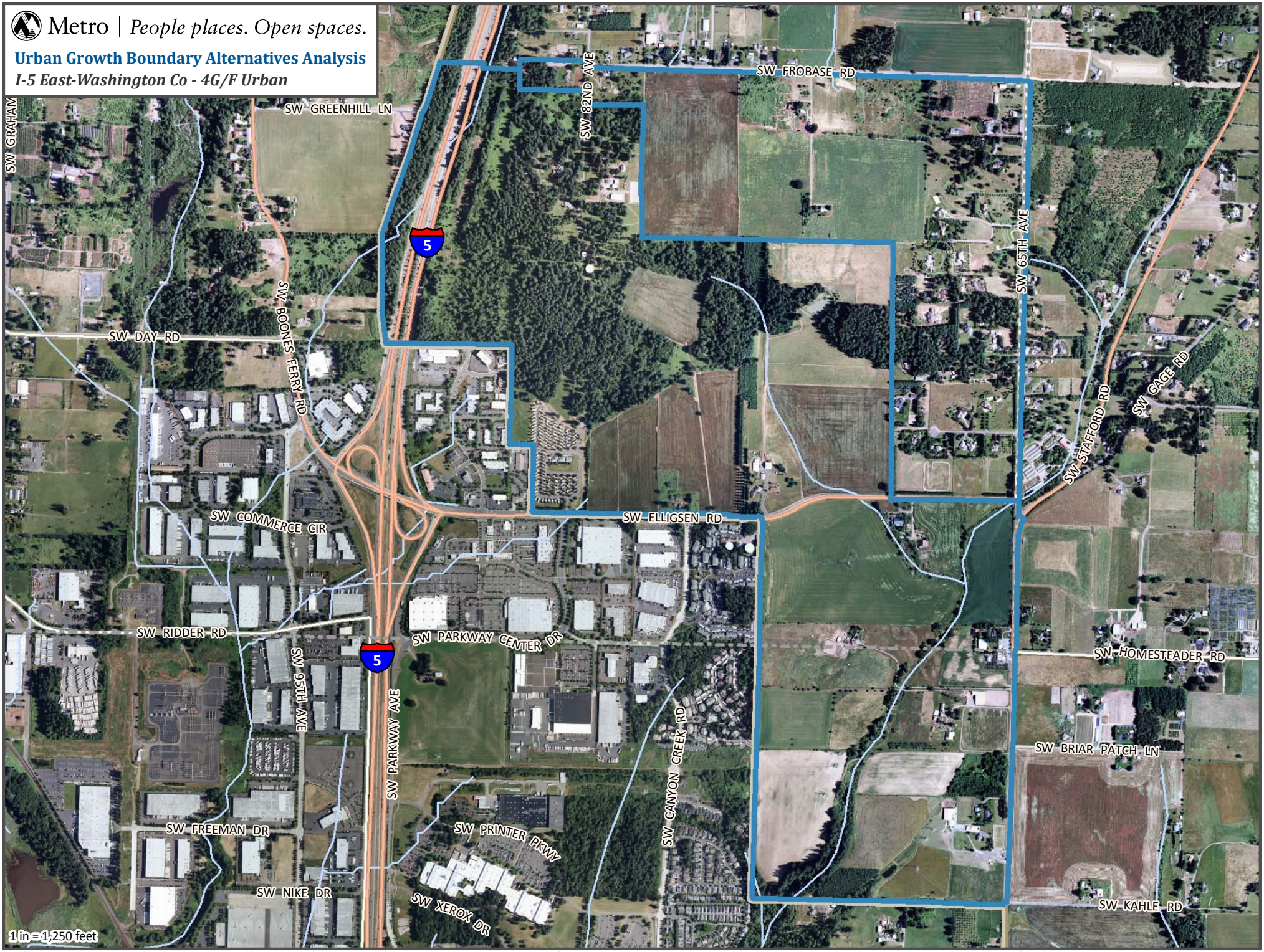
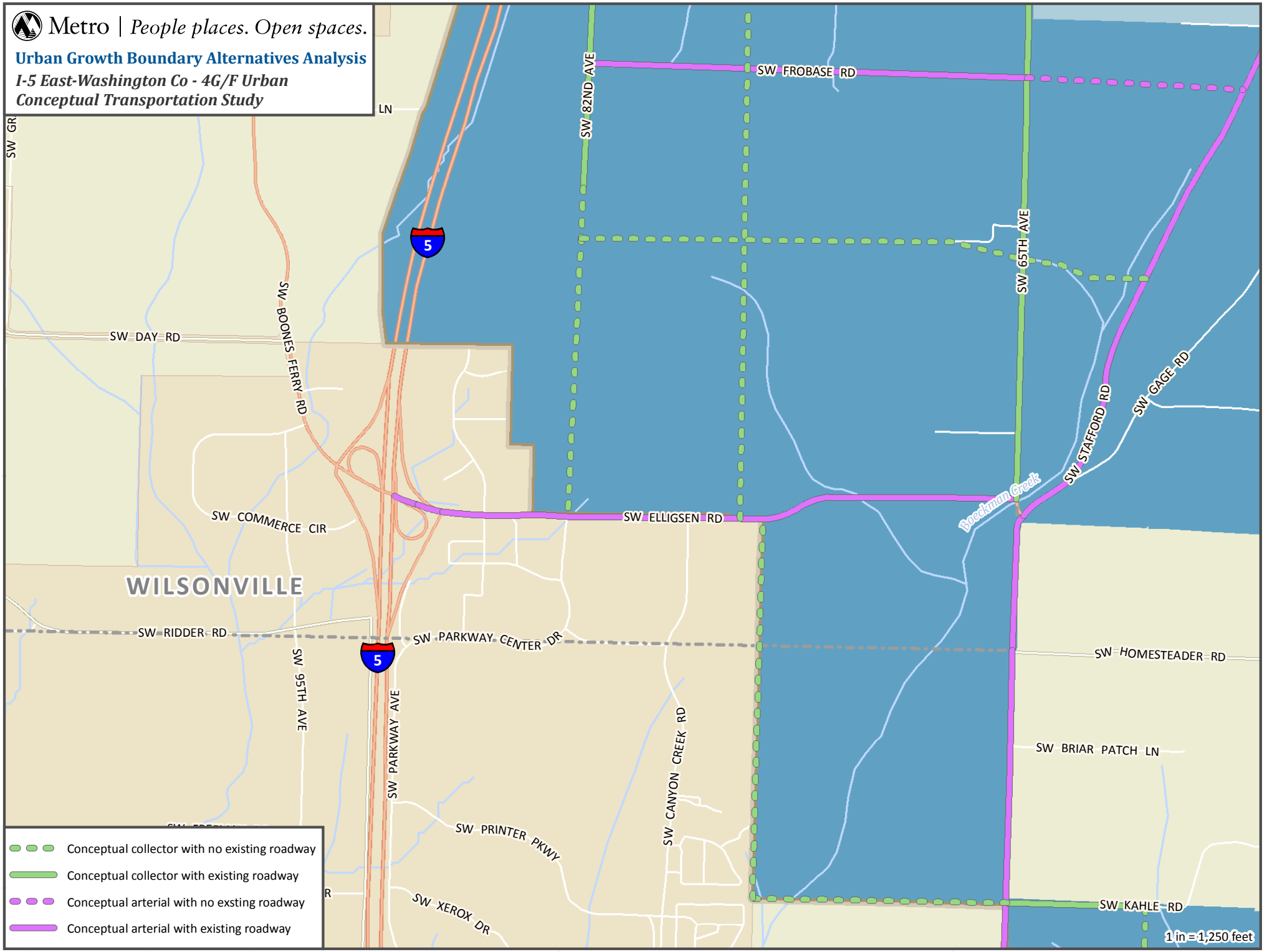
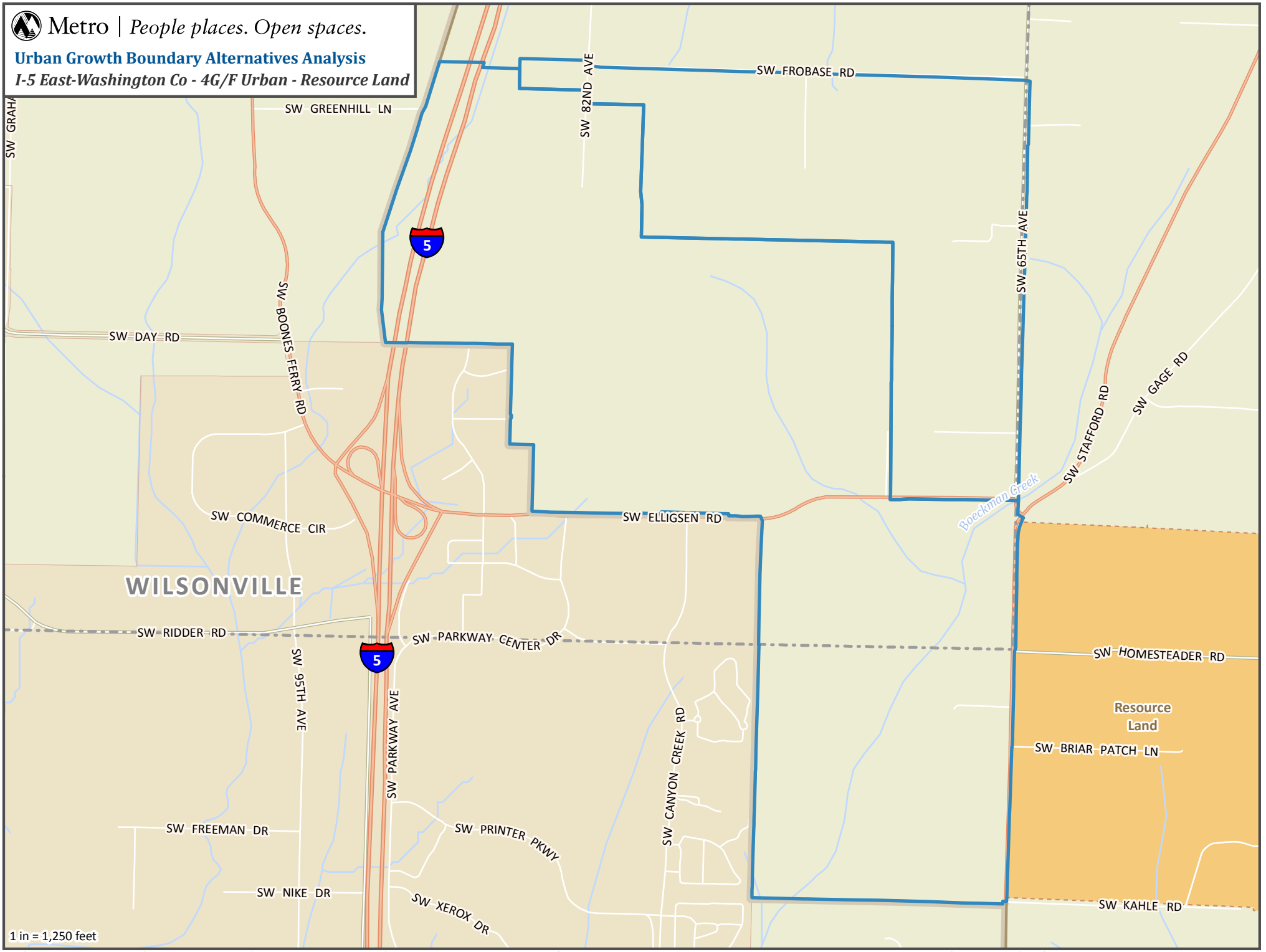
Urban Growth Boundary Alternatives Analysis

I-5 East-Washington Co - 4G/F Urban







ADVANCE ANALYSIS AREA (4H)

Advance Analysis Area		**Total Acres**	**316**
Gross Vacant Buildable Acres	181	Total Constrained Acres	135
Estimated Dwelling Unit Capacity	2,133	• Title 13 Significant Habitat	73
Estimated Employment Acres		• Public Land	40

General Description (see attached map)

The Advance Analysis Area is a rectangular shaped mostly flat area located between the current UGB to the west and Newland Creek to the east and contains a total of 316 acres. It lies just to the east of SW Stafford Road, and straddles SW Advance Road. The area extends as far north as SW Kahle Road, and as far south as SW Kruse Road. The area is directly to the southeast of the Elligsen analysis area (4F/4G). The Advance analysis area is served primarily by SW Advance Road (east/west) and SW Stafford/Wilsonville Road (north/south).

Parcelization, Building Values, Development Pattern (see attached aerial photograph)

The Advance area contains 36 tax lots. Of those 36 lots, ten are at least five acres and account for approximately 259 of the 317 total acres. Median parcel size is 1.75 acres. There is one lot at the north edge of the area that is bisected by the analysis area boundary, at Newland Creek. A majority of the parcels smaller than five acres are clustered in the southeastern quarter of the study area, south of SW Advance Road and east of SW 60th Avenue. At least 21 properties have recorded improvements with a median value of $169,520, although only three have values greater than $250,000. Although there are some improvements present on a few tax lots, the area remains largely undeveloped and in agricultural use, primarily field crops and tree farms.

There is a substantial BPA power line easement running through the northern half of the analysis area that is around 560 ft wide and covers 44 acres. The West Linn-Wilsonville School District also owns four parcels, totaling approximately 40 acres just south of SW Advance Road.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had high suitability for sanitary sewer services, medium suitability for water services and low suitability for transportation connectivity. As part of Clackamas County's urban and rural reserve designation process, the City of Wilsonville indicated that the area can be efficiently and cost-effectively provided with public facilities necessary to support urban development.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of residential or large site industrial development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates. A map of the proposed collector and arterial transportation system is attached to this summary.

Sanitary Sewer Services - $9,788,000

Water Distribution Services - $4,570,000

Storm Sewer Services - $4,513,000

Transportation Services - $107,520,000

Parks - $25,600,000

Schools - $20,000,000 (New Elementary School)

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

No significant wetlands or floodplains are present in the area, although there is about 1 mile of stream corridor and 35 acres of surrounding riparian areas. There are no parks or open spaces within the area, but there is some private commonly-owned open space adjacent to the analysis area inside the UGB to the west. Only 18 acres of land are constrained by steep slopes (>25%), all but three acres of which are within riparian corridors. Future development may impact a small portion of riparian habitat in the far northeast corner of the analysis area, but the majority of this

area can be developed without impacting important environmental resources due to their isolated nature. Attachment 5 contains a breakdown of the environmental factors.

Energy, Economic & Social

This small area is a mixture of limited agricultural activities and rural residences. Fifty-eight percent of the parcels have improvements and 72% of the parcels are less than five acres in size. There are two large parcels each greater than 80 acres in size; however a power line easement cuts through these parcels, limiting developable acreage. The limited agricultural activities combined with most of the natural resources being located on or near the edges of the area, away from the flatter more developable portions, will reduce the potential negative economic impacts of a lost farming economy and costs for protective natural resources. The West Linn-Wilsonville School District owns a 40 acre site that abuts the current UGB and is very close to the existing Wilsonville High School and Boeckman Creek Elementary School, providing the opportunity to connect the analysis area to the existing urban neighborhoods through a significant school campus. In addition, the analysis area is adjacent to the Frog Pond expansion area that was included in the UGB in 2002, providing for additional opportunities to knit the two areas into the urban fabric of Wilsonville, thereby reducing some of the impact of the loss of the rural lifestyle for current residents. The additional VMT generated through urbanization of this small area will be minimal as the average commute distance is similar to the existing commute distance for the region. Overall this analysis area has low economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

Total regionally significant fish and wildlife habitat covers 73 acres mainly concentrated in the northeast corner of the analysis area, all within or along riparian zones, including 38 acres of upland habitat that is contiguous with the riparian areas. In addition, the BPA power line easement runs diagonally adjacent to the main segment of habitat area, providing an additional buffer for the habitat. The City of Wilsonville has adopted a habitat protection program that is in substantial compliance with Metro's Title 13 Nature in Neighborhoods regulations. Based on the limited amount of significant habitat that is adjacent to the flatter developable areas, the overlap of the habitat area with the power line easement and Wilsonville's habitat conservation policies, urbanization of this area can occur with minimal impacts to regionally significant fish and wildlife habitat.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

All but the western edge of the Advance analysis area borders exclusive farm use (EFU) zoned resource land (see attached resource land map). Directly north, between the analysis area and the Elligsen analysis area is an approximately 310-acre block of farm land in field crop and nursery production. There is no edge or buffer between the analysis area and this block of farm land beyond SW Kahle Road which extends almost the entire length of the northern edge. Increased traffic along SW Kahle Road as well as along SW Stafford Road as a result of urbanization will impact the agricultural activities occurring in this location.

Directly east, north of Advance Road, Newland Creek flows south in a wooded ravine about 70-feet below the elevation of the analysis area. The riparian area associated with Newland Creek fluctuates between 1,000 – 1,500 feet wide in this vicinity, effectively providing a buffer to the widespread agricultural activities occurring further east.

South of Advance Road there is a pocket of farm land approximately 200 acres in size located between the analysis area and Newland Creek. This pocket of agricultural land extends south across SW Kruse Road to the Willamette River and is mostly composed of field crops. Directly south of the analysis area is another pocket of farm land approximately 38 acres in size that is located between two small unnamed streams. Increased traffic along SW Kruse Road as well as along SW 53rd Avenue as a result of urbanization will impact the agricultural activities occurring in this location.

Overall, the proposed urban uses for the Advance analysis area would not be compatible with the agricultural activities occurring on the farm land to the north and southeast. The proposed urban uses for the analysis area would be compatible with the agricultural activities that are occurring on farm land to the east due to the wide riparian corridor of Newland Creek.

Clear transition between urban and rural lands, using natural and built features to mark the transition

Newland Creek provides a clear transition between urban and rural lands on the east side of the analysis area. There are no natural or built features to provide a transition on the north and south sides of the analysis area. Additional buffers will need to be incorporated into the planning of the analysis area to provide a clear transition from urban to rural uses along these two edges.

2040 Growth Concept

Contribution to the purposes of Centers

The Wilsonville Town Center is the nearest center, located to the southwest of the Advance analysis area. Wilsonville's Town Center is 166 acres in size, and serves primarily the City of Wilsonville in this southern-most extent of the current UGB. The town center is linked to the analysis area by SW Wilsonville Rd (1.5 miles). No Tri-Met services currently connect the analysis area to the center.

SMART, the City of Wilsonville's bus service does provide limited service adjacent to the analysis area.

Wilsonville's Town Center, which is east of I-5, is envisioned to be a dense, mixed used community that creates a walkable, pedestrian-oriented environment. The center is located a short distance from the terminus of the WES Commuter Rail line. Metro's State of the Centers Report shows a higher than average jobs to housing ratio, fewer people and dwellings per acre than desired, and needing more infill and redevelopment to boost urban densities.

The Advance analysis area is identified in Wilsonville's 20 Year Look process as a site for long-term future urbanization that is expected to provide primarily residential land to help balance the jobs to housing ratio for the city and a new school site. Urbanization of the analysis area is unlikely to contribute to the purpose and vision of the Wilsonville Town Center due to its distance and potential to negatively impact the market for increasing residential density within the center. Although the added residential development the Advance area would help even out the jobs to housing ratio for the entire city of Wilsonville, the distance of this area from the Town Center would more likely increase the imbalance at the center and impede development of a compact, pedestrian-oriented community.

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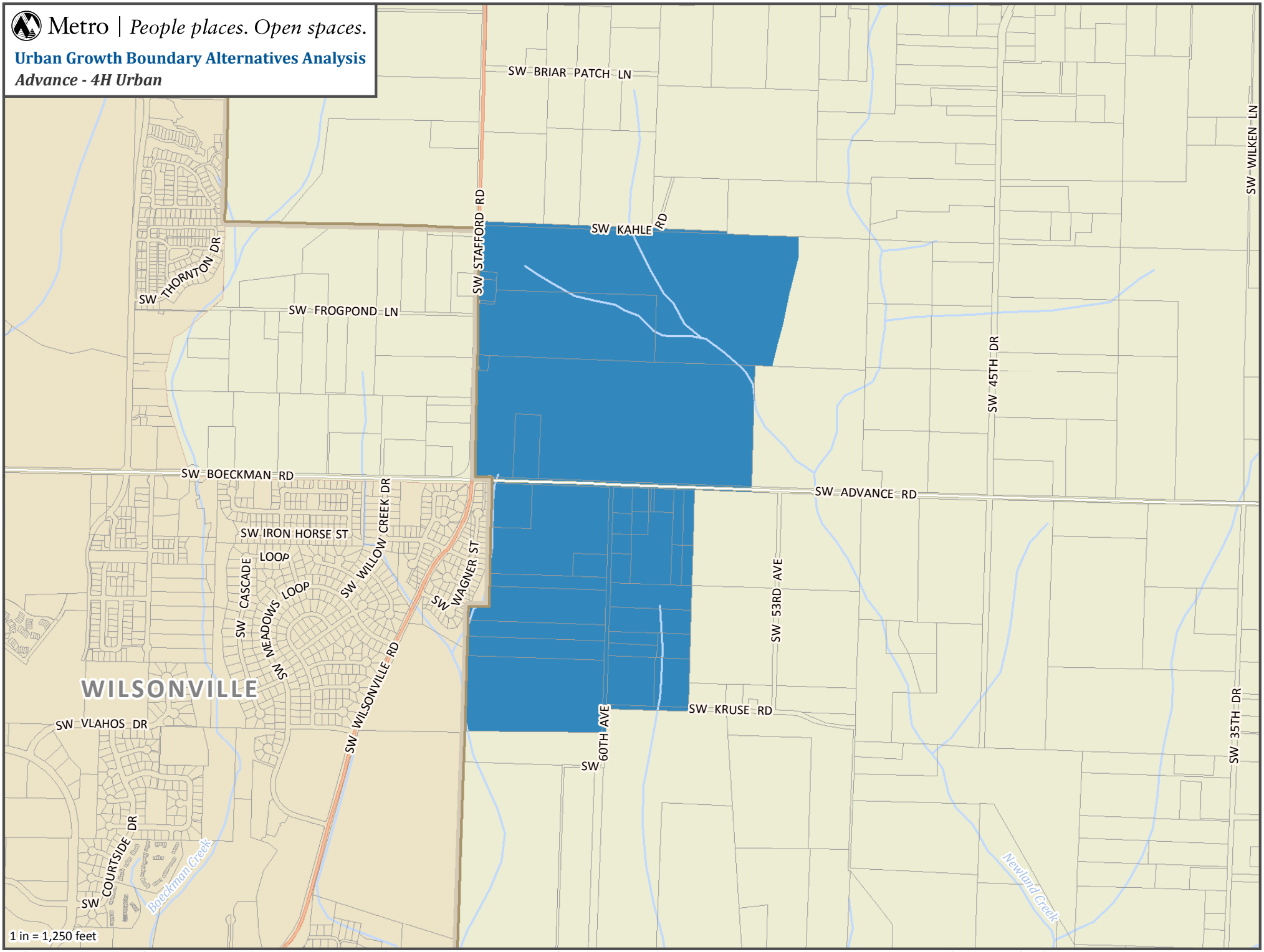
Urban Growth Boundary Alternatives Analysis

Advance - 4H Urban



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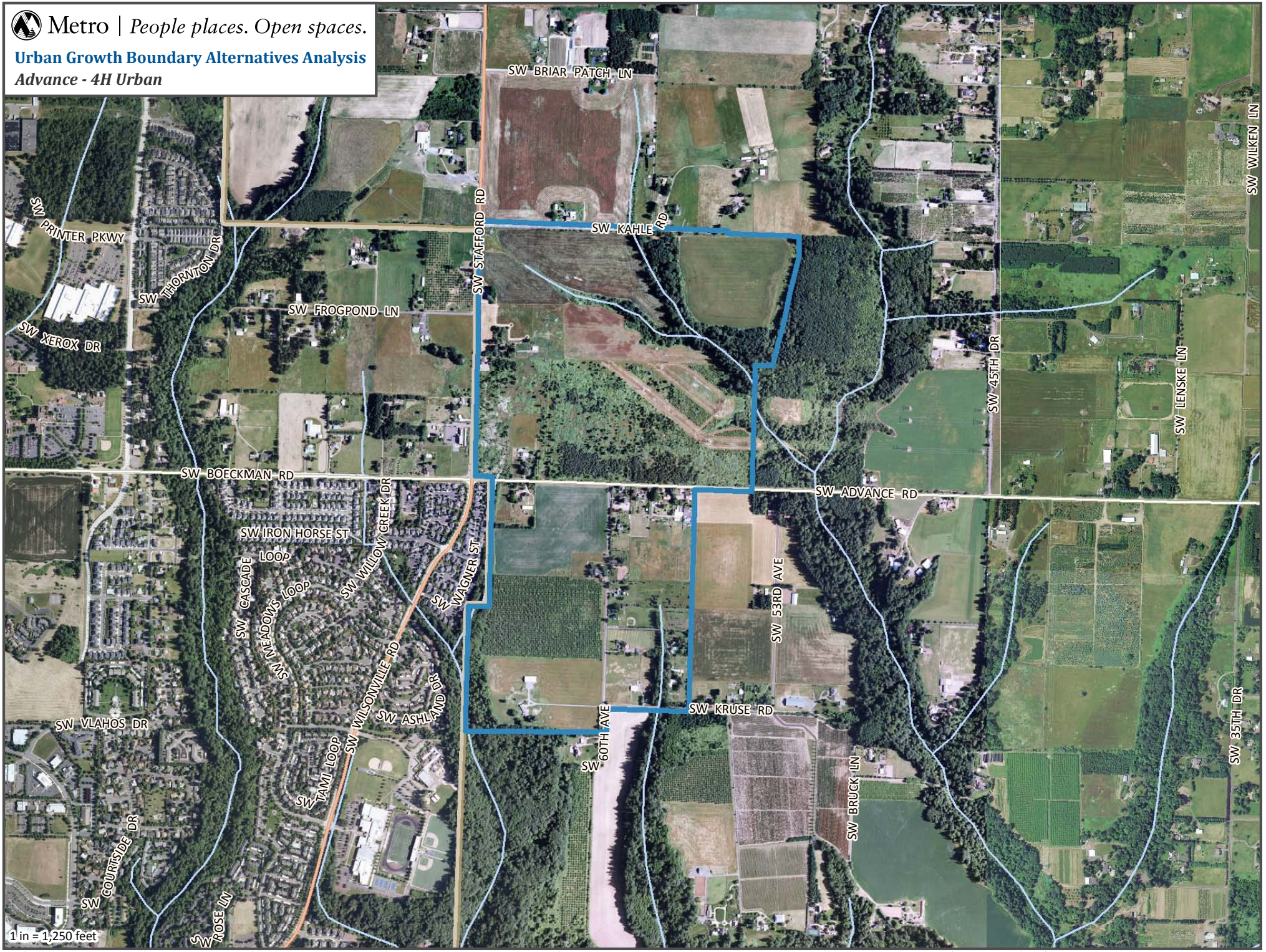
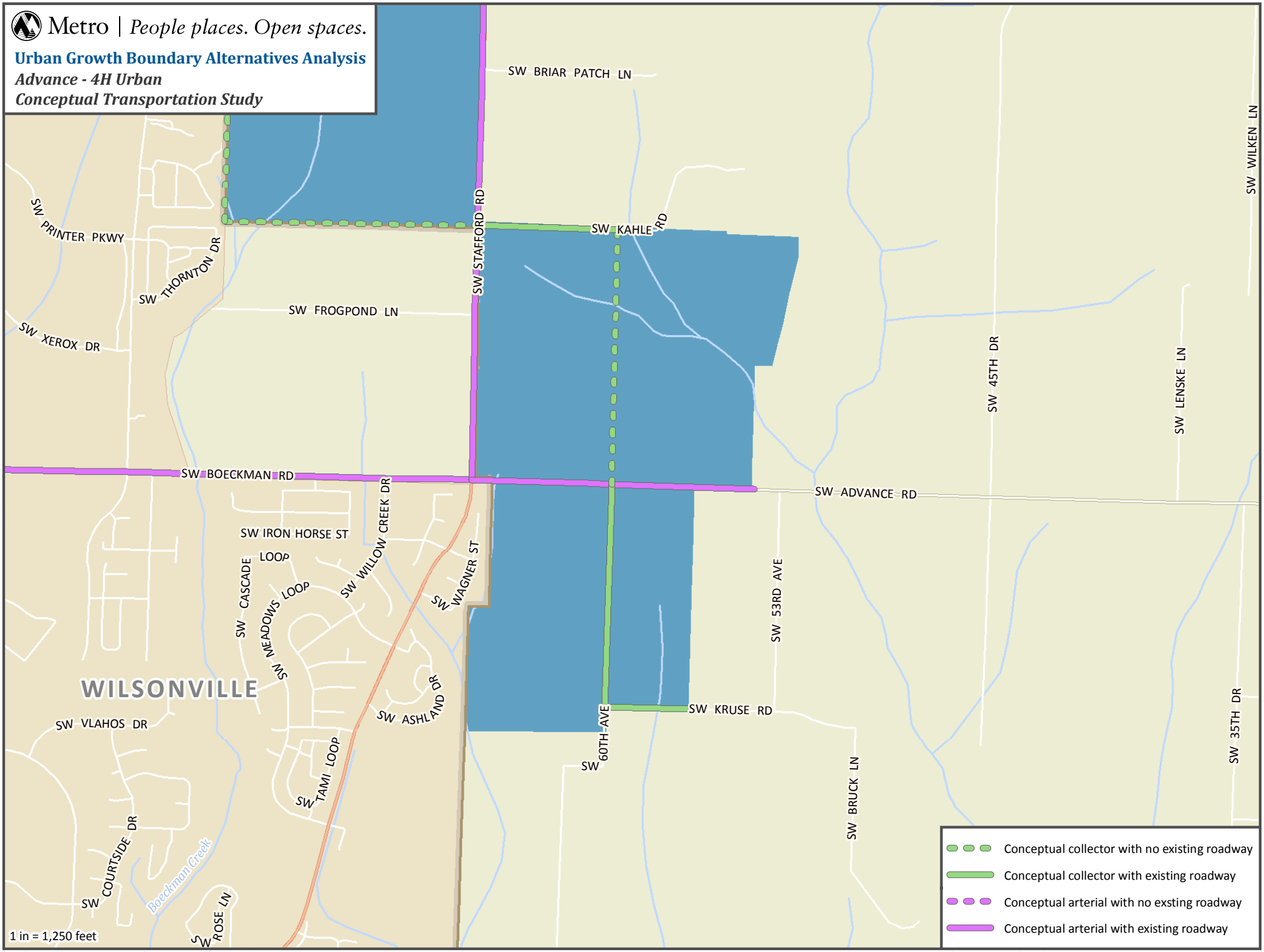
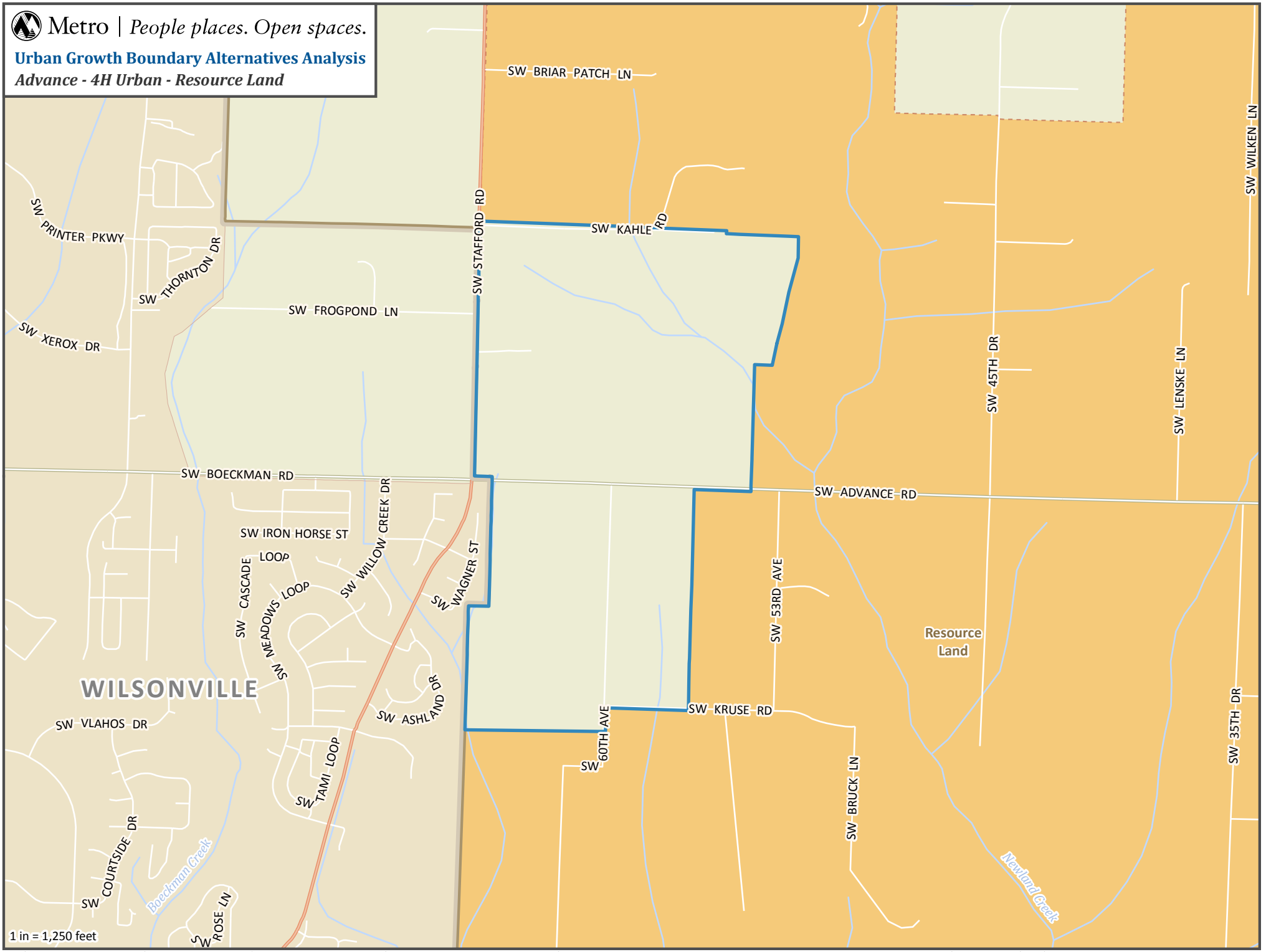
Urban Growth Boundary Alternatives Analysis

Advance - 4H Urban







SHERWOOD WEST ANALYSIS AREA (5B)

Sherwood West Analysis Area		**Total Acres**	**496**
Gross Vacant Buildable Acres	432	Total Constrained Acres	64
Estimated Dwelling Unit Capacity	4,981	• Title 13 Significant Habitat	45
Estimated Employment Acres		• Public Land	5

General Description (see attached map)

The Sherwood West Analysis Area, a portion of the larger Sherwood West Urban Reserve, is located west of the city of Sherwood, along Highway 99W. The area sits between the Pacific Highway (99W) and SW Elwert Road on the east, SW Haide Road to the north, Chicken Creek to the west and SW Chapman Road to the south. SW Kruger Road runs east/west through the center of the study area. The area covers approximately 496 acres, entirely within unincorporated Washington County. Slopes are generally flat, and the landscape is a mix of farm and forested parcels.

Parcelization, Building Values, Development Pattern (see attached aerial photograph)

There are a total of 52 parcels within this area, with 32 parcels of at least five acres accounting for 85% of the total analysis area. The median parcel size is 6.17 acres and no lots are split by the study area boundary. A majority, 33 out of the 52 parcels, have improvements, 13 of which are valued over $250,000. The median improvement value is $214,440. The primary land uses in this area are a mix of agriculture and forested parcels, with rural residences scattered throughout. Agricultural activities include field crops, tree farms and orchards.

There is no evidence of power line easements within the analysis area. The City of Sherwood owns five acres that contains a water reservoir, and Metro owns 40 acres of natural area land just outside of the analysis area to the west (just south of SW Kruger Road).

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had medium/high suitability for sanitary sewer services, medium suitability for water services and high suitability for transportation connectivity for the northern portion of the analysis area. The southern portion was not evaluated for transportation connectivity. The City of Sherwood's Pre-Qualifying Concept Plan, completed as part of the Washington County urban and rural reserve designation process, indicates that the city has the ability and willingness to provide urban services to this area.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of residential development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates. A map of the proposed collector and arterial transportation network is attached to this summary.

Sanitary Sewer Services - $18,760,000

Water Distribution Services - $8,935,000

Storm Sewer Services - $8,949,500

Transportation Services - $145,460,000

Parks - $69,240,000

Schools - $80,000,000 (New Elementary School)

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

Chicken Creek flows along the northwest corner of the area, and a small wetland of less than one acre forms the start of Goose Creek in the southeast portion of the study area. These two creeks have a total of eight acres of associated riparian habitat and several acres of steeper slopes (>25%) within the analysis area boundary. There are an additional 36 acres of upland habitat concentrated

in the northwest and just south of SW Kruger Rd, and a total of 23 acres of steep slopes occurring within much of the habitat. With the exception of the ravine along Goose Creek and the small wetland that marks its origin, the analysis area is either in active agricultural use or does not contain important environmental features. Current conditions therefore indicate that future urbanization can occur throughout much of the analysis area without significantly impacting environmental resources. The small riparian area along Goose Creek is isolated near the edge of the area and can be protected, reducing the potential risk from development. Attachment 5 contains the breakdown of the environmental factors.

Energy, Social & Economic

This medium sized area, with 62% of the parcels larger than five acres in size, is a mixture of agricultural activities and rural residences on larger parcels. Sixty-three percent of the parcels have improvements. Urbanization will impact the rural lifestyle for current residents as the median size of the parcels is 6.17 acres, which represents fairly large home sites. There are a few significant pockets of agricultural activities, ranging in size from 40-80 acres. The loss of the economic impact from these agricultural uses may be considerable; however the potential economic impact of urbanization on these relatively flat lands will outweigh this loss. Approximately eight percent of the land is identified as containing riparian habitat located near the edges of the analysis area. The costs for protecting these smaller isolated resources will be small in contrast to the potential economic impact of urbanizing the larger areas in between. Additional VMT will be generated through urbanization of this medium sized area as the average commute distance for this area on the southwestern edge of the region is larger than the existing commute distance for the region. Overall this analysis area has low economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

A finger of significant riparian and upland habitat extends into the area along Goose Creek. With the exception of this habitat area and a small area of significant riparian habitat in the far northwest corner near Chicken Creek, there is a minimal amount of regionally significant habitat within the analysis area. The small block of upland habitat occurring in the northern-most portion of the area is characterized by steeper slopes that will prevent pressure from development, but the riparian and upland habitat surrounding Goose Creek could be impacted by urbanization as the adjacent area is flat and near Highway 99W. The City of Sherwood, the expected governing body, has adopted habitat protection measures that are in compliance with Metro's Title 13 requirements as part of the Tualatin Basin Natural Resource Coordinating Committee's protection program. Given that the pockets of habitat area are isolated and the expected protection measures that will be in place prior to urbanization, development could occur in a manner with minimal impact to the regionally significant habitat areas.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

A block of resource land zoned AF-20 is located west of the urban reserve between SW Chapman Road and SW Kruger Road, and extends just over 1 mile to the Washington County line (see attached resource land map). Chicken Creek flows north through the resource land area that is a mixture of forested and open parcels that includes some rural residences and a small amount of agricultural activities, including a vineyard. Two unnamed tributaries to Chicken Creek flow in an easterly direction through the area. The rural residences along SW Delanos Place in combination with the Chicken Creek riparian area provide a buffer for the limited agricultural activities that occur to the west; therefore the proposed urban uses are generally compatible with the nearby agricultural activities occurring on this block of farm and forest land.

A second block of resource land zoned AF-20 shares a 1/3 mile edge with the analysis area to the south. This is the same AF-20 zoned land that is west of the Sherwood South analysis area, on the west side of Highway 99W. There is a small amount of field crops and an equestrian center within the resource land area just to the south of the analysis area. A pocket of rural residential zoned land adjacent to Chicken Creek provides a buffer to the remaining AF-20 zoned land to the west. The location of the large equestrian center, the pocket of rural residential zoned land and to a lesser extent Chicken Creek combine to provide separation between the analysis area and the majority of the agricultural activities that are occurring on the nearby farm land.

Overall, proposed urban uses in the Sherwood West analysis area would generally be compatible with nearby agricultural and forest activities occurring on farm and forest land outside the UGB.

Clear transition between urban and rural lands, using natural and built features to mark the transition

The UGB borders this analysis area on the east side. The Chicken Creek riparian corridor provides a transition on the west and northern edges and to a lesser extent on the southern edge of the analysis area. The equestrian center functions as a transition area between urban and rural uses as this large facility is more developed than a typical rural use, while at the same time focusing on a rural use. Therefore, there is a clear transition between urban and rural lands using both natural and built features/specialized uses.

2040 Growth Concept

Contribution to the purposes of Centers

The Sherwood Town Center is the only center near the Sherwood West analysis area. It is a small town center of 88 acres, located to the northeast of the analysis area at the intersection of the SW Pacific Hwy (99W) and SW Tualatin-Sherwood Road. The center serves the community of Sherwood and the surrounding rural areas at the southwest edge of the region. Sherwood West is connected to the center via Highway 99W (approximately 1 mile) and there are currently no transit connections between the two locations. Tri-Met does have two bus routes serving the Sherwood Town Center, lines 12 and 94.

According to Metro's State of the Centers Report, January 2009, the Sherwood Town Center's jobs to housing ratio is higher than ideal and the total number of people per acre is low, indicating that there may be a need to attract and develop more housing within the center. The center also has a much lower than average number of dwellings per acre than other town centers. Based on the pre-qualified concept plans that were developed as part of the urban and rural reserve designation process, the City of Sherwood envisions the analysis area developing with a mix of limited commercial and residential uses. Urbanization of the Sherwood West area will not support developing increased residential units or employment opportunities within the center and ultimately may impede the creation of a compact, walkable community the city desires for the town center.

Sherwood foresees the potential need for a new station community in the southwest edge of the city to accommodate planned transportation system improvements such as a light rail or other public transit options for the area. As part of the city's pre-qualified concept planning, a portion of the analysis area was identified as a potential site for a new station center in Sherwood. The development of a new high capacity transit line along with the urbanization of the greater urban reserve areas adjacent to the city may support a new center in this location in the long term.

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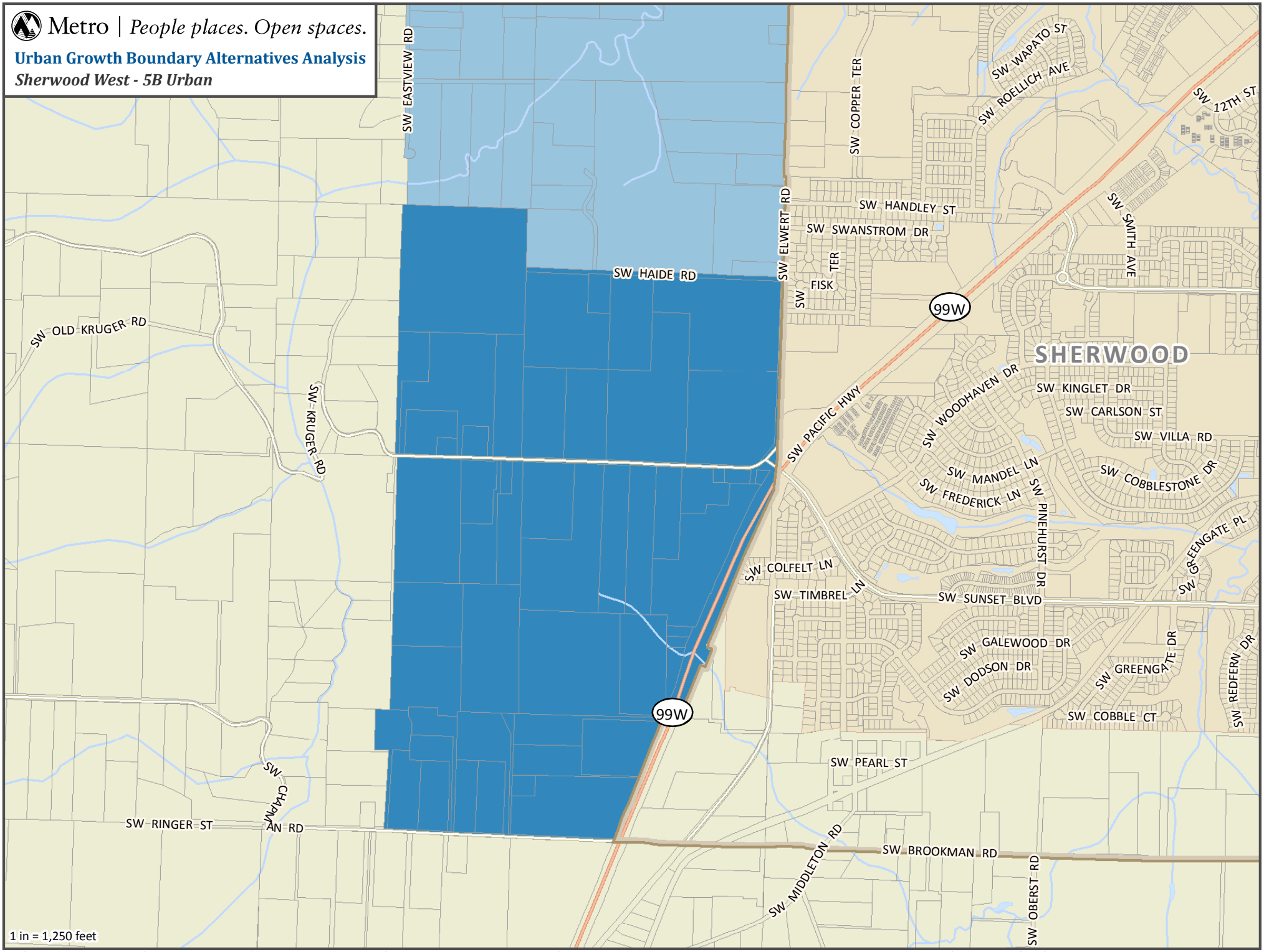
Urban Growth Boundary Alternatives Analysis

Sherwood West - 5B Urban



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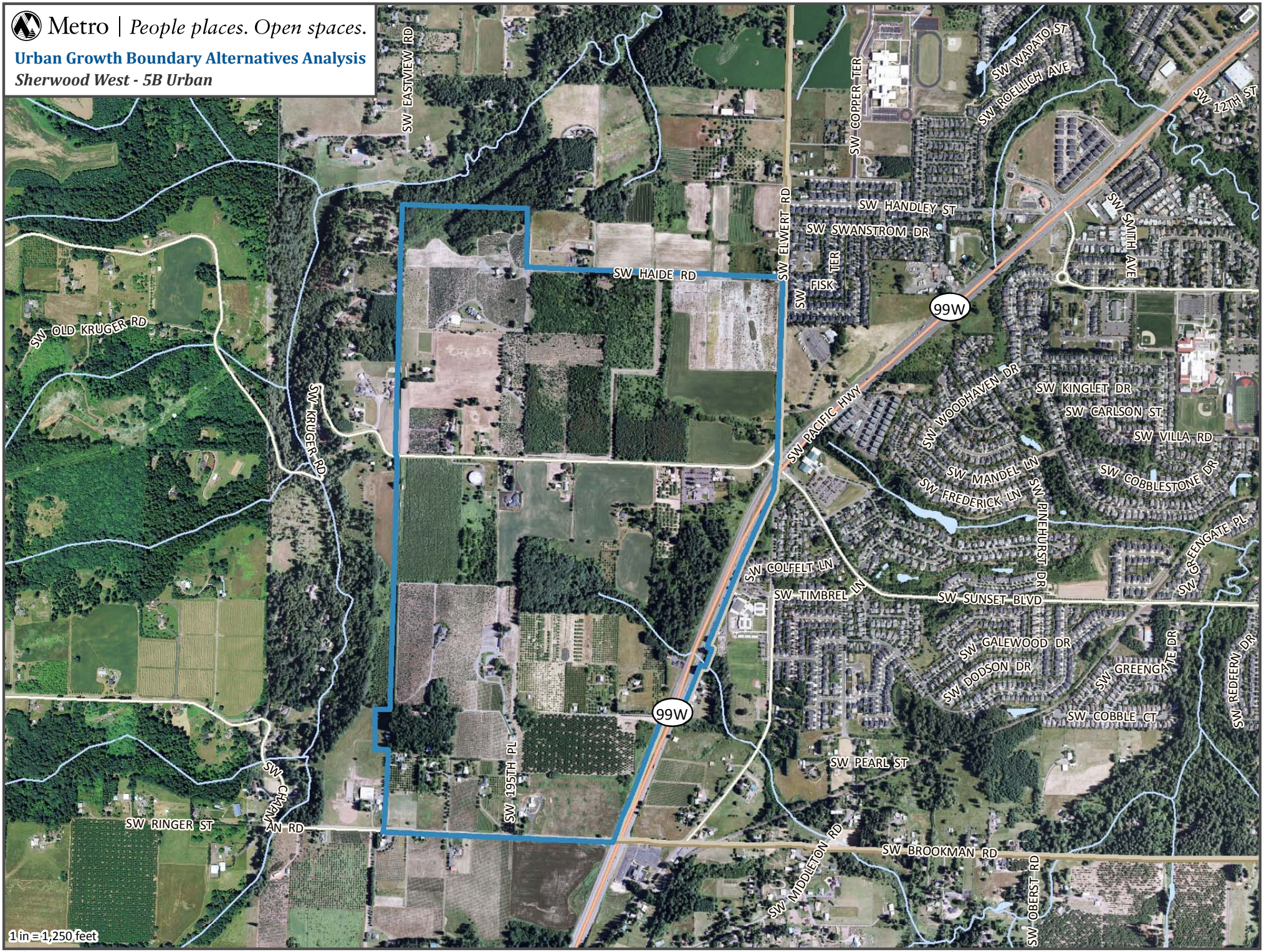
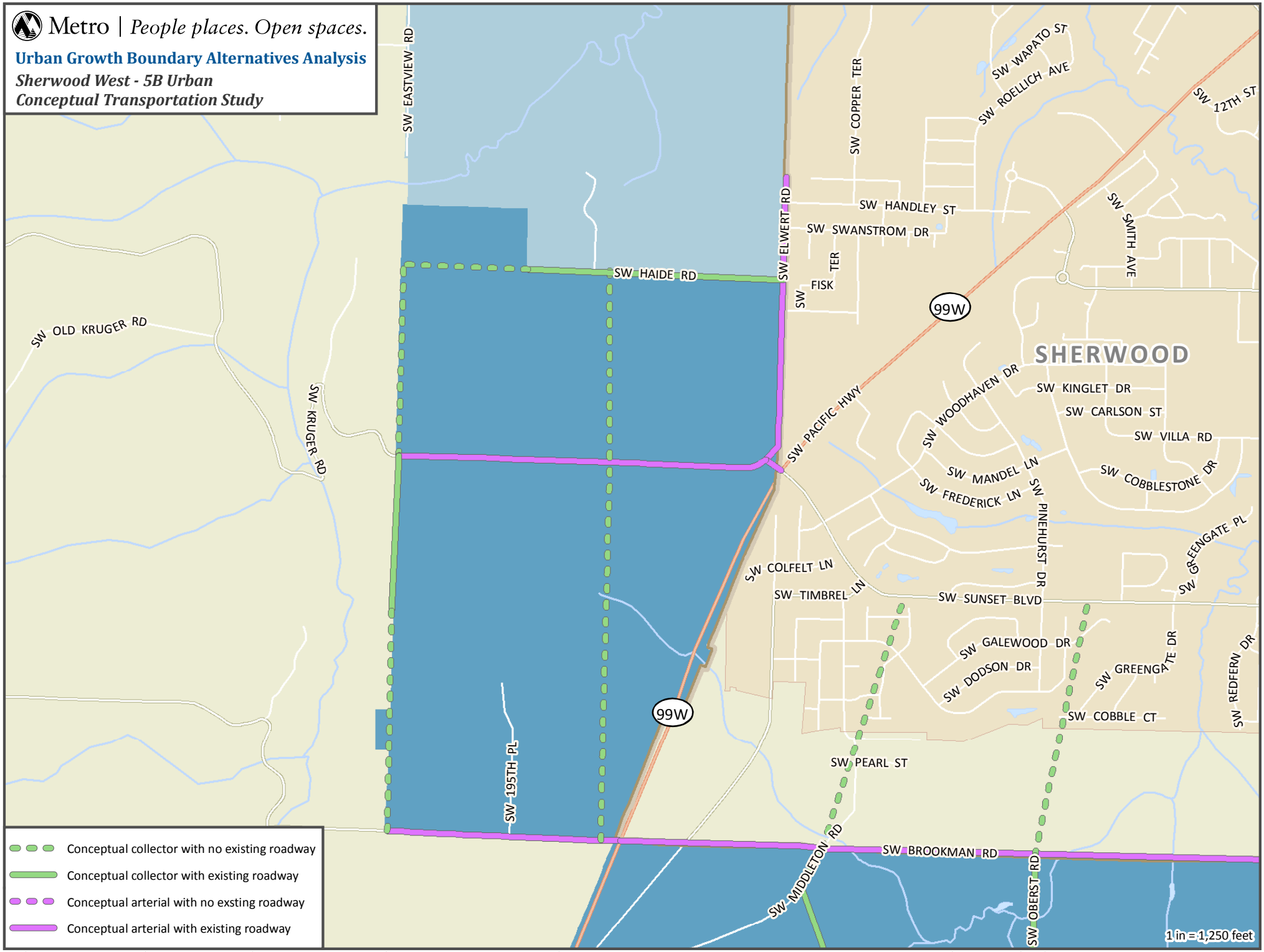
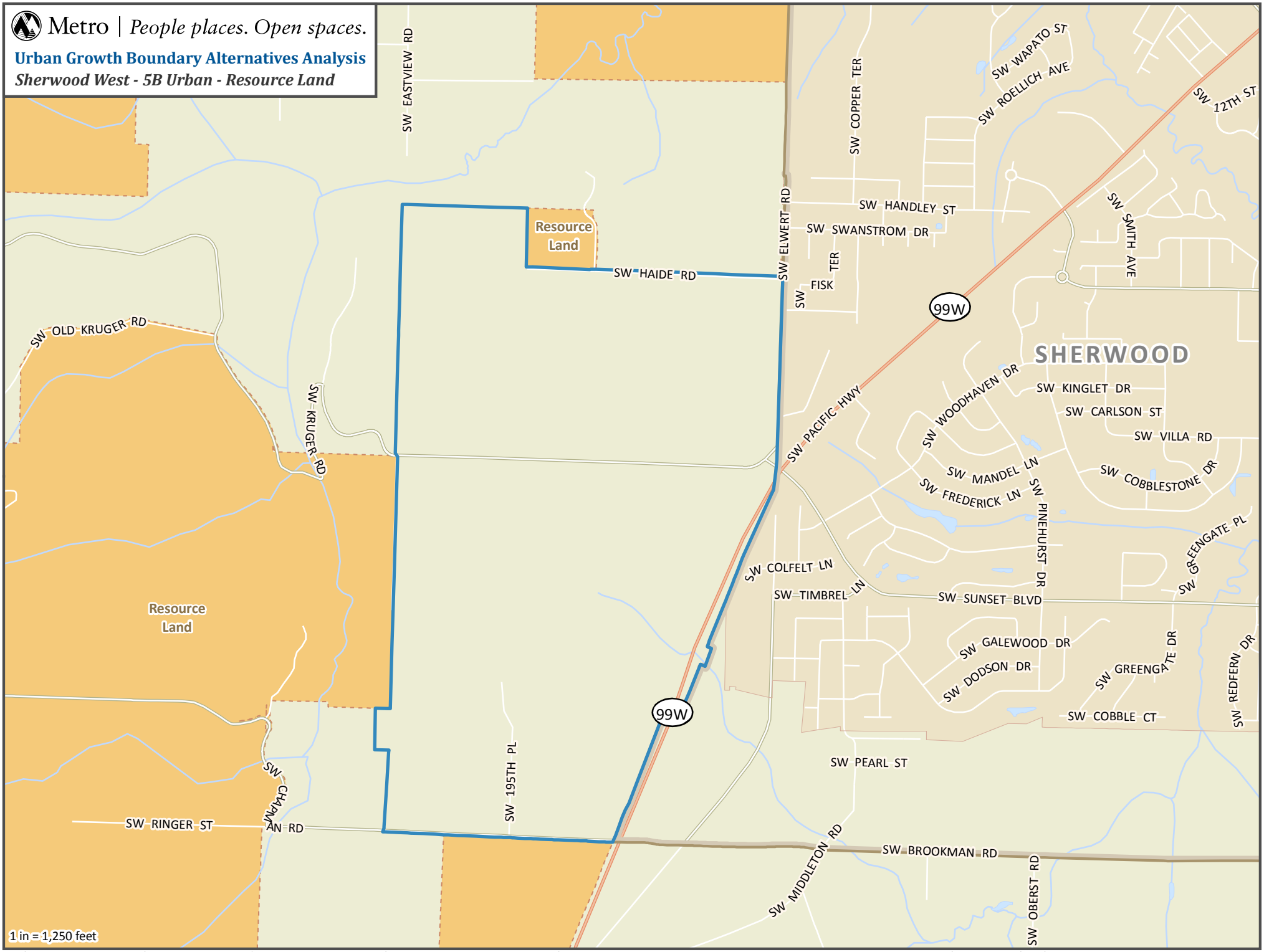
Urban Growth Boundary Alternatives Analysis

Sherwood West - 5B Urban







SHERWOOD SOUTH ANALYSIS AREA (5D)

Sherwood South Analysis Area		**Total Acres**	**447**
Gross Vacant Buildable Acres	216	Total Constrained Acres	231
Estimated Dwelling Unit Capacity	1,902	• Title 13 Significant Habitat	204
Estimated Employment Acres		• Public Land	4

General Description (see attached map)

The Sherwood South Analysis Area, is a medium sized rectangular area just south of the City of Sherwood with a total area of 447 acres. The area is a mixture of flat plateaus intermixed with stream corridors in ravines and forested areas. The area contains the confluence of Goose and Cedar Creeks. Southwest Brookman Road and the current UGB form the north boundary, Pacific Highway (99W) forms the western edge, and tax lot lines define the south edge and the Clackamas-Washington County line forms the east edge. There is one lot that is split by the study area boundary along its southern edge. The area is served by SW Brookman Road, Highway 99W, and SW Middleton Road. The entire area is within unincorporated Washington County.

Parcelization, Building Values, Development Pattern (see attached aerial photograph)

The South Sherwood Analysis Area contains 82 parcels, one of which is only partially within the study area (28 out of 67 acres of that parcel lie within the study area). There are 36 parcels of at least five acres, and a median parcel size of 4.32 acres. Of the 447 total acres, 367 are accounted for by parcels of five acres or more. Improvements are recorded for 68 of the 82 tax lots, with a median value of $130,795. Only 11 of those lots have improvements valued over $250,000. Land use is composed of primarily rural residential in the western half, and a mix of agriculture and forested parcels in the eastern half. It appears that a large portion of the agricultural use is for tree farms and orchards, and minimal use for crop cultivation.

Available data does not suggest the existence of power lines within the analysis area. The State of Oregon owns one small 4 acre parcel in the north central part of the area, along SW Labrousse Road.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had medium suitability for sanitary sewer services and water services. This location was not evaluated for transportation connectivity. The City of Sherwood's Pre-Qualifying Concept Plan, completed as part of the Washington County urban and rural reserve designation process, indicates that the city has the ability and willingness to provide urban services to this area.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of residential development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates. A map of the proposed collector and arterial transportation network is attached to this summary.

Sanitary Sewer Services - $9,988,000

Water Distribution Services - $4,925,000

Storm Sewer Services - $4,483,500

Transportation Services - $178,120,000

Parks - $35,000,000

Schools - $300,000 (Increased maintenance costs, no new schools)

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

Two creeks flow through the area: Cedar Creek from the southwest and Goose Creek from the northwest. The two creeks join together near the center of the analysis area, and continue north through the city of Sherwood to ultimately flow into the Tualatin River. Two additional unnamed creeks flow through the east side of the area, joining Cedar Creek to the north of the analysis area boundary. There are 45 acres of constrained steep slopes over 25%, 20 of those acres occurring within riparian corridors. A floodplain area along both Cedar and Goose Creeks covers 44 acres.

No parks or open space areas are identified within or adjacent to this study area. The locations of the streams result in the analysis area being broken up into small segments of non-constrained land. As a result of this fragmented landscape, urbanization of the area in a well connected manner could highly impact the natural resources. If urbanization occurs in a more segmented manner impacts to significant environmental resources can be reduced. Overall, urbanization of this area will impact the natural resources to some degree, depending on the urban form. Additionally, it should be noted that the City of Sherwood has preserved the Cedar Creek riparian area that currently is within the city limits by integrating the stream corridor into the urban form and as a result creating an amenity for its citizens. Attachment 5 contains the breakdown of the environmental factors.

Energy, Social & Economic

This medium sized area is divided into 82 parcels with 56% of the parcels less than five acres in size. The area contains limited agricultural activities and numerous rural residences, evident by improvements on 83% of the parcels. The minimal level of agricultural activities will reduce the potential negative economic impacts of a lost farming economy. There are 2.87 miles of streams and approximately 45% of the land is identified as containing habitat areas, which are dispersed throughout the analysis area. The costs for protecting these large resource areas will be considerable in contrast to the potential economic impact of urbanizing the developable lands in between in a well connected manner. Directly to the north is an area that was brought into the UGB in 2002, but is currently undeveloped. Once this area is developed to urban levels, the loss of the rural lifestyle for the current residents of the analysis area may be less, as they will be closer to urban amenities. Development of the two areas together may provide efficiencies in infrastructure financing and delivery of services. Additional VMT will be generated through urbanization of this medium sized area as the average commute distance for this area on the southwestern edge of the region is larger than the existing commute distance for the region. Overall this analysis area has medium economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

A total of 4.5 acres of wetlands are scattered throughout the area, along with 98.6 acres of regionally significant riparian habitat along Cedar and Goose Creeks as well as the smaller drainages. An additional 105 acres of regionally significant upland habitat extend beyond the riparian corridors in the area, with a large cluster located along the south edge of the analysis area between Cedar and Goose Creeks. Future development opportunities will be limited due to the dispersed locations of significant habitat throughout the area. The City of Sherwood, the expected governing body, has adopted habitat protection measures that are in compliance with Metro's Title 13 requirements as part of the Tualatin Basin Natural Resource Coordinating Committee's protection program. The expected protection measures that will be in place prior to urbanization will help protect much of the habitat, however the need for connecting the dispersed developable areas together will result in impacts to some significant habitat areas.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

There is a 127 acre block of resource land zoned agriculture forest 20 (AF-20) directly south of the analysis area between SW Ladd Hill Road and SW Labrousee Road (see attached resource land map). The majority of the resource land is forested with one rural residence and a very limited amount of agricultural activities occurring. Two unnamed tributaries to Cedar Creek flow north through the forested portion of the resource land area in ravines up to 200-feet deep. As there is a very limited amount of agricultural activities and no indication of forest activities occurring in this resource land area, the proposed urban uses are generally compatible with the nearby agricultural and forest activities occurring on this farm and forest land.

A second block of resource land zoned AF-20 is located west of the analysis area, on the west side of Highway 99W between SW Chapman Road and SW Gimm Lane, and extends approximately 1 ½ miles to the Washington County line. Agricultural activities near Highway 99W include a small amount of orchard and field crops and a 44-acre equestrian center. The Highway 99W right-of-way, which is approximately 150-feet in width, provides a good edge to the analysis area in this location. In addition, the equestrian center is essentially a developed use that supplements the buffer of the highway for the majority of the agricultural activities that occur to the west. Due to the fairly wide highway right-of-way and the location of the equestrian center, the proposed urban uses are generally compatible with the nearby agricultural activities occurring on this farm and forest land.

There is a third 438 acre block of resource land zoned AF-20 located approximately ¼ mile south of the analysis area along SW Rein Road. This resource land area is approximately 100-feet higher in elevation and is separated by a number of rural residences. As this block of resource land is not directly adjacent to the analysis area, and there are a number of rural residences located on the slope between the two areas, the proposed urban uses would be compatible with nearby agricultural or forest activities occurring on this farm or forest land.

Overall, proposed urban uses in the Sherwood South analysis area would generally be compatible with nearby agricultural and forest activities occurring on farm and forest land outside the UGB.

Clear transition between urban and rural lands, using natural and built features to mark the transition

The UGB borders this analysis area on the north side. Along the short eastern edge of the area there is a change in elevation of around 100-feet up to SW Ladd Hill Road, resulting in a small natural feature that provides some transition area between the urban and rural lands. This strip of land includes rural residences on mostly forested lots and the headwaters of a small tributary to Cedar Creek that flows within the analysis area. Along the southern edge of the analysis area is a significant change in elevation of approximately 800-feet up to SW Parrett Mt. Road that provides a transition area between the urban and rural lands. There are a number of rural residences located in this area as well as a significant amount of private open space associated with Parrett Mountain View Estates. The combination of change in elevation and private open space provides a transition between urban and rural lands using a natural feature. Highway 99W provides a built feature transition area between urban and rural uses along the western edge of the urban reserve area. Therefore, there is a clear transition between urban and rural lands using both natural and built features.

2040 Growth Concept

Contribution to the purposes of Centers

The Sherwood Town Center is the nearest center to the Sherwood South analysis area. It is a small town center of 88 acres, located to the north of the analysis area at the intersection of the SW Pacific Hwy (99W) and SW Tualatin-Sherwood Road. The center primarily serves the community of Sherwood and the surrounding rural area located in the southwest edge of the region. The analysis area is connected to the center via Highway 99W (approximately 1 mile) and there are currently no transit connections. Tri-Met does have two bus routes serving the Sherwood Town Center, lines 12 and 94.

According to Metro's State of the Centers Report, January 2009, the Sherwood Town Center's jobs to housing ratio is higher than ideal and the total number of people per acre is low, indicating that there may be a need to attract and develop more housing within the center. The center also has a much lower than average number of dwellings per acre. Currently the City of Sherwood envisions the analysis area developing primarily as residential, with a limited amount of commercial use while preserving a large area of riparian habitat. Urbanization of the Sherwood South area is unlikely to support developing increased residential units or employment opportunities within the center and ultimately may impede the creation of a compact, walkable community the city desires for the town center by providing alternative housing options.

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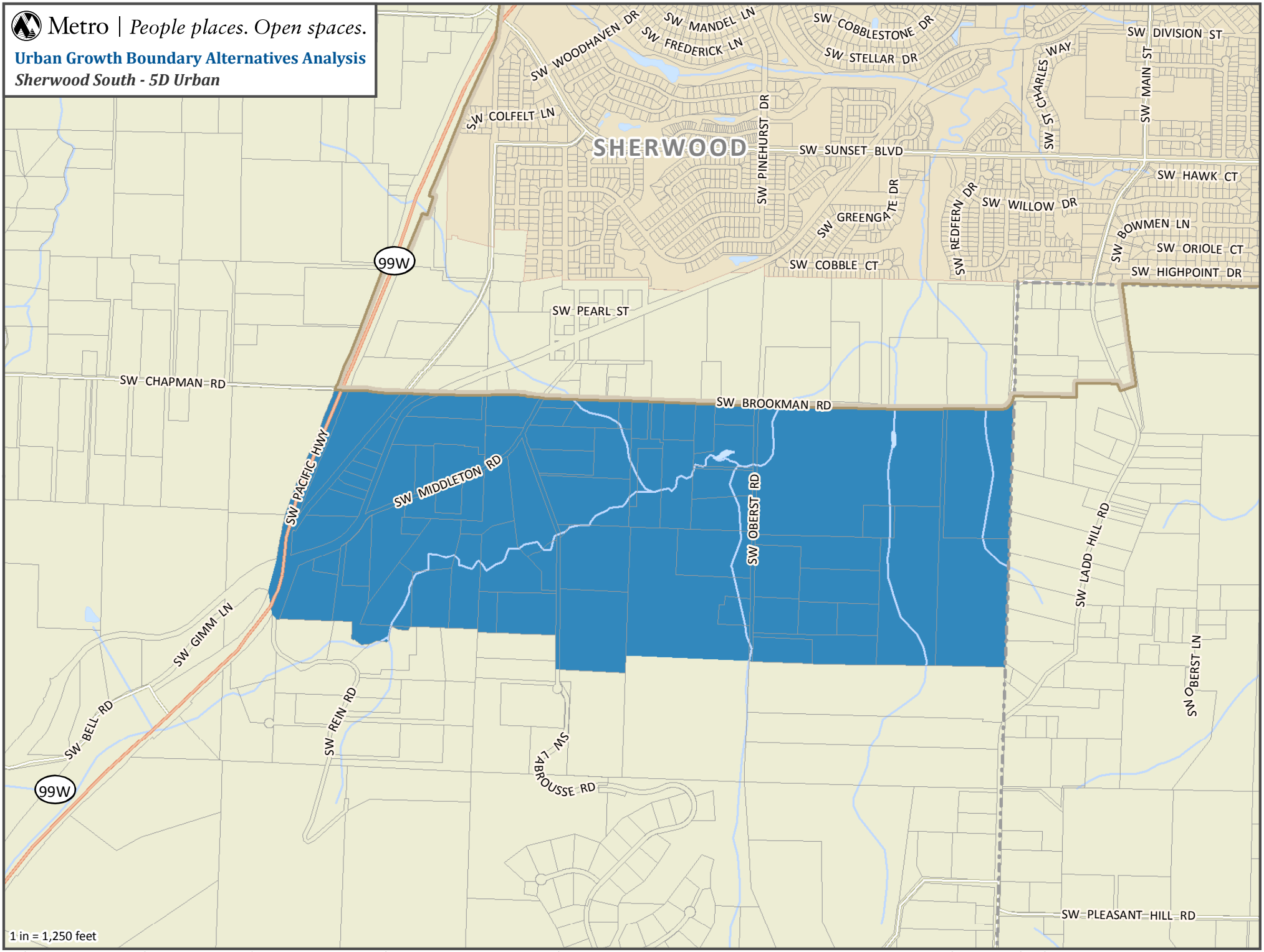
Urban Growth Boundary Alternatives Analysis

Sherwood South - 5D Urban



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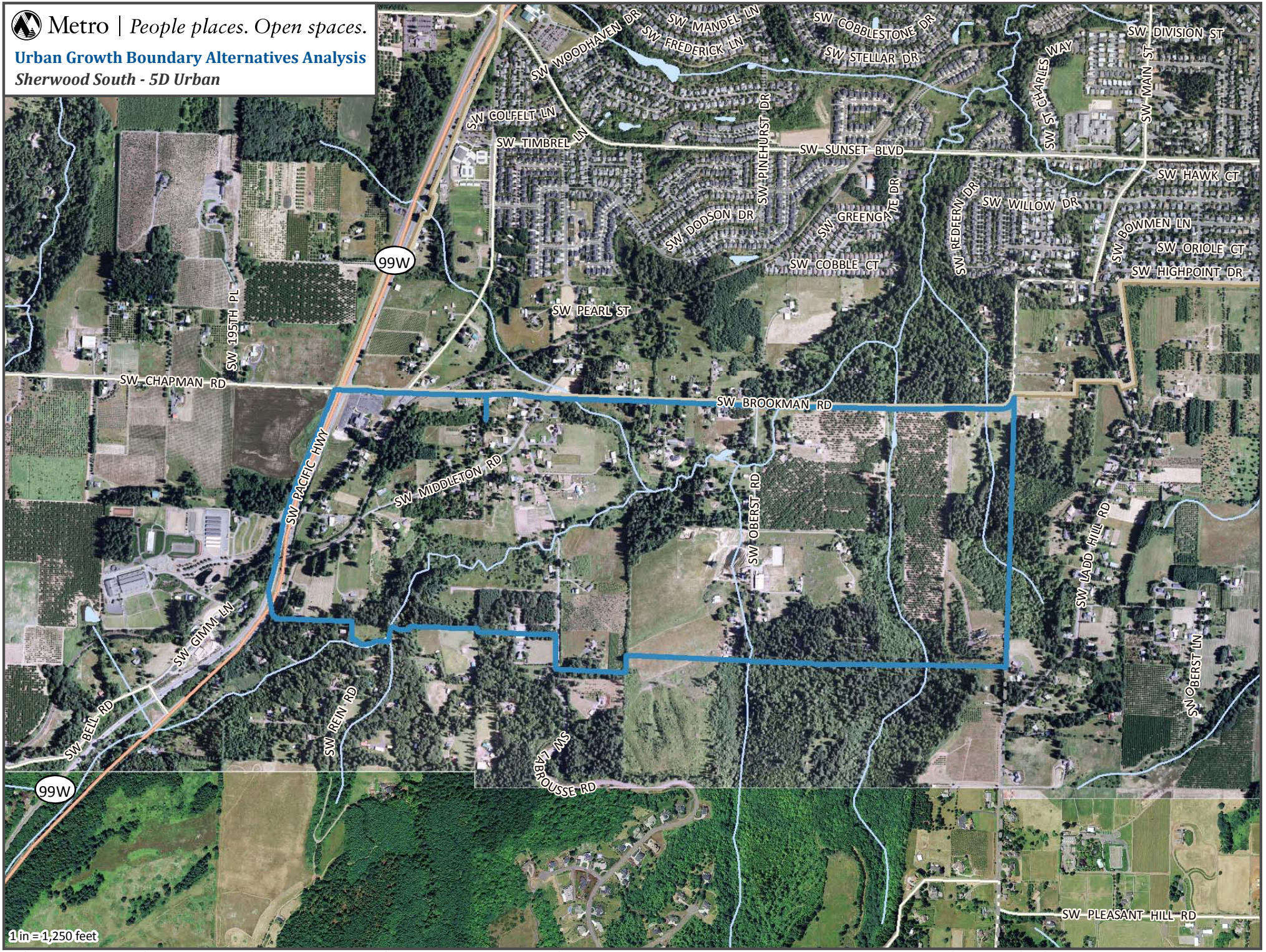
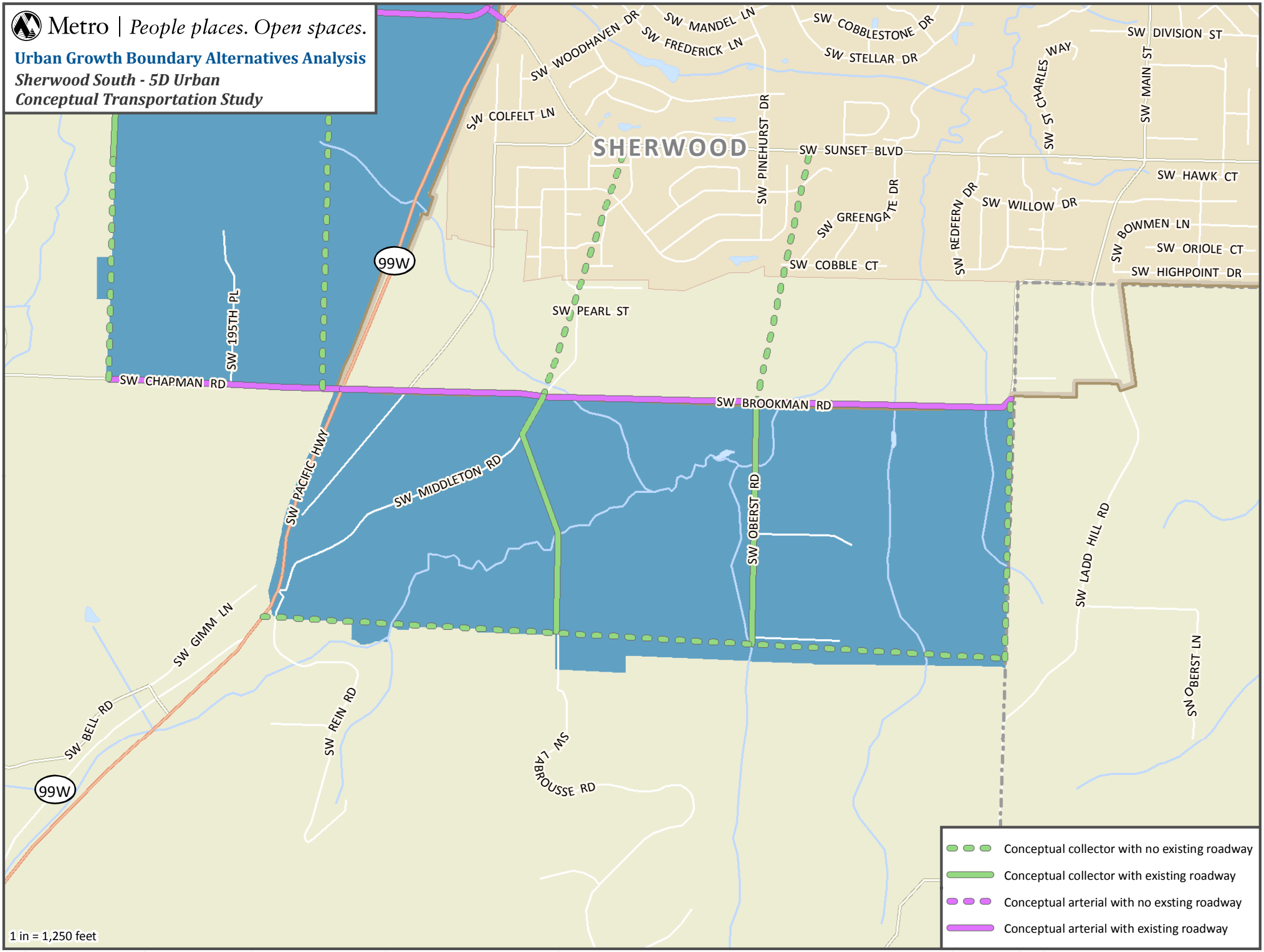
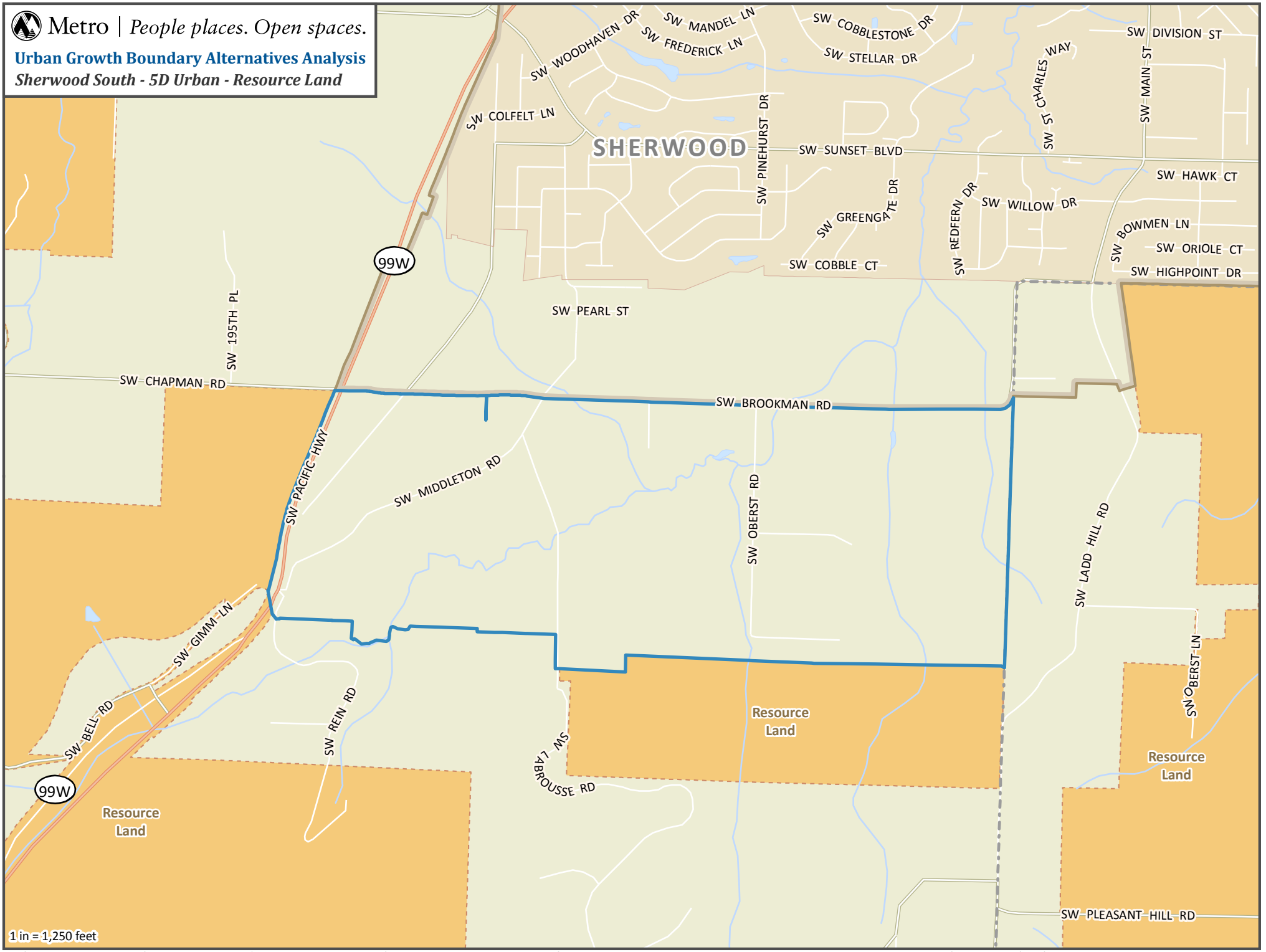
Urban Growth Boundary Alternatives Analysis

Sherwood South - 5D Urban







TONQUIN ANALYSIS AREA (5F)

Tonquin Analysis Area		**Total Acres**	**120**
Gross Vacant Buildable Acres	57	Total Constrained Acres	63
Estimated Dwelling Unit Capacity	0	• Title 13 Significant Habitat	36
Estimated Employment Acres	46	• Public Land	0

General Description (see attached map)

The Tonquin Analysis Area is a rectangular shaped area located to the southwest of Tualatin, in unincorporated Washington County, and consists of 120 total acres of land. The current UGB forms the north and east edges, and the west edge is formed by extending a line north from the intersection of SW Morgan Rd and SW Tonquin Road. The area is served primarily by SW Tonquin Road, but otherwise lacks major transportation connectors. This analysis area and much of the surrounding landscape is characterized by large quarries and other mineral extraction enterprises.

Parcelization, Building Values, Development Pattern (see attached aerial photograph)

This analysis area contains only 12 parcels within the study area boundary, half of which are more than five acres. The median parcel size is 7.5 acres. There are structural improvements built on five of the 12 parcels, with a median value of $119,320. One of the larger parcels, on the south side of SW Tonquin Road, is owned by Tualatin Valley Fire & Rescue and houses their Regional Training Center. The remainder of the study area, to the north of SW Tonquin Road, is dominated by the Coffee Lake Quarry. Land uses in the area are designated as primarily industrial, commercial or vacant.

A small corner of a power line easement exists in the northeast corner, but only covers 1.4 acres. Available data do not suggest the existence of other public easements within this area.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had high suitability for sanitary sewer services and medium suitability for water services and transportation connectivity. The City of Tualatin's Pre-Qualifying Concept Plan, completed as part of the Washington County urban and rural reserve designation process, indicates that the city is interested in providing urban services to this area.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of residential or large site industrial development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates. A map of the proposed collector and arterial transportation system is attached to this summary.

Sanitary Sewer Services - $592,000

Water Distribution Services - $630,000

Storm Sewer Services - $476,500

Transportation Services - $75,840,000

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

The Coffee Lake Creek stream corridor flows through the center of the area from north to south, although its actual path is obscured by the presence of the large rock quarry and widespread landscape modification. Wetlands cover 13.4 acres of the study area, however 5 of those acres lie within rock quarries and are subject to the same landscape modification that obscures the Coffee Lake Creek corridor. Steep slopes occur on 27 of the total 120 acres, again mainly as a result of the quarries. The large wetlands in that southeast corner are also within the 100-year flood plain, limiting the development potential there. Once a quarry is no-longer being actively mined, a reclamation plan must be implemented. As the majority of the environmental features identified are within the existing mining operation, it is difficult to assess the impacts urbanization may have on the resources prior to the reclamation plan being implemented, thus urbanization will have

minimal impact on the environmental resources in the area. Attachment 5 contains the breakdown of the environmental factors.

Energy, Economic & Social

The vast majority of this small area is currently being used as a quarry. The Tualatin Valley Fire & Rescue Training Facility encompasses the next largest site within the analysis area. There is one rural residence and the remaining parcel is constrained with natural resources. It is expected that the ultimate reuse of the quarry site will provide future industrial uses that will replace the quarry operation, thereby negating any economic loss from the quarry. The fire training facility is expected to continue operating. Urbanization will have minimal impact on the lone residence in the area, assuming that the expected reuse of the quarry will provide a less degraded environment. As the natural landscape is severely manipulated by the quarry operations, the required mitigation plan once the extraction operations cease will provide the opportunity to restore a critical habitat link. . Overall this analysis area has low economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

There is approximately 36 acres of identified regionally significant habitat, 33 acres of which are within riparian zones. The significant habitat is mostly concentrated in the undeveloped and undisturbed parcel in the southeast corner of the study area, 12.6 acres of which is also within the 100-year flood plain. The remainder of the identified habitat occurring along the Coffee Lake Creek is within the rock quarry and mineral extraction areas, and has already undergone significant disruption. The City of Tualatin, the expected governing body for this area, has adopted habitat protection measures in compliance with Metro's Title 13 program through the Tualatin Basin Natural Resource Coordinating Committee's protection program. Based on the edge location of the significant habitat areas that are outside the quarry operations and the fact that the quarry area will undergo a significant reclamation program prior to urbanization, it appears that urbanization in this area is unlikely to impact regionally significant fish and wildlife habitat, and may ultimately improve the habitat within the area.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

There is one block of resource land zoned Agriculture Forest 20 (AF-20) and Exclusive Forest and Conservation (EFC) zoned land directly west of the northern portion of the Tonquin analysis area that extends west to the City of Sherwood (see attached resource land map). The AF-20 zoned land totals 186-acres and is entirely owned by the Tualatin Valley Sportsmen Club. Of the remaining 221-acres zoned EFC, 58 acres are owned by the US Fish & Wildlife Service. There are two rural residences within the entire area and there appears to be no agricultural or forest activities occurring. Due to the fact there is no agricultural or forest activities occurring on the adjacent AF-20 and EFC zoned land, the proposed urban uses would be compatible with nearby agricultural or forest activities occurring on farm or forest land.

Clear transition between urban and rural lands, using natural and built features to mark the transition

The UGB borders this analysis area on the north and east sides and rural lands abut the western and southern edges. There are no natural or built features that mark a clear transition area between the proposed urban and rural lands. However, more than half of the west edge of the analysis area is bordered by the Tualatin Valley Sportsmen Club, which includes a firearms training facility that is used extensively by numerous law enforcement agencies. This facility encompasses 186 acres and a firearms training facility use is an allowed use in forest zones. The expectation is that the facility will continue to operate for the foreseeable future, thereby providing a buffer to the rural lands further west. Coffee Lake Creek and its associated floodplain also provide a transition area between urban and rural lands to the south. Therefore, there is a clear transition between urban and rural lands using both natural features and the existence of a specialized use.

2040 Growth Concept

Contribution to the purposes of Centers

The Tualatin Town Center is the nearest center to the Tonquin analysis area. The Tualatin Town Center is approximately 325 acres in size, and primarily serves the surrounding residential and commercial areas in the City of Tualatin. The analysis area is connected to the town center via SW Tonquin Road, SW Grahams Ferry Road and SW Boones Ferry Road (3 miles). There is no Tri-Met service connecting the Tualatin Town Center and the Tonquin area directly. The WES Commuter Rail passes near the eastern border of the analysis area prior to stopping in the town center, although no station stops are near the analysis area.

Tualatin's Town Center Plan, envisions a mixed use live, work and play center that integrates natural resources like the Tualatin River with civic, social, economic and cultural functions in a walkable community. According to Metro's State of the Centers Report, January 2009, the Tualatin Town Center has a lower than ideal number of people per acre and slightly below average number

of dwellings per acre. The Tualatin center has an average jobs to housing ratio, but density is somewhat lower than average for both housing and businesses.

Pre-qualified concept planning by Tualatin indicates that the city foresees primarily industrial redevelopment for the analysis area (referred to as "Knife River"). Urbanization of the Tonquin analysis area will not support the vision or purpose of the Tualatin Town Center. The area's future as industrial uses combined with the distance from the town center will not contribute to creating a compact, pedestrian-oriented community within the Tualatin Town Center. The analysis area is of primary interest to the city for transportation connectivity, as it would serve to extend SW 124th Avenue to future east west arterial roads.

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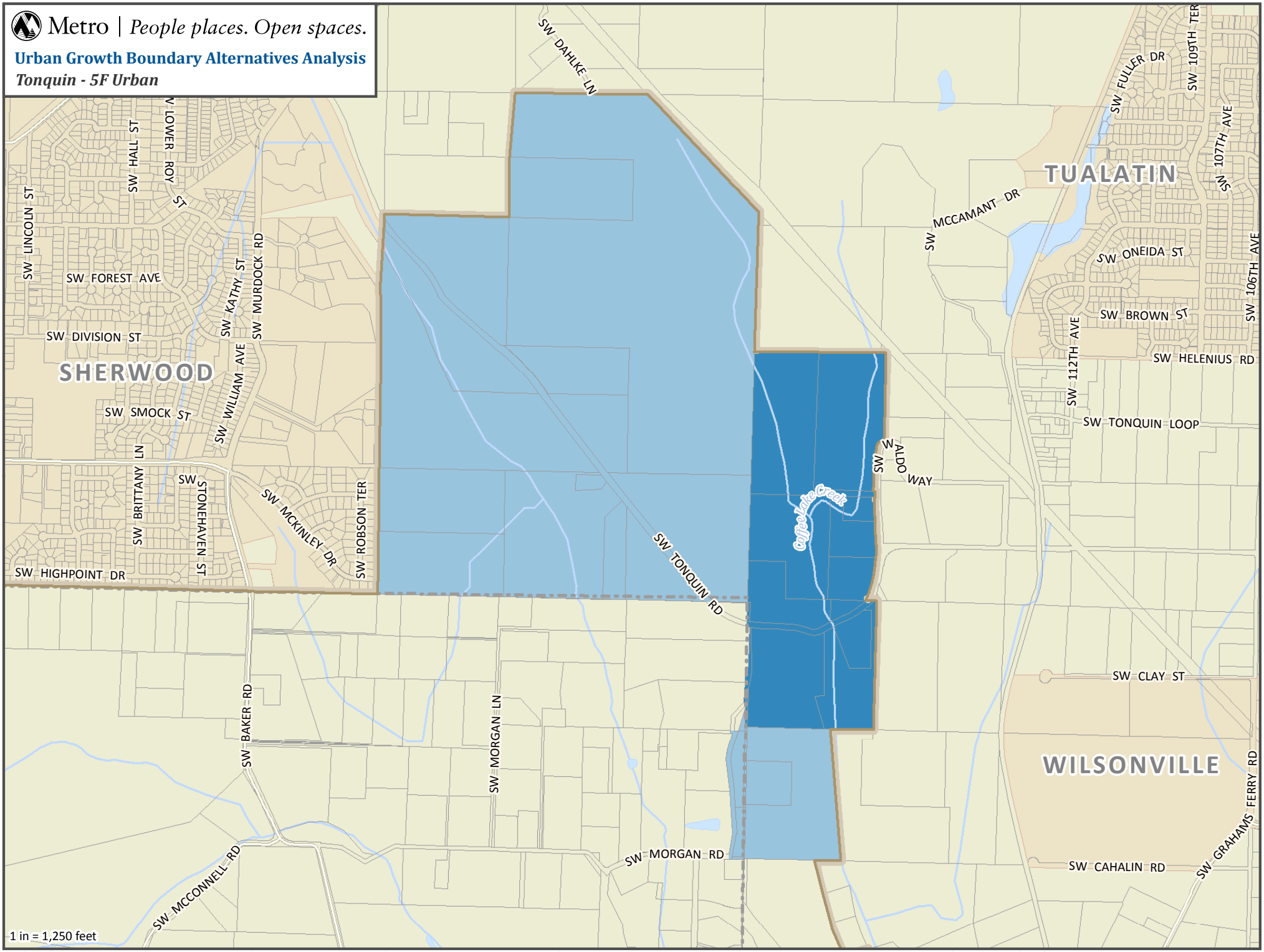
Urban Growth Boundary Alternatives Analysis

Tonquin - 5F Urban



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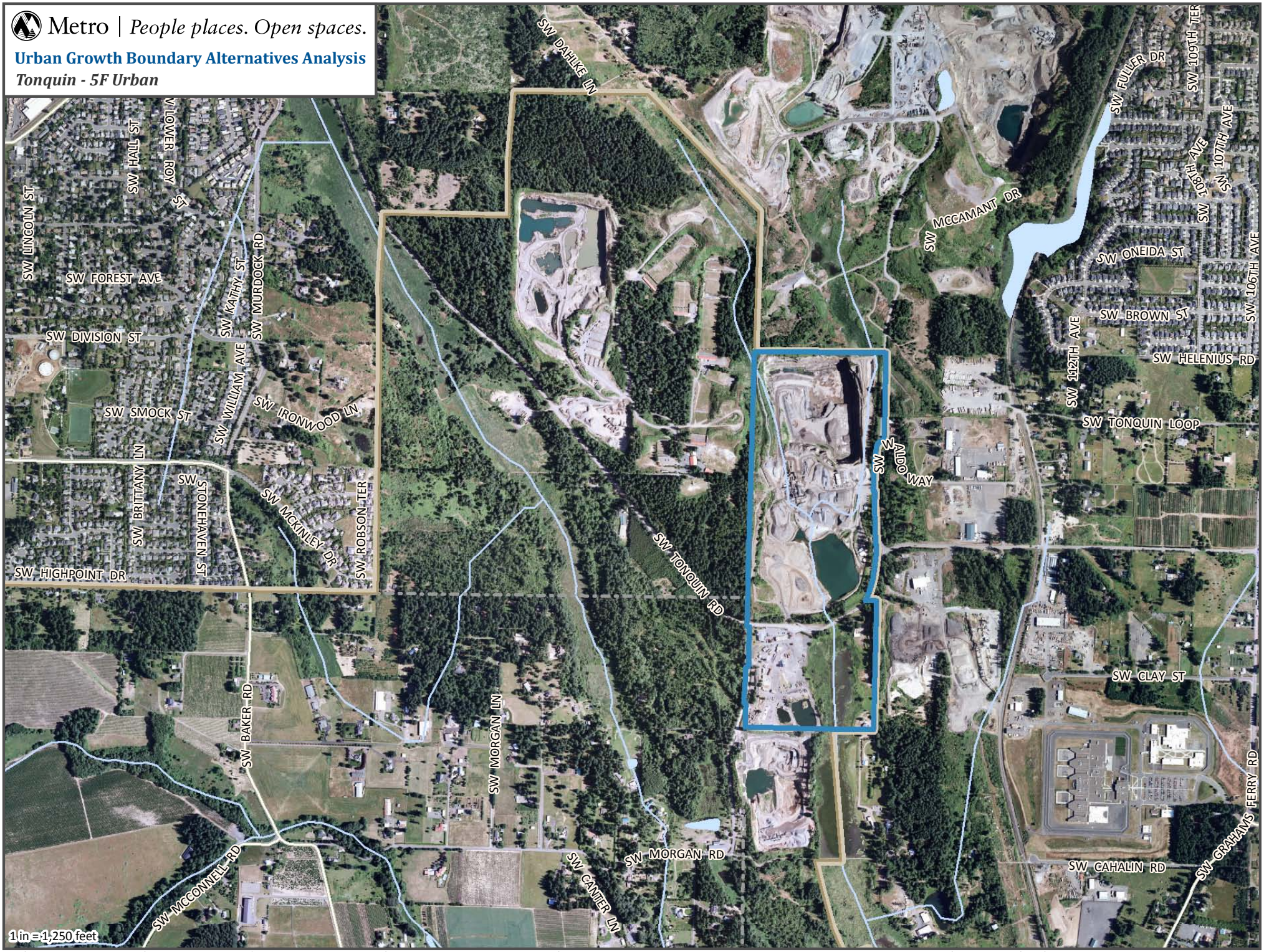
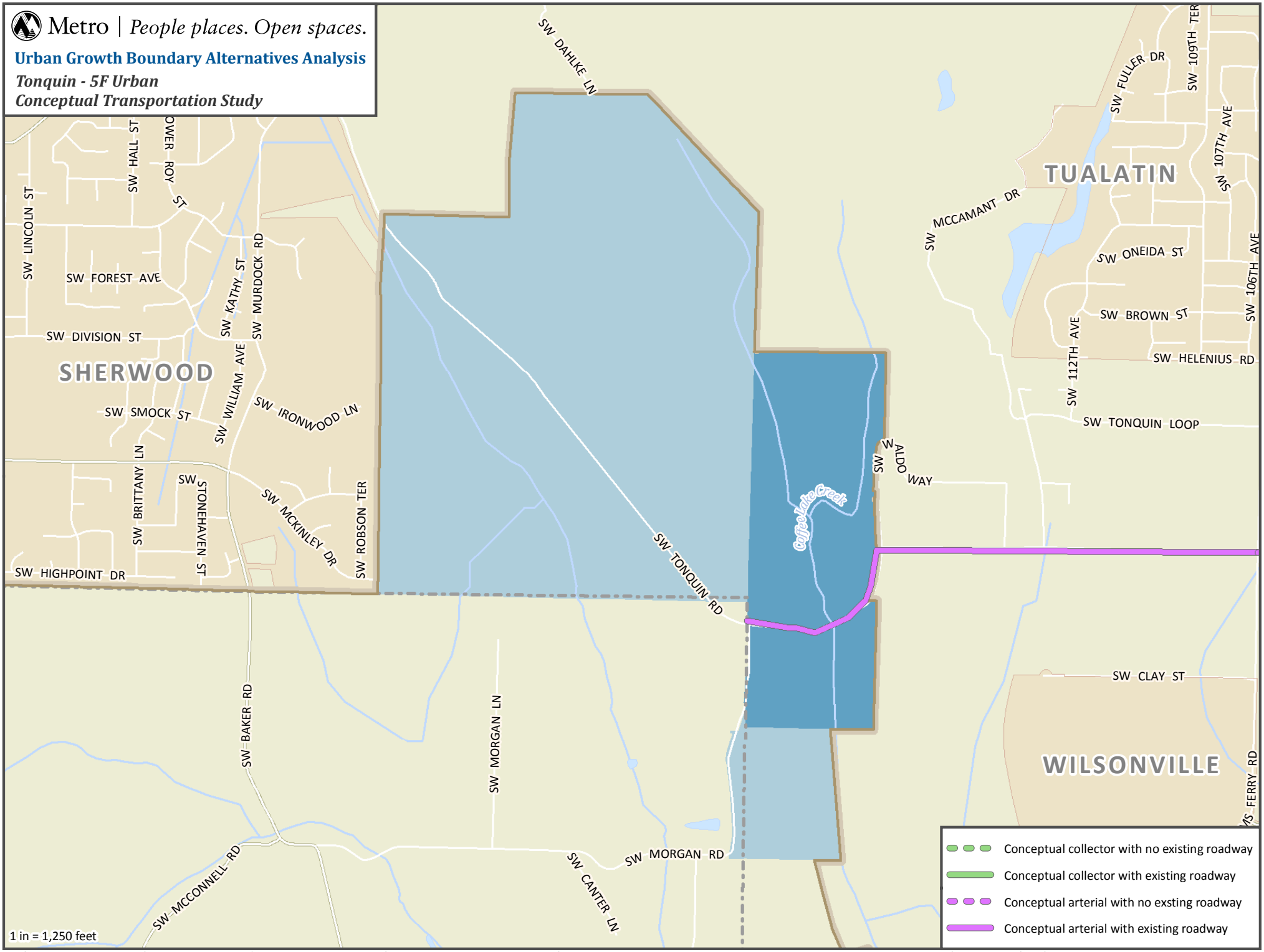
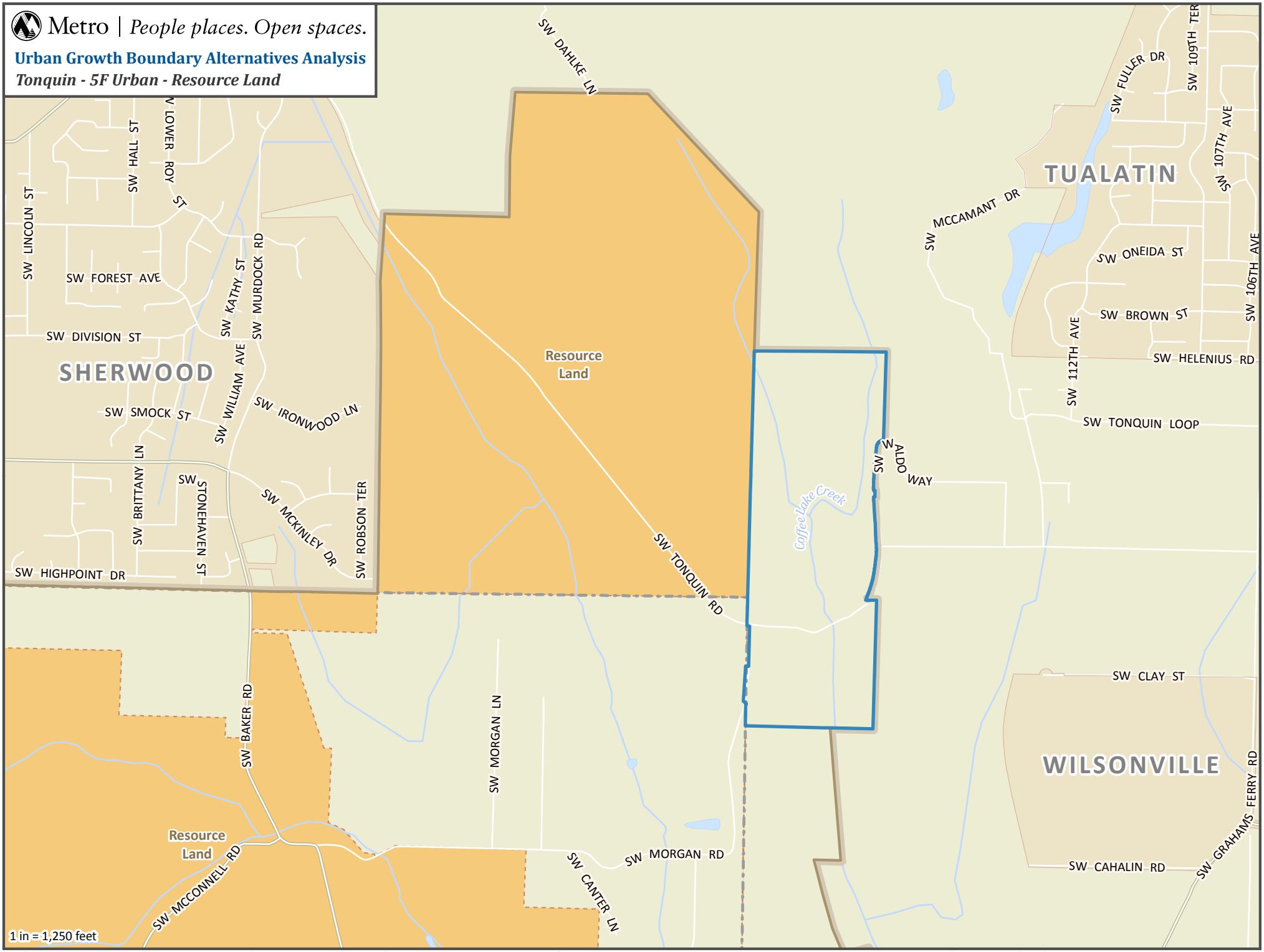
Urban Growth Boundary Alternatives Analysis

Tonquin - 5F Urban







GRAHAMS FERRY ANALYSIS AREA (5G)

Grahams Ferry Analysis Area		**Total Acres**	**203**
Gross Vacant Buildable Acres	83	Total Constrained Acres	120
Estimated Dwelling Unit Capacity	1,094	• Title 13 Significant Habitat	115
Estimated Employment Acres		• Public Land	0

General Description (see attached map)

The Grahams Ferry Analysis Area is located to the west of Wilsonville, west of the Coffee Lake Wetlands natural area owned by Metro. The current UGB forms the eastern and southern edges. Access to the area includes SW Tooze Road, running along the south edge, and SW Grahams Ferry Road which forms the west edge. The area is flat, and is adjacent to significant natural features including the south end of the Tonquin Geologic Area.

Parcelization, Building Values, Development Pattern (see attached aerial photograph)

There are 24 parcels with this area, three-quarters of which are less than five acres in size. The median parcel size is 2.77 acres and approximately 170 of the 203 total acres are contained in the eight largest lots. Building improvements have been made on 19 of the 24 lots, with a median value of $183,420 and four improvements are valued over $250,000. There appears to be limited active farming or crop production. A small pocket of rural residences are clustered in the southwest corner of the analysis area, at the intersection of SW Tooze Road and SW Grahams Ferry Road.

Available data does not suggest the existence of power lines or public easements through this area. However, there is a large block of Metro-owned open space between the study area and the industrial uses to the east within the UGB.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had high suitability for sanitary sewer services, medium suitability for water services and medium suitability for transportation connectivity. As part of Clackamas County's urban and rural reserve designation process, the City of Wilsonville indicated that the area can be efficiently and cost-effectively provided with public facilities necessary to support urban development.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of residential development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates. A map of the proposed collector and arterial transportation system is attached to this summary.

Sanitary Sewer Services - $3,188,000

Water Distribution Services - $2,510,000

Storm Sewer Services - $1,906,000

Transportation Services - $127,780,000

Parks - $15,360,000

Schools - $300,000 (Increased maintenance costs, no new schools)

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

Coffee Lake Creek runs through the east side of the study area, and including other small unnamed tributaries totals 1.5 miles of stream corridor. A small irrigation channel runs north-south through the southeast corner of the analysis area. There are two ponds along this channel, one along the forested area along Coffee Lake Creek, and the other just south of the analysis area, along SW Boeckman Road. The Coffee Lake Wetlands natural area is along the eastern edge of the study area, and forms a large continuous area with the habitat surrounding Coffee Lake Creek.

Slopes are generally mild, with only a half acre over 25%, even within the riparian areas. A large 100-year flood plain cuts across the northeast portion of the analysis area, and extends throughout the Coffee Lake Wetlands area to the east. A portion of this flood plain area appears to be active farmland, and the rest is forested. Based on this analysis, urbanization throughout most of the area would have minimal environmental impacts. In the eastern portion that includes forest and wetland features, the 100-year flood plain will limit development opportunities, precluding the impact of urbanizing the area. Attachment 5 contains the breakdown of the environmental factors.

Energy, Economic & Social

This small area, composed of 24 parcels is a mixture of limited agricultural activities and rural residences. Seventy-nine percent of the parcels have improvements and 66% of the parcels are less than five acres in size. Directly to the south is the Villebois area that is currently being developed to urban standards. Once the development of this area is completed, the loss of the rural lifestyle for the current residents of the analysis area may be less, as they will be closer to urban amenities. There is one 60-acre parcel and two other parcels in the same ownership that total more than 50 acres; however significant portions of these large areas are constrained by riparian habitat limiting developable acreage. The limited agricultural activity reduces the potential negative economic impacts of a lost farming economy and would be offset by the potential economic impact of urban development. The costs for protecting the significant habitat areas will be considerable in contrast to the potential economic impact of urbanizing the remaining land, although most of the habitat is at the edge, adjacent to other habitat patches that would reduce the overall cost impact of protection. Overall, this analysis area has medium economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

Regionally significant riparian habitat areas exist along the Coffee Lake Creek corridor, with 44.5 acres of wetland, 37 acres of floodplain, and a majority of the area's 83 acres identified as riparian habitat found in this location. Total regionally significant habitat in the study area includes an additional 32 acres of upland habitat, primarily connected with riparian habitat along the small stream corridor in the southwest corner of the analysis area, including a small pocket of forested land along SW Grahams Ferry Road. The Grahams Ferry Analysis Area is also adjacent to a large 200 acre block of natural area to the east, part of the Coffee Lake Wetlands land owned by Metro, and lies partially within the Tonquin Geologic Feature in the north and east portions of the analysis area.

The City of Wilsonville, the expected governing body, has adopted a habitat protection program that is in substantial compliance with Metro's Title 13 Nature in Neighborhoods regulations. This protection program, along with the limited development potential within the 100-year flood plain, creates a buffer that can minimize the impacts future urbanization will have on regionally significant fish and wildlife habitat in the area. The habitat in the southwest portion of the area is at a higher risk from urbanization due to its isolation, but is currently covered by active agriculture and rural residential developments that have removed much of the critical habitat. Redevelopment

of this area will provide the opportunity to restore the habitat that is impacted. Overall, future urbanization will impact some of the regionally significant habitat within the analysis area.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

There is a 178-acre block of exclusive farm use (EFU) zoned land directly adjacent to the north edge of the Grahams Ferry analysis area that extends both east and west of SW Grahams Ferry Road (see attached resource land map). The resource land to the west of SW Grahams Ferry Road is forested with no agricultural activities and two of the four parcels contain rural residences. The resource land to the east of SW Grahams Ferry Road includes one parcel with minimal agricultural activities, two rural residences and an open space parcel owned by Metro. Coffee Lake Creek flows south through this area on its way to the Willamette River. Due to the very limited agricultural activities that are occurring on the adjacent EFU zoned land, the proposed urban uses would be compatible with nearby agricultural activities occurring on farm land.

One would expect that most of the additional traffic generated by urbanization of this analysis area would be directed into the City of Wilsonville to the east, thereby causing a minimal impact on the more intense level of agricultural activities occurring on EFU zoned land in the vicinity of SW Baker and SW Tooze Roads.

Clear transition between urban and rural lands, using natural and built features to mark the transition

Coffee Lake Creek, its associated floodplain and nearby forested areas provide a transition between the analysis area and the rural lands to the north and northwest. There are no natural or built features that provide a transition area for the rural residences to the west. Even assuming SW Grahams Ferry Road is built to a collector level roadway, the road itself will not provide the needed transition area between urban and rural lands. Additional buffers will need to be incorporated into the planning of the analysis area to provide a clear transition from urban to rural uses along this western edge. The remaining edges of the analysis area connect to the UGB. Overall, there is a transition area for approximately half of the Grahams Ferry analysis area edge.

2040 Growth Concept

Contribution to the purposes of Centers

The Wilsonville Town Center is the nearest center, located to the southeast of the Grahams Ferry analysis area. Wilsonville's center is 166 acres in size, and serves primarily the City of Wilsonville in this southern-most extent of the region. The town center is only indirectly linked to the analysis area by a series of arterial roads (1.5 miles). No Tri-Met services currently connect the analysis area to Wilsonville's Town Center, nor does SMART, the City of Wilsonville's bus service. The WES Commuter Rail's southern terminus stop is approximately half way between the center and analysis area.

Wilsonville's Town Center is envisioned to be a dense, mixed used community that creates a walkable, pedestrian-oriented environment. The town center is located a short distance from the terminus of the WES Commuter Rail line. Metro's State of the Centers Report shows a higher than average jobs to housing ratio, fewer people and dwellings per acre than desired, and needing more infill and redevelopment to boost urban densities.

The Grahams Ferry analysis area was identified by Wilsonville's 20 Year Look process as a site for long-term future urbanization, and expected to provide primarily industrial land to build on development within the Coffee Creek industrial area. Urbanization of the analysis area is unlikely to contribute to the purpose and vision of the Wilsonville Town Center due to its distance from the center and its potential industrial use. Although the added industrial development here could provide jobs for the area, the Grahams Ferry analysis area is too distant and disconnected to support the town center. There is currently a block of additional undeveloped land zoned for industrial use adjacent to the east of the analysis area, within the current UGB.

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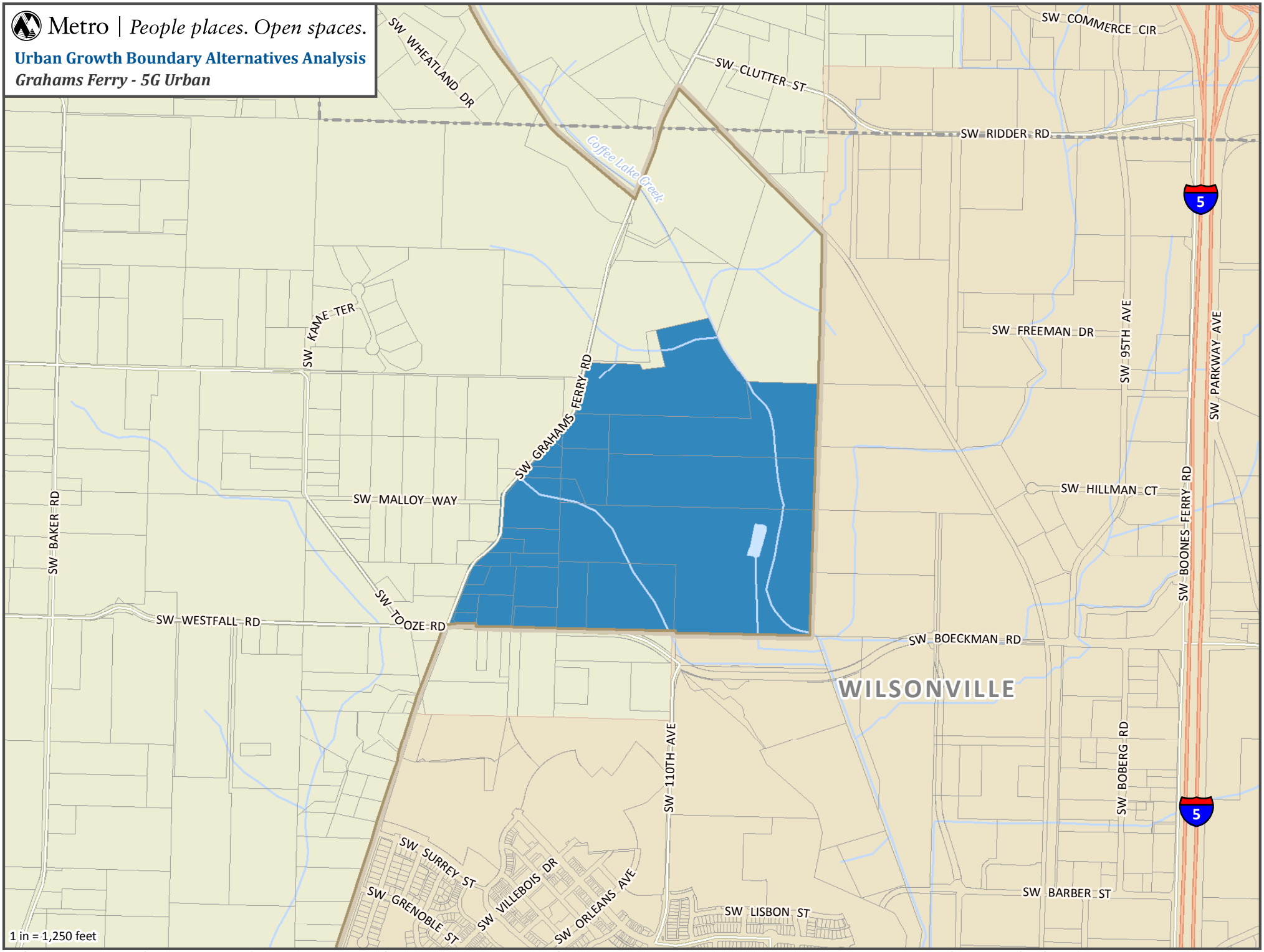
Urban Growth Boundary Alternatives Analysis

Grahams Ferry - 5G Urban



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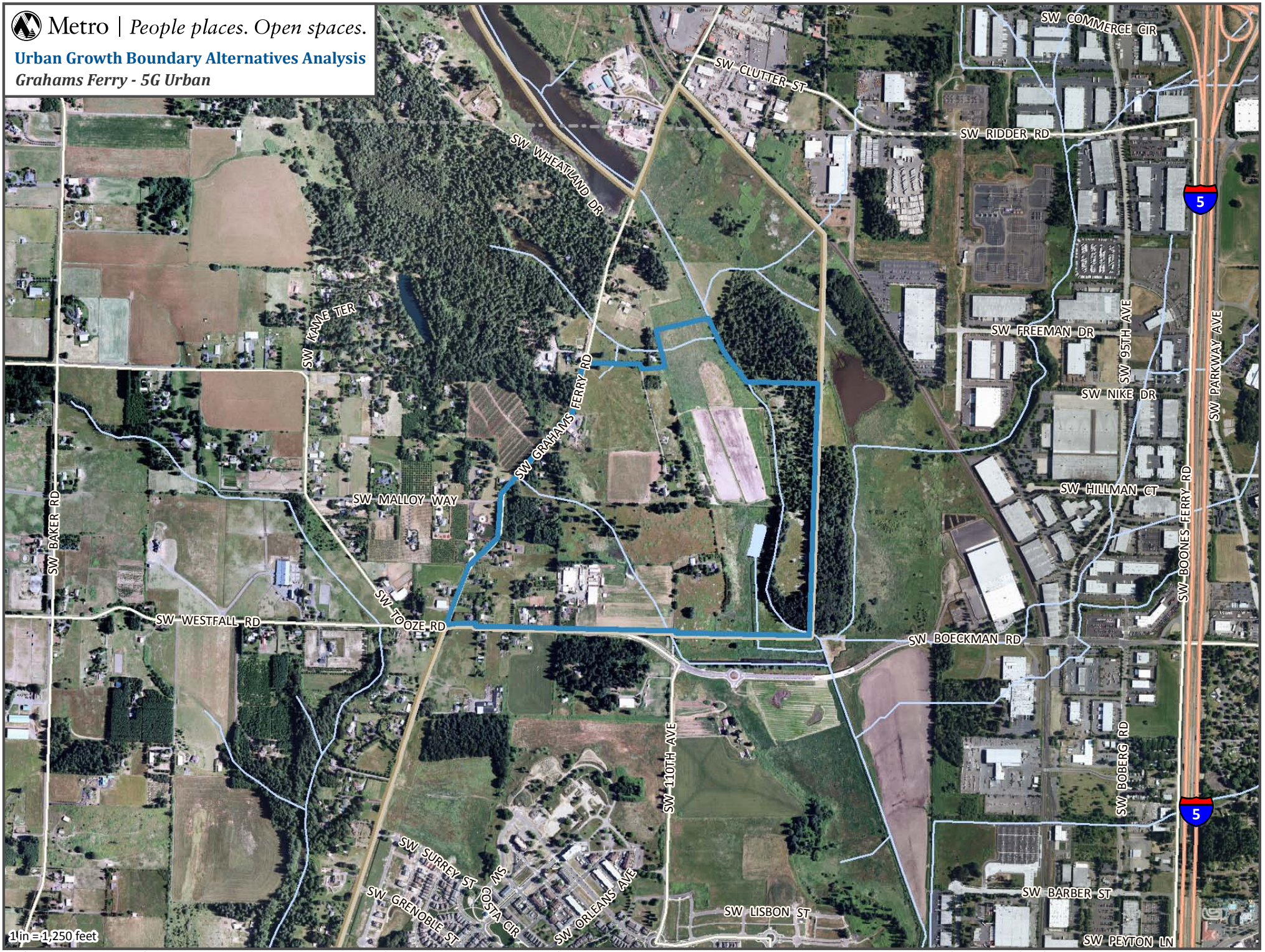
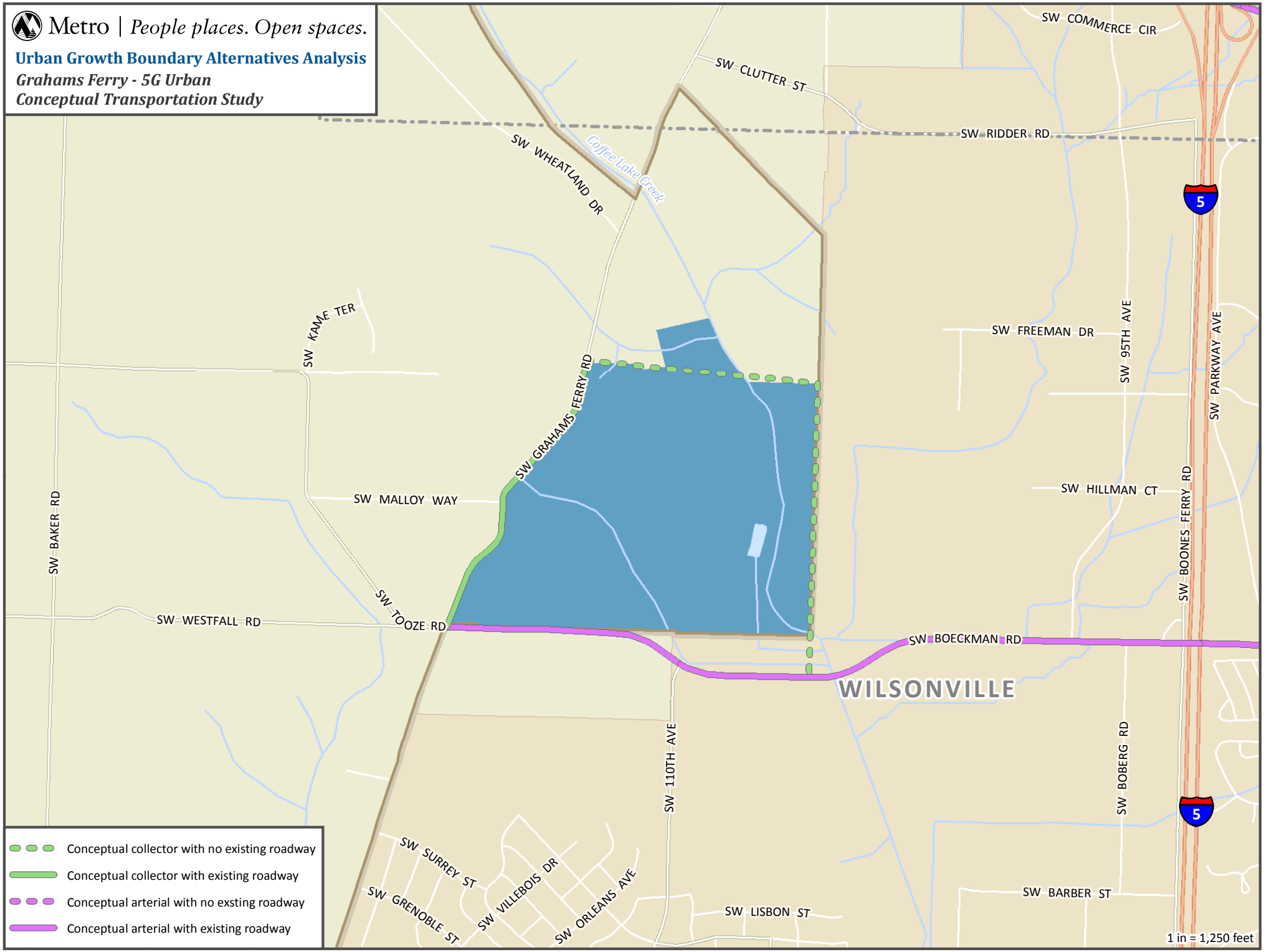
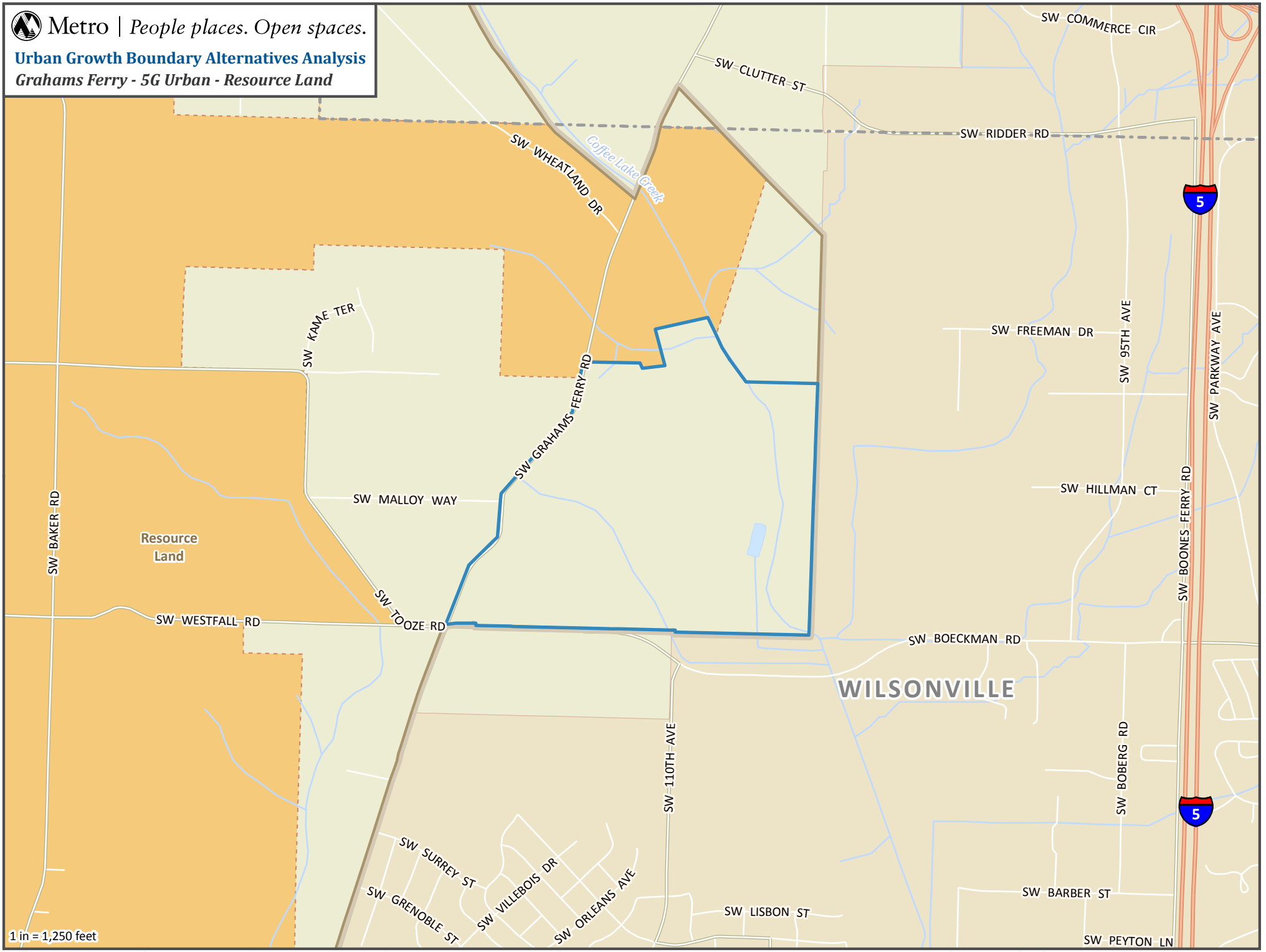
Urban Growth Boundary Alternatives Analysis

Grahams Ferry - 5G Urban







SOUTH HILLSBORO ANALYSIS AREA (6A)

Hillsboro South Analysis Area		**Total Acres**	**1,063**
Gross Vacant Buildable Acres	878	Total Constrained Acres	184
Estimated Dwelling Unit Capacity	10,172	• Title 13 Significant Habitat	132
Estimated Employment Acres		• Public Land	0

General Description (see attached map)

The South Hillsboro Analysis Area, a portion of the larger South Hillsboro Urban Reserve, is a large irregular shaped area totaling 1,063 acres south of the Tualatin Valley Highway. The area is bounded by the UGB to the east and north, SW 229th Avenue to the west and SW Rosedale Road to the south. South Hillsboro is primarily served by the Tualatin Valley Highway, SW 209th Avenue, SW 229th Avenue and SW Rosedale Road. The Reserve Vineyard and Golf Course is directly west of the analysis area, west of SW 229th Avenue.

Parcelization, Building Values, Development Pattern (see attached aerial photograph)

The South Hillsboro area contains a total of 49 tax lots with a median size of five acres. The largest lot is 203 acres, and the three largest parcels cover just over half of the total study area. Improvements are recorded on 35 of the 49 parcels, with a median value of $104,260, and four parcels have an improvement value over $250,000. The northeast portion of the area, which is almost completely surrounded by the current UGB, has two parcels that total almost 480 acres with no improvements. Within the rest of the area 23 parcels are less than five acres primarily in two clusters, one in the center of the area along SW 229th Avenue and the other in the south along SW Rosedale Road. Land use is almost exclusively agriculture, although some of the land is not utilized due to wetland/stream corridor locations. Agricultural activities include field crops, orchards and nursery stock.

A power line easement runs north-south through the area, covering 45 acres. There is no evidence of other public easements within the analysis area.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had high suitability for sanitary sewer services, water services and transportation connectivity. The City of Hillsboro's Pre-Qualifying Concept Plan, completed as part of the Washington County urban and rural reserve designation process, indicates that the city has the ability and willingness to provide urban services to this area.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of residential development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates. A map of the proposed collector and arterial transportation network is attached to this summary.

Sanitary Sewer Services - $24,552,000

Water Distribution Services - $5,230,000

Storm Sewer Services - $4,357,500

Transportation Services (public & private) - $329,340,000

The South Hillsboro area has undergone numerous planning studies over the years, culminating in the development of the South Hillsboro Community Plan. The overview of the community plan, Spring 2010, identifies the "public" portion of the funding for the transportation plan as $95,088,200. This includes only those improvements deemed to be "public", meaning those that serve a larger area for which developers will be entitled to a proportionate credit if they build the improvement or any portion of it. For more information on the South Hillsboro Community Plan efforts see http://www.ci.hillsboro.or.us/Planning/South_Hillsboro.aspx?g1dd=8&g2dd=5

Parks - $59,840,000

Schools - $70,000,000 (New Elementary and Middle Schools)

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

Butternut Creek flows through the center of the area, from the east, and enters the Tualatin River just over a mile to the west of the study area. Three other small streams cross through the area, Gordon Creek in the north, a small tributary drainage of Butternut Creek, and a third stream at the southern edge of the area. Gordon Creek has almost no riparian corridor and it exists primarily as a drainage way through the cultivated farm land. The tributary to Butternut Creek includes some significant riparian corridor areas as does the third unnamed stream that flows across the southern edge of the area.

Wetlands cover 36 acres, concentrated around the various stream corridors, with the largest block along Butternut Creek in the middle of the study area. The same stretch of Butternut Creek also has a small area of 100-year flood plain, extending between 50-150 feet along either side of the stream. The creek along the southern edge of the analysis area and the early stages of Gordon Creek in the northwest corner of the area also have small flood plains, although Gordon Creek is completely under cropland at this stage of its length. There are 37 total acres in the area that fall within the 100-year flood plain.

Slopes are mild, as the area is generally flat. Only 2.6 acres have slopes over 25%. Although developable land coincides with many of the environmental features in the analysis area, those features are largely within actively farmed agricultural land. With the exception of the riparian areas surrounding Butternut Creek and the two smaller creeks to the south, urbanization would have little impact on current environmental resources in the area. For those streams not under agricultural development, protection of the riparian and upland habitat would minimize the environmental impacts of future urbanization of the area. Attachment 5 contains the breakdown of the environmental factors.

Energy, Economic & Social

This large analysis area is divided into 49 parcels with 53% of the parcels greater than five acres in size. Seventy-one percent of the parcels contain improvements and there are four very large parcels that total 635 acres that contain no improvements. Agricultural activities dominate significant portions of the area with pockets of rural residences along SW 229th Avenue and SW Murphy Lane. Urbanization will negatively impact the current residents who are located further away from the UGB through the loss of the rural lifestyle, especially for those residences that are not associated with the large parcels and will realize less of a positive economic impact. However the Reserve Vineyard and Golf Course, which is directly west of the analysis area, represents more of an urban use and thus already impacts some of the residents. The loss of the economic impact from these significant agricultural uses may be considerable; however the potential economic impact of urbanization on these large flat parcels will reduce or outweigh this loss. Only the agricultural activities in the southern portion of the analysis area are connected to the agricultural

activities to the south, thus reducing any impact on the greater farming community. Approximately 11% of the land is identified as containing environmental resources, mainly in three locations along the 3.3 miles of stream corridors that flow east to west through the area. The costs for protecting these linear resources will be small in contrast to the potential economic impact of urbanizing the larger areas in between. Additional VMT will be generated through urbanization of this large area as the average commute distance for this area is greater than the existing average commute distance for the region. Overall this analysis area has high economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

There are 115 acres of identified regionally significant riparian habitat, and an additional 17 acres of significant upland habitat along the 3.25 miles of streams. However, almost the entire riparian habitat area along Gordon Creek in the north and some surrounding the small tributary along the southern edge of the analysis area are currently impacted by active cultivation. The most significant habitat appears to occur around Butternut Creek, cutting through the center of the analysis area, and along the small tributary just to its south.

There are limited natural buffers present to protect the identified regionally significant fish and wildlife habitat in this area. The existing habitat that has not been cleared for agriculture is on relatively flat, easily developable land, and could be threatened by future urbanization. The City of Hillsboro, the expected governing body, has adopted habitat protection measures that are in compliance with Metro's Title 13 requirements as part of the Tualatin Basin Natural Resource Coordinating Committee's protection program. Based on habitat location and Hillsboro's protection programs that will provide protection for the stream segments that currently have no buffers, future urbanization could be accommodated throughout the majority of this area with minimal additional impact to regionally significant fish and wildlife habitat.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

The UGB borders the Hillsboro South analysis area on the north, east and a portion of the south boundary. Resource land zoned exclusive farm use (EFU) borders the west and south edges of this urban reserve analysis area, with the exception of a very small amount of agriculture forest 20 (AF-

20) zoned lands south of SW Rosedale Road (see attached resource land map). This extensive block of farm land extends for a number of miles to the west and south of the analysis areas. There is a 77-acre island of non-farm land on the west side of SW River Road in the vicinity of SW Rosa Road. The Reserve Vineyards & Golf Club borders the northern portion of the western edge of the analysis area. Adjacent to the golf course are forested parcels with rural residences and some agricultural activities, mainly to the north in the vicinity of Gordon Creek. The west side of SW River Road contains rural residences that front on to the Tualatin River. Southwest of the golf course is a mixture of rural residences along SW Rosa Road and SW River Road, forested parcels along Butternut Creek and a tributary to Butternut Creek and limited agricultural activities. The proposed urban uses for the Hillsboro South analysis area would be compatible with these areas as there is a very limited agricultural activity occurring on the nearby farm land, and those activities that do occur are buffered by the golf course or the two riparian corridors.

The main location of agricultural activities near the analysis area occurs south of the tributary to Butternut Creek to an unnamed stream south of SW Rosedale Road and includes nursery, orchard, and field crops. There is no buffer between these agricultural activities and the analysis area. In addition, any increased traffic along SW Rosedale Road due to new urban uses may also impact the agricultural activities in this area. Therefore the proposed urban uses would not be compatible with the agricultural activities that occur in this area near SW Rosedale Road. However mitigation measures could reduce conflicts between urban uses inside the UGB and resource uses outside the UGB.

Clear transition between urban and rural lands, using natural and built features to mark the transition

The Reserve Vineyards & Golf Course, Butternut Creek and a tributary to Butternut Creek provide a clear transition area between urban and rural lands for more than half of the analysis area. South of the tributary to Butternut Creek, south of SW Rosedale Road there is no natural or built feature to mark a transition between urban and rural lands. Additional buffers will need to be incorporated into the planning of the urban reserve analysis area to provide a clear transition from urban to rural uses. The rural lands between SW Rosedale Road and the tributary to Butternut Creek are part of the larger Hillsboro South urban reserve area and may be included in the UGB in the future. Thus, any buffers that are incorporated into the planning study for this analysis area should consider the potential for connecting these two areas in the future.

2040 Growth Concept

Contribution to the purposes of Centers

The Aloha Town Center is the closest 2040 designated center to the South Hillsboro analysis area. It is one of the largest town centers, at 405 acres in size, and primarily serves the local unincorporated community. The Aloha Town Center connects to the South Hillsboro area by the Tualatin Valley Highway (1.2 miles) and Tri-Met line 57 establishes a transit connection between

the two areas. The Hillsboro Regional Center is approximately 4 miles west of the analysis area and is also connected by the Tualatin Valley Highway and Tri-Met line 57.

According to Metro's State of the Centers Report, January 2009, the Aloha Town Center currently has some mixed retail providing services to the surrounding community, but overall has one of the lowest jobs to housing ratios in the region. This center located in unincorporated Washington County lacks an overall vision or plan for future development. Urbanization of South Hillsboro will not contribute to balancing the jobs to housing ratio, or promoting walkability and a compact urban form desired of centers, as any commercial or residential development in the analysis area will detract from development within the Aloha Town Center due to the relatively close proximity of the two areas. The Hillsboro Regional Center, the historic downtown for the city, is located quite some distance from the analysis area and would not be affected by new development in the analysis area. Finally, the City of Hillsboro, has envisioned a new town center in the northern portion of the analysis area, supported by an urban pattern of a compact neighborhood and single-family residential development. A new town center in the analysis area would not support the purpose or vision of the nearby Aloha Town Center, but could conceivably develop into a new center to serve the surrounding community.

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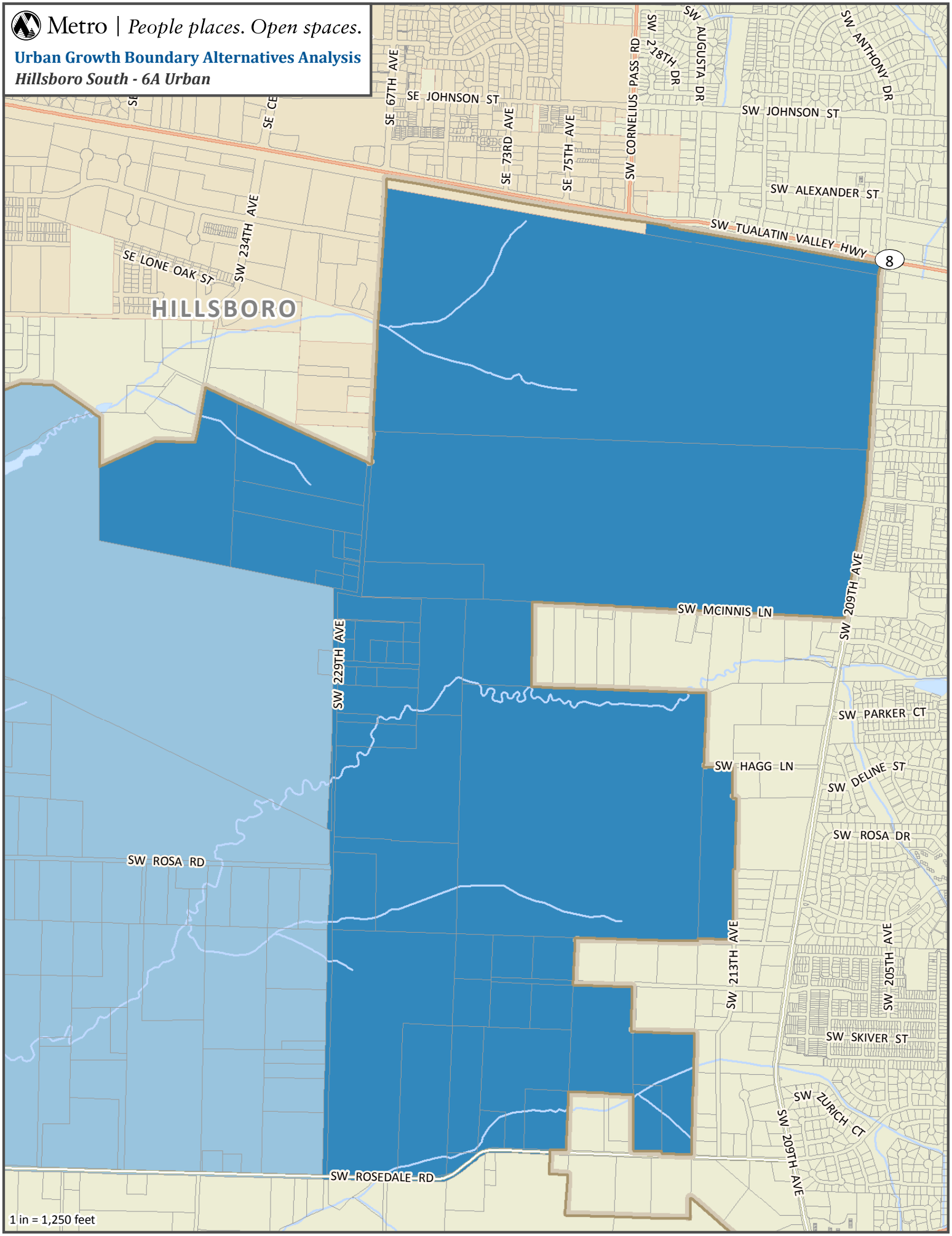
Urban Growth Boundary Alternatives Analysis

Hillsboro South - 6A Urban



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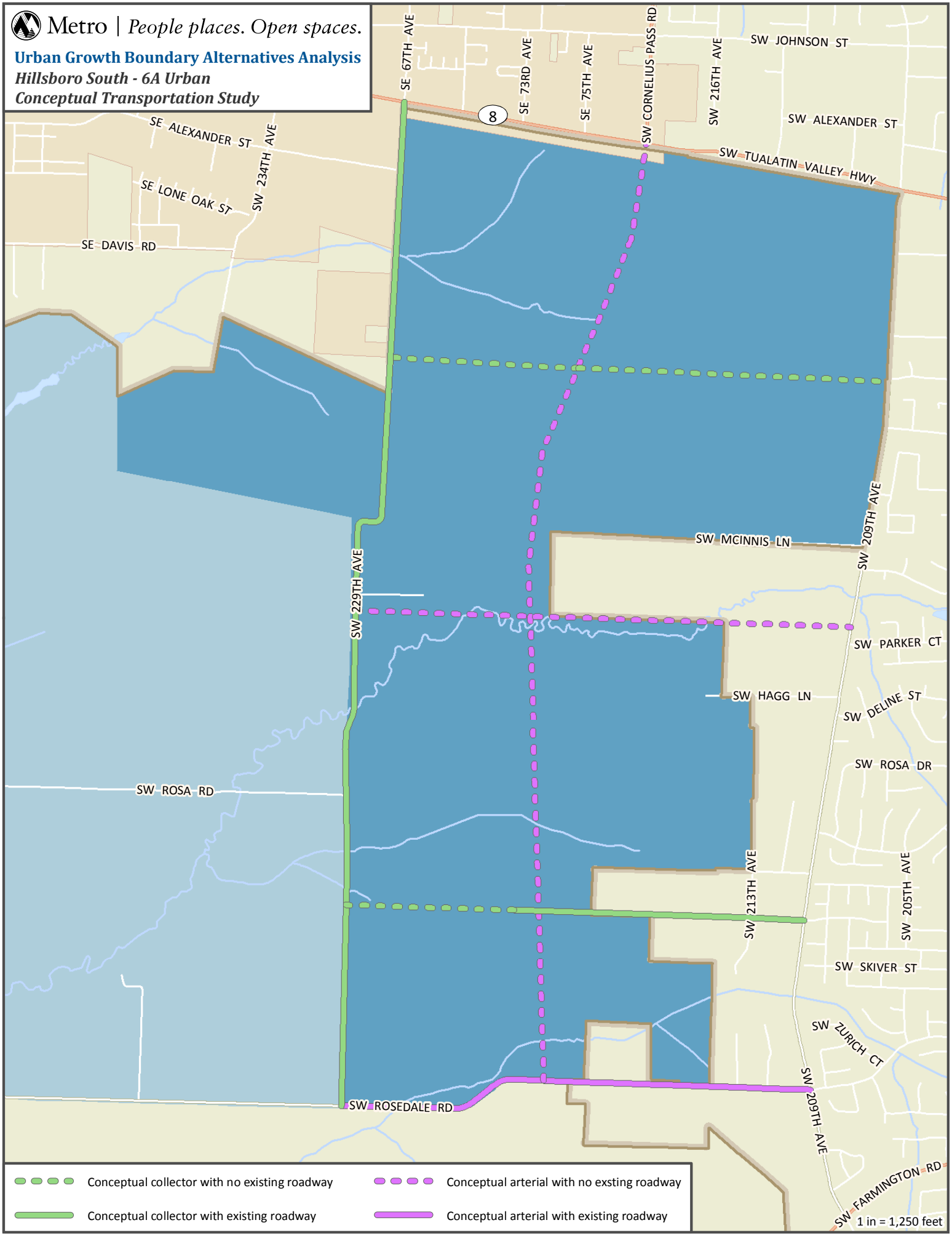
Urban Growth Boundary Alternatives Analysis

Hillsboro South - 6A Urban



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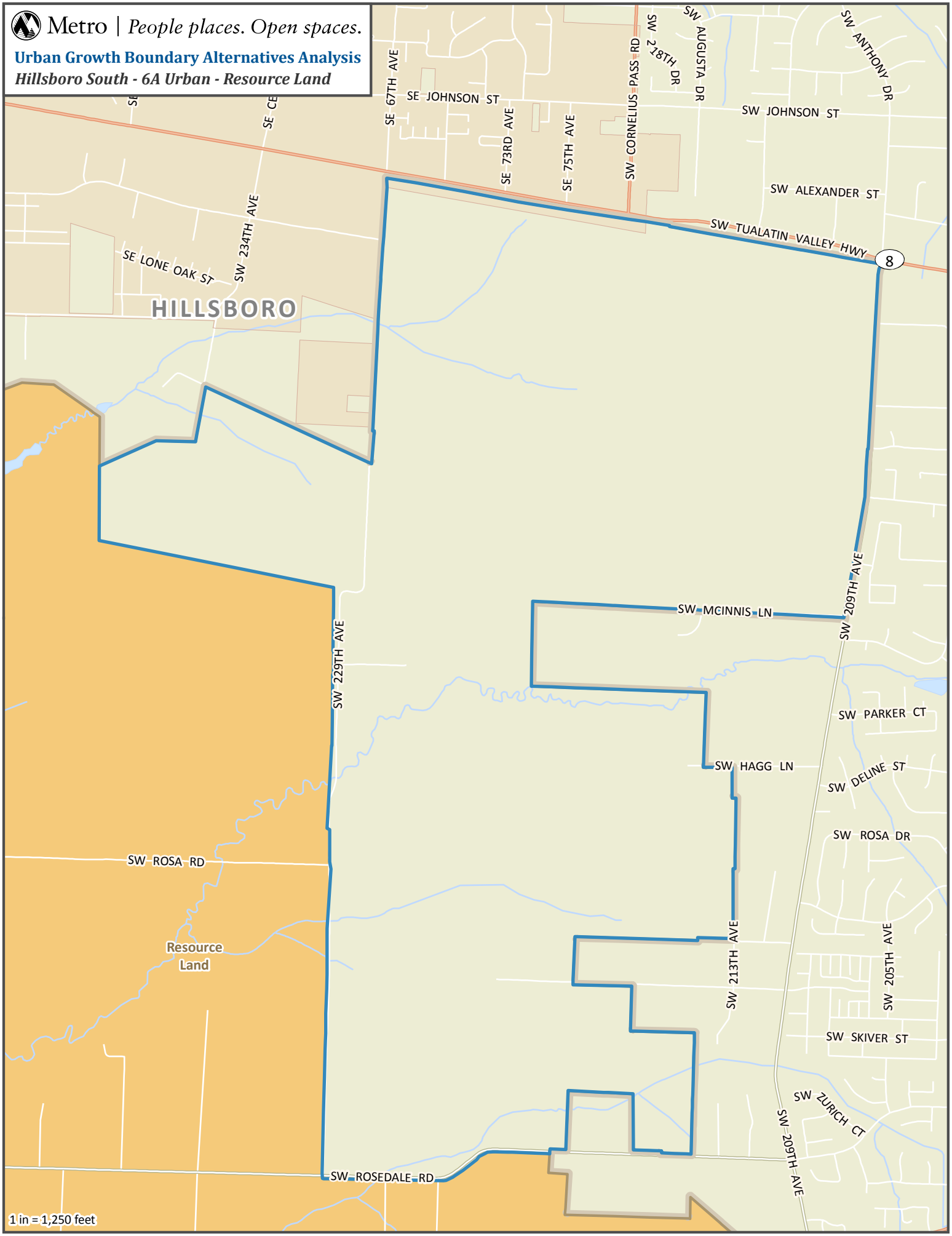
Urban Growth Boundary Alternatives Analysis

Hillsboro South - 6A Urban - Resource Land



SOUTH COOPER MOUNTAIN ANALYSIS AREA (6B)

South Cooper Mountain		**Total Acres**	**543**
Gross Vacant Buildable Acres	361	Total Constrained Acres	182
Estimated Dwelling Unit Capacity	4,354	• Title 13 Significant Habitat	165
Estimated Employment Acres		• Public Land	16

General Description (see attached map)

The South Cooper Mountain Analysis Area is an irregular shaped area north of SW Scholls Ferry Road and east of SW Tile Flat Road that consists of a portion of the larger urban reserve 6B. The analysis boundary is defined by the UGB to the east, SW Scholls Ferry Road to the south, SW Tile Flat Road to the west and parcels lines to the north. The area contains one designated open space parcel owned by Metro. The area is served by SW Scholls Ferry Road and SW 175th Avenue.

Parcelization, Building Values, Development Pattern (see attached aerial photo)

The South Cooper Mountain Analysis Area contains 21 parcels, with all but three parcels greater than 10 acres in size and seven parcels larger than 30 acres. Two parcels are larger than 60 acres. Improvements are recorded for eleven tax lots, with a median value of $100,220. Improvements with values over $250,000 occur on five lots, with a maximum value of $577,960. The majority of the analysis area is in agricultural use with associated rural residences mainly located along the edges of the analysis area. Agricultural uses are primarily for field and row crops and two unnamed streams flow south through the center portion of the area.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had high suitability for sanitary sewer services, water services and transportation connectivity. The City of Beaverton's Pre-Qualifying Concept Plan, completed as part of the Washington County

urban and rural reserve designation process, indicates that the city has the ability and willingness to provide urban services to this area.

The following cost estimates for sanitary sewer, water and storm sewer represent preliminary estimates for the major components of the individual systems. The estimates were provided by the City of Beaverton using very general assumptions about the level of residential development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Due to the proximity of the West Bull Mountain concept plan area there exists an opportunity to plan, design and construct transportation infrastructure to serve both areas as well as serve regional transportation needs, providing cost efficiencies for both areas. Attachment 4 contains the breakdown for the transportation cost estimates generated by Metro. A map of the proposed collector and arterial transportation network is attached to this summary.

Sanitary Sewer Services - $14,683,037

Water Distribution Services - $10,241,300

Storm Sewer Services – Washington County's Clean Water Services (CWS) is requiring the incorporation of their recently adopted Low Impact Development Approaches (LIDA) for new urban area planning. This includes rain gardens, green roofs, on-site porous paving etc. The LIDA's will be sized and designed per CWS Design and construction Standards.

Transportation Services - $144,470,000

Parks - $2,000,000 based on Tualatin Hills Park and Recreation District level of service for neighborhood parks

Schools – Beaverton School District looking to acquire a site for a new high school, no cost has been determined

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

Two streams flow south through the middle of the analysis area into separate irrigation ponds. Downstream from the irrigation ponds the streams join together prior to crossing SW Scholls Ferry Road and total about 2 miles in length. Generally there is some vegetation along the stream corridors, although there are locations where agricultural activities occur right along the stream bank. There are two wetlands, centered on the irrigation ponds that total approximately 7.7 acres. There is no 100-year flood plain in the area and only a few very small locations of slopes greater than 25% which would not impact development. The location of the two streams essentially divides the analysis area into sections that may limit the ability to develop a connected urban form

without impacting natural resources due to the required urban level natural resource protection measures. Attachment 5 contains a breakdown of the environmental factors.

Energy, Economic & Social

This analysis area contains 21 parcels with all but three of the parcels greater than ten acres in size. Seven parcels are greater than 30 acres and two are larger than 60 acres. Fifty-two percent of the parcels contain improvements. Agriculture is the dominate use in the area with associated rural residences located mainly along the edges. The loss of the economic impact from the agricultural uses in this area may be considerable; however the potential economic impact of urbanization on these larger, relatively flat parcels may reduce or outweigh the impact of this loss. There are 165 acres of identified habitat mainly along the two streams that flow through the center of the area. The costs for protecting these linear resources and associated upland habitat areas will be considerable in contrast to the potential economic impact of urbanizing the locations in between the stream corridors, as the location of the resources may not allow for preservation due to connection requirements. Urbanization will negatively impact the current residents through the loss of the rural lifestyle. Overall this analysis area has medium economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

Approximately 165 acres of regionally significant riparian and upland habitat are identified within the area, with a small portion of it impacted by agriculture activities. The habitat is centered on the two stream corridors and associated forested canopy areas. The City of Beaverton, the expected governing body for this area, has adopted habitat protection measures in compliance with Metro's Title 13 program through the Tualatin Basin Natural Resource Coordinating Committee's protection program. Based on the location of the regionally significant habitat that divides the analysis area into segments and the expected protection measures that will be in place prior to urbanization, this area could be urbanized with moderate amount of impacts on regionally significant fish and wildlife habitat.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

This analysis area is a portion of the larger Cooper Mountain/6B urban reserve area, which extends to the west and north. It is bordered on the east by the UGB and to the south by the Roy Rogers West/6C urban reserve area. There is a large block of resource land to the northwest zoned Agriculture Forest 20 acres (AF20). To the south across SW Scholls Ferry Road is resource land zoned AF20 (see attached resource land map). To the southwest is a 300 acre pocket of non-resource land and to the north is a second pocket of non-resource land that totals 415 acres. Much of the block of farm land to the northwest is forested and not in agricultural production, which includes a 145 acre portion of the Cooper Mountain Natural Area. Even though there are no identifiable edges or buffers between the analysis area and the agricultural activities occurring on this farm land outside the UGB, the proposed urban uses would generally be compatible with the agricultural activities due to the limited nature of the nearby agricultural activities. However mitigation measures could further reduce conflicts between urban uses inside the UGB and the resource uses outside the UGB. The farm land directly to the south is a mixture of forested areas and land in agricultural production. SW Scholls Ferry Road provides a buffer along the southern edge of the analysis area; however the road itself would not make the proposed urban uses compatible with the limited adjacent agricultural activities occurring on farm land to the south and mitigation measures may be necessary to reduce conflicts. Overall the proposed urban uses are generally compatible with adjacent agricultural uses occurring on farm land outside the UGB due to the limited amount of adjacent agricultural activities.

Clear transition between urban and rural lands, using natural and built features to mark the transition

There are no natural or built features that mark a clear transition between urban and rural lands, for the analysis area. The natural resources associated with the stream corridors do not provide an edge or boundary. Even assuming SW West Scholls Ferry Road develops as an urban arterial roadway in the future, the road itself will not provide a clear transition area between future urban and rural uses for the land to the south. Additional buffers will need to be incorporated into the planning of the urban reserve analysis area to provide a clear transition from urban to rural uses. Any buffers that are incorporated into the planning study for the analysis area needs to consider the potential for making urban form connections to the remaining portions of the Cooper Mountain urban reserve that border the analysis area to the north and northwest.

2040 Growth Concept

Contribution to the purposes of Centers

The Murray Scholls Town Center, approximately two-thirds of a mile from the South Cooper Mountain analysis area, is 204 gross acres in size and serves the immediate area. It is linked to the analysis area by SW Scholls Ferry Road and SW Barrows Road. Currently there is no TriMet transit service between the two areas but the town center is served by TriMet line 62.

The residential component of the Murray Hills Town Center plan has been completed and the commercial and employment portion of the town center is underdevelopment. The Murrayhill

Marketplace commercial center, which is directly north of the town center, provides a range of services including a city library, grocery store and retail shopping. The City recently completed a Civic Plan that highlighted the need for additional housing in the city, all of which cannot be realized through redevelopment within the current city limits. Metro's State of the Centers Report, May 2011, highlights the town center's need to increase the number of people per acre through the development of employment opportunities.

Urbanization of the South Cooper Mountain analysis area will contribute to the vision and purpose of the Murray Hills Town Center by providing an additional customer base for the employment and commercial components of the town center as well as the existing Murrayhill Marketplace commercial center. In addition, the potential mix of residential housing types that could be realized in the analysis area will complement the high density residential development that has been constructed in the town center, providing a range of housing types for the community. Finally additional housing in the South Cooper Mountain analysis area will support a segment of the City's identified need for additional housing, allowing the city to focus on providing the remainder in the Beaverton Regional Center.

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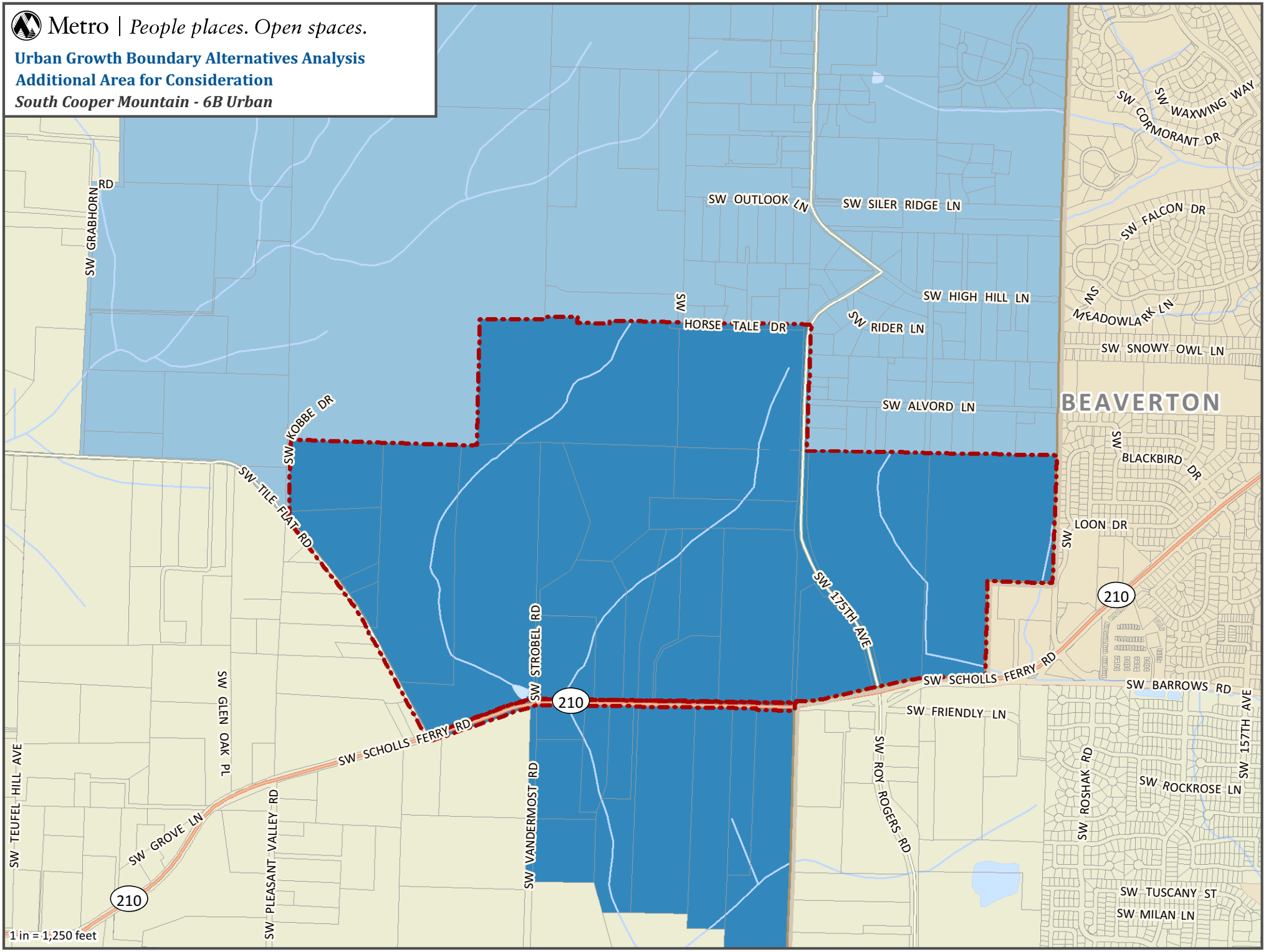
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
South Cooper Mountain - 6B Urban



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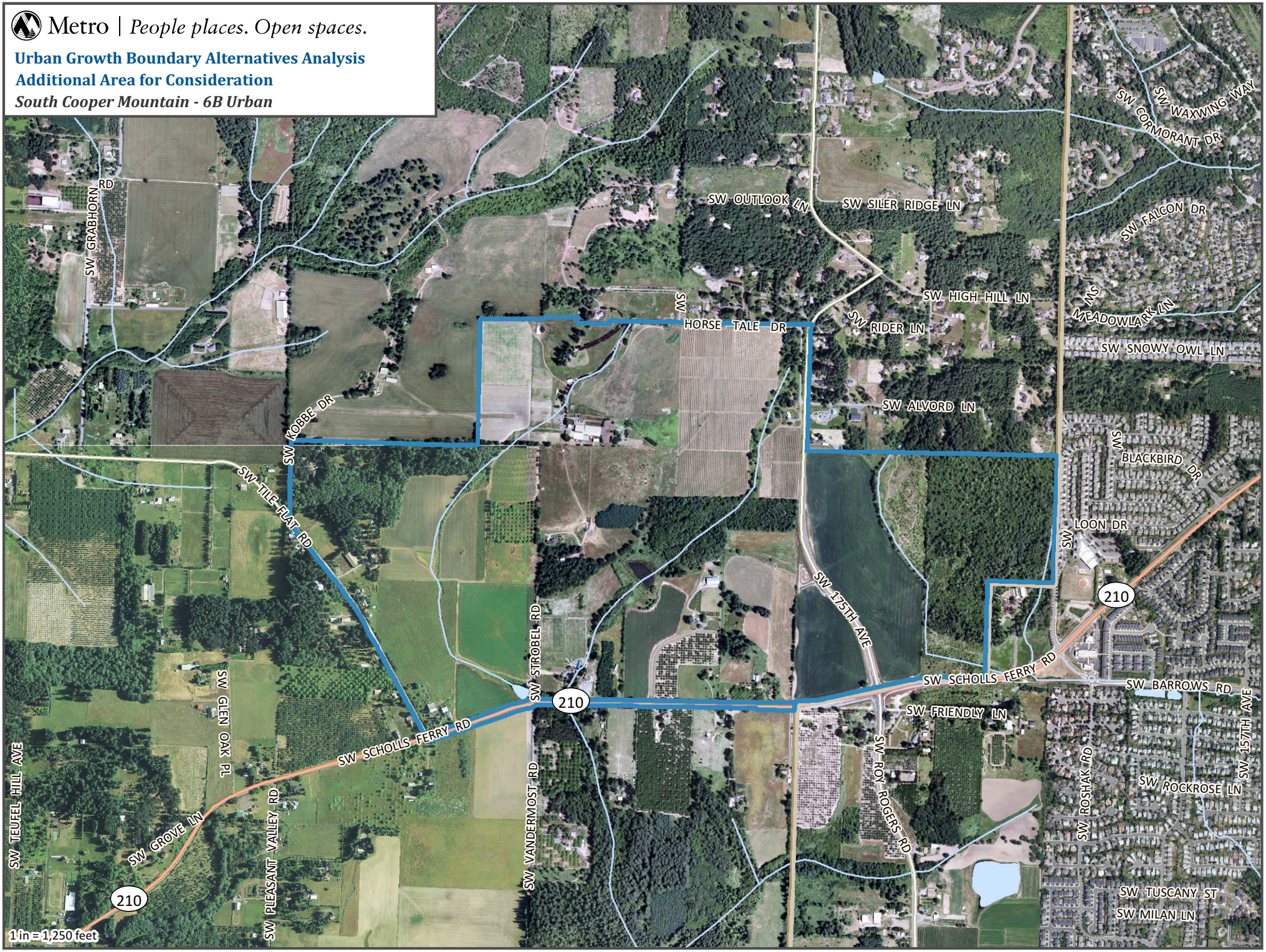
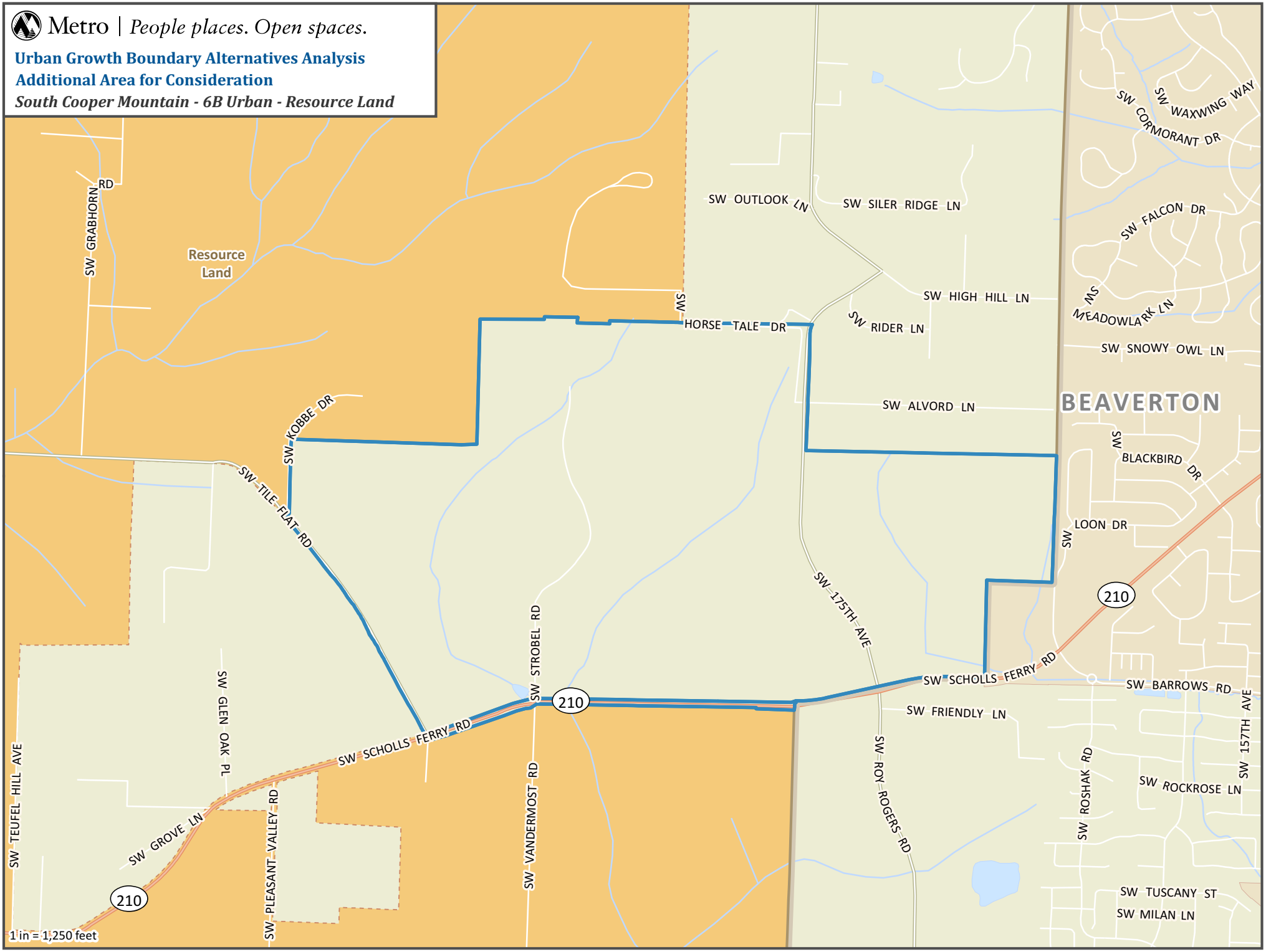
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
South Cooper Mountain - 6B Urban





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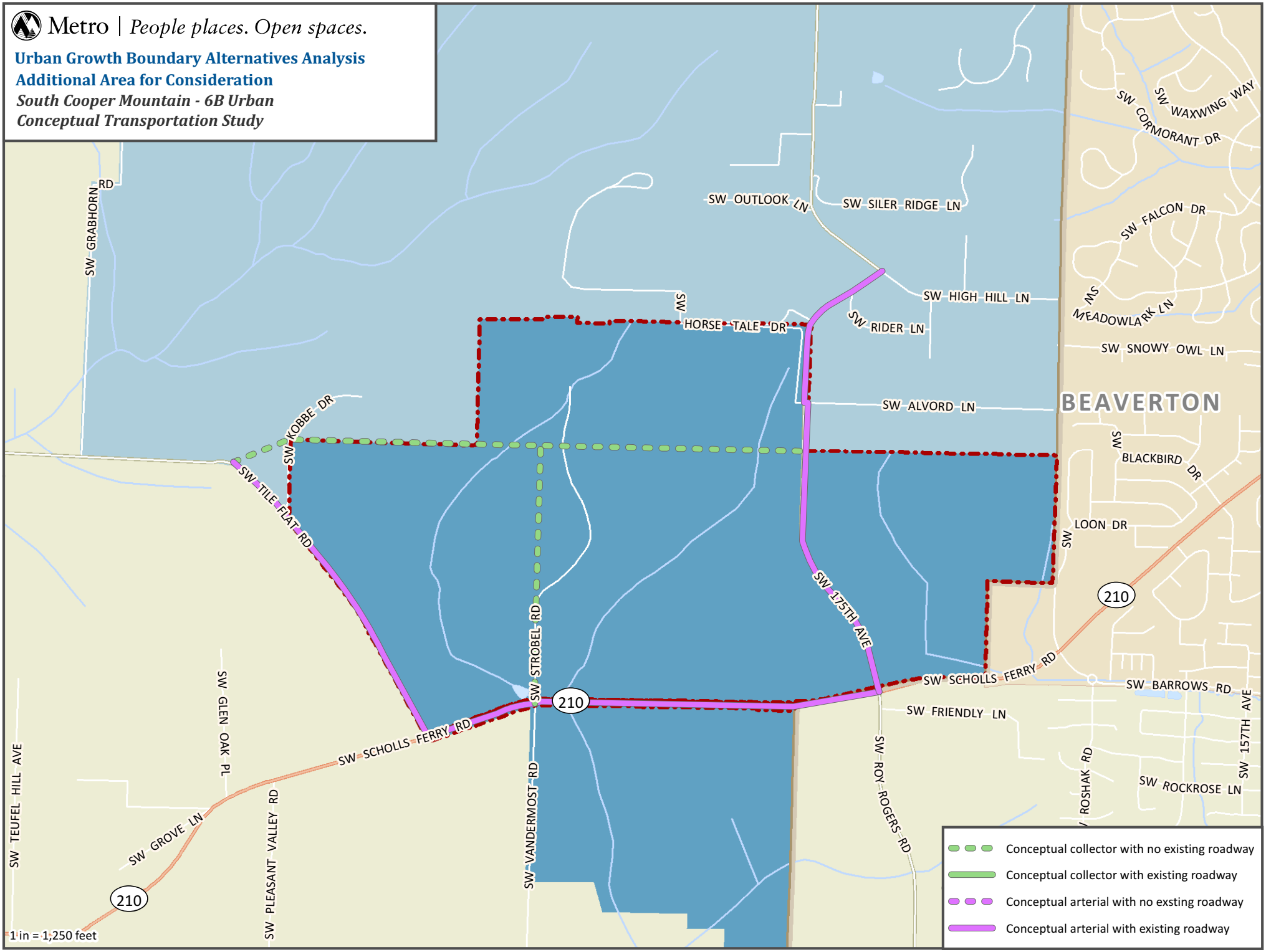
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
South Cooper Mountain - 6B Urban
Conceptual Transportation Study



ROY ROGERS WEST ANALYSIS AREA (6C)

Roy Rogers West Analysis Area		**Total Acres**	**256**
Gross Vacant Buildable Acres	206	Total Constrained Acres	50
Estimated Dwelling Unit Capacity	2,424	• Title 13 Significant Habitat	43
Estimated Employment Acres		• Public Land	0

General Description (see attached map)

The Roy Rogers West Analysis Area is L-shaped, and located at the intersection of SW Roy Rogers Road and SW Beef Bend Road, which form the west and south boundaries, respectively. Metro's current UGB forms the north and east edges. It has a total of 256 acres, sits at the base of Bull Mountain and is generally flat. The area is primarily served by SW Roy Rogers Road and SW Beef Bend Road, and is west of King City. The Tualatin River lies a short distance to the west and south.

Parcelization, Building Values, Development Pattern (see attached aerial photograph)

A total of 18 parcels are contained within the analysis area. The largest parcel is approximately 40 acres, the median size of tax lots is 13.5 acres and five of the 18 parcels within the area are less than five acres. All but two parcels have improvements, with a median value of $182,600, and five parcels have a value over $250,000. The area is primarily rural residential, with some agricultural activities occurring on a few parcels and several are forested. Adjacent to the north is the West Bull Mountain planning area that was added to the UGB in 2002. The Tualatin River National Wildlife Refuge provides an edge for development to the south and southwest of the analysis area.

Available data does not suggest the existence of power lines or other public easements through this area.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location

had medium suitability for sanitary sewer services and high suitability for water services and transportation connectivity. As part of the Washington County urban and rural reserve designation process, the City of Tigard submitted information that indicates the city has the ability and willingness to provide urban services to this area in the long term, noting that there are annexation issues that will need to be resolved.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of residential development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates. A map of the proposed collector and arterial transportation network is attached to this summary.

Sanitary Sewer Services - $9,570,000

Water Distribution Services - $4,670,000

Storm Sewer Services - $4,224,500

Transportation Services - $93,820,000

Parks - $13,680,000

Schools - $20,000,000 (New Elementary School)

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

There is no indication of the presence of wetlands or flood plains within the analysis area, although there is approximately ¾ of a mile of small unnamed tributaries flowing across the area that ultimately reach the Tualatin River. The area does have some forested land, primarily along the riparian corridors and in two other clusters in the western half of the area. The Tualatin River National Wildlife Refuge lies to the south and southwest along the Tualatin River, but is outside of the analysis area and should not be significantly impacted by urban development within the analysis area. The very limited stream corridors and forested areas would not be significantly impacted by urbanization due to their limited size and being located in four small pockets of land, the amount of buildable land between the natural areas to allow for development to occur, and the natural resource protection measures that are required along with urban development. Attachment 5 contains the breakdown of the environmental factors.

Energy, Economic & social

This small sized area, with 72% of the parcels larger than five acres in size, is a mixture of agricultural activities and rural residences on larger parcels. All but two of the 18 parcels have improvements. Urbanization will impact the rural lifestyle for current residents as the median size of the parcels is 13.5 acres, which represents large rural home sites. Directly to the north is the West Bull Mt. area that was brought into the UGB in 2002, but is currently undeveloped. Once this area is developed to urban levels, the loss of the rural lifestyle for the current residents of the analysis area may be less, as they will be closer to urban amenities. In addition, the combination of this area with the West Bull Mt. area provides opportunities to knit the two areas into one urban community and develop efficiencies in infrastructure financing and delivery of services. There are a few significant locations of agricultural activities dispersed within the rural residences. The potential economic impact of urbanizing this area adjacent to two well-traveled roadways will outweigh the loss of the economic impact from these agricultural uses. Approximately 21% of the land is identified as containing riparian habitat dispersed in four pockets throughout the analysis area. The costs for protecting these isolated resources will be small in contrast to the potential economic impact of urbanizing the larger areas in between. The additional VMT generated through urbanization of this small area will be minimal as the average commute distance is similar to the existing commute distance for the region. Overall this analysis area has low economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

Regionally significant riparian habitat is identified on 24 acres along the three small stream segments, and another 19 acres of regionally significant upland habitat is located within two forested areas, one centrally located and the other in the northern segment of the analysis area. A portion of the identified habitat in the analysis area appears to be currently in agricultural use. The Tualatin River National Wildlife Refuge has a scattering of land to the south and southwest of this area, including a large tract of land directly diagonal across the intersection of SW Roy Rogers Road and SW Beef Bend Road. The City of Tigard, the expected governing body for this area, has adopted habitat protection measures in compliance with Metro's Title 13 program through the Tualatin Basin Natural Resource Coordinating Committee's protection program. Based on the location of the limited amounts of regionally significant habitat and the expected protection measures that will be in place prior to urbanization, this area could be urbanized with minimal impacts on regionally significant fish and wildlife habitat.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves.

Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

Resource land zoned exclusive farm use (EFU) borders the entire Roy Rogers West analysis area (see attached resource land map). This extensive block of farm land extends beyond the Tualatin River to the west and south. The farm land to the west and south of SW Roy Rogers Road and SW Beef Bend Road is actively farmed with nursery, field and row crops. A retail nursery operation is located on SW Roy Rogers Road, just south of the analysis area and both roads are currently heavily traveled. Any additional traffic on these two roads as a result of urbanization of the analysis area may further impact the ability to move farm equipment and goods. SW Roy Rogers Road and SW Beef Bend Road do provide an edge to the analysis area; however the roads alone would not make the proposed urban uses compatible with the adjacent agricultural activities occurring on farm land. Mitigation measures could reduce conflicts between urban uses inside the UGB and resource uses outside the UGB.

Clear transition between urban and rural lands, using natural and built features to mark the transition

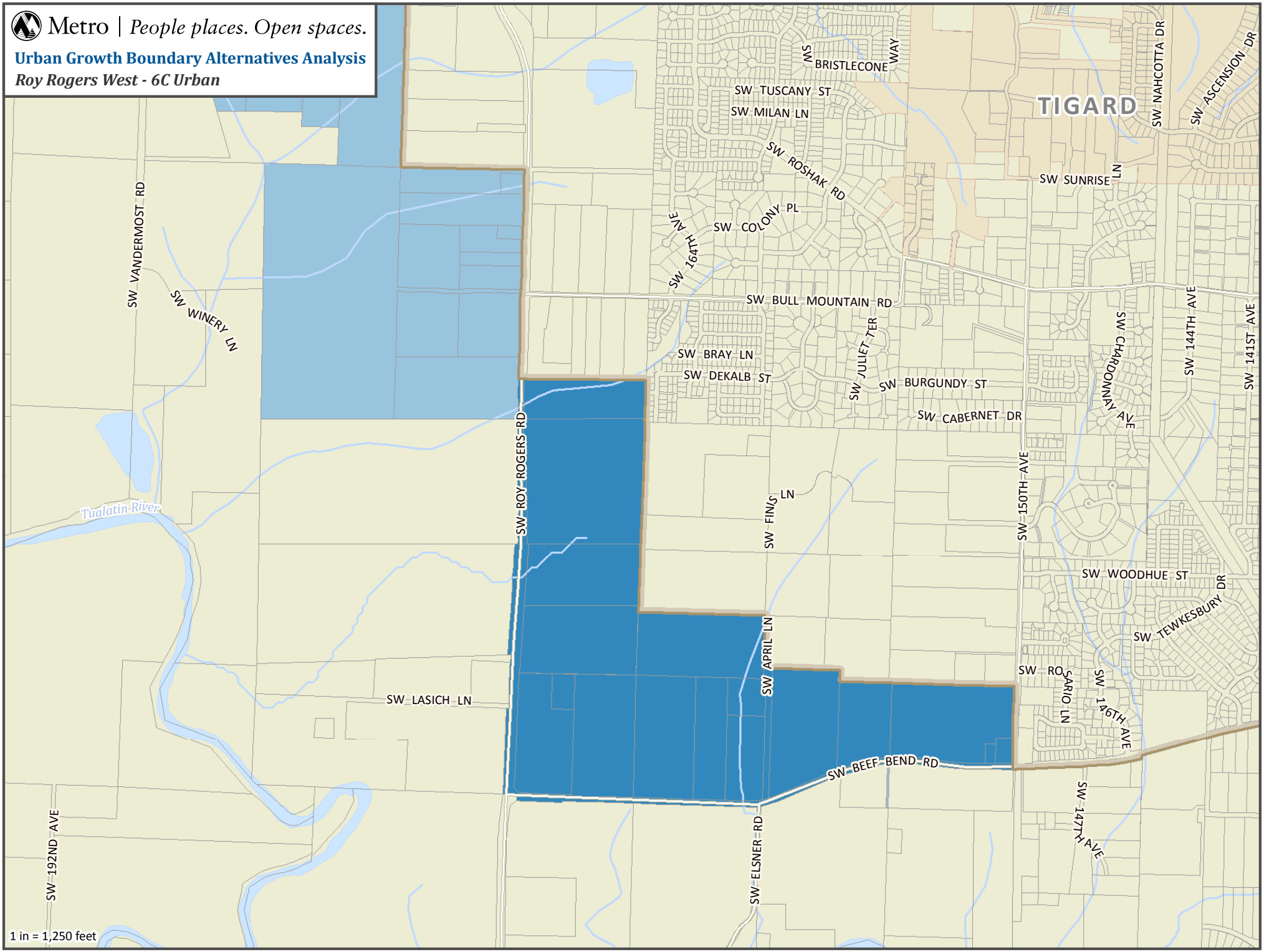
There are no natural or built features to mark the transition between urban and rural lands. Even assuming SW Roy Rogers Road and SW Beef Bend Road develop as arterial roadways in the future, the roads themselves will not provide a clear transition area between future urban and rural uses, especially given the level of traffic that may occur. Additional buffers will need to be incorporated into the planning of the urban reserve analysis area to provide a clear transition from urban to rural uses. The rural lands south of SW Beef Bend Road are within the Beef Bend South Urban Reserve Area (Area 6D) and may be included in the UGB in the future. Thus, any buffers that are incorporated into the planning study for this analysis area should consider the potential for connecting these two areas in the future.

2040 Growth Concept

Contribution to the purposes of Centers

There are two 2040 designated centers that are in proximity to the Roy Rogers West analysis area, the Murray/Scholls Town Center and King City Town Center. Of the two, the King City Town Center is slightly closer and more directly connected to the analysis area via SW Beef Bend Road (1.5 miles). It is a 77 acre center that has the highest median age, 60, reflecting its origins as a retirement community. The Murray/Scholls Town Center is a little larger, at 123 acres, and is primarily a higher density residential center. The Murray/Scholls Town Center is linked to the Roy Rogers West analysis area by SW Roy Rogers Road/SW Scholls Ferry Road (2.5 miles). No transit lines connect the analysis area to either town center. The Sherwood Town Center is only slightly farther than the Murray/Scholls Town Center, and is accessible via SW Roy Rogers Road.

In pre-qualified concept planning, the City of Tigard identified the Roy Rogers West analysis area as a potential future development site, providing a location for additional residential development with a mix of local services and other small-scale employment opportunities. Urbanization of this area will not support the creation of compact, pedestrian-oriented communities in either of the two town centers, due mainly to the distance between the analysis area and the centers. Both King City and Murray/Scholls Town Centers already have low or average jobs to housing ratios, and additional residential units in the analysis area could have a negative impact on creating a more balanced ratio in the town centers. Employment development is not envisioned to be significant enough to support either center as well. It is also unlikely, given the small size of the analysis area that a new center will emerge in this location.



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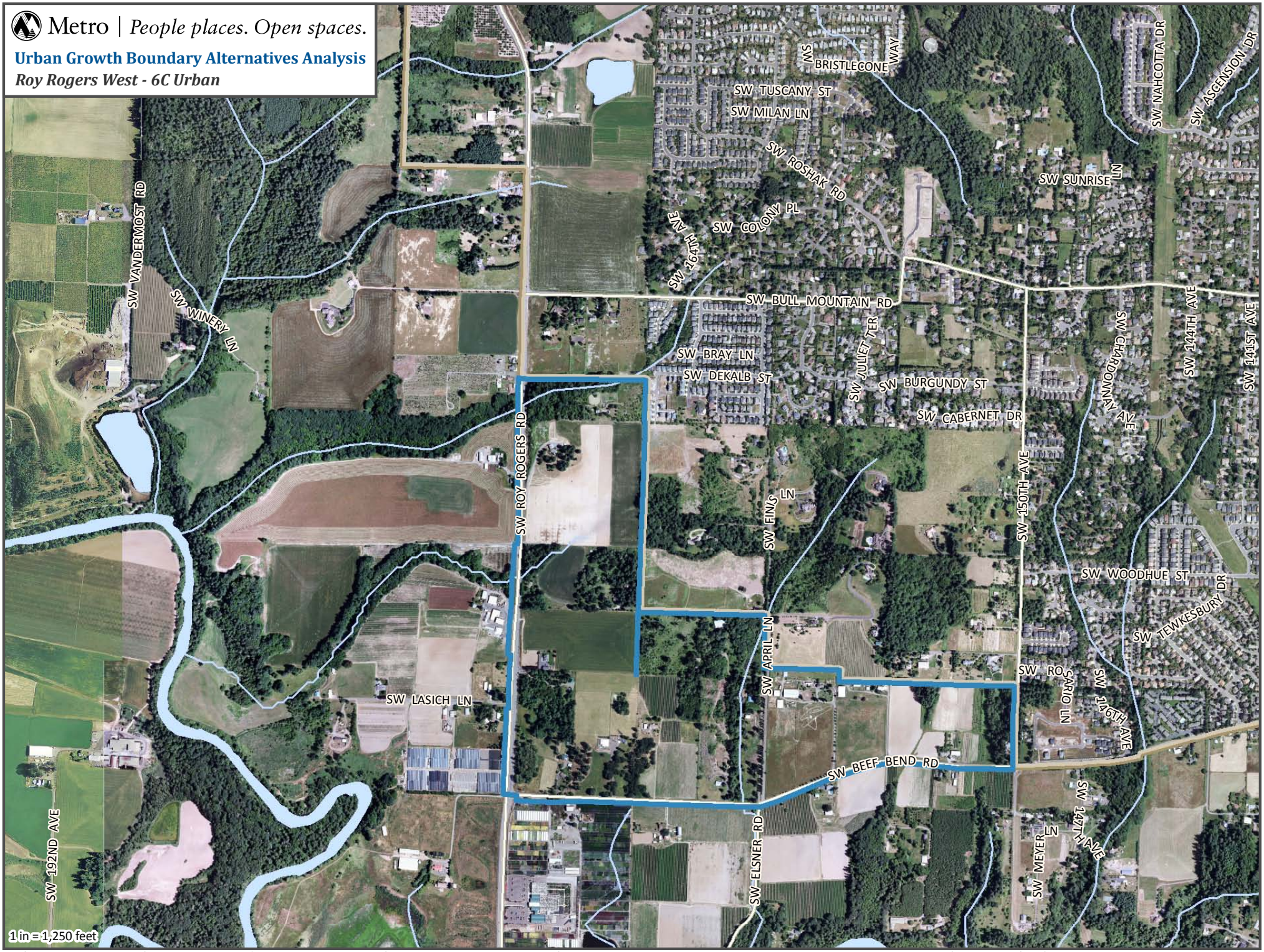
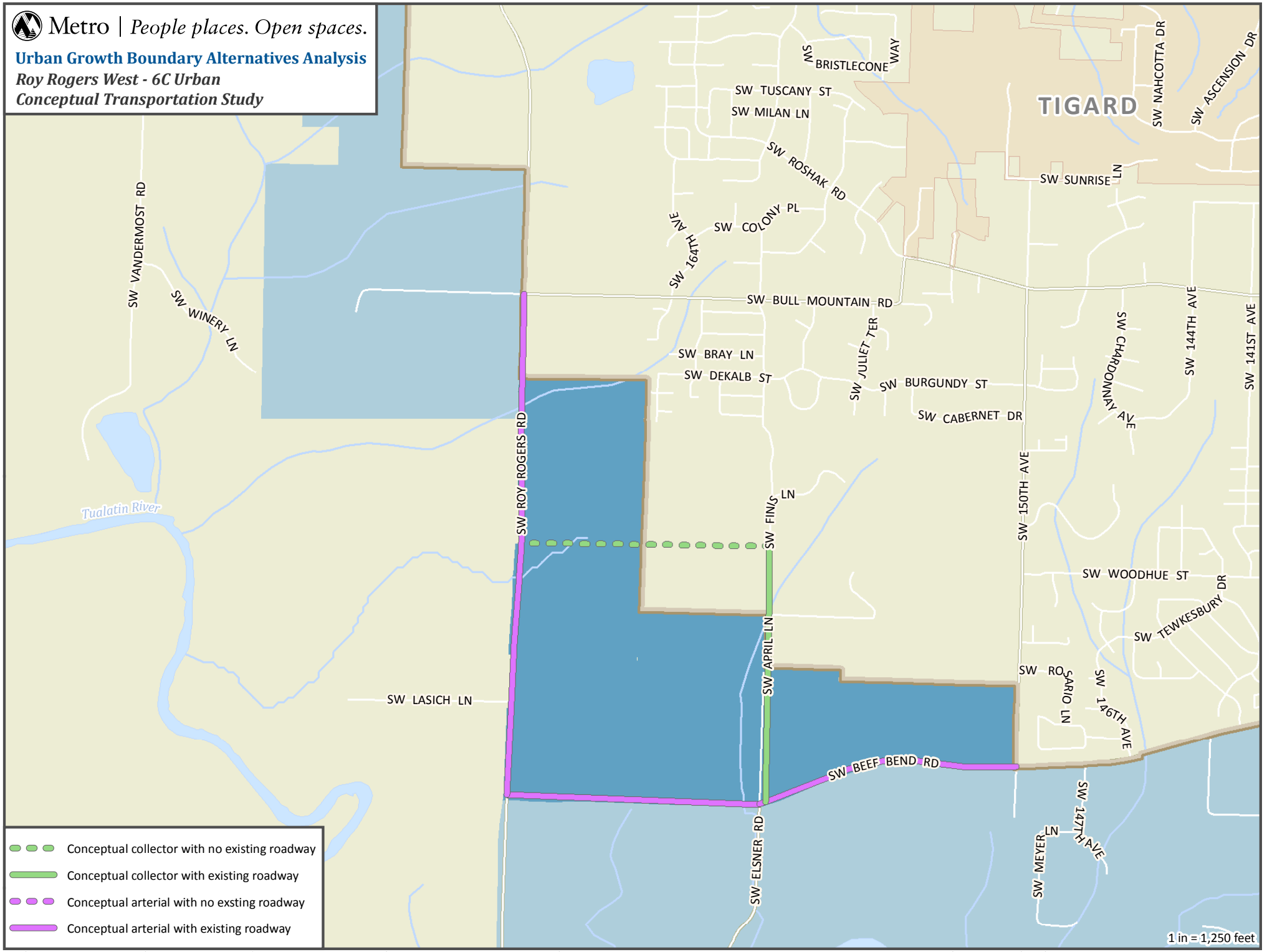
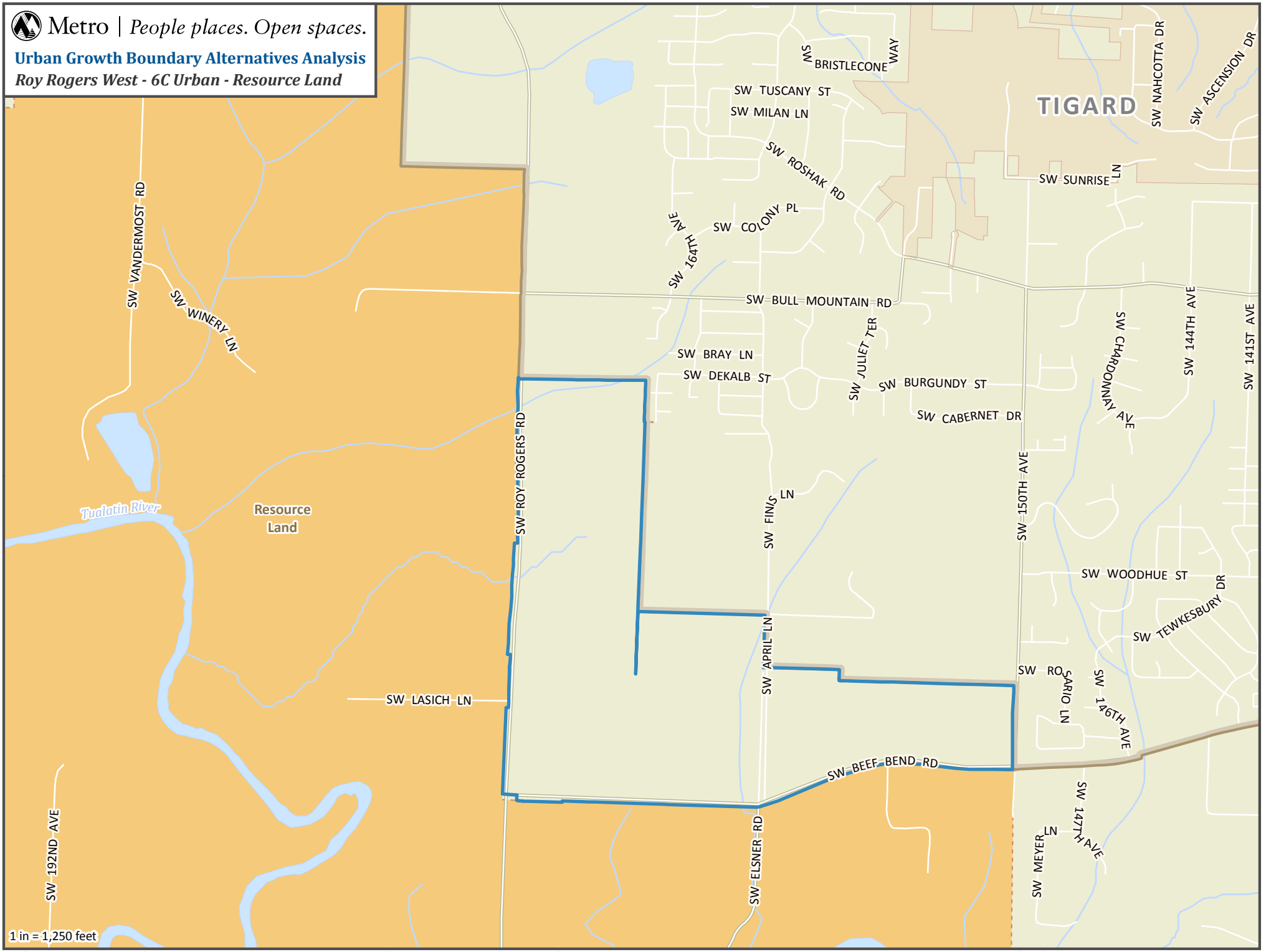
Urban Growth Boundary Alternatives Analysis

Roy Rogers West - 6C Urban







VANDERMOST ROAD ANALYSIS AREA (6C)

Vandermost Road		**Total Acres**	**138**
Gross Vacant Buildable Acres	76	Total Constrained Acres	62
Estimated Dwelling Unit Capacity	976	• Title 13 Significant Habitat	62
Estimated Employment Acres		• Public Land	0

General Description (see attached map)

The Vandermost Road Analysis Area, a portion of the larger Roy Rogers West/6C urban reserve, is a generally square shaped area south of SW Scholls Ferry Road and east of SW Vandermost Road. The analysis boundary is defined by the UGB to the east, SW Scholls Ferry Road to the north, SW Vandermost Road to the west and parcel lines to the south. The adjacent area to the east is part of the West Bull Mountain planning area. The area is served by SW Scholls Ferry Road and SW Vandermost Road.

The City of Tigard is recommending concurrent inclusion of this area with the South Cooper Mountain/6B analysis area to provide for the opportunity to double load development on both sides of SW Scholls Ferry Road and within close proximity to SW Roy Rogers Road. This would allow for the maximization of local and region investments in the planning, development and servicing of land uses along these two regional transportation corridors.

Parcelization, Building Values, Development Pattern (see attached aerial photo)

The Vandermost Road Analysis Area contains 10 parcels, all but four of which are less than 10 acres in size. Three parcels are larger than 20 acres and one larger than 10 acres. Improvements are recorded for all the tax lots, with a median value of $73,830. Improvements with values over $100,000 occur on three lots, with a maximum value of $144,630. A little more than one-third of the analysis area is forested with the remaining area a mixture of agricultural uses, pasture and associated rural residences. Two streams flow south through the area, one in the southeast corner and the other in the western portion of the area.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had moderate suitability for sanitary sewer services, high suitability for water services and transportation connectivity.

This small area is adjacent to the 2002 UGB expansion areas 63 & 64 which make up the West Bull Mountain planning area. It is assumed that the infrastructure necessary to serve this small area will consist of the smaller level components that is commonly the responsibility of the developer. The larger components necessary to serve this area will be undertaken through the development of the West Bull Mountain area (specifically area 64). The addition of this area could help in supporting the construction of those necessary facilities. A more detailed concept plan, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop refined cost estimates and determine if any additional large components are needed. Due to the proximity of the West Bull Mountain concept plan area as well as the South Cooper Mountain analysis area, there exists an opportunity to plan, design and construct transportation infrastructure to serve all areas as well as serve regional transportation needs, providing cost efficiencies for the areas. A map of the proposed collector and arterial transportation network is attached to this summary. For more information on the West Bull Mountain planning area see - http://www.co.washington.or.us/LUT/PlanningProjects/westbullmt/index.cfm

Sanitary Sewer Services – no cost estimates, may financially support system developed for West Bull Mountain

Water Distribution Services – no cost estimates, may financially support system developed for West Bull Mountain

Storm Sewer Services – no cost estimates, may financially support system developed for West Bull Mountain

Transportation Services – no additional transportation costs expected as the upgrade of SW Scholls Ferry Road would occur with the development of urban reserve 6B/Cooper Mountain to the north and or West Bull Mountain.

Parks – no cost estimates, park provider needs to be identified for West Bull Mountain

Schools – not required

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

Two streams flow south through the area, ultimately joining together south of the analysis area border. The streams total about 0.6 miles in length and flow through forested areas. There are no wetlands or 100-year flood plain in the area and only a few small locations of slopes greater than 25% which would not impact development as they are located along the stream corridors. The stream located in the southeast corner isolates a small portion of the area which may impact connections to the remainder of the site, although this isolated area is directly adjacent to land that is currently in the UGB providing for urban form connections. The stream in the western portion of the area isolates the western edge of the site, thereby potentially limiting the ability to develop a connected transportation system without impacting natural resources along the stream corridor due to the required urban level natural resource protection measures. Attachment 5 contains a breakdown of the environmental factors.

Energy, Economic & Social

This analysis area contains 10 parcels with all but four parcels less than ten acres in size. Three parcels are greater than 20 acres and one larger than 10 acres. All of the parcels contain improvements. Significant agriculture activities occur on a relatively minor portion of the area. The loss of the economic impact from the agricultural uses in this area will not be considerable and the potential economic impact of urbanization in the area will outweigh the impact of this loss. There are 62 acres of identified habitat mainly along the two streams that flow through the area. The costs for protecting these linear resources and the large associated upland habitat areas will be considerable in contrast to the potential economic impact of urbanizing the remaining areas, as the location of the resources isolate or reduce the development potential. Urbanization will negatively impact the current residents through the loss of the rural lifestyle. Overall this analysis area has medium to high economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

Approximately 62 acres of regionally significant riparian and upland habitat are identified within the area. The habitat is centered on the two stream corridors and associated forested canopy areas. The City of Tigard, the expected governing body for this area, has adopted habitat protection measures in compliance with Metro's Title 13 program through the Tualatin Basin Natural Resource Coordinating Committee's protection program. Based on the location of the regionally significant habitat that divides the area into segments and the expected protection measures that will be in place prior to development, urbanization of this area could result in moderate to high impacts on regionally significant fish and wildlife habitat.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves.

Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

This analysis area is bordered on the east by the UGB and to the south by a different portion of the Roy Rogers West/6C urban reserve area and a rural reserve that also extends along the western border. To the north is the Cooper Mountain/6B urban reserve. There is a large block of resource land to the south that extends to the west and north that is a mixture of land zoned Agriculture Forest 20 acres (AF20) and Exclusive Farm Use (EFU) (see attached resource land map). To the west is a 300 acre pocket of non-resource land, which is separated from the analysis area by farm land in agricultural production and rural residences along SW Pleasant Valley Road. As there are no identifiable edges or buffers between the analysis area and these agricultural activities to the west, the proposed urban uses would not be compatible with the agricultural activities occurring on this farm land outside the UGB. However mitigation measures could reduce conflicts between urban uses inside the UGB and the resource uses outside the UGB. The farm land directly to the south is forested, which provides a buffer for the cultivated land further to the south. The farm land directly north, on the north side of SW Scholls Ferry Road is mostly in agricultural production with a few pockets of forest. SW Scholls Ferry Road provides a buffer along the northern edge of the analysis area; however the road itself would not make the proposed urban uses compatible with the adjacent agricultural activities occurring on farm land to the north. Overall the proposed urban uses are moderately compatible with adjacent agricultural uses occurring on farm land outside the UGB due to forested buffers, the limited amount of adjacent agricultural activities to the west and the potential for increasing the buffer along SW Scholls Ferry Road.

Clear transition between urban and rural lands, using natural and built features to mark the transition

The forested parcels to the south provide a clear transition between urban and rural land through the use of a natural feature. Otherwise there are no natural or built features that mark a clear transition between urban and rural lands for the analysis area. Even assuming SW Scholls Ferry Road develops as an urban arterial roadway in the future, the road itself will not provide a clear transition area between future urban and rural uses for the land to the north. Additional buffers will need to be incorporated into the planning of the urban reserve analysis area to provide a clear transition from urban to rural uses. Any buffers that are incorporated into the planning study for the analysis area needs to consider the potential for making urban form connections to the portion of the Roy Rogers West urban reserve that borders the analysis area in the southeast corner.

2040 Growth Concept

Contribution to the purposes of Centers

The Murray Scholls Town Center, approximately one mile from the Vandermost Road analysis area, is 204 gross acres in size and serves the immediate area. It is linked to the analysis area by SW Scholls Ferry Road and SW Barrows Road. Currently there is no TriMet transit service between the two areas but the town center is served by TriMet line 62.

The residential component of the Murray Hills Town Center plan has been completed and the commercial and employment portion of the town center is underdevelopment. The Murrayhill Marketplace commercial center, which is directly north of the town center, provides a range of services including a city library, grocery store and retail shopping. Metro's State of the Centers Report, May 2011, highlights the town center's need to increase the number of people per acre through the development of employment opportunities.

Urbanization of the Vandermost Road analysis area may slightly contribute to the vision and purpose of the Murray Hills Town Center by providing a small additional customer base for the employment and commercial components of the town center as well as the existing Murrayhill Marketplace commercial area.

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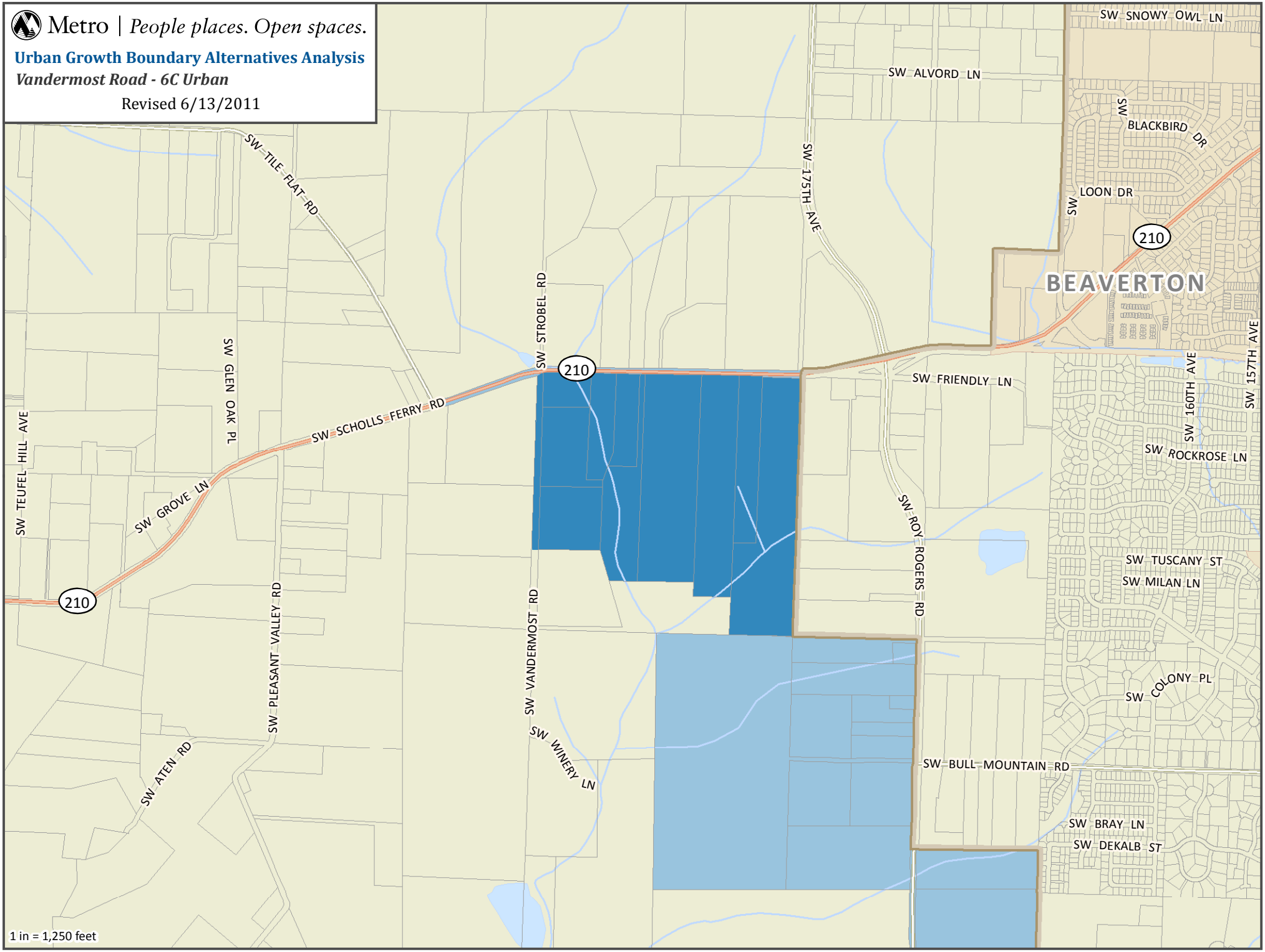
Urban Growth Boundary Alternatives Analysis

Vandermost Road - 6C Urban

Revised 6/13/2011



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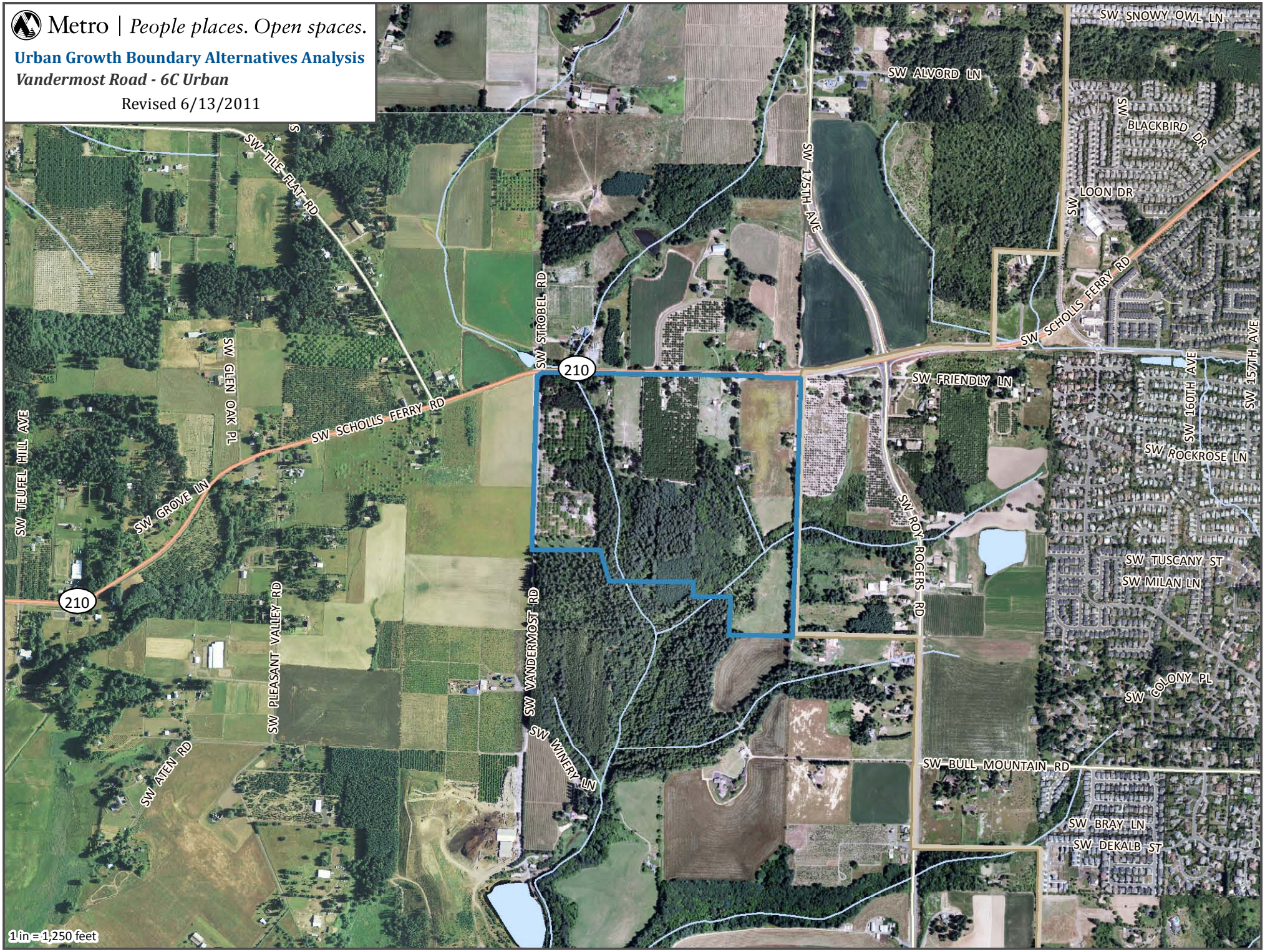
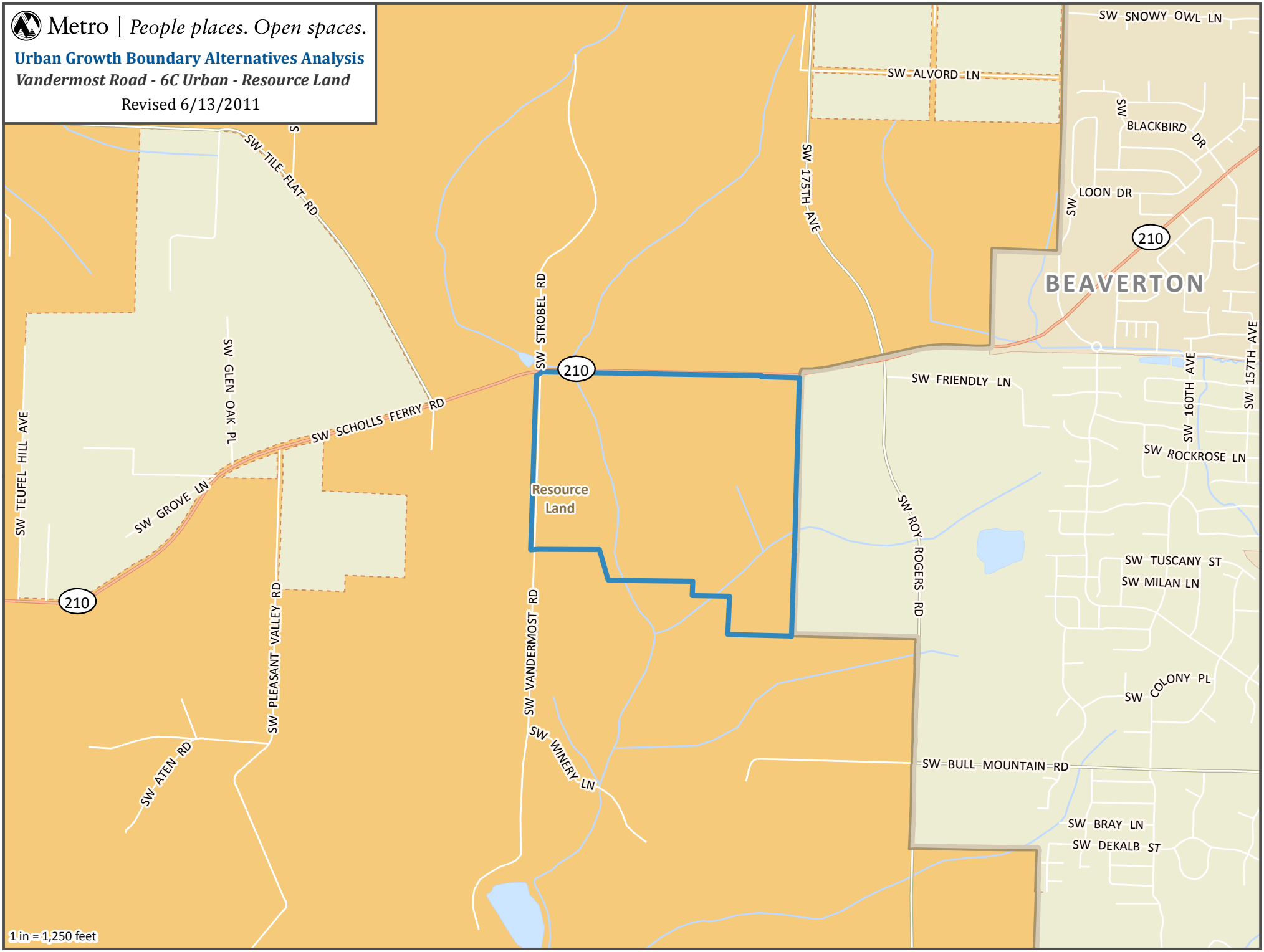
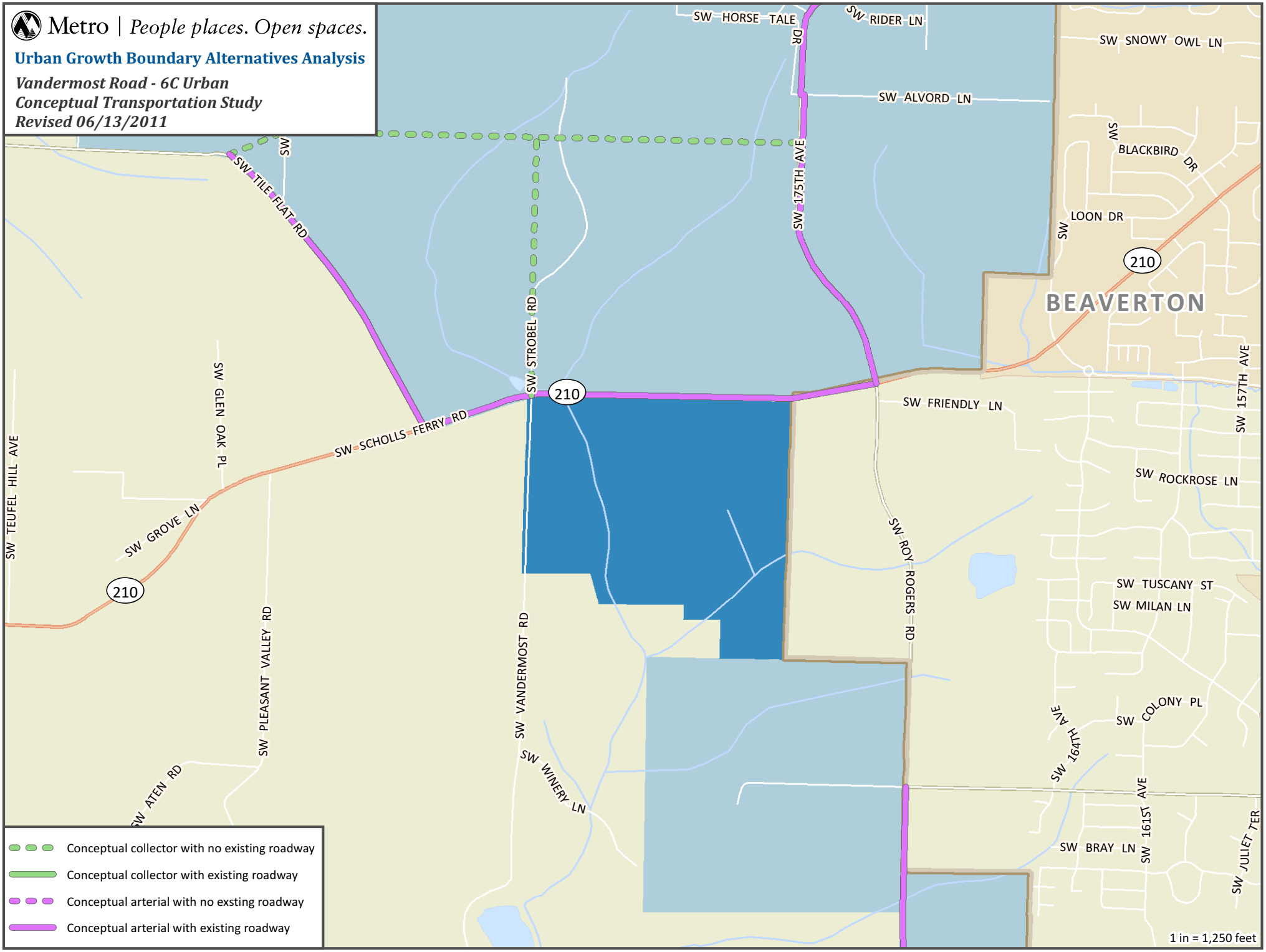
Urban Growth Boundary Alternatives Analysis

Vandermost Road - 6C Urban

Revised 6/13/2011







FOREST GROVE NORTH ANALYSIS AREA (7B)

Forest Grove North Analysis Area		**Total Acres**	**188**
Gross Vacant Buildable Acres	157	Total Constrained Acres	31
Estimated Dwelling Unit Capacity	0	• Title 13 Significant Habitat	28
Estimated Employment Acres	128	• Public Land	0

General Description (see attached map)

The Forest Grove North Analysis Area, a portion of the larger Forest Grove North Urban Reserve, is a small area located to the north of the current Forest Grove UGB, along Highway 47. The area extends from the UGB north to NW Purdin Road, and Highway 47 and/or Council Creek forms the eastern boundary. The Forest Grove North area contains a total of 188 acres and is generally flat. Council Creek flows south along the eastern edge near Highway 47.

Parcelization, Building Values, Development Pattern (see attached aerial photo)

The analysis area has only 7 parcels, three of which are split by the eastern edge of the analysis area along Council Creek. The remaining four lots are greater than 20 acres, with two greater than 30 acres. The three split parcels range in size from 11 to 22 acres. All but one parcel have improvements, with a median value of $138,935. The entire analysis area is in active agricultural use, the majority of which is for field crops. There are a few rural residences along the edges of the area that are associated with the farmland.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had high suitability for sanitary sewer services, water services and transportation connectivity. The City of Forest Grove's Pre-Qualifying Concept Plan, completed as part of the Washington County

urban and rural reserve designation process, indicates that the city has the ability and willingness to provide urban services to this area.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of large site industrial development that could occur in the analysis area. The estimates were generated using the urban reserves boundary that was adopted in 2010. The boundary adopted in 2011 is slightly different and may impact the overall estimates. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates. A map of the proposed collector and arterial transportation network is attached to this summary.

Sanitary Sewer Services - $2,848,000

Water Distribution Services - $1,590,000

Storm Sewer Services - $1,429,500

Transportation Services - $80,150,000

The City of Forest Grove is unique in that the city is the electrical power provider through its power and light department. Forest Grove Light and Power is a Bonneville Power Administration preferred company, as they have been purchasing power from BPA since 1939. Because of this status the city is able to purchase power from BPA at a lesser rate than other power providers. Based on information provided by the city, monthly charges for a typical large industrial load provided by Forest Grove Light and Power would be approximately 37% less than what Portland General Electric would charge for the same power.

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

Council Creek forms a portion of the the eastern edge of the analysis area. A small tributary of Council Creek flows through the center of the area. Along Council Creek there is a small 4 acre wetland and 20 acres of 100-year flood plain, most of which is currently under cropland cultivation. There are no steep slopes, and overall topography is very flat. Based on the current level of disturbance surrounding the two streams, the location of Council Creek near the edge of the analysis area and development limitations due to the 100-year flood plain and riparian buffers, future urban development will not negatively impact these stream corridors beyond the current impact from the agricultural uses. Attachment 5 contains the breakdown of the environmental factors.

Energy, Economic & Social

This small area, composed of 7 parcels is completely in agricultural production. All but one of the parcels are greater than 20 acres, the largest being 38 acres. The loss of the economic impact from the significant agricultural uses in this small area may be considerable; however the potential economic impact of urbanization for industrial use on these large flat parcels may outweigh this loss. There are 28 acres of identified habitat in the area along Council Creek and a tributary. The costs for protecting these linear resources will be small in contrast to the potential economic impact of urbanizing the larger areas outside the stream corridors. Urbanization will impact the current residents of the area through the loss of the rural lifestyle, however since there are no residences that aren't associated with the adjacent agricultural activities, this impact will be less than if the area contained pockets of rural residences on smaller lots. Overall this analysis area has low economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

Regionally significant riparian habitat along the stream corridors totals 28 acres, and represents the only fish and wildlife habitat within the analysis area. Much of the habitat area is impacted by agricultural activities and limited riparian corridors currently exist along the streams. The City of Forest Grove, the expected governing body, has adopted habitat protection measures that are in compliance with Metro's Title 13 requirements as part of the Tualatin Basin Natural Resource Coordinating Committee's protection program. Given the level of agricultural activity, the protection measures that will be in place prior to urbanization and limitations of the flood plain on development, future urbanization in this area will not impact regionally significant fish and wildlife habitat.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

The UGB borders the Forest Grove North analysis area on the south. Resource land zoned exclusive farm use (EFU) directly borders the analysis area on the west, north and east (see attached resource land map). This extensive block of farm land extends for miles to the north and east and is intensely farmed for numerous agricultural products. To the west, the farm land extends approximately ¾ of a mile to the UGB along NW Thatcher Road. There are two islands of non-farm

land east of the analysis area centered on NW Verboort Road that are 15 acres and 49 acres in size and represent the community of Verboort. West of the analysis area there are two unnamed tributaries to Council Creek that flow east through open farm fields and appear to be piped for some portions, but they do not act as an edge or buffer for the analysis area. Council Creek flows south through open farm fields paralleling Highway 47. It is possible that in some locations Council Creek in combination with the Highway 47 right-of-way could provide a buffer for the agricultural activities occurring east of the highway. NW Purdin Road provides a northern edge to the analysis area; however the road itself would not make the proposed urban uses compatible with the adjacent agricultural activities occurring on farm land. Increased traffic along NW Purdin Road due to new urban uses within the analysis area may impact agricultural activities on the resource land to the north. As there are no identifiable edges or buffers between the analysis area and the extensive farm lands to the north, the limited farm lands to the west and to a lesser degree to the east, the proposed urban uses would not be compatible with the agricultural activities that occur on farm land outside the UGB. However mitigation measures could reduce conflicts between urban uses inside the UGB and resource uses outside the UGB.

Clear transition between urban and rural lands, using natural and built features to mark the transition

There are no natural or built features to mark a clear transition between urban and rural lands, with the exception of some potential areas along Highway 47 where Council Creek flows close to the roadway. Even assuming NW Purdin Road develops as an arterial roadway in the future, the road itself will not provide a clear transition area between future urban and rural uses. Additional buffers will need to be incorporated into the planning of the urban reserve analysis area to provide a clear transition from urban to rural uses. The rural lands west to NW Thatcher Road are part of the larger Forest Grove North urban reserve area and may be included in the UGB in the future. Thus, any buffers that are incorporated into the planning study for this analysis area should consider the potential for making urban form connections in this location in the future.

2040 Growth Concept

Contribution to the purposes of Centers

The Forest Grove Town Center is the closest center to the Forest Grove North analysis area. It is a smaller town center, at 107 gross acres in size, and serves as a cultural and commercial center for the city of Forest Grove, as well as the home to Pacific University. The town center is linked to the analysis area by Highway 47 and NW Sunset Drive (1.2 miles). There is currently no Tri-Met service connecting the analysis area to the town center, although the center is served by Tri-Met line 57 along Highway 8.

Over time Forest Grove has been undergoing a change away from being a complete community and toward becoming a bedroom community, due in part to increasing residential development trends. A component of the city's visioning process is to retain the vitality of the historic town center and surrounding neighborhoods through appropriate densities and development patterns and

providing job opportunities close to homes. Metro's State of the Centers Report, May 2011, indicates that the town center has a high business per acre ratio and the highest median household size reflecting the Pacific University student population.

The City of Forest Grove currently envisions industrial development occurring within the analysis area. Urbanization of the Forest Grove North analysis area is unlikely to support the vision and purpose of the Forest Grove Town Center. Focusing on infill and redevelopment of underutilized land in other parts of the city may better support the continued success of the town center. However, additional employment opportunities in the analysis area would promote the city's other goals of job opportunities close to local residents and meeting industry needs.

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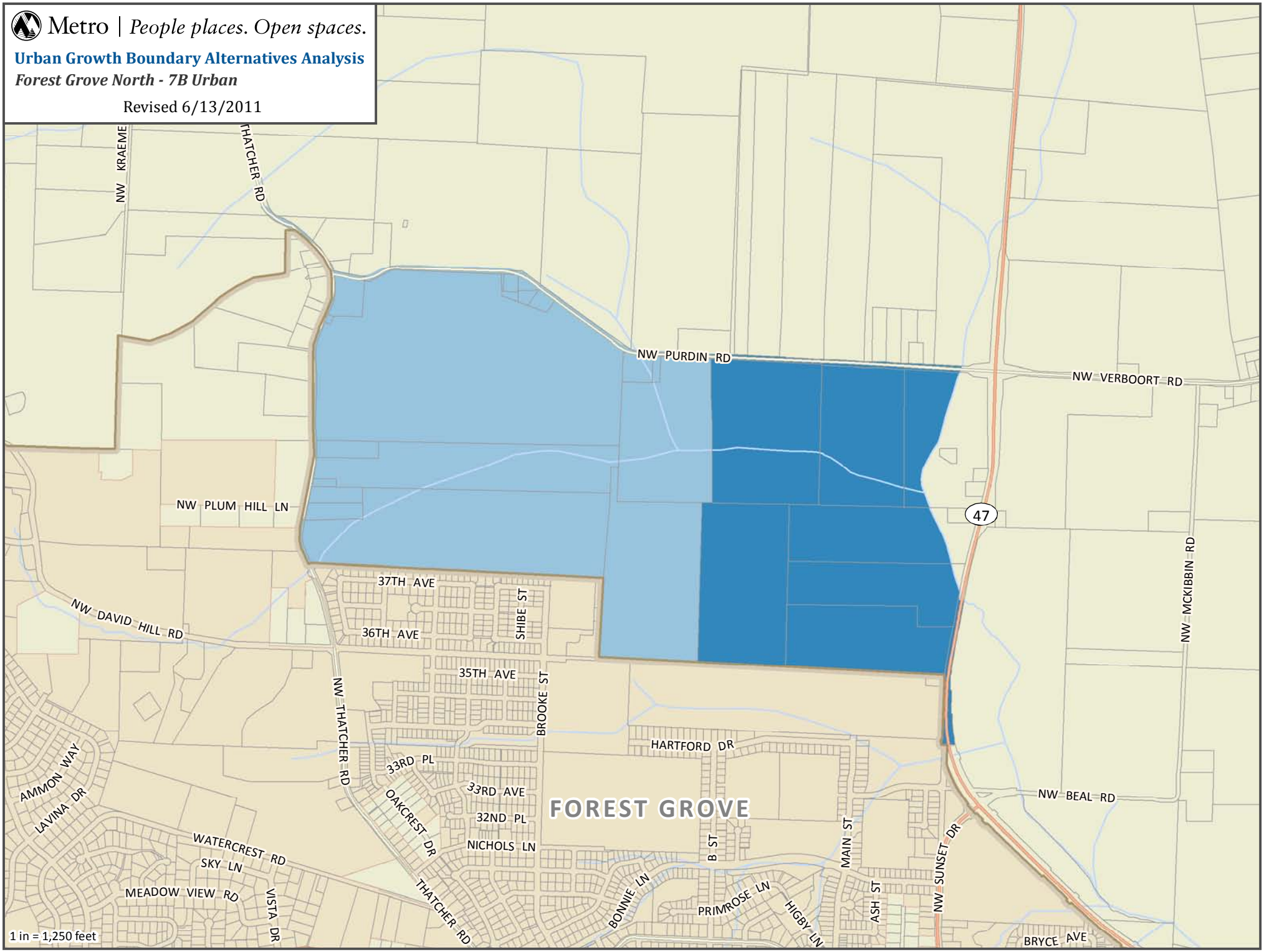
Urban Growth Boundary Alternatives Analysis

Forest Grove North - 7B Urban

Revised 6/13/2011



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Urban Growth Boundary Alternatives Analysis

Forest Grove North - 7B Urban

Revised 6/13/2011

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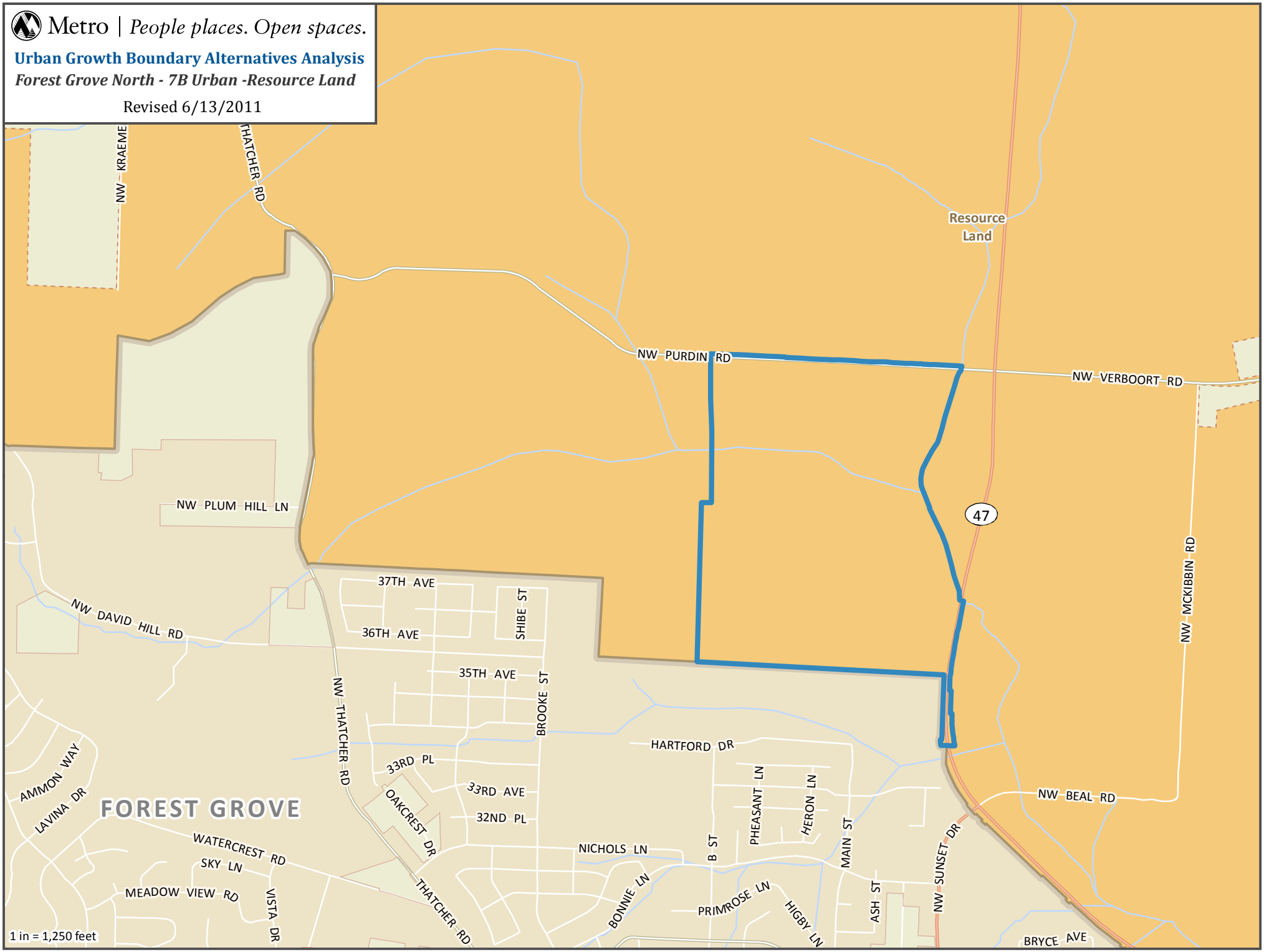
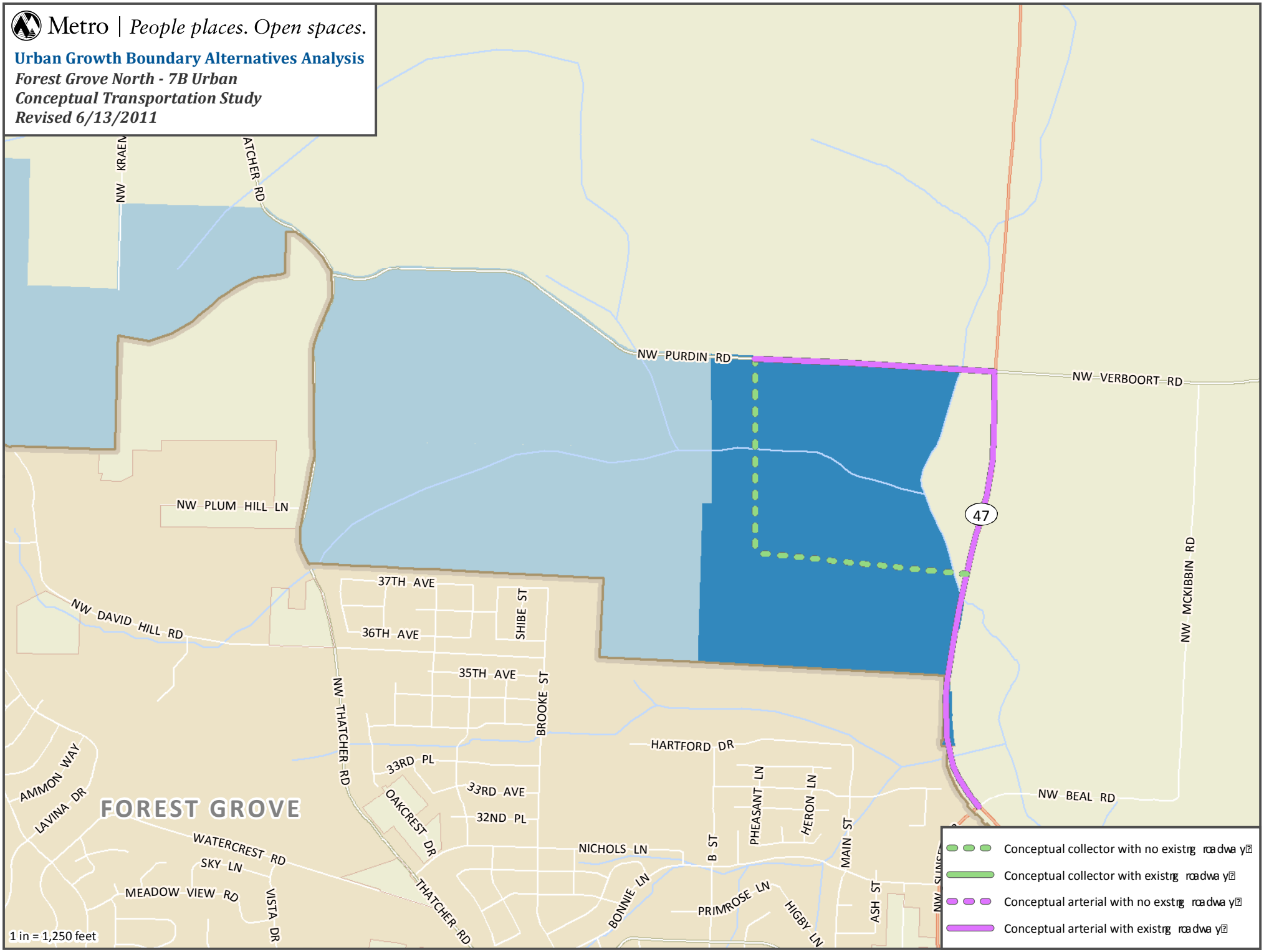
Urban Growth Boundary Alternatives Analysis

Forest Grove North - 7B Urban -Resource Land

Revised 6/13/2011





FOREST GROVE NORTH PURDIN ROAD ANALYSIS AREA (7B)

Forest Grove South		**Total Acres**	**114**
Gross Vacant Buildable Acres	107	Total Constrained Acres	7
Estimated Dwelling Unit Capacity	0	• Title 13 Significant Habitat	0
Estimated Employment Acres	87	• Public Land	0

General Description (see attached map)

The Forest Grove North Purdin Road Analysis Area is located on the north side of Forest Grove at the intersection of NW Purdin Road and NW Thatcher Road and is part of the larger Forest Grove North urban reserve area. It is defined by the UGB on the west, NW Purdin Road on the north and parcels lines to the south and east. The area is in agricultural use.

Parcelization, Building Values, Development Pattern (see attached aerial photo)

The Forest Grove North Purdin Road Analysis Area consists of one 114 acre parcel. There is one house on the property, however Washington County Assessor data does not indicate a value..

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

Washington County's Urban Growth Management policies support new urban expansion areas that are served by cities with adequate urban services. The City of Forest Grove as a full service city is fully capable and willing to provide adequate urban services within the urban reserve analysis area. Forest Grove provides water, electrical services, police and fire protection, parks and recreation, municipal court, library services, land use planning, zoning, building inspection, street maintenance and general administrative services. In addition, Forest Grove is a partner with the Washington County Clean Water Service (CWS) District. Forest Grove provides its own collection system while CWS provides regional transmission and sewage treatment services. CWS also provides storm water management throughout Washington County.

Prior infrastructure investments made by the City of Forest Grove allow for the efficient extension of streets, electrical service, water and sewer lines to support urban densities. As such, the reserve analysis area can be developed at a variety of urban densities in a way that makes efficient use of future public and private infrastructure investments.

Sufficient water, storm sewer and sanitary sewer capacity exists and is available directly to the south of the area. The City of Forest Grove has four sources of water supply. The primary source is the Forest Grove watershed consisting of 4,300 acres of the Clear Creek basin. The City also has water rights from Barney Reservoir and Hagg Lake. In addition, the City also has rights from Gales Creek which are not being used.

Substantial municipal infrastructure lines end at or near the urban growth boundary. The Clean Water Services Master Plan shows three future laterals and one future trunk line within the area south of Purdin Road and west of Highway 47. Within the reserve analysis area, the Clean Water Services Master Plan identifies the David Hill, Thatcher, and Nehalem lateral lines and North Forest Grove trunk line. In addition, there is an existing trunk line in the study area that follows Council Creek and connects to the Rock Creek treatment plant. Based on an analysis prepared by waste water treatment providers in the region, both the Rock Creek and Forest Grove treatment plants have room to expand.

The City has a 5-million gallon (mg) reservoir at the City water treatment plant site serving the Main Pressure Zone and a 1-mg reservoir, the David Hill Reservoir, serving the Upper and Intermediate Pressure Zones. The City also has 10 percent ownership of the 20-mg capacity JWC Fern Hill Reservoir, or 2-mg. A flow control and metering station on 10th Avenue reduces the JWC system pressure to match that of the City's Main Pressure Zone.

The Forest Grove Water Master Plan shows an existing 8" water line along Thatcher Road. An 8" water line also exists along David Hill Road. Other lines near the study area include a 10" line south of Hwy. 47 at Oak Street, an 8" line at Willamina and Firwood, and a 12" line at Martin and Hwy. 47.

A preliminary analysis of providing transportation service within potential candidate urban reserve areas was completed in February 2009. This analysis attempted to answer the question of whether an urban reserve area can be developed in a way that makes efficient use of existing and future public and private infrastructure investments. The suitability rankings are based on three factors. These factors include cost per system mile, cost per added lane mile, and number of intersections per mile. The factor of intersections per mile was used as an indicator of the relative density of streets. Density of streets provides a measure of how well an area can be served by connected transportation network.

The transportation analysis shows that the Forest Grove potential candidate urban reserve area falls into the higher suitability category for system lane cost, added lane cost and connectivity. This means that the area is among the most suitable for providing a transportation system capable of accommodating urban levels of development.

The analysis area is served by Purdin Road and Thatcher Roads. Thatcher Road is designated as an arterial street in the City's Transportation System Plan. Thatcher Road provides a connection to

nearby residential areas and the Forest Grove Town Center via E Street and Pacific Avenue. Purdin Road is designated as a collector street in the Washington County Transportation System Plan. Purdin provides connection to Thatcher Road and Oregon Highway 47.

It should also be noted that infrastructure needs will be coordinated through the annexation process and applicable City of Forest Grove Development Code requirements.

Presented below are cost estimates provided by Forest Grove for the major components of the infrastructure necessary to serve the analysis area. The estimates were generated using very general assumptions including a 40% contingency factor. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to prepare more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates generated by Metro, which calculated to be $47,190,000.

Sanitary Sewer Services - $1,250,000

Water Distribution Services - $1,250,000

Storm Sewer Services – $0

Transportation Services - $15,000,000

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

No significant wetlands or floodplains are present on the subject site. A tributary to Council creek flows west to east approximately 60 feet south of the site. There are approximately 29 acres of vegetative corridor present. There are no parks or open spaces within the area. Only 0.12 acres are constrained by steep slopes (>25%). Elevation ranges from 265 at the western edge of the site to approximately 170 at the eastern edge. Slope is approximately 18% along Thatcher Road forming the western edge of the property. Future development may impact a small portion of vegetative corridor at the eastern edge of the analysis area but the majority of this area can be developed without impacting environmental resources due to their locations at the edges of the site. Attachment 5 contains the breakdown of environmental factors.

Energy, Economic & Social

The area is characterized by orchard and field with several rural residences. The area is adjacent to the urban growth boundary near a developing residential area. This area lacks employment opportunities. The area consists of one parcel approximately 114 acres in area. In addition, there are six parcels adjacent to the property along Purdin and Thatcher Roads. These parcels range in size from 2.91 acres to 0.44 acres and are developed with rural residences.

Urbanization will have some impact on the residents living in the area. Additional VMT will be generated once this area is urbanized. It should be noted there appears to be sufficient roadway capacity serving the area. This area will provide employment opportunities reducing commute distances for local residents. The average commute distance for Forest Grove residents is currently 24 minutes. Reducing commute distances will have a positive impact on energy resources.

No significant cultural resources have been identified in the area. Therefore, urbanization will not have a negative impact on cultural resources. Overall this analysis area has a low negative economic, social and energy impact due to urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

Article 5 of the Forest Grove Development Code implements Metro's Model Code developed for the Nature in Neighborhoods (Title 13) program. At this time, these provisions limit development intrusion, use of clustering and where applicable require revegetation (upon completion of periodic review of the Forest Grove Comprehensive Plan, this regulation may further restrict developments). In addition, Article 4 of the Development Code provides the framework for planned developments. Planned developments are required to preserve, to the greatest extent possible, existing landscape features and amenities. Planned developments also incorporate such features into the project's design. Planned unit developments allow for clustering development to maximize the preservation of natural resources. Development within the analysis area could be designed to minimize development density along areas adjacent to farm activities.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

The area directly to the north of the analysis area along Purdin Road is zoned EFU by Washington County. The area to the west along Thatcher Road is zoned FD-10 and is within the Forest Grove portion of the regional urban growth boundary. Purdin Road provides a buffer between the analysis area and farming operations to the north. There is no other edge or buffer between the analysis area beyond Purdin Road which extends along the entire length of the area. Increased traffic along Purdin Road as a result of urbanization will impact the agricultural activities occurring in this location. Overall, the proposed urban uses for the urban reserve area can be designed to limit impacts on agricultural operations through development of an internal roadway circulation network minimizing traffic impacts on Purdin Road.

Clear transition between urban and rural lands, using natural and built features to mark the transition

The existing urban growth boundary is located adjacent to the analysis area along Thatcher Road directly to the west. If Purdin Road was extend beyond it terminus at Thatcher it would approximate the northern edge of the existing UGB. Therefore, Purdin Road provides a clear transition between urban and rural uses to the north. There are no natural features that provide a transition. Development regulations such as design standards can be implemented once the property is brought into the urban growth boundary and annexed into the city to provide a clear transition between urban and rural uses.

2040 Growth Concept

Contribution to the purposes of Centers

The Forest Grove Town Center is the nearest center located approximately 1.5 miles to the south. The Forest Grove Town Center is approximately 25 acres in area and serves the entire community. The town center is linked to the analysis area by Thatcher Road, E Street, Gales Creek Road and Gales Way. No Tri-Met services currently connect the analysis area to the center.

The Purdin Road urban reserve area is expected to provide employment opportunities in the near term (5+ years) and residential opportunities in the long term (20+ years). Urbanization of the analysis area will indirectly contribute to the purpose of the Forest Grove Town Center by strengthening Forest Grove's economic base and help the city remain a complete community. Development of the site would promote other community goals of job opportunities close to local residents and meeting industrial needs.

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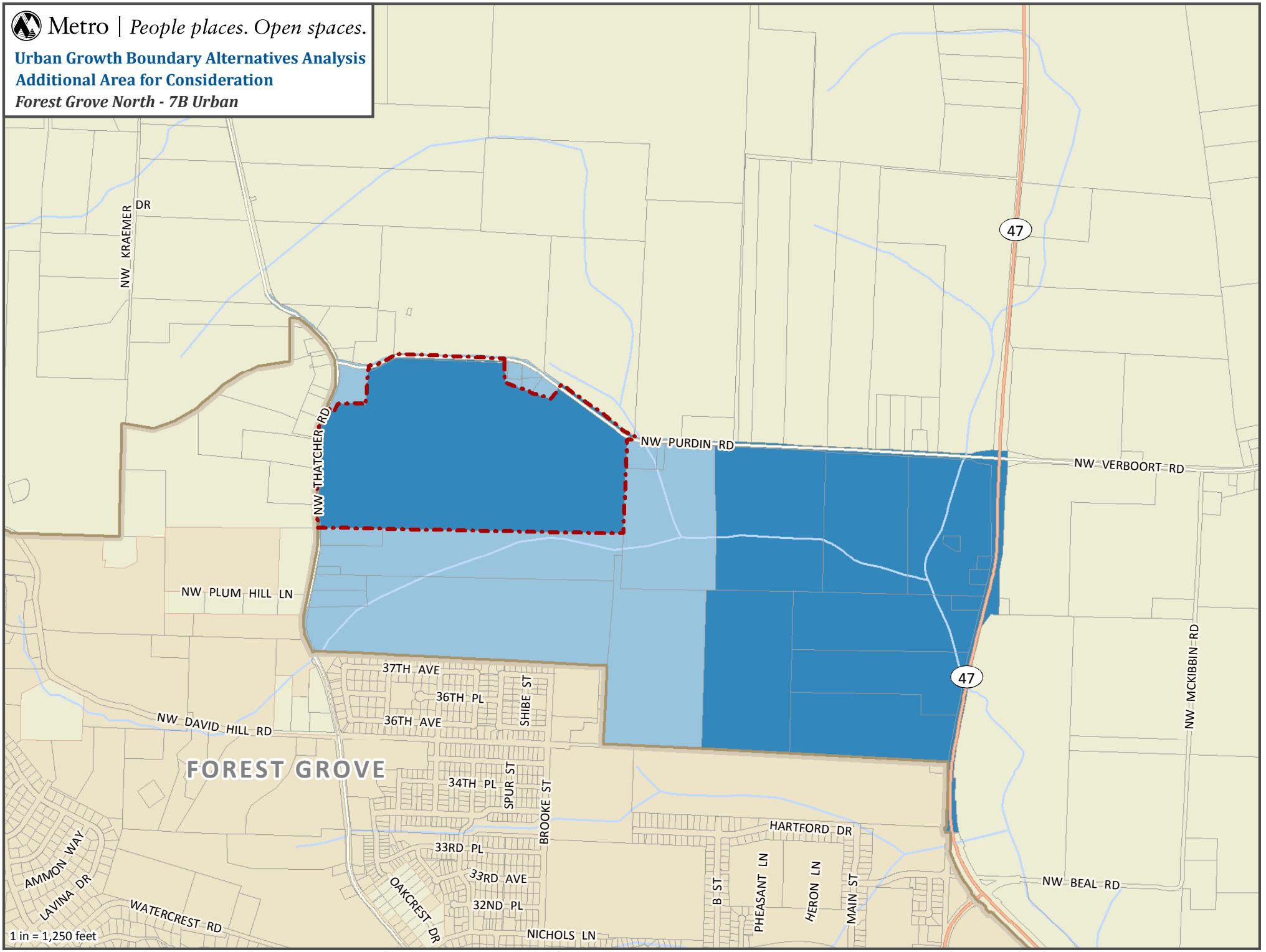
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
Forest Grove North - 7B Urban



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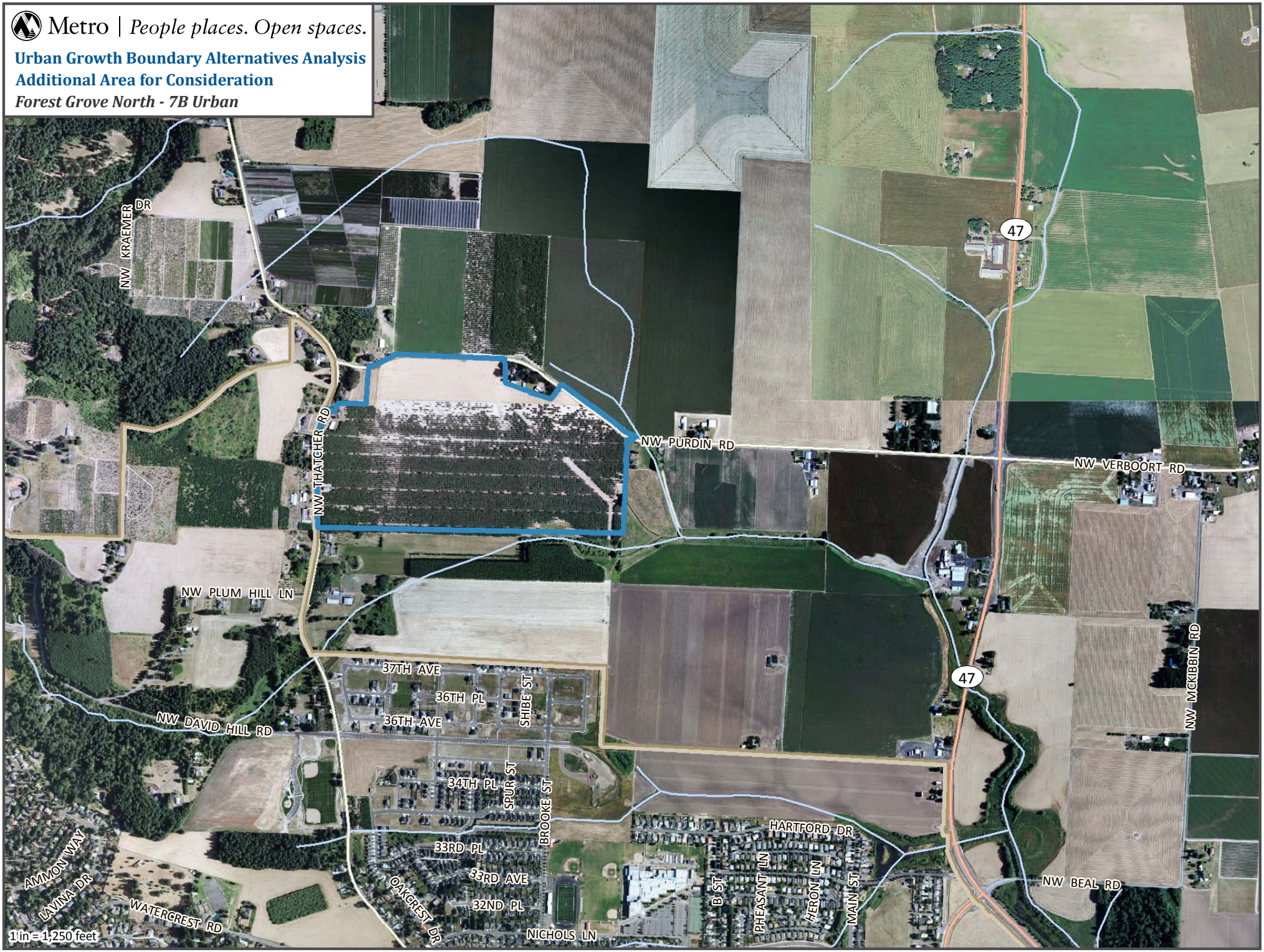
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
Forest Grove North - 7B Urban



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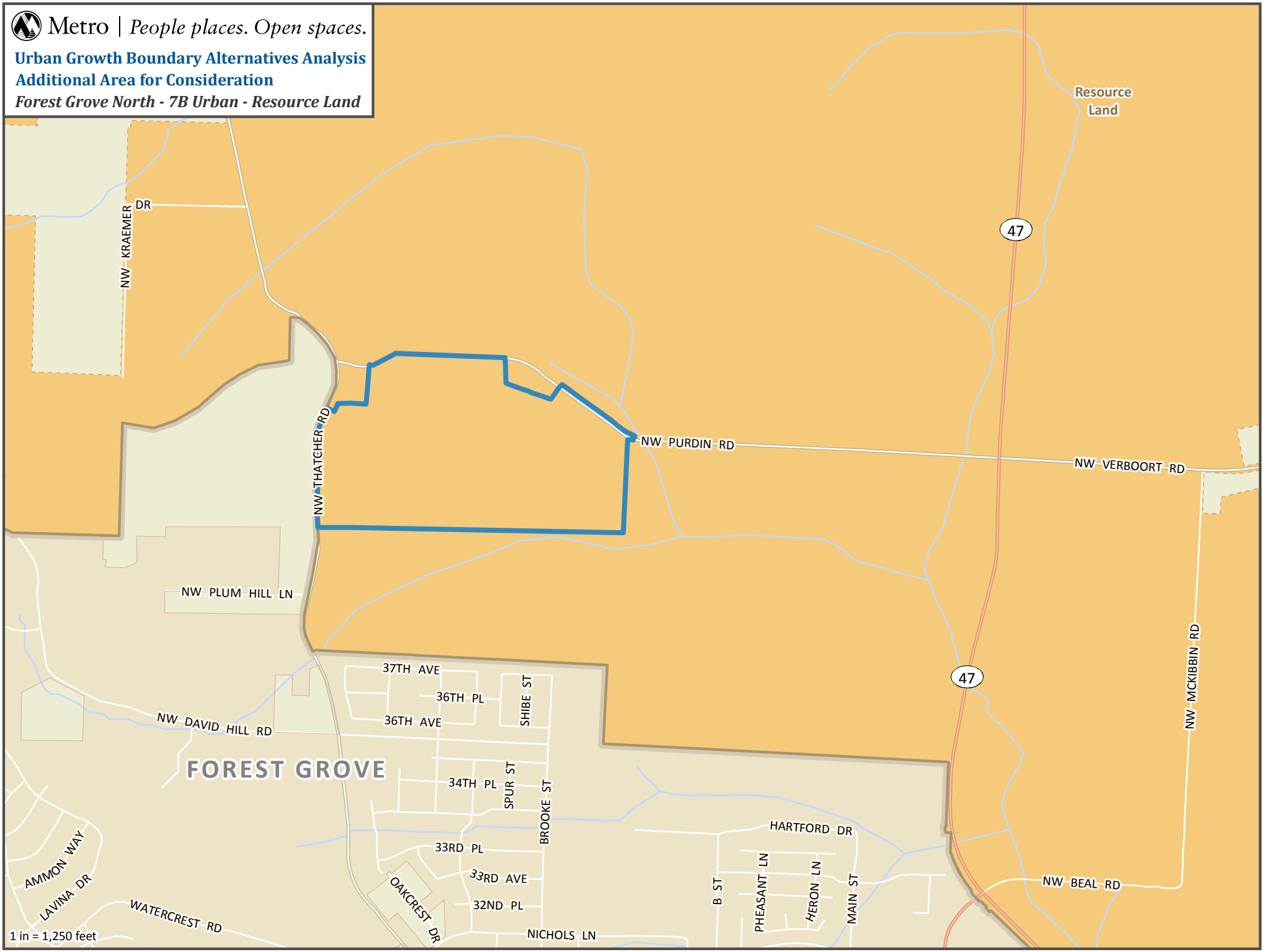
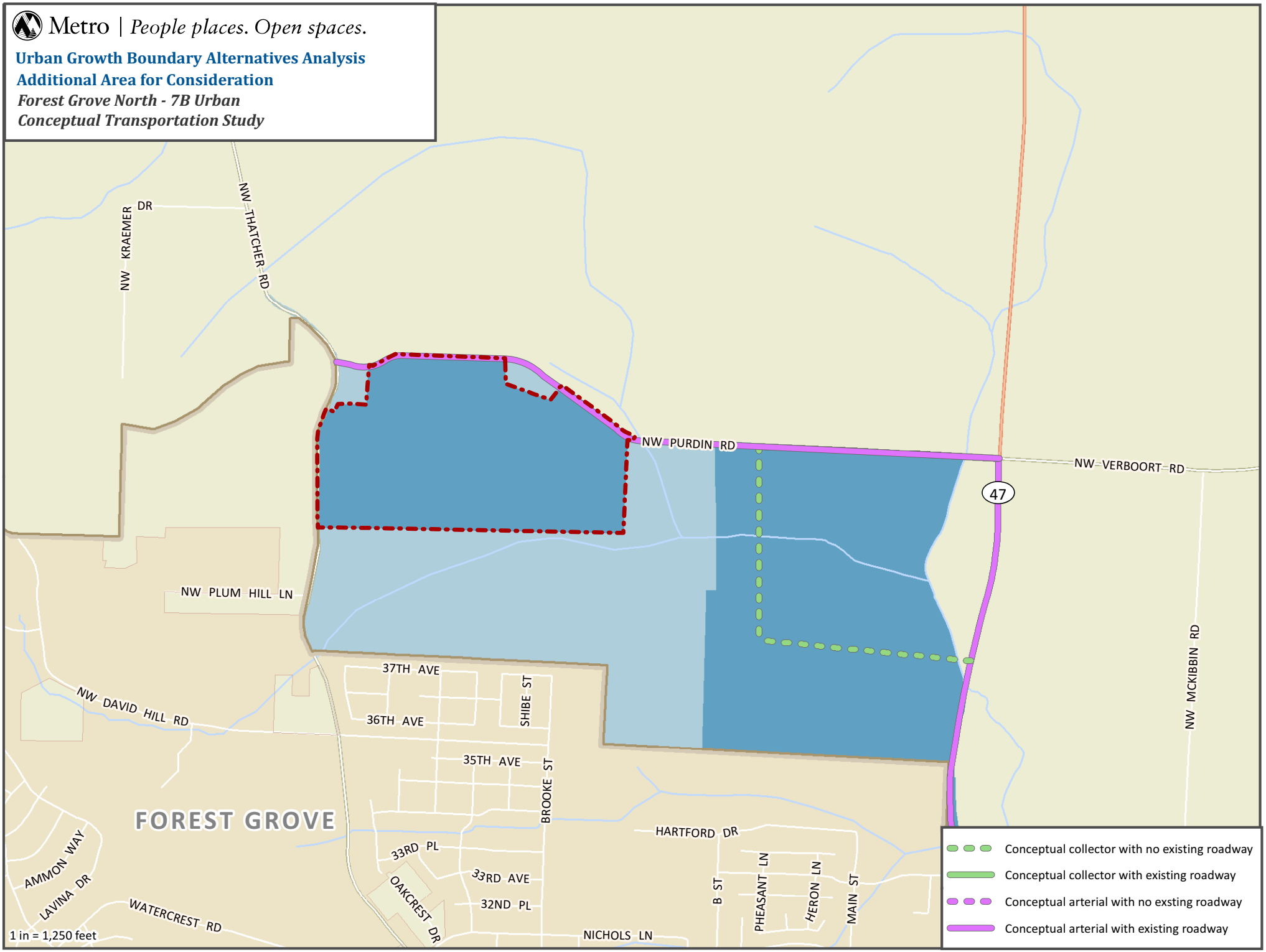
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
Forest Grove North - 7B Urban - Resource Land





CORNELIUS EAST ANALYSIS AREA (7C)

Forest Grove South		**Total Acres**	**62**
Gross Vacant Buildable Acres	56	Total Constrained Acres	6
Estimated Dwelling Unit Capacity	638	• Title 13 Significant Habitat	4
Estimated Employment Acres		• Public Land	0

General Description (see attached map)

The Cornelius East Analysis Area, a portion of the larger Cornelius East Urban Reserve (7C), lies just to the east of the city of Cornelius and abuts Highway 8. This mostly L-shaped area totals approximately 62 acres of land and is basically the south and west section of Analysis Area 7C. The area's east-west connection is by State Highway 8. The north-south access is provided by NW 341st Avenue and to some extent NW 338th, 336th and 334th Avenues. The Portland-Western Railroad line bisects the northern portion of the L-shape, providing service to Cornelius, Hillsboro and Forest Grove. The Jobes Ditch riparian area and wetland is the natural resource on the western boundary of this Analysis Area.

Parcelization, Building Values, Development Pattern (see attached aerial photo)

Cornelius East contains 29 tax lots. There are 21 tax lots whose entire parcels are located in the Analysis Area. There are 2 tax lots that are partially located inside the current Urban Growth Boundary and partially in the Analysis Area. There are 4 tax lots that that are partially located in the Rural Reserves area. There are 2 tax lots that are located totally within Urban Reserves area, but only partially in the Analysis Area. All tax lots are located north of State Highway 8, except for one (1) south of the highway that abuts the eastern most boundary of the City.

There are 4 parcels that are larger than five acres; all of the remaining lots are between 0.18 and 4.75 acres. Over half (15) of the 29 parcels are 1 acre or less is size. There are 6 parcels that have not been developed. Median parcel size is 0.96 acres, with a maximum of 11.87 acres. Improvements are recorded for 22 tax lots, with a median value of $53,850 and only one lot with improvements valued over $200,000. Land use is primarily residential, with some agriculture activity taking place on one large parcel on the north and one on the south sides of State Highway 8. West of the Analysis Area is the City and the Urban Growth Boundary. To the south, there is urban development across State Highway 8 down to the Union Pacific Railroad line.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The Analysis Area is positioned very well for the extension and provision of City water, sanitary sewer, and storm sewer and transportation connectivity. Water, sanitary and storm sewer services have been extended on the south side of State Highway 8 approximately to NW 336th Street. There is also a major Clean Water Services trunk line (sanitary sewer) located in the Council Creek and Jobes Ditch corridor that could serve the northwest corner of the Analysis Area. The City has the ability and willingness to provide urban services and all major infrastructure systems are either available or can be extended to serve this area.

The Analysis Area is currently served by a developed east-west (State Hwy. 8) and north-south (NW 341st, 338th, 336th and 334th Ave.) street system providing vehicular access to all current parcels. The cost to improve these streets to City standards would be the responsibility of private development/re-development as it occurs. Storm water is currently managed through unimproved ditches located in the public right-of-way. The conveyance and treatment of storm water is done at the time of development, when the system is sized to correspond to private property improvements. The cost of storm sewer improvements would also be paid for by private development. The following general construction costs are provided by Cornelius and are estimates based on extending water and sanitary sewer services to the existing properties for connection. More detailed concept plans, consistent with the requirements of Metros Title 11 will be necessary to develop more refined cost estimates.

Sanitary Sewer Services - $347,415

Water Distribution Services - $360,065

Storm Sewer Services – $0

Transportation Services - $0 – Highway 8 is up to urban standards

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

The northwest portion of the Analysis Area abuts the Council Creek corridor and the Jobes Ditch wetland. The extreme west finger of the Analysis Area includes a portion of Jobes Ditch south of the railroad tracks. This finger is a Division of State Lands Mitigation area (Det. # 98-0328, 00-0052, 00-138) and is approximately 4 acres in size. Council Creek and Jobes Ditch riparian areas are both identified as Significant Natural Resources in the City of Cornelius Natural Resources Protection

Plan, a State Goal 5 approved plan. As such these significant natural resources would be protected and not developed. Attachment 5 contains the breakdown of the environmental factors.

Energy, Economic & Social

This small area, composed of 29 parcels is almost completely rural residential. The area also includes 3 commercial businesses abutting State Highway 8 and 2 properties with residences practicing agriculture. The economic impact from the loss of the agricultural uses would be minimal. However the potential economic impact of urbanization from new residential development and infill residential redevelopment will provide positive economic impact to the area. The redeveloped frontage along State Highway 8 with its mixed-use (medium-density residential and commercial) will also outweigh any agriculture economic loss in the Analysis Area.

There are approximately 4 acres of identified Significant Natural Resource that are located in the extreme west finger of the Analysis Area. This resource has been delineated as a wetland and is currently protected as a Division of State Lands wetland mitigation area. Therefore, there are no costs associated with protection of this resource, but there may be small positive impacts to property value and recreation expenditures that may impact the local economy. Overall this Analysis Area will have some immediate positive economic impacts from residential redevelopment to urban densities. There will be low social and energy consequences from urbanization of this area.

Avoidance of conflict with regionally significant fish and wildlife habitat

There are approximately 4 acres of identified Significant Natural Resource located as the extreme west finger of the Analysis Area. This resource has been delineated as a wetland and is currently protected as a Division of State Lands wetland mitigation area. The northwest corner of the Analysis Area abuts the Council Creek and Jobes Ditch floodplain. Future development in this upland are would be required to address resource protection at that time. City of Cornelius, the expected governing body, has adopted habitat protection measures that are in compliance with Metro's Title 13 requirements as part of the Tualatin Basin Natural Resource Coordinating Committee's protection program and in compliance with State Goal 5. Existing development within the northwest corner of the UGB adjacent to the analysis area has consistently maintained a clearly identified buffer between the stream/wetland and urban development. As this pattern continues east of the stream/wetland within the Analysis Area, impacts to regionally significant fish and wildlife habitat will be minimal. The identified habitat area is also buffered by the presence of a 100-year flood plain, limiting development opportunities and further protecting the important habitat areas.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

There are no conflicts with nearby agricultural and forest uses. The Analysis Area in general is bordered by urban reserves on the north; existing City and Urban Growth Boundary on the west; a stream corridor and floodplain on the northwest; on the east by floodplain and a small portion of rural reserves. The small urban/rural reserves border in the east section of the Analysis Area is sandwiched between State Highway 8 and the Union Pacific Railroad line, this limits the abutting agricultural operations do to size of the parcels, access to water and access to rural roads.

Transportation conflicts between urban and rural uses do not exist. The Analysis Area is serviced by State Highway 8 as its main east-west arterial. The local north-south streets (NW 341st , 338th, 336th, & 334th) in the Analysis Area only connect with State Highway 8, they do not provide connection north into or across rural reserve land. State Highway 8 is a large enough facility to service any pass through agricultural or forest industry traffic along with urban traffic. The one farm located in the northwest corner of the Analysis Area historically and currently uses NW 341st to access State Highway 8, without conflict. The land owner of this farm has wanted to annex into the City of Cornelius since 2002 for residential development.

Clear transition between urban and rural lands, using natural and built features to mark the transition

The natural features in the northwest portion of the Analysis Area that mark a clear transition between urban and rural lands is the riparian area and floodplain of Council Creek and Jobes Ditch. The majority of the east and north Analysis Area boundary abuts urban reserves and not rural reserves. A small section of the northeastern most corner of the Analysis Area abuts the floodplain of a small tributary of Dairy Creek. The easternmost boundary of the Analysis Area on the north side of State Highway 8 also abuts the expansive floodplain of Dairy Creek. The one parcel that is located on the south side of State Highway 8 is separated from rural reserves by the Union Pacific Railroad line on its southern boundary and abuts rural reserves on its eastern property line. Overall, the Analysis Area has excellent natural and built features to mark transition between urban and rural lands, with only one exception approximately 706' along the south and eastern most parcels.

2040 Growth Concept

Contribution to the purposes of Centers

The Cornelius East analysis area is between two 2040 Growth Concept designated centers, the

Hillsboro Regional Center and the Forest Grove Town Center. The area is directly linked to both centers via State Highway 8 and with TriMets' Bus # 57 providing frequent service. The northern Portland Western Railroad line abuts the northwest portion of the Analysis Area. This rail line connects directly to the western most MAX stop in Hillsboro and is planned for future light rail extension and connection between Hillsboro, Cornelius and Forest Grove. The Analysis Area is located approximately 1.25 miles from the existing Cornelius Main Street District and about .75 miles from the proposed Cornelius Town Center. Cornelius East development will support the continued growth of the Cornelius Town Center.

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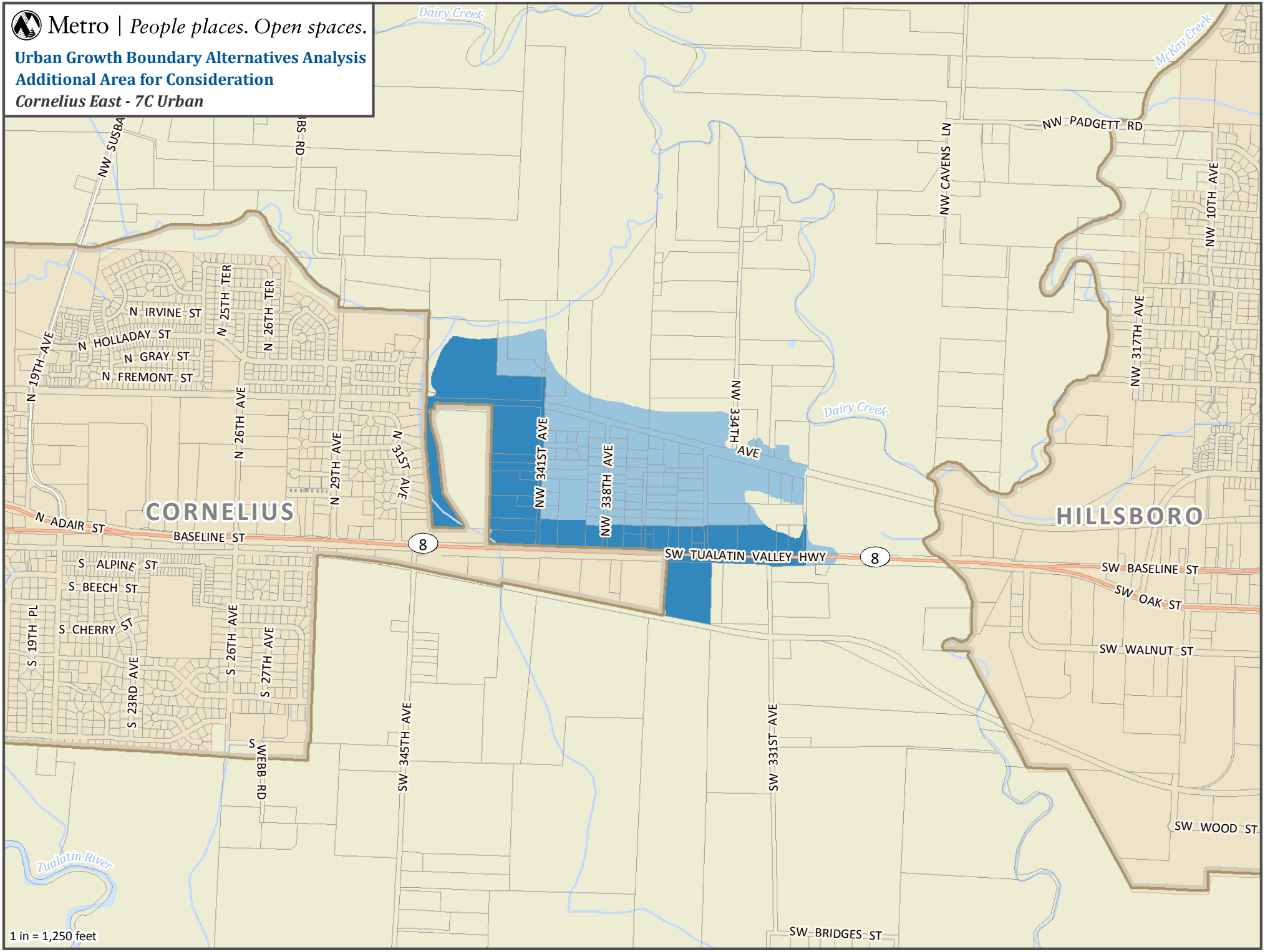
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
Cornelius East - 7C Urban



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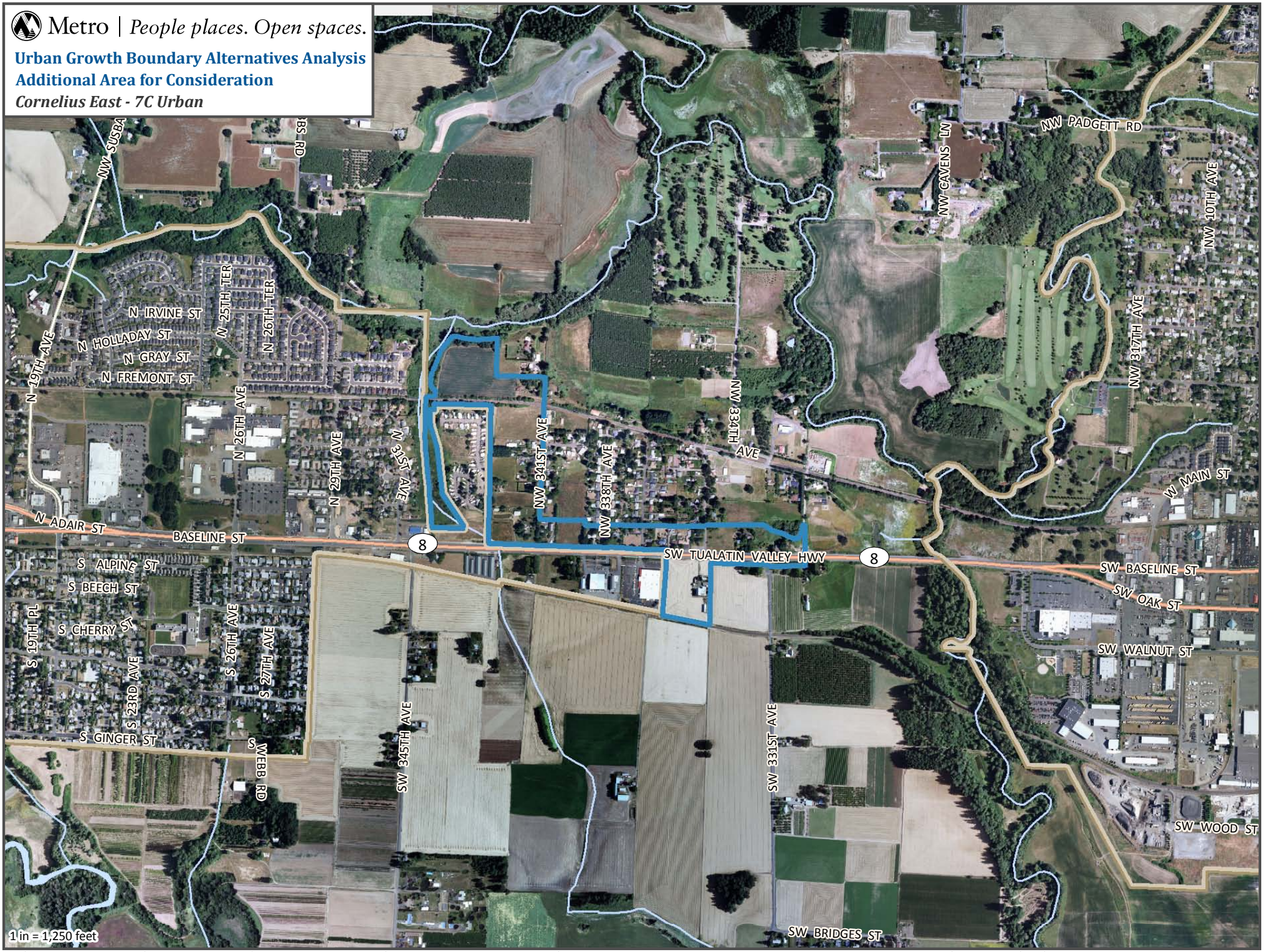
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
Cornelius East - 7C Urban



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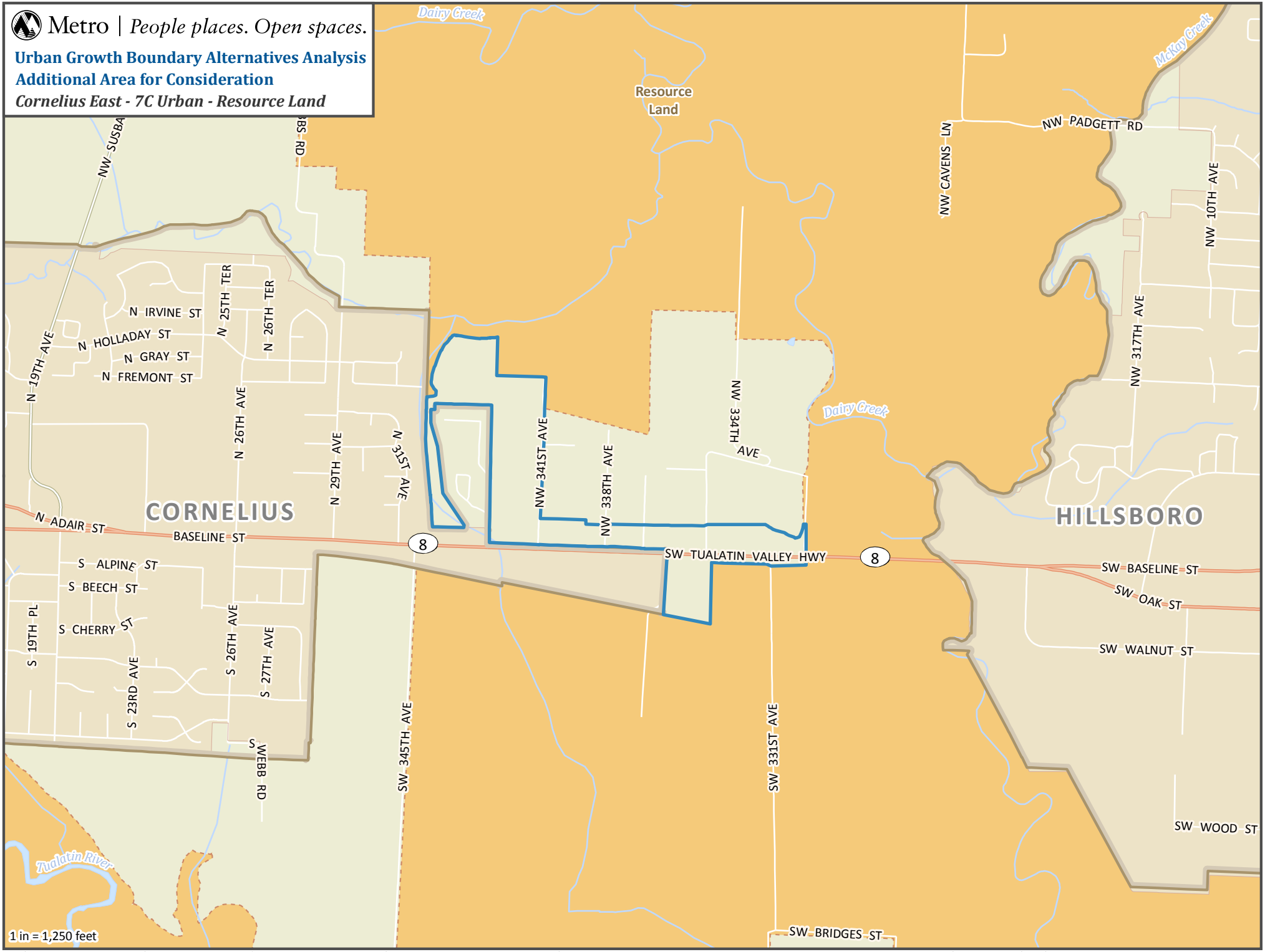
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
Cornelius East - 7C Urban - Resource Land



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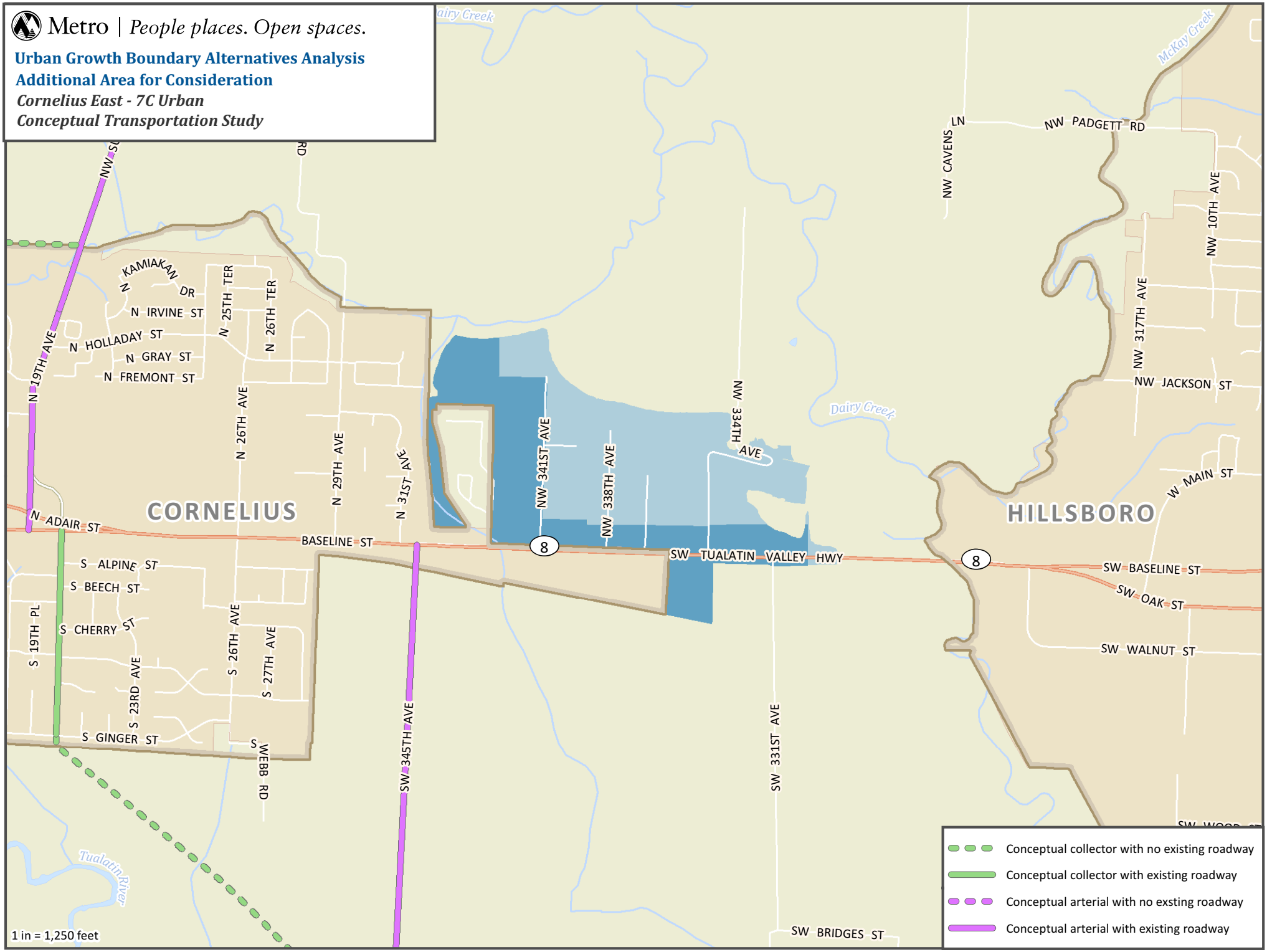
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
Cornelius East - 7C Urban
Conceptual Transportation Study



CORNELIUS SOUTH ANALYSIS AREA (7D)

Cornelius South Analysis Area		**Total Acres**	**210**
Gross Vacant Buildable Acres	189	Total Constrained Acres	21
Estimated Dwelling Unit Capacity	2,188	• Title 13 Significant Habitat	21
Estimated Employment Acres		• Public Land	0

General Description (see attached map)

The Cornelius South Analysis Area is a 210 acre area that lies to the southeast of Cornelius, between the city and the Tualatin River. SW 345th Avenue forms the eastern boundary, the Tualatin River floodplain the south edge, and the current UGB the west and north boundaries. The area is served primarily by Highway 8 to the north, accessed from the analysis area via SW 345th Avenue.

Parcelization, Building Values, Development Pattern (see attached aerial photo)

Cornelius South contains 15 parcels, eight of which are less than five acres in size. The seven parcels that are over five acres cover 185 acres and include four parcels that are only partially inside the study area boundary. Median size of all tax lots is 4.9 acres. One parcel is split by the analysis area boundary with 50 of the total 90 acres within the analysis area. Improvements have been made to eight parcels, only one of which is valued over $250,000. The median improvement value is $152,670. The entire study area appears to be in active agricultural use, including row crops, nursery and field crops. The development pattern is almost entirely composed of large, actively farmed parcels, with only a few small improvements or other development.

Available data does not suggest the existence of power lines or public easements through this area.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had high suitability for sanitary sewer services and water services. This location was not analyzed

for transportation connectivity. The City of Cornelius' Pre-Qualifying Concept Plan, completed as part of the Washington County urban and rural reserve designation process, indicates that the city has the ability and willingness to provide urban services and all major infrastructure systems are either available or can be extended to serve this area.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of residential development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates. A map of the proposed collector and arterial transportation network is attached to this summary.

Sanitary Sewer Services - $9,320,000

Water Distribution Services - $4,165,000

Storm Sewer Services - $4,431,000

Transportation Services - $68,350,000

Parks - $6,800,000

Schools - $500,000 (Increased maintenance costs, no new school needed)

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

A small tributary of the Tualatin River flows south across the triangular western section of the analysis area. The Tualatin River runs just outside the southwest boundary of the area. There are 11 acres of riparian and 10 acres of upland habitat along the tributary and the southwest edge of the analysis boundary that are not currently in agricultural use. The entire southwest half of the area is considered part of the Tualatin River Natural Landscape Feature, although most of that area is currently under active cultivation. The study area is very flat, with less than one acre of slopes over 25% concentrated primarily around stream areas. Although flat topography may increase the threat development poses to the Tualatin River and its small unnamed tributary, the amount of surface hydrology within the analysis area appears to be minimal. Therefore, future urban development will have minimal impact on environmental resources. Attachment 5 contains the breakdown of the environmental factors.

Energy, Economic & Social

This small area, composed of 15 parcels is completely in agricultural production. Seven of the parcels are greater than five acres and eight of the parcels contain improvements. The loss of the economic impact from the significant agricultural uses in this small area may be considerable; however the potential economic impact of urbanization on these generally large flat parcels will outweigh this loss. There are only 21 acres of identified habitat in the area, mainly along the southern edge near the floodplain of the Tualatin River. The costs for protecting these linear resources will be small in contrast to the potential economic impact of urbanizing the larger internal locations, as their locations easily allow for preservation away from development. Urbanization will impact the current residents of the area through the loss of the rural lifestyle, however since there are no residences that aren't associated with the adjacent agricultural activities, this impact will be less than if the area contained just rural residences on smaller lots. The Hillsboro School District owns a 41-acre parcel in the northern portion of the area. Development of this site will provide the opportunity to connect the analysis area to the existing adjacent urban neighborhood through the school site, thereby integrating the new area into the city of Cornelius and potentially its new Town Center area. Additional VMT will be generated through urbanization of this small area as the average commute distance for this area is greater than the existing average commute distance for the region. Overall this analysis area has low economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

A small amount of regionally significant riparian upland habitat lies inside the southwest edge of the analysis area, near the Tualatin River floodplain. Most of this habitat is currently being farmed. There is a larger block of regionally significant riparian habitat to the south and west of the analysis area that could be threatened by future urban development as there is no clear buffer between proposed urban uses and the habitat areas. The City of Cornelius, the expected governing body, has adopted habitat protection measures that are in compliance with Metro's Title 13 requirements as part of the Tualatin Basin Natural Resource Coordinating Committee's protection program. Based on the level of agricultural activity already impacting the limited habitat, the linear shape of the habitat area and the expected environmental protection measures that will be in place prior to urbanization, the proposed urban uses will have a minimal additional impact on regionally significant fish and wildlife habitat that is mostly outside the analysis area.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

The UGB borders the Cornelius South urban reserve analysis area on the north. Resource land zoned exclusive farm use (EFU) borders the remainder of the analysis area (see attached resource land map). This extensive block of farm land extends south and east well beyond the Tualatin River and is intensely farmed for numerous agricultural products. There is a 128-acre island of non-farm land on the west side of SW River Road in the vicinity of SW Cook Road and SW 331st & 326th Avenues. The Tualatin River and its associated floodplain directly border the analysis area on the south. This extensive floodplain provides a buffer for the agricultural activities south of the river. Therefore, the proposed urban uses would be compatible with the agricultural activities occurring on the farm land to the south of the Tualatin River.

SW 345th Avenue forms the entire eastern edge of the analysis area. East of SW 345th Avenue is an unnamed stream that flows south through open farm fields and appears to be piped for significant portions as well as controlled to create storage ponds for irrigation. Neither SW 345th Avenue nor the unnamed stream provides an edge or buffer for the farm land to the east. Increased traffic along SW 345th Avenue, SW Cook Road and SW 331st Avenue due to new urban uses within the analysis area may impact agricultural activities in this area. Therefore the proposed urban uses would not be compatible with the agricultural activities that occur in this area east of SW 345th Avenue. However mitigation measures could reduce conflicts between urban uses inside the UGB and resource uses outside the UGB.

Clear transition between urban and rural lands, using natural and built features to mark the transition

The Tualatin River and its extensive floodplain provide a clear transition area between urban and rural lands for more than half of the analysis area. East of SW 345th Avenue there is no natural or built feature to mark a transition between urban and rural lands. Even assuming SW 345th Avenue develops as an arterial roadway in the future, the road itself will not provide a clear transition area between future urban and rural uses. Additional buffers will need to be incorporated into the planning of the urban reserve analysis area to provide a clear transition from urban to rural uses.

2040 Growth Concept

Contribution to the purposes of Centers

The nearest center to the Cornelius South analysis area is the Hillsboro Regional Center, located approximately two miles to the east along Highway 8. The analysis area is also linked to the regional center by TriMet's number 57 bus route. The Forest Grove Town Center is also nearby, approximately 3.5 miles to the west along Highway 8 and is also linked by TriMet's number 57 bus line.

The Cornelius South analysis area is separated from the Hillsboro Regional Center by a band of agricultural land that includes the Dairy Creek floodplain and the only transportation connection is via Highway 8. Similarly, Forest Grove's Town Center is separated not only by distance from the analysis area, but also by other urban development within the City of Cornelius. Urbanization of Cornelius South will therefore not support the continued development of either center.

The City of Cornelius, as part of their pre-qualified concept planning for the Urban and Rural Reserves selection process, envision the creation of a new Town Center over the next 10-20 years. Due to the relatively close proximity of the analysis area (0.5 miles or less) to the center of Cornelius, there may be some opportunity to support the creation of a new center in the near future. The analysis area has potential to create good local connectors to a future town center in Cornelius, and currently has access via TriMet's route 57 bus line. Urbanization of this area may be able to support the vision and purpose of a town center in Cornelius that is compact, walkable, bikable, and has an appropriate jobs to housing balance.

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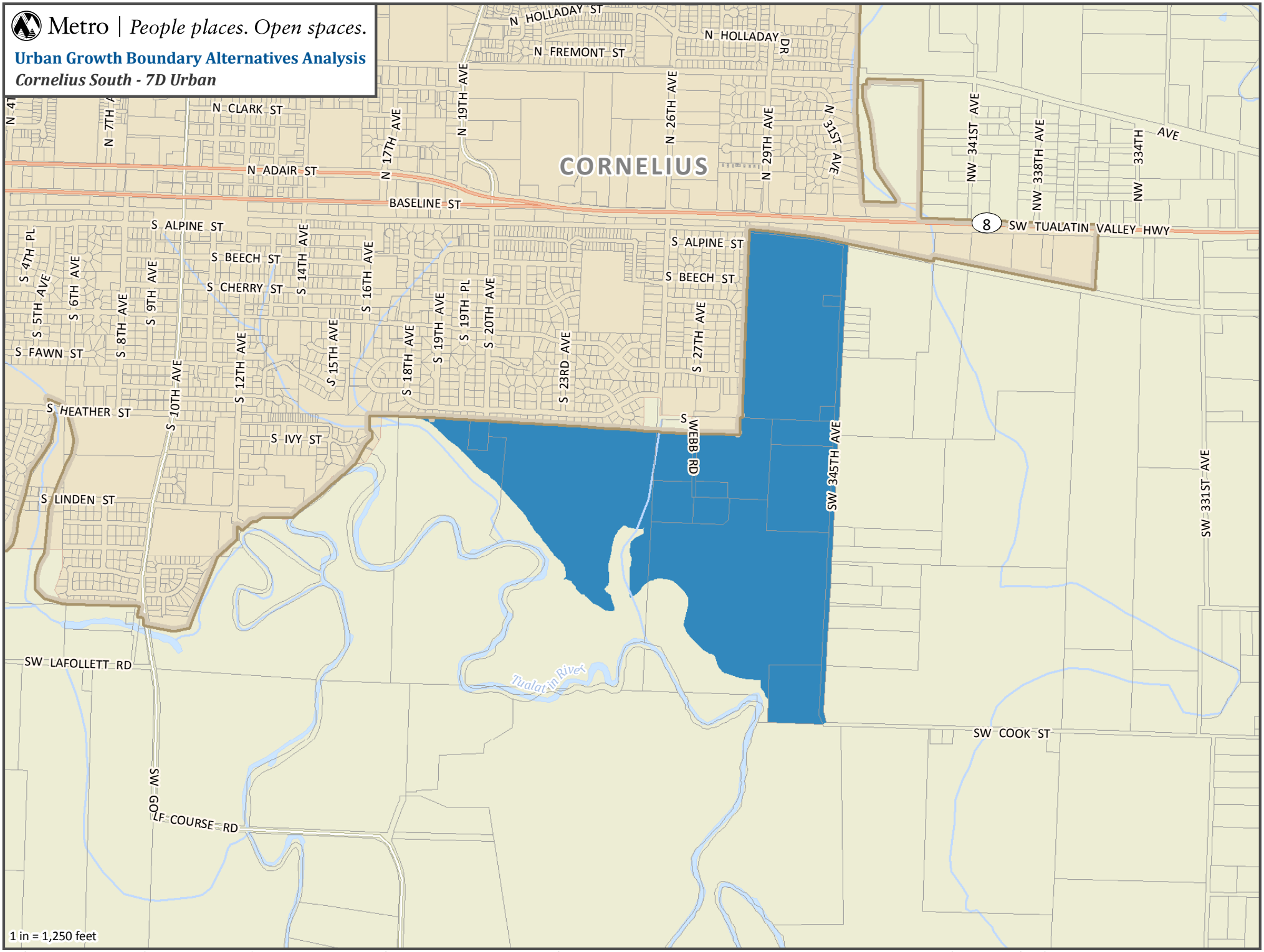
Urban Growth Boundary Alternatives Analysis

Cornelius South - 7D Urban



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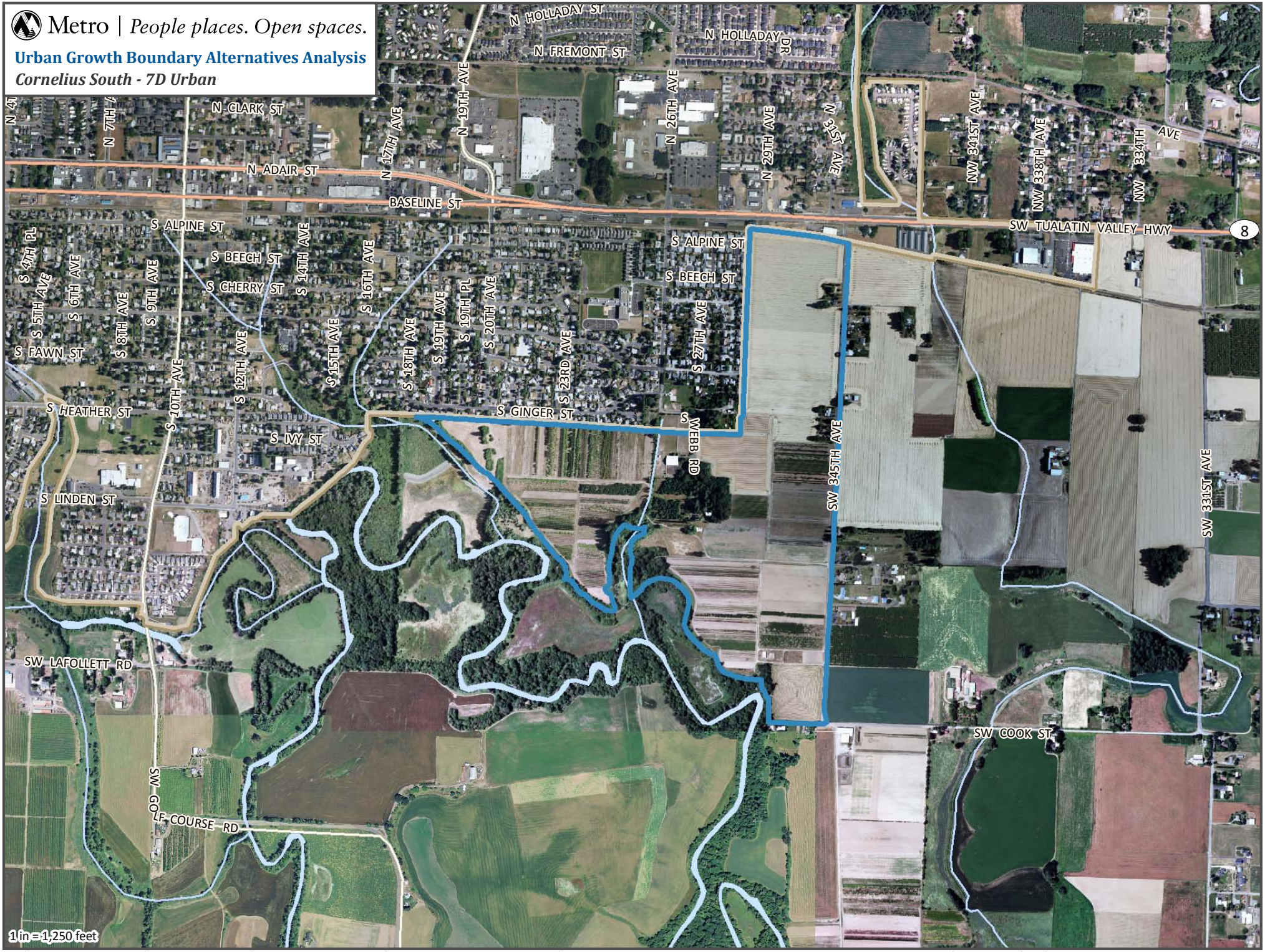
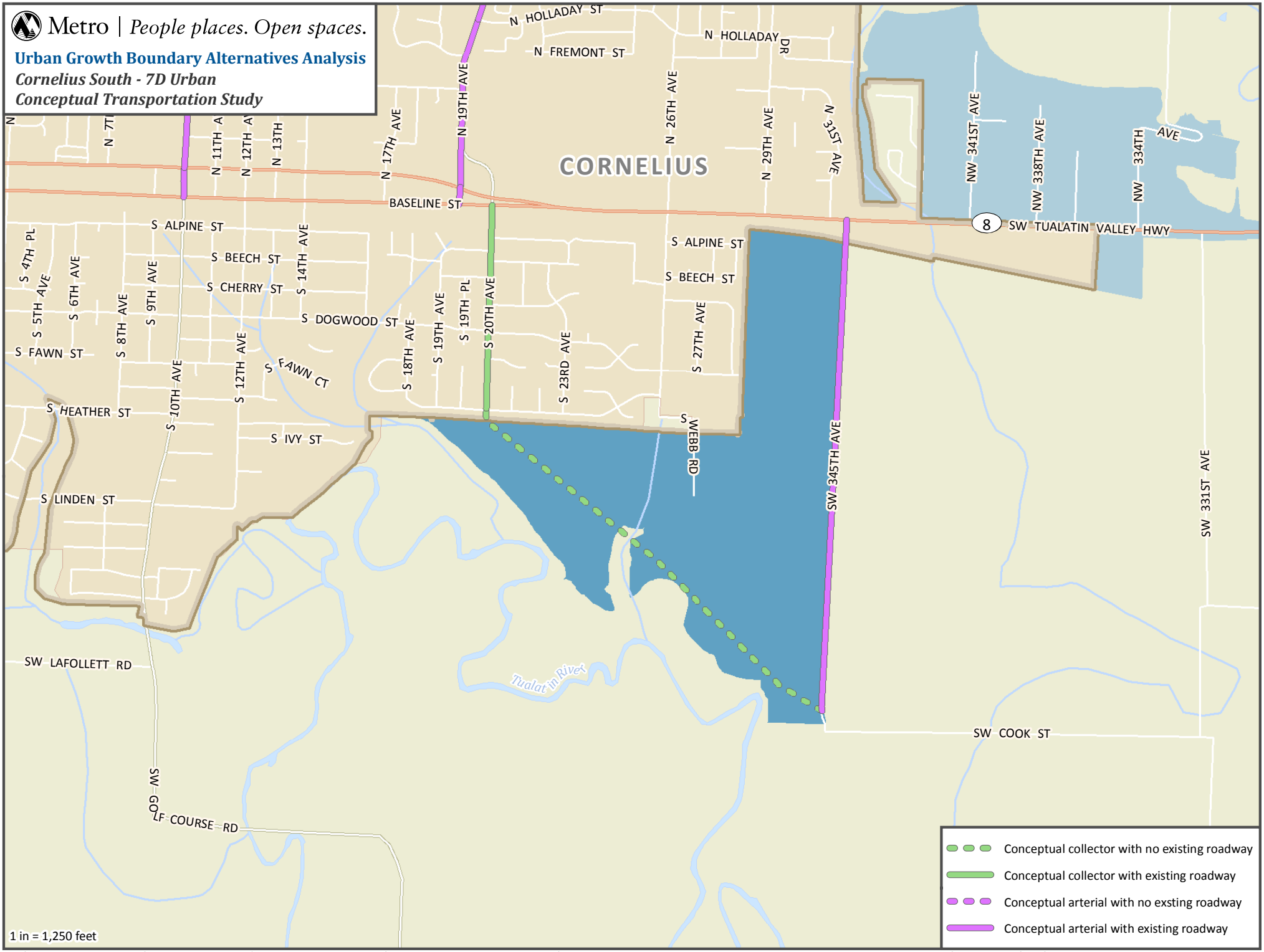
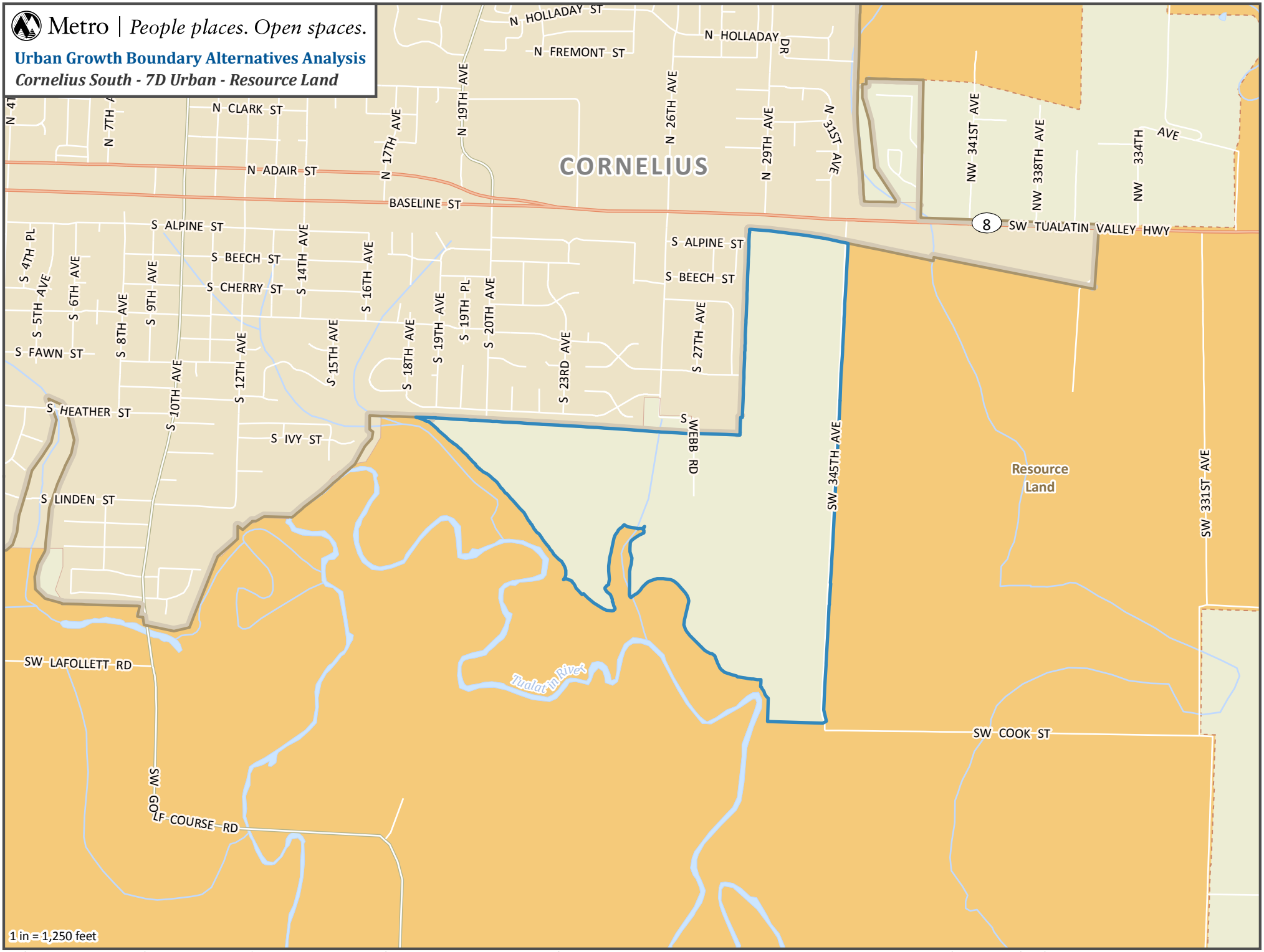
Urban Growth Boundary Alternatives Analysis

Cornelius South - 7D Urban







FOREST GROVE SOUTH ANALYSIS AREA (7E)

Forest Grove South		**Total Acres**	**37**
Gross Vacant Buildable Acres	35	Total Constrained Acres	2
Estimated Dwelling Unit Capacity	0	• Title 13 Significant Habitat	1
Estimated Employment Acres	29	• Public Land	0

General Description (see attached map)

The Forest Grove South Analysis Area is located on the south side of Forest Grove at the end of Elm Street. It is bordered on the UGB on the north and is defined by the 100-year floodplain on the other three sides. The area is in agricultural use.

Parcelization, Building Values, Development Pattern (see attached aerial photo)

The Forest Grove South Analysis Area contains portions of 2 parcels for a total of 37 acres. There is one house and a barn on the property, with the house valued at $153,790.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

Washington County's Urban Growth Management policies supports new urban expansion areas are served by cities with adequate urban services. The City of Forest Grove as a full service city is fully capable and willing to provide adequate urban services within the urban reserve analysis area. Forest Grove provides water, electrical services, police and fire protection, parks and recreation, municipal court, library services, land use planning, zoning, building inspection, street maintenance and general administrative services. In addition, Forest Grove is a partner with the Washington County Clean Water Service (CWS) District. Forest Grove provides its own collection system while CWS provides regional transmission and sewage treatment services. CWS also provides storm water management throughout Washington County.

Prior infrastructure investments made by the City of Forest Grove allow for the efficient extension of streets, electrical service, water and sewer lines to support urban densities. As such, the reserve

analysis area can be developed at a variety of urban densities in a way that makes efficient use of future public and private infrastructure investments.

The City of Forest Grove has four sources of water supply. The primary source is the Forest Grove watershed consisting of 4,300 acres of the Clear Creek basin. The City also has water rights from Barney Reservoir and Hagg Lake. In addition, the City also has rights from Gales Creek which are not being used.

The City has a 5-million gallon (mg) reservoir at the City WTP site serving the Main Pressure Zone and a 1-mg reservoir, the David Hill Reservoir, serving the Upper and Intermediate Pressure Zones. The City also has 10 percent ownership of the 20-mg capacity JWC Fern Hill Reservoir, or 2-mg. A flow control and metering station on 10th Avenue reduces the JWC system pressure to match that of the City's Main Pressure Zone.

Sufficient road, water, storm sewer and sanitary sewer capacity exists to serve the area. All but storm service have been extended to the southern end of Elm Street and within 310 feet of the site's north boundary. Storm service is also located on Elm Street about 645 feet from the site boundary. There is an existing 12" water line, 8" sewer line, 18" storm water line and Elm Street improved to an industrial road standard. The following estimated costs for service extension were provided by Forest Grove (Metro's transportation analysis did not identify the need for any additional arterial or collector system):

Sanitary Sewer Services - $0 – 68,000*

Water Distribution Services - $0 – 102,000*

Storm Sewer Services – $0 – 27,200*

Transportation Services - $0 – 676,288

*The range in service costs is due to how Area 7E develops. To be considered a large lot industrial site, the area would be combined with a 25 acre parcel (Washington County Assessor Tax Lot Number 1S306D1300) within the UGB. All services are currently available to this site and there is no cost of extending services except to serve buildings onsite. The higher costs assume services would have to be extended to Area 7E.

It should also be noted that infrastructure needs will be coordinated through the annexation process and applicable City of Forest Grove Development Code requirements.

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

Except for the UGB, the boundary of the area is defined by the 100 year floodplain based on the most recent information submitted by Washington County to FEMA. Thus, the site is outside the floodplain area. There are no identified wetlands or natural resource areas on the site. There are no parks or open spaces on or near the site. Thus, development of the site would have little impact on environmental factors. Attachment 5 contains the breakdown of the environmental factors.

Energy, Economic & Social

This area is currently being farmed with one house in the subject area. It is composed of a portion of two parcels under the same ownership. The city views that the only appropriate land use for the site is industrial because of similar uses of adjacent lands within the UGB. The development of the site would have a minor impact on the agricultural economy due to the small size of the area. Because the area would be industrial, there would be no park or school impacts. Additional VMT would be relatively small due to the size of the site although to qualify as a large lot industrial site, it would need to develop with a 25 acre adjacent industrial property within the UGB. This would achieve a 57 to 62 acre total site. The average commute distance and energy impacts would be typical for the community.

Avoidance of conflict with regionally significant fish and wildlife habitat

There is no identified fish and wildlife habitat on the site. Adjacent property is either farmed or industrial use. There exists a small orchard and small stand of trees on the southwestern portion of the site. Development of the site could retain the stand of trees if they prove to enhance wildlife habitat. Thus the area's development would not conflict with regionally significant fish and wildlife habitat.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

The area is bounded by agricultural lands to the south, east and west. The zoning is EFU to the south and west and EFU and AF-20 to the east. There is no edge or buffer between the area and these farm lands. Since there are no identifiable buffers or edges, the proposed urban uses may not be compatible with the agricultural activities on these adjacent properties. However, mitigation

measures could reduce conflicts between urban uses inside the UGB and resource uses outside the UGB. Further, intended industrial use would likely have minimal conflicts with agricultural activities since such industrial emissions such as noise, odor, etc. would have little, if any, affect on agricultural operations.

Access to the subject industrial area would be through the City via Elm Street. Elm Street has a direct connection to State Highway 47 which would be the main access used by any industrial activity. The closest county road which could be used by agricultural operations is Fern Hill road located east of the area. There would be no direct access to Fern Hill Road. Thus, it is highly unlikely that industrial and agricultural traffic would mix except to the extent mixing occurs on state highways. Thus, potential traffic conflicts between industrial and farm traffic on nearby county roads would be minimal and any conflicts on state highways may be minimally increased over current conditions.

Clear transition between urban and rural lands, using natural and built features to mark the transition

There are no natural or existing built features to mark a clear transition between urban and rural lands to the south, east or west. Additional buffers will need to be incorporated into the planning of the urban reserve analysis area to provide a clear transition from urban to rural uses.

2040 Growth Concept

Contribution to the purposes of Centers

The subject area is approximately 1.0 mile south/southeast of Forest Grove's Town Center. The areas are linked by Elm Street, but there are no public transit connections. The Town Center is predominately commercial with some residential uses. It evolved as a commercial center for western Washington County since its inception in the late 1800's. Metro's State of the Centers Report, January 2009, indicates that the town center has the highest median household size and high businesses per acre and jobs to housing ratios.

Due to its proximity to existing industrial, the site is intended for industrial development. Due to its relative proximity to the Town Center, the site might provide some support for commercial/residential development in the Town Center although a focus on redevelopment of the Center would provide a more direct benefit. Development of the site would promote other community goals of job opportunities close to local residents and meeting industrial needs.

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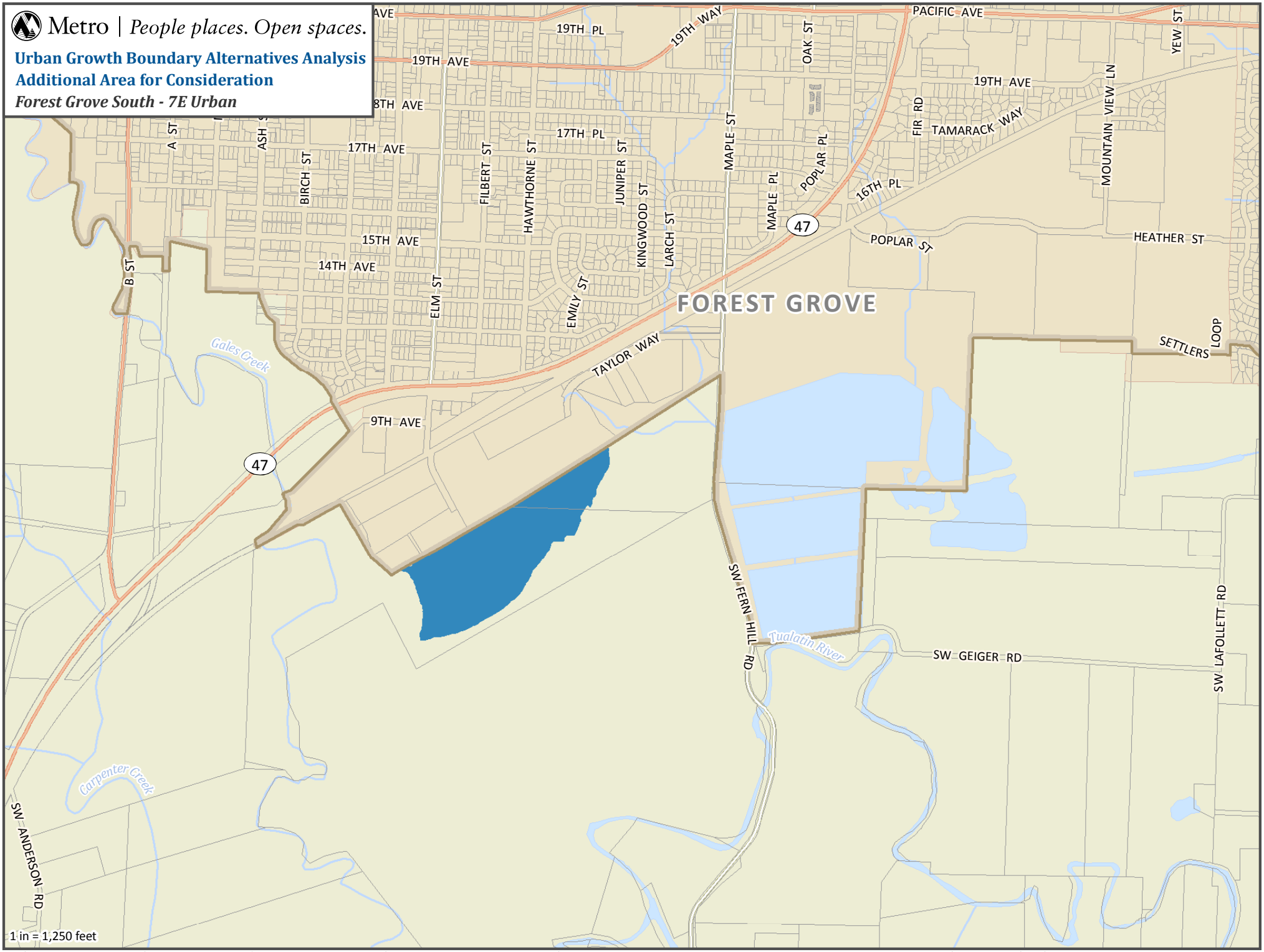
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
Forest Grove South - 7E Urban



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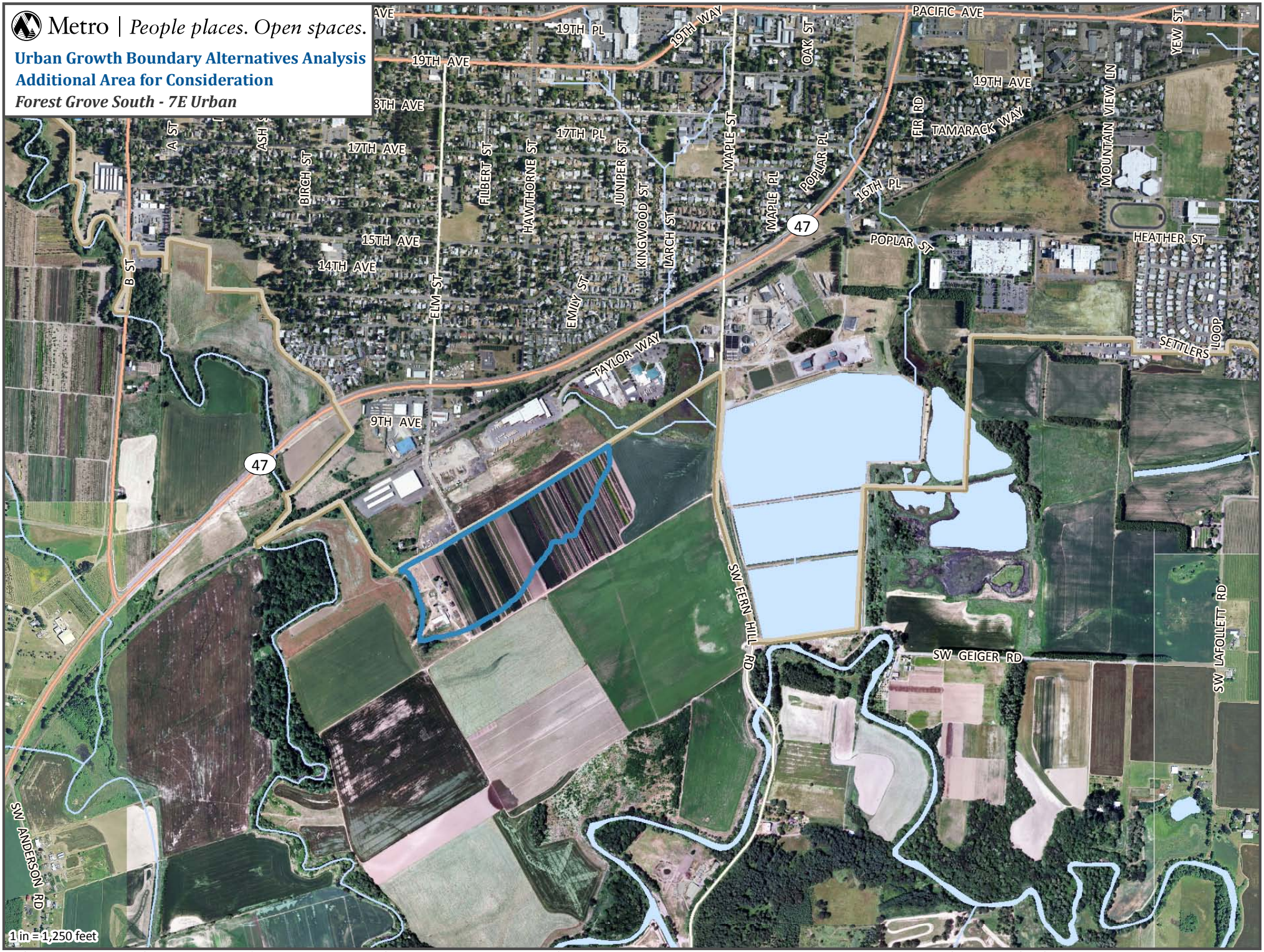
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
Forest Grove South - 7E Urban



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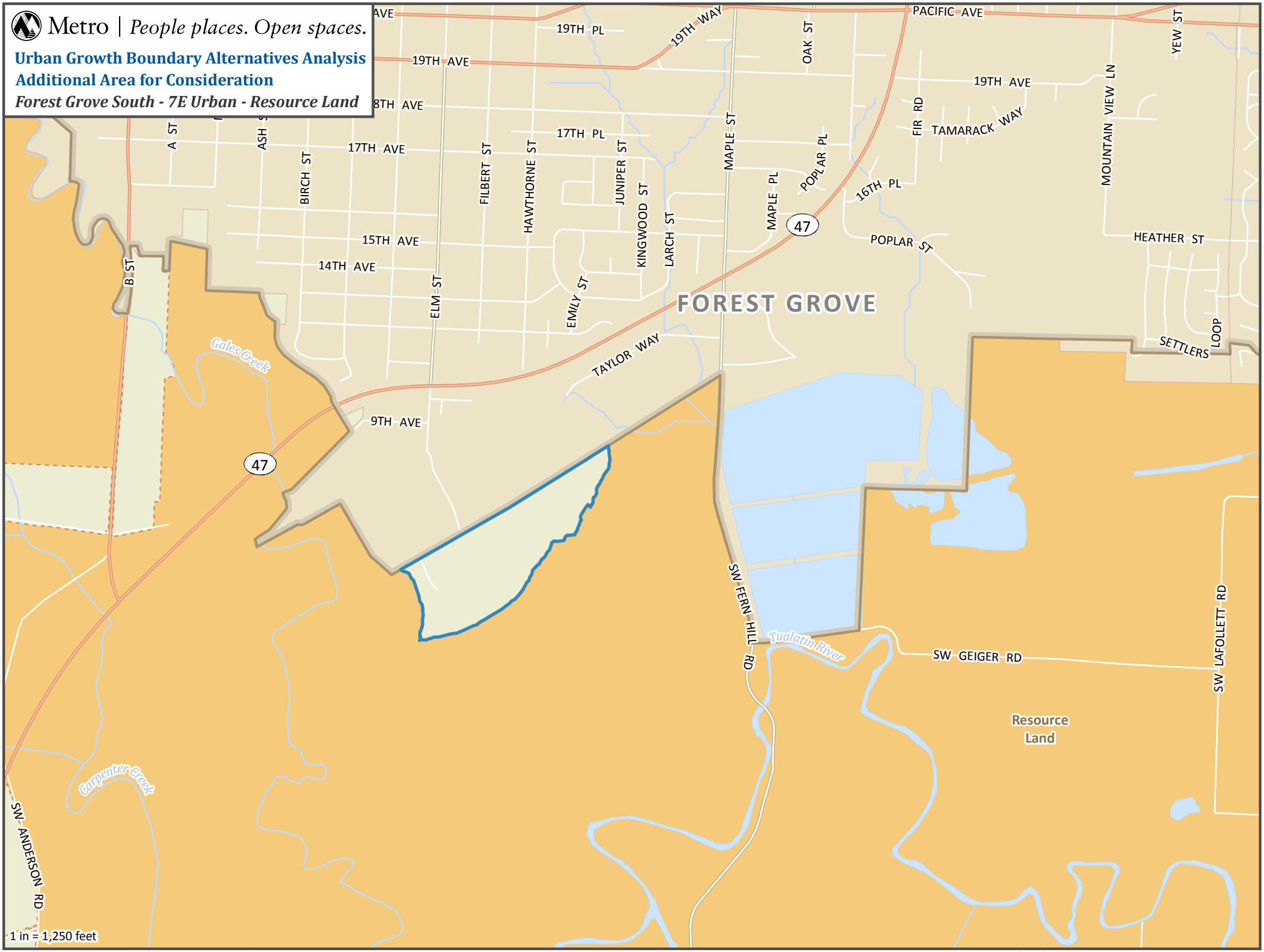
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
Forest Grove South - 7E Urban - Resource Land



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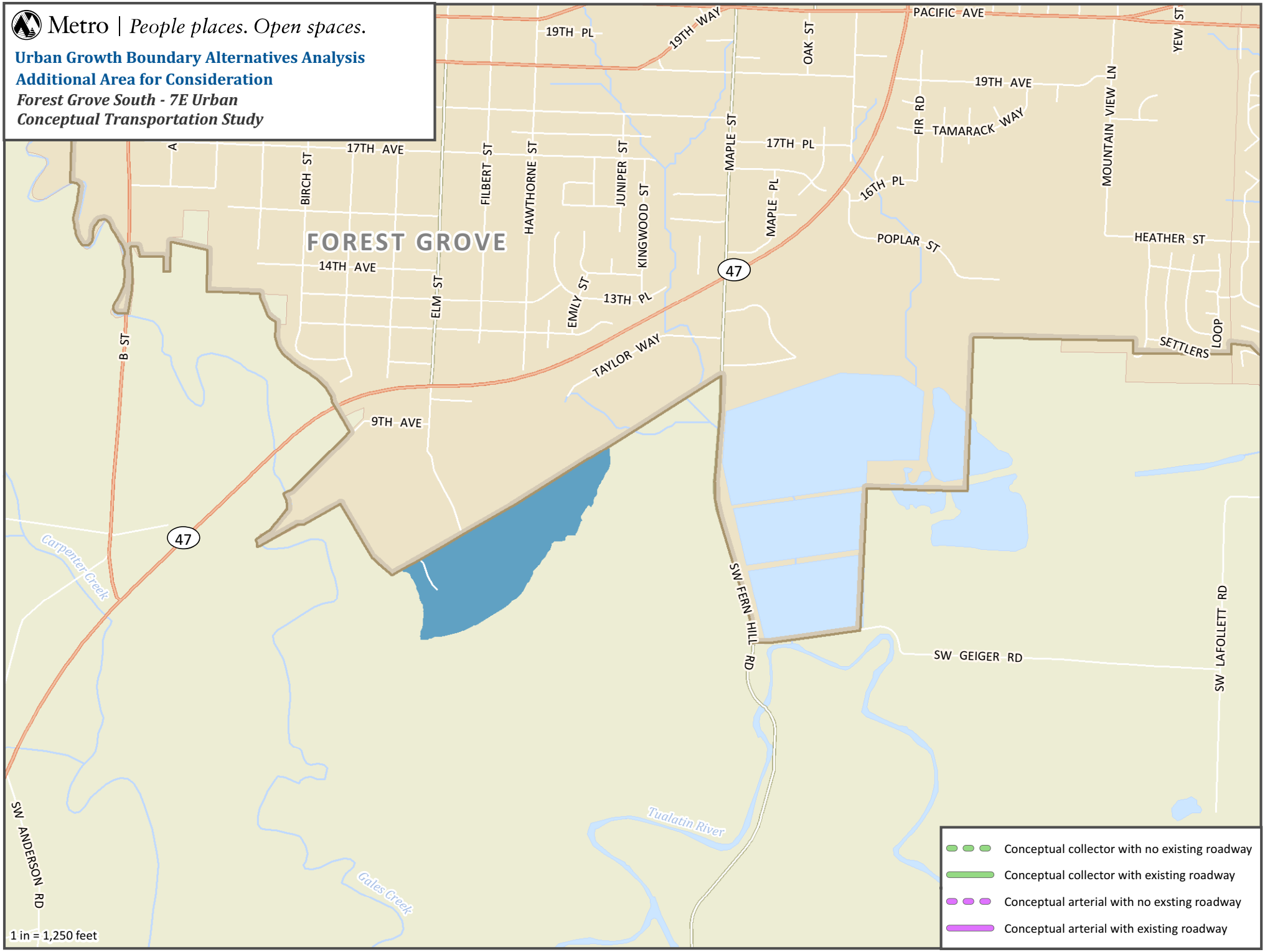
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
Forest Grove South - 7E Urban
Conceptual Transportation Study



HILLSBORO NORTH ANALYSIS AREA (8A)

Hillsboro North Analysis Area		**Total Acres**	**950**
Gross Vacant Buildable Acres	767	Total Constrained Acres	183
Estimated Dwelling Unit Capacity	0	• Title 13 Significant Habitat	137
Estimated Employment Acres	625	• Public Land	0

General Description (see attached map)

The Hillsboro North Analysis Area, a portion of the larger Hillsboro North Urban Reserve, is a wedge-shaped area north of Hillsboro, between the current UGB and Highway 26 and is 950 acres in size. The analysis boundary is defined by the UGB to the south and east, Highway 26 to the north. NW Jackson School Road is the western edge up to Waible Reservoir, after which Storey Creek generally marks the western boundary. The area is served by Highway 26 at both the NW Helvetia Road/NW Shute Road and NW Jackson School Road interchanges. NW Meek Road and NW Sewell Road serve the interior of the area.

Parcelization, Building Values, Development Pattern (see attached aerial photo)

The Hillsboro North Analysis Area contains 76 tax lots, with a median size of two acres. A total of 22 parcels have an area of at least five acres, and account for three-quarters of the total analysis area. Thirteen parcels have an area less than one acre. Improvements are recorded for 57 tax lots, with a median value of $136,370. Improvements with values over $250,000 occur on nine lots, with a maximum value of $509,000. Uses within the study area include a mix of agriculture and rural residential. Agricultural uses are primarily for field crops and there forested parcels along Waible Gulch. There are two blocks of smaller lots, characterized by rural residential development patterns, one at the center of the analysis area around NW Meek Road, the other in the eastern corner near Highway 26 and NW Shute Road.

One power line easement runs east-west, passing through the southwest portion of the analysis area. The south-southwest portion of the analysis area is also adjacent to the Hillsboro airport, which could restrict certain uses in the area and be a source of significantly high air traffic noise.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had high suitability for sanitary sewer services, water services and transportation connectivity. The City of Hillsboro's Pre-Qualifying Concept Plan, completed as part of the Washington County urban and rural reserve designation process, indicates that the city has the ability and willingness to provide urban services to this area.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of large site industrial development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates. A map of the proposed collector and arterial transportation network is attached to this summary.

Sanitary Sewer Services - $6,835,000

Water Distribution Services - $6,080,000

Storm Sewer Services – $6,210,500

Transportation Services - $463,670,000

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

One primary stream, Waible Gulch, runs through the area in an east-west direction. At some locations along the stream, agricultural activities occur right up to the stream bank. The area also includes the Waible Reservoir, just east of Jackson School Rd at the north end of the western half of the analysis area. There are two wetland areas, one along Waible Gulch and one along the south edge of the area, for a total of 24 acres. Waible Gulch also has 57 acres of 100-year flood plain along its length. There are minimal slopes, with only 1.5 acres steeper than 25%, concentrated along the riparian corridor. The limitations on development presented by the flood plain areas, the limited amount of environmental resources within the area and the current level of agricultural activity adjacent to the stream indicate that urbanization can occur in this area with minimal additional impacts to environmental resources due to required urban level protection measures. Attachment 5

contains a breakdown of the environmental factors. Attachment 6 contains the breakdown of the environmental factors.

Energy, Economic & Social

This large analysis area is divided into 76 parcels with 29% of the parcels greater than five acres in size. Seven parcels are greater than 40 acres, the largest being 157 acres. Seventy-five percent of the parcels contain improvements. Agricultural activities dominate significant portions of the area with pockets of rural residences along NW Meek Road and NW Sewell Road. The loss of the economic impact from the significant agricultural uses in this large area may be considerable; however the potential economic impact of urbanization for industrial use on these large flat parcels will reduce or outweigh the impact of this loss. There are 33 acres of identified habitat, mainly along Waible Gulch which runs along the southern edge of the eastern section and the northern edge of the western section of the analysis area. The costs for protecting these linear resources will be small in contrast to the potential economic impact of urbanizing the larger internal locations, as their locations easily allow for preservation away from development. Urbanization will negatively impact the current residents of the rural residential pockets through the loss of the rural lifestyle. Overall this analysis area has medium economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

Approximately 98 acres of regionally significant riparian habitat are identified within the area, although a significant amount is currently impacted by agriculture activities. Most of the habitat, including an additional 39 acres of upland forest, is concentrated around Waible Gulch at the northern edge of the western half of the analysis area. The City of Hillsboro, the expected governing body for this area, has adopted habitat protection measures in compliance with Metro's Title 13 program through the Tualatin Basin Natural Resource Coordinating Committee's protection program. Based on the development limitations provided by the 100-year flood plain, the location of the regionally significant habitat at the edges of the analysis area, and the expected protection measures that will be in place prior to urbanization, this area could be urbanized with some impacts on regionally significant fish and wildlife habitat.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

The UGB borders the Hillsboro North analysis area on the south and east. Resource land zoned exclusive farm use (EFU) directly borders the analysis area on the west and north, across highway 26, with the exception of a 51 acre block of non-farm land located NW Meek Road and NW 273rd Avenue (see attached resource land map). This extensive block of farm land extends for miles to the north and west beyond the city of North Plains and is intensely farmed for numerous agricultural products. There is a 122 acre island of non-farm land west of the analysis area centered on NW Glencoe Road and NW Evergreen Road. Waible Gulch flows west through the analysis area draining into Waible Reservoir, before continuing west as Waible Creek. Storey Creek flows south near the middle portion of the analysis area into Waible Reservoir. Waible Reservoir and Storey Creek, in combination with the rural residences near Storey Creek provide a buffer for the farm land to the northwest of the analysis area. Highway 26 provides a buffer for the farm land that is located on the north side of the Highway 26. NW Jackson School Road provides a western edge to the analysis area; however the road itself would not make the proposed urban uses compatible with the adjacent agricultural activities occurring on farm land south of Waible Creek. In addition, increased traffic along NW Jackson School Road due to new urban uses within the analysis area may impact agricultural activities on these resource lands to the west. The proposed urban uses would be compatible with agricultural activities in the areas where the highway or the stream corridors provide buffers. In the two areas where there are no identifiable edges or buffers between the analysis area and the nearby agricultural activities, the proposed urban uses would not be compatible with the agricultural activities that occur on farm land outside the UGB. However mitigation measures could reduce conflicts between urban uses inside the UGB and resource uses outside the UGB.

Clear transition between urban and rural lands, using natural and built features to mark the transition

There are both natural (Waible Gulch and Reservoir) and built (Highway 26) features that mark a clear transition between urban and rural lands, for a large portion of the analysis area. Even assuming NW Jackson School Road develops as an arterial roadway in the future, the road itself will not provide a clear transition area between future urban and rural uses for the land to the west. Additional buffers will need to be incorporated into the planning of the urban reserve analysis areas near NW Jackson School Road to provide a clear transition from urban to rural uses. The rural lands west of NW Jackson School Road are part of the larger Hillsboro North urban reserve area and may be included in the UGB in the future. Thus, any buffers that are incorporated into the planning study for the analysis area should consider the potential for making urban form connections in this location in the future.

2040 Growth Concept

Contribution to the purposes of Centers

The Hillsboro North analysis area is located near the Hillsboro Regional Center and the Orenco Town Center. The Hillsboro Regional Center is 144 acres, serves all of western Washington County along with many rural areas outside of the urban growth boundary, and is the western terminus of the MAX Blue Line. It is linked to the analysis area by NE Jackson School Road/NE 5th Avenue (2 miles) and via TriMet's route 46. The Orenco Town Center is 174 acres, and primarily serves the surrounding transit-oriented development. Access to the analysis area is via NW Shute Rd (2.3 miles) and does not currently have Tri-Met transit service.

The City of Hillsboro, through the 2020 Vision and other initiatives, has identified the historic downtown as the heart of the Hillsboro community, serving as the primary civic and commercial center of the surrounding area. Despite recent investments in infrastructure, transit and civic resources, many parts of the center have been inactive and stagnant. The City recently completed a Downtown Urban Renewal Plan, indicating a commitment to increased development and revitalization of this important regional center, with higher density mixed use and a thriving unique character. Metro's State of the Centers Report, January 2009, indicates that currently the center has a much higher than average jobs to housing ratio, as well as a high number of people per acre, although it still maintains a small city feel through an active main street and grid street network. The Hillsboro Regional Center is considered a transit-oriented static market that may require catalyzing development opportunities, based on research completed by Metro's Development Center for the TOD Strategic Plan.

The Orenco Town Center is much more residential in character than the Hillsboro Regional Center. According to the State of the Centers report, it has low jobs to housing ratio, but a much higher than average number of dwelling units per acre. The center was built as a transit-oriented development surrounding Orenco Station, and has some mixed use residential and commercial. The Orenco Town Center is considered an emerging transit center that may be ripe for increased investment and development, based on research completed by Metro's Development Center for the TOD Strategic Plan.

The Hillsboro North analysis area is being evaluated for large-site industrial use, consistent with the city's vision for the area. Urbanization of the Hillsboro North analysis area will not contribute to the vision and purpose of either the Hillsboro Regional Center or the Orenco Town Center. The distance of the analysis area from both centers reduces any impact that large-site industrial development might have, especially for enticing new housing opportunities to the Hillsboro Regional Center as there is other underutilized land located between the two areas. Even though the employment uses identified for the analysis area are not in direct conflict with the types of employment needs that the Orenco Town Center may need to help balance jobs to housing, the presence of a large site industrial user will not directly entice new employment opportunities in a town center over 2 miles away.

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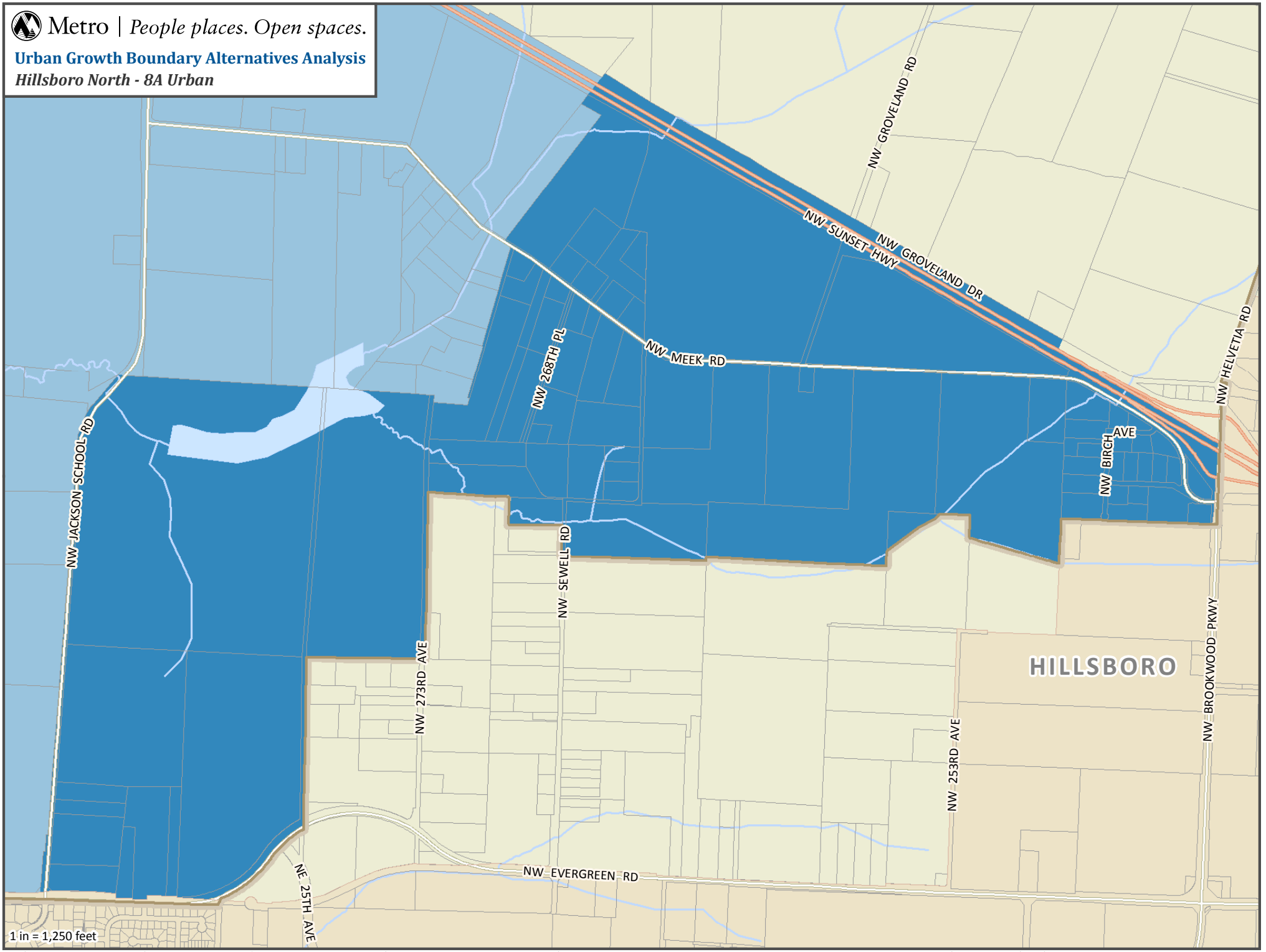
Urban Growth Boundary Alternatives Analysis

Hillsboro North - 8A Urban



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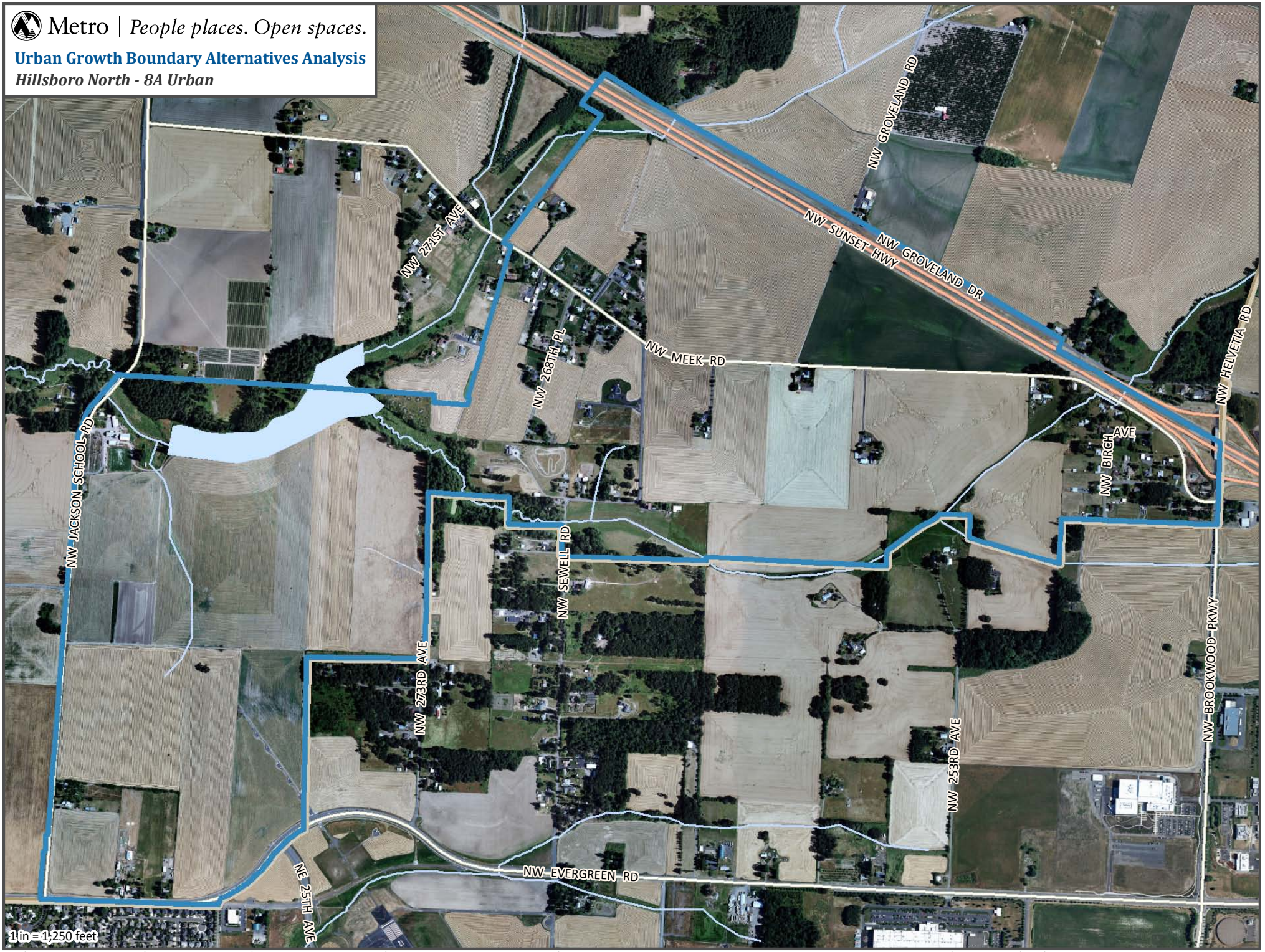
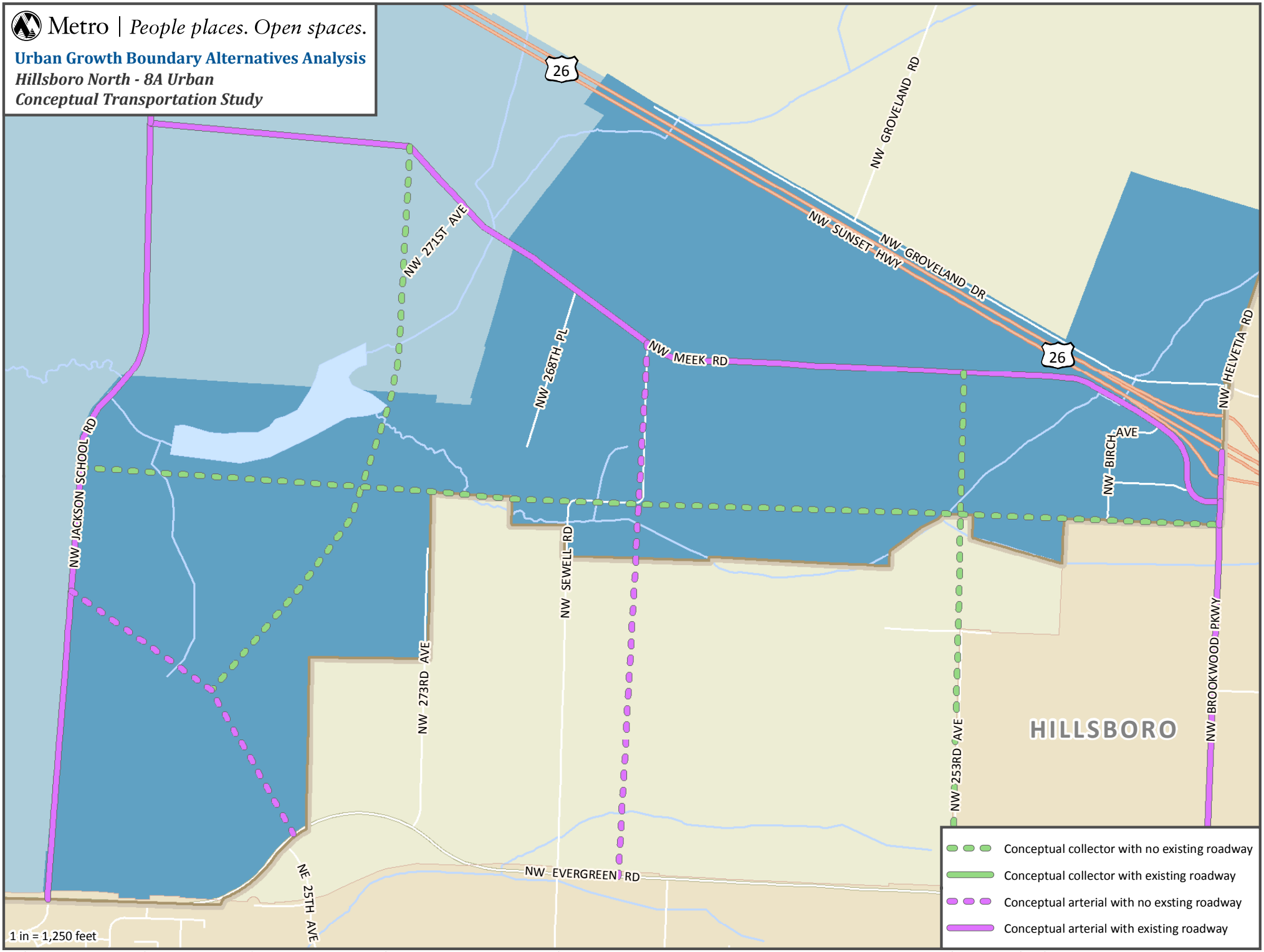
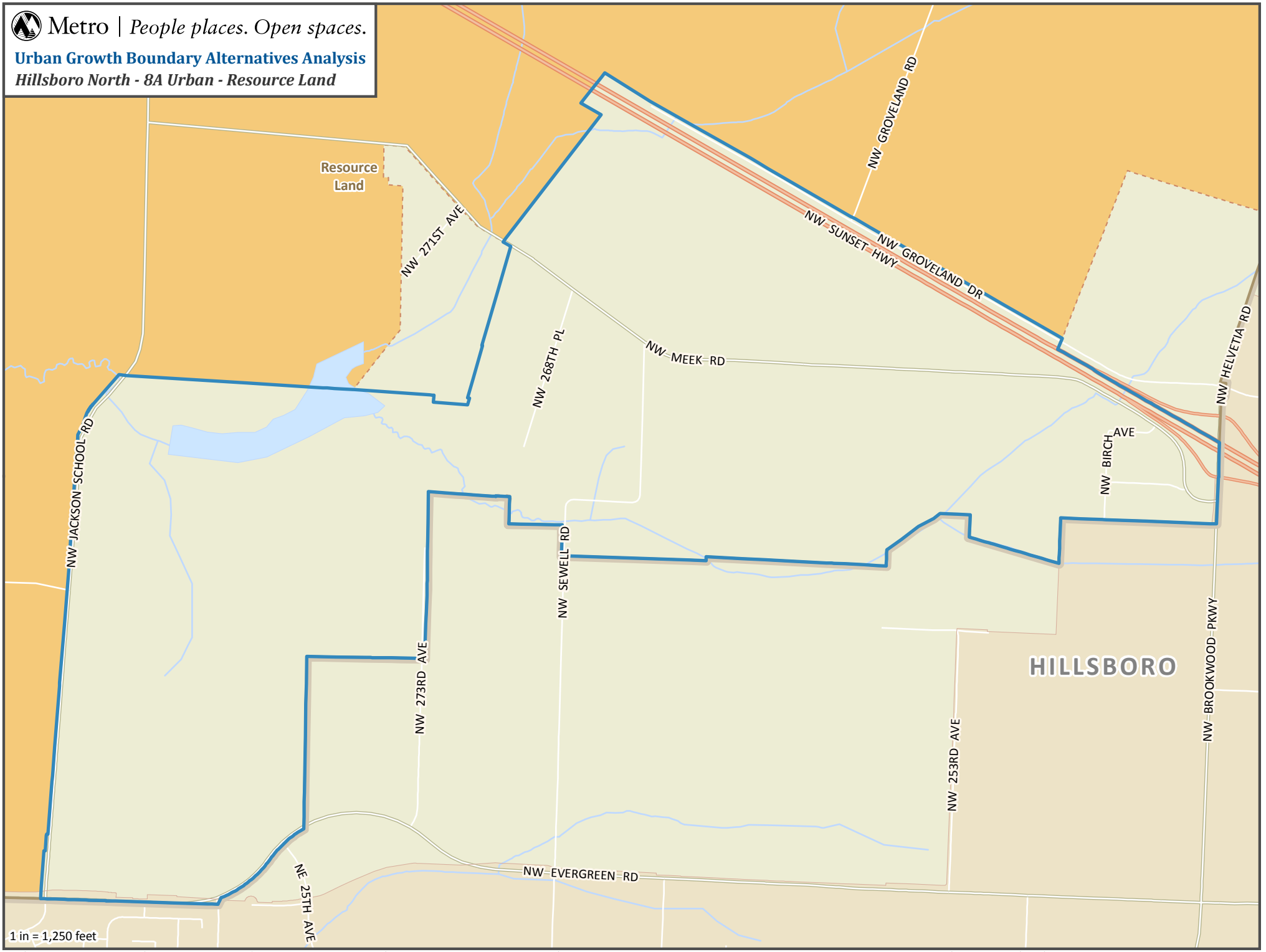
Urban Growth Boundary Alternatives Analysis

Hillsboro North - 8A Urban







HILLSBORO NORTH– JACKSON SCHOOL ROAD ANALYSIS AREA (8A)

Hillsboro North Jackson School Road		**Total Acres**	**458**
Gross Vacant Buildable Acres	404	Total Constrained Acres	54
Estimated Dwelling Unit Capacity	0	• Title 13 Significant Habitat	
Estimated Employment Acres	329	• Public Land	0

General Description (see attached map)

The Hillsboro North Jackson School Road Analysis Area, a portion of the larger Hillsboro North Urban Reserve, is a box-shaped area that is divided by NW Meek Road, east of NW Jackson School Road and south of Highway 26. This area is not directly adjacent to the UGB and is 458 acres in size. The analysis boundary is defined by NW Jackson School Road to the west and Highway 26 to the north. Waible Reservoir and Storey Creek generally mark the southern and eastern edges. The area is served by Highway 26 at the NW Jackson School Road interchange. NW Meek Road serves the interior of the area.

Parcelization, Building Values, Development Pattern (see attached aerial photo)

The Hillsboro North Jackson School Road Analysis Area contains 37 tax lots. A total of nine parcels are greater than 20 acres in size and account for two-thirds of the total analysis area. Twenty-six parcels have an area less than two acres. Improvements are recorded for 26 tax lots, with a median value of $136,050. Improvements with values over $250,000 occur on two lots, with a maximum value of $370,000. A majority of the analysis area is in agricultural use with rural residences centered on NW Meek Road and NW 271st Avenue. Agricultural uses are primarily for field crops and Storey Creek flows south through the eastern portion of the area.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location

had high suitability for sanitary sewer services, water services and transportation connectivity. The City of Hillsboro's Pre-Qualifying Concept Plan, completed as part of the Washington County urban and rural reserve designation process, indicates that the city has the ability and willingness to provide urban services to this area.

The following cost estimates for sanitary sewer, water and storm sewer represent preliminary estimates for the major components of the individual systems. The estimates were provided by the City of Hillsboro and were generated using very general assumptions about the level of large site industrial development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates generated by Metro. A map of the proposed collector and arterial transportation network is attached to this summary.

Sanitary Sewer Services - $2,506,000

Water Distribution Services - $2,380,000

Storm Sewer Services – $2,786,500

Transportation Services - $86,540,000

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

Storey Creek and a tributary run through the area in a north-south direction along the eastern edge of the analysis area. Along the northern portions of Storey Creek, limited agricultural activities occur right up to the stream bank, with the southern portion of the stream flowing through a pocket of rural residences. The area also includes a very small portion of the Waible Reservoir in the south end of the eastern half of the analysis area. A wetland associated with Waible Reservoir extends into the area, totaling approximately 7 acres. Storey Creek and the tributary also have 42 acres of 100-year flood plain along its length. The area is flat with no significant topographic constraints. The minimal limitations on development presented by the flood plain areas, the limited amount of environmental resources within the area and the current level of agricultural activity adjacent to the stream indicate that urbanization can occur in this area with minimal additional impacts to environmental resources due to required urban level natural resource protection measures and the localized nature of the resources located along one edge. Attachment 5 contains a breakdown of the environmental factors.

Energy, Economic & Social

This analysis area is divided into 37 parcels with 25% of the parcels greater than twenty acres in size. Six parcels are greater than 30 acres, the largest being 50 acres. Seventy percent of the parcels contain improvements. Agricultural activities dominate the majority of the area with pockets of rural residences along NW Meek Road and NW 271st Avenue. The loss of the economic impact from the significant agricultural uses in this area may be considerable; however the potential economic impact of urbanization for industrial use on these fairly large flat parcels will reduce or outweigh the impact of this loss. There are 54 acres of identified habitat along Storey Creek and a tributary which run along the eastern edge of the analysis area. The costs for protecting these linear resources will be small in contrast to the potential economic impact of urbanizing the larger internal locations, as their locations easily allow for preservation away from development. Urbanization will negatively impact the current residents of the rural residential pockets through the loss of the rural lifestyle. The significant amount of improvements may also make development of the area difficult, thus reducing the positive economic impacts of urbanization. Overall this analysis area has medium economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

Approximately 54 acres of regionally significant riparian habitat are identified within the area, although a significant amount is currently impacted by rural residential use or agriculture activities. The habitat is centered on Storey Creek and a tributary along the eastern edge of the analysis area. The City of Hillsboro, the expected governing body for this area, has adopted habitat protection measures in compliance with Metro's Title 13 program through the Tualatin Basin Natural Resource Coordinating Committee's protection program. Based on the development limitations provided by the 100-year flood plain, the location of the regionally significant habitat at the edges of the analysis area, and the expected protection measures that will be in place prior to urbanization, this area could be urbanized with minor impacts on regionally significant fish and wildlife habitat.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

This analysis area is a portion of the larger North Hillsboro urban reserve area and is bordered on three sides by urban reserve land with Highway 26 forming the northern edge. The UGB is approximately 900 feet south of the southeast corner of the analysis area along NW 273rd Avenue. Resource land zoned exclusive farm use (EFU) directly borders the analysis area on the south, west and northeast as well as across highway 26 to the north, with the exception of one parcel zoned agriculture forest 20 acres (AF-20) to the south. There is a 115 acre block of non-farm land located near NW Meek Road, NW 273rd Avenue and NW Sewell Road to the east (see attached resource land map). The extensive block of farm land to the west and north extends for miles beyond the city of North Plains and is intensely farmed for numerous agricultural products. There is a 122 acre island of non-farm land southwest of the analysis area centered on NW Glencoe Road and NW Evergreen Road. Waible Reservoir borders the analysis area to the south and Storey Creek and a tributary are located on the east edge of the area. These two natural resource areas in combination with the rural residences along NW meek Road, NW Sewell Road and NW 268th Place provide a buffer for the farm land to the south and northeast of the analysis area. Highway 26 provides a buffer for the farm land that is located on the north side of the Highway 26. NW Jackson School Road provides a western edge to the analysis area; however the road itself would not make the proposed urban uses compatible with the adjacent agricultural activities occurring on farm land to the west. In addition, increased traffic along NW Jackson School Road due to new urban uses within the analysis area may impact agricultural activities on these resource lands to the west. The proposed urban uses would be compatible with agricultural activities in the locations where the highway or the stream corridors/rural residences provide buffers. To the west where there are no identifiable edges or buffers, the proposed urban uses would not be compatible with the agricultural activities that occur on farm land outside the UGB. However mitigation measures could reduce conflicts between urban uses inside the UGB and resource uses outside the UGB. As this analysis area is not directly adjacent to the UGB, it would have to be combined with additional land to the south or east that was previously analyzed in 2010, prior to being added to the UGB. Thus the impacts to nearby agricultural activities in these two directions will be different depending on the use of the adjacent land.

Clear transition between urban and rural lands, using natural and built features to mark the transition

There are both natural (Waible Reservoir and Storey Creek) and built (Highway 26) features that mark a clear transition between urban and rural lands, for a large portion of the analysis area. Even assuming NW Jackson School Road develops as an arterial roadway in the future, the road itself will not provide a clear transition area between future urban and rural uses for the land to the west. Additional buffers will need to be incorporated into the planning of the urban reserve analysis areas near NW Jackson School Road to provide a clear transition from urban to rural uses. The rural lands west of NW Jackson School Road, south of Waible Reservoir and east of Storey Creek are part of the larger Hillsboro North urban reserve area and may be included in the UGB in the future. Thus, any buffers that are incorporated into the planning study for the analysis area should consider the

potential for making urban form connections in this location in the future. As noted above, some additional urban reserve land will need to be combined with this area to connect to the current UGB, thus any needed buffers or future urban form connections may differ depending on the use of the adjacent land.

2040 Growth Concept

Contribution to the purposes of Centers

The Hillsboro Regional Center, approximately 3 miles from the analysis area, is 295 gross acres in size, serves all of western Washington County along with many rural areas outside of the urban growth boundary, and is the western terminus of the MAX Blue Line. It is linked to the analysis area by NE Jackson School Road/NE 5th Avenue. The Orenco Town Center, approximately 3.5 miles from the analysis area, is 235 gross acres in size, and primarily serves the surrounding transit-oriented development. Access to the analysis area is via NW 273rd Avenue/NW Evergreen Road/NE Brookwood Parkway/ NW Shute Rd. TriMet does not connect either center with the analysis area.

The City of Hillsboro, through the 2020 Vision and other initiatives, has identified the historic downtown as the heart of the Hillsboro community, serving as the primary civic and commercial center of the surrounding area. Despite recent investments in infrastructure, transit and civic resources, portions of the center have been inactive and stagnant. The City recently completed a Downtown Urban Renewal Plan, indicating a commitment to increased development and revitalization of this important regional center, with higher density mixed use and a thriving unique character. Metro's State of the Centers Report, May 2011, indicates that currently the center has a much higher than average jobs to housing ratio, as well as a high number of people per acre, although it still maintains a small city feel through an active main street and grid street network. The Hillsboro Regional Center is considered a transit-oriented static market that may require catalyzing development opportunities, based on research completed by Metro's Development Center for the TOD Strategic Plan.

The Orenco Town Center functions as a local retail destination and medium –density housing location, resulting in a much more residential character than the Hillsboro Regional Center. According to the State of the Centers report, it has low jobs to housing ratio, but a much higher than average number of dwelling units per acre. The center was built as a transit-oriented development surrounding Orenco Station, and has some mixed use residential and commercial. The Orenco Town Center is considered an emerging transit center that may be ripe for increased investment and development, based on research completed by Metro's Development Center for the TOD Strategic Plan.

The Hillsboro North-Jackson Road analysis area is being evaluated for large-site industrial use, consistent with the city's vision for the area. Urbanization of the analysis area will not contribute to the vision and purpose of either the Hillsboro Regional Center or the Orenco Town Center. The distance of the analysis area from both centers reduces any impact that large-site industrial development might have, especially for enticing new housing opportunities to the Hillsboro

Regional Center as there is other underutilized land located between the two areas. Even though the employment uses identified for the analysis area are not in direct conflict with the types of employment needs that the Orenco Town Center may need to help balance jobs to housing, the presence of a large site industrial user will not directly entice new employment opportunities in a town center over 3.5 miles away. However, the creation of traded sector jobs in the analysis area would have a general positive effect on the local economy.

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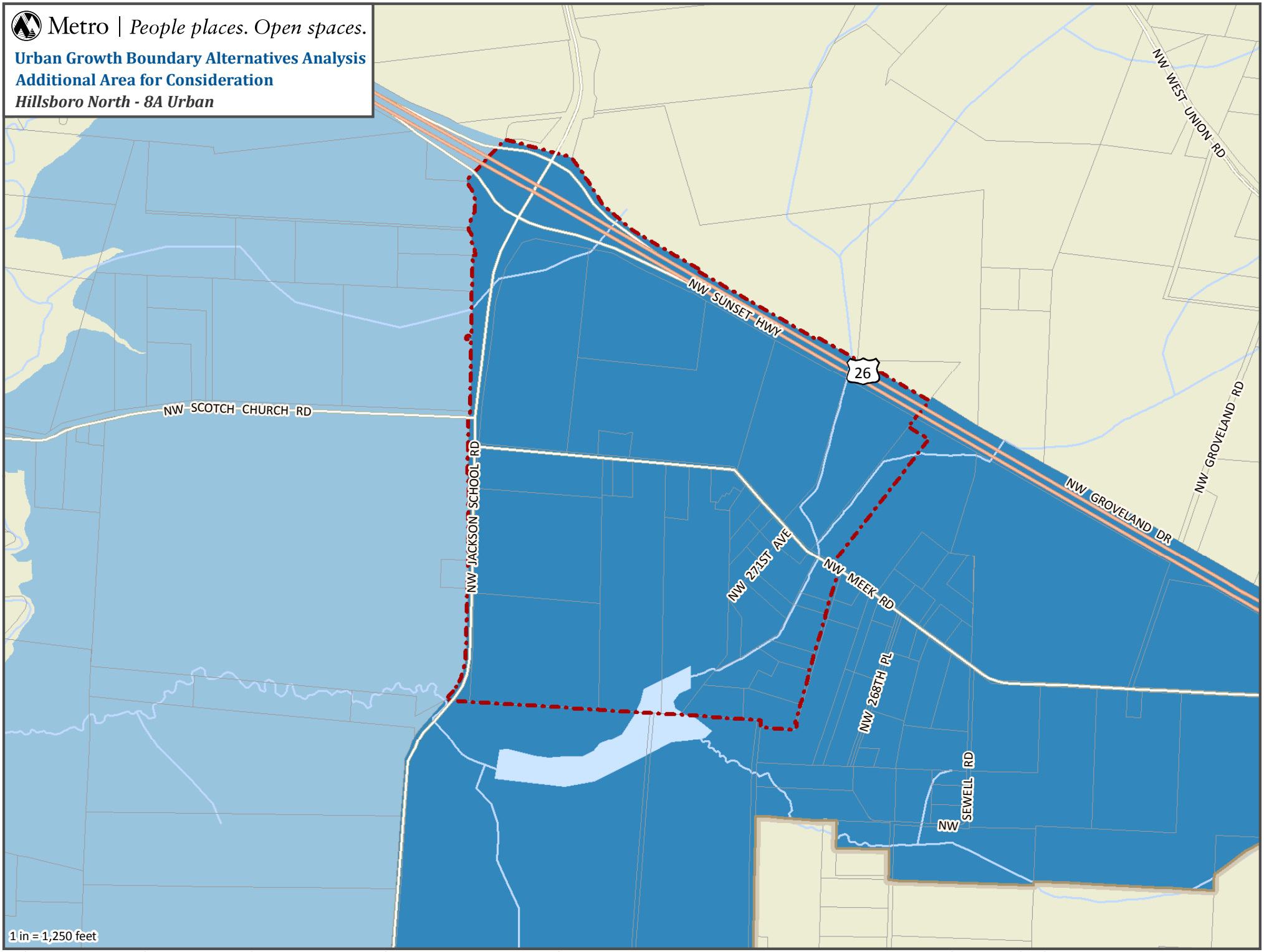
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
Hillsboro North - 8A Urban



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Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
Hillsboro North - 8A Urban

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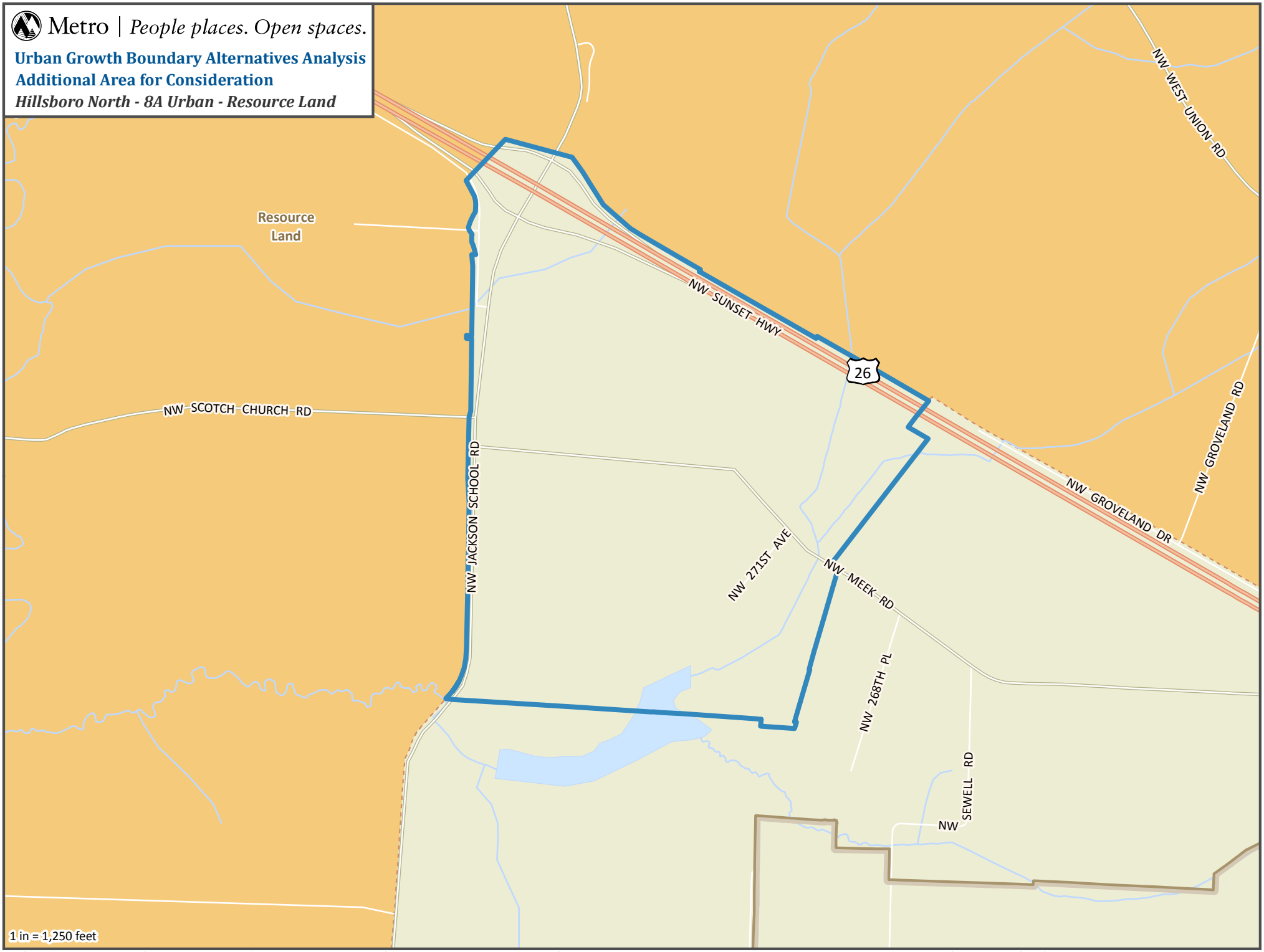
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
Hillsboro North - 8A Urban - Resource Land



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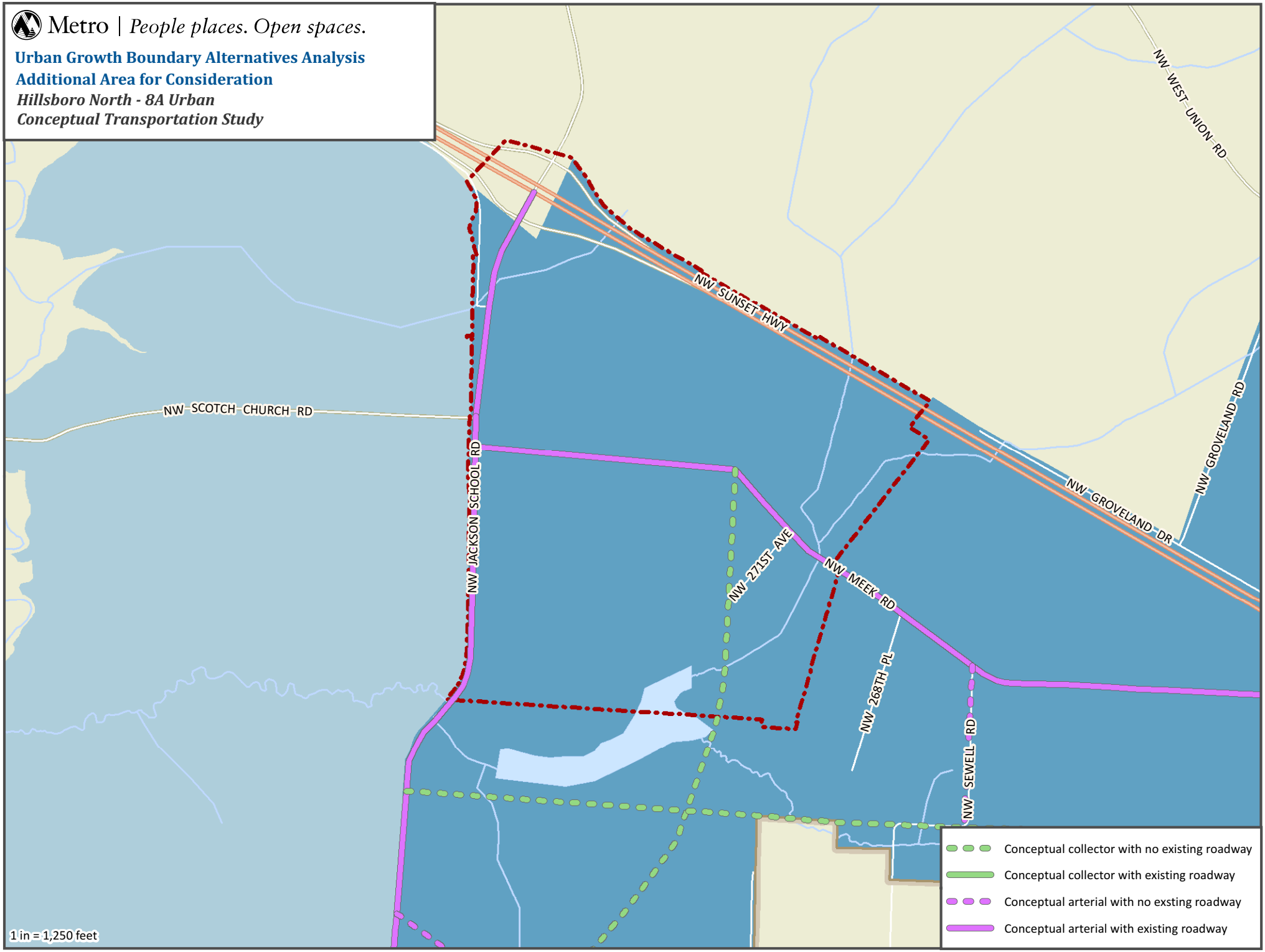
Urban Growth Boundary Alternatives Analysis
Additional Area for Consideration
Hillsboro North - 8A Urban
Conceptual Transportation Study



SHUTE ROAD INTERCHANGE ANALYSIS AREA (8B)

Shute Rd. Interchange Analysis Area		**Total Acres**	**86**
Gross Vacant Buildable Acres	58	Total Constrained Acres	28
Estimated Dwelling Unit Capacity	0	• Title 13 Significant Habitat	24
Estimated Employment Acres	47	• Public Land	0

General Description (see attached map)

This small area sits to the northwest of the Shute Rd interchange on Highway 26, just north of the Hillsboro North Analysis Area. It totals 86 acres and is bounded by NW Helvetia Road to the east and Highway 26 to the south. The west and north boundaries follow the two large tax lots that comprise the majority of the analysis area. Most of the area is actively cultivated farmland, with the exception of a small wooded area along the southern edge that contains a few rural residences.

Parcelization, Building Values, Development Pattern (see attached aerial photo)

The Shute Rd Interchange area has seven tax lots, although the two largest account for 73 of the 85 acres under analysis. All of the remaining five parcels are less than one acre in size. Five of the seven parcels have improvements, although only 2 have values over $100,000. There is one parcel with an improvement valued at $458,690. The entire analysis area is zoned as agricultural land; however active farming appears to only be occurring on the two larger parcels. The other five lots appear to be for residential use, and a large portion of one of the larger lots contains a stream and associated floodplain.

Available data does not suggest the existence of power lines or public easements within this area.

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had high suitability for sanitary sewer services, water services and transportation connectivity.

The City of Hillsboro's Pre-Qualifying Concept Plan, completed as part of the Washington County urban and rural reserve designation process, indicates that the city has the ability and willingness to provide urban services to this area.

The following cost estimates represent preliminary estimates for the major components of the individual systems. The estimates were generated using very general assumptions about the level of large site industrial development that could occur in the analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates.

Sanitary Sewer Services – $554,000

Water Distribution Services – $525,000

Storm Sewer Services - $476,500

Transportation Services – due to the very small size of the analysis area and its location directly adjacent to the NW Shute Road/Highway 26 interchange, no additional arterials or collectors are needed to serve the area.

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

There are no wetlands, but there are 23 acres of 100-year flood plain along Waible Gulch running through the southeast corner of the area. The area is very flat, with almost no steep topographic features. There is no other evidence of significant natural resources or environmental features in the analysis area. Given the small amount of resources and their isolated nature in the southeast corner of the analysis area, future urbanization can occur with minimal impact to environmental resources. Attachment 5 contains a breakdown of the environmental factors.

Energy, Economic & Social

This very small area, composed of 7 parcels is mostly in agricultural production with a few rural residences along NW Groveland Drive near the Highway 26 interchange. The two parcels that are in agricultural production are greater than 30 acres and the remaining five parcels, four of which contain improvements are a half acre in size. The loss of the economic impact from the significant agricultural uses in this small area may be considerable; however the potential economic impact of urbanization for industrial use on these large flat parcels near the highway interchange will outweigh this loss. There are 33 acres of identified habitat associated with Waible Gulch which runs through the southern section of the analysis area. The costs for protecting this pocket of resources will be small in contrast to the potential economic impact of urbanizing the remaining northern portion, as its isolated location easily allows for preservation away from development.

Urbanization will negatively impact the few residents along NW Groveland Drive through the loss of the rural lifestyle, although they are currently impacted by urban level traffic. Overall this analysis area has low economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

There is one location of regionally significant riparian habitat in this analysis area comprised of a small 24 acre block of riparian habitat along the stream corridor in the southeast corner. The City of Hillsboro, the expected governing body for this area, has adopted habitat protection measures in compliance with Metro's Title 13 program through the Tualatin Basin Natural Resource Coordinating Committee's protection program. Due to the isolated location of the habitat and the expected protection measures that will be in place prior to development, urbanization can occur with minimal impact on the identified regionally significant fish and wildlife habitat.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

The UGB borders the Shute Road urban reserve analysis area on the east. Resource land zoned exclusive farm use (EFU) directly borders the analysis area on the west and north (see attached resource land map). This extensive block of farm land extends for miles to the north and west and is intensely farmed for numerous agricultural products. There is an island of non-farm land zoned Agriculture Forest 10 (AF-10) a little over a mile to the north in the vicinity of NW Helvetia Road and NW Dierdorff Road. To the south across Highway 26 is a block of non-farm land zoned Agriculture Forest 5 (AF-5) that is centered on NW Oak Drive and NW Birch Avenue. Northwest of the analysis area, Storey Creek and a few tributaries flow south through open farm fields but do not act as an edge or buffer. Increased traffic along NW Helvetia Road and NW West Union Road due to new urban uses within the analysis area could impact agricultural activities in this resource land area, however given the analysis area's location next to Highway 26 little traffic would be expected to travel north. As there are no identifiable edges or buffers between the analysis area and the extensive farm lands to the west, the proposed urban uses would not be compatible with the agricultural activities that occur on farm land outside the UGB. However mitigation measures could reduce conflicts between urban uses inside the UGB and resource uses outside the UGB.

Clear transition between urban and rural lands, using natural and built features to mark the transition

There are no natural or built features to mark a clear transition between urban and rural lands to the north or west. Highway 26 acts a buffer for the rural lands to the south. Additional buffers will need to be incorporated into the planning of the urban reserve analysis area to provide a clear transition from urban to rural uses.

2040 Growth Concept

Contribution to the purposes of Centers

The Shute Rd Interchange analysis area is approximately 2.5 miles north/northwest of the Orenco Town Center. The two areas are linked by NW Shute Road, but do not currently have any public transit connections. The Orenco Town Center is generally residential in character. The center was built as a transit-oriented development surrounding Orenco Station, and has some mixed use residential and commercial. According to the Metro State of the Centers report, it has a low job to housing ratio, but a much higher than average number of dwelling units per acre. The Orenco Town Center is considered an emerging transit center that may be ripe for increased investment and development, based on research completed by Metro's Development Center for the TOD Strategic Plan.

Currently, the City of Hillsboro envisions the analysis area urbanizing primarily with large site industrial uses. Urbanization of the Shute Road Interchange analysis area will not contribute to the vision and purpose of the Orenco Town Center due to the distance between the two areas and the focus of the analysis area on large site industrial development. The employment needs of the town center that would help to balance the jobs to housing ratio, is different than the large site industrial employment focus of the analysis area.

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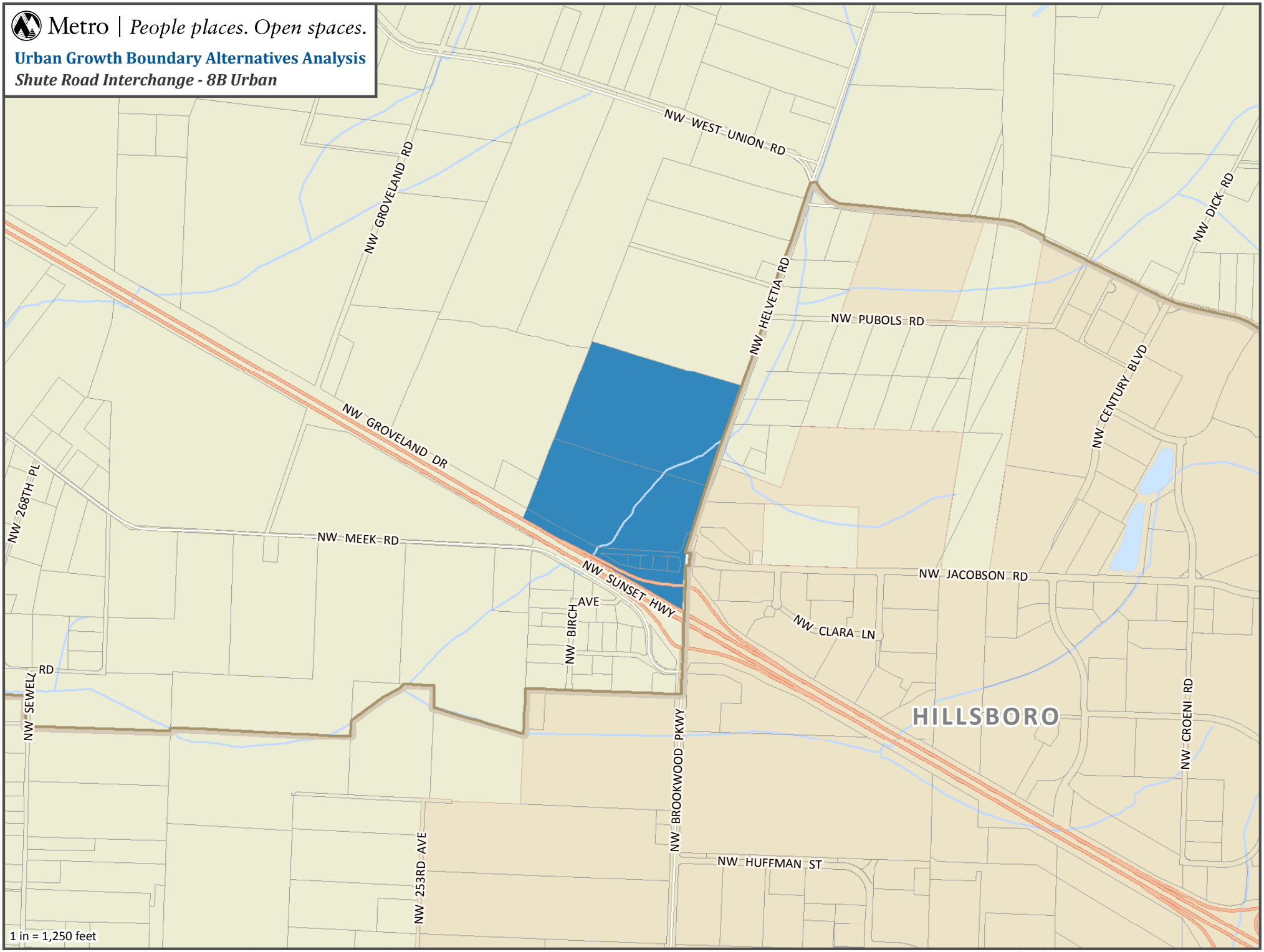
Urban Growth Boundary Alternatives Analysis

Shute Road Interchange - 8B Urban



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Urban Growth Boundary Alternatives Analysis

Shute Road Interchange - 8B Urban

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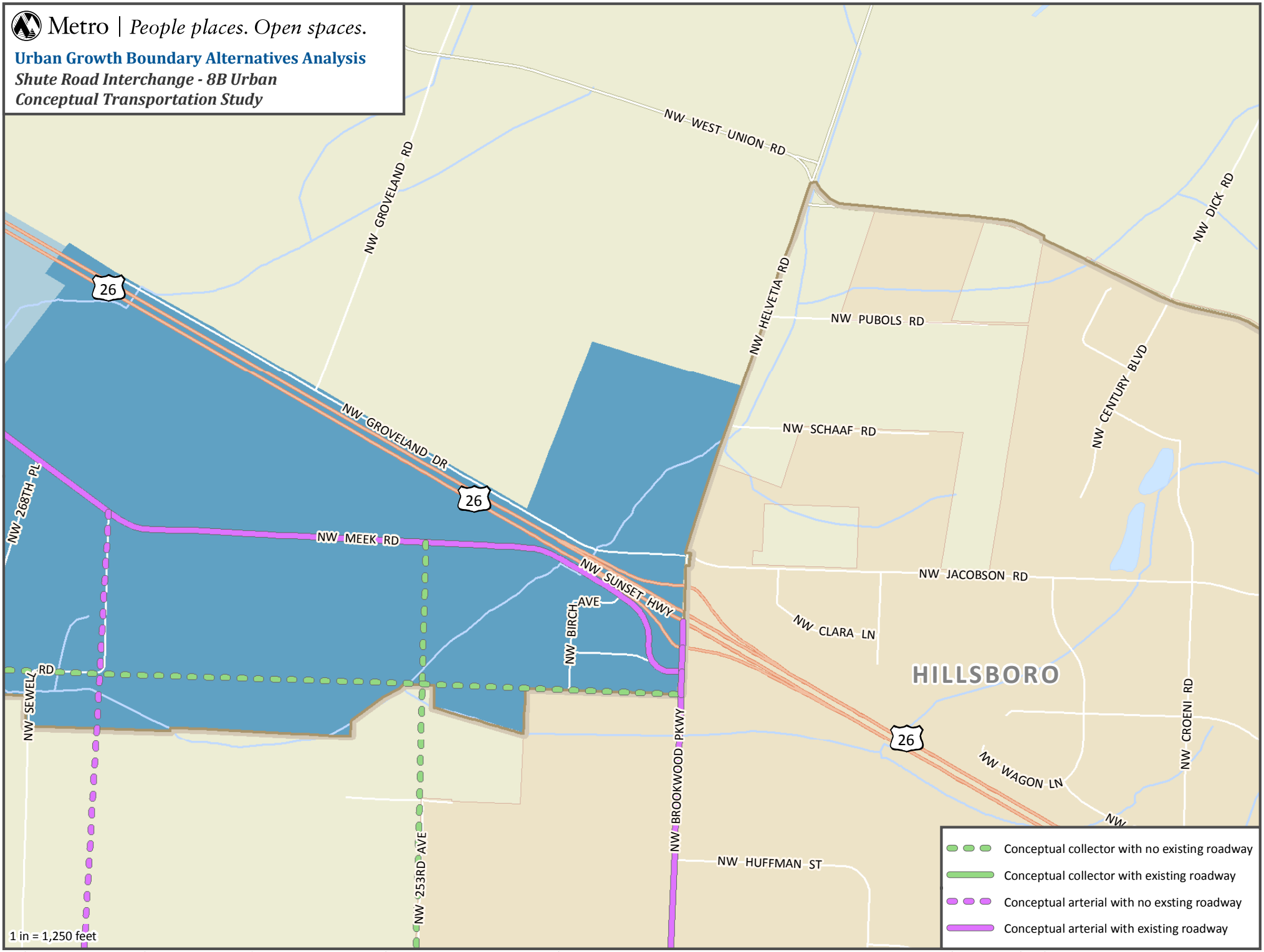
Urban Growth Boundary Alternatives Analysis

Shute Road Interchange - 8B Urban

Conceptual Transportation Study



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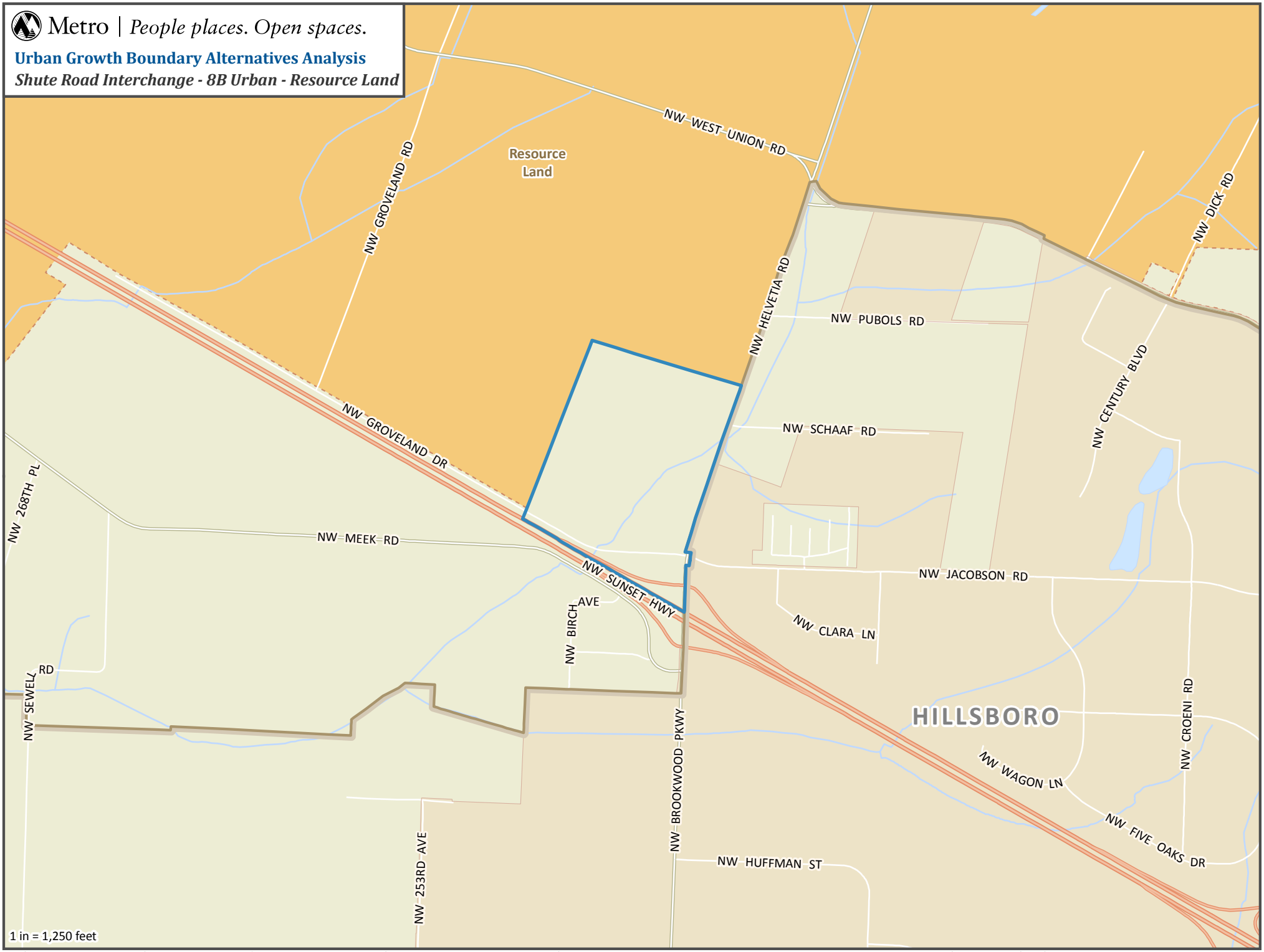
Urban Growth Boundary Alternatives Analysis

Shute Road Interchange - 8B Urban - Resource Land



GROVELAND ROAD ANALYSIS AREA (8B)

Groveland Road		**Total Acres**	**352**
Gross Vacant Buildable Acres	256	Total Constrained Acres	96
Estimated Dwelling Unit Capacity	0	• Title 13 Significant Habitat	62
Estimated Employment Acres	209	• Public Land	11

General Description (see attached map)

The Groveland Road Analysis Area is an irregular shaped area north of Highway 26 and west of NW Shute Road and adjacent to the Shute Road Interchange portion of urban reserve 8B. The analysis boundary is defined by NW Groveland Road to the west, NW West Union Road to the north and Highway 26 to the south. The area contains the West Union Elementary School that is located at the corner of NW West Union Road and NW Helvetia Road. The area is served by Highway 26 at the NW Brookwood Parkway interchange.

Parcelization, Building Values, Development Pattern (see attached aerial photo)

The Groveland Road Analysis Area contains 15 parcels; all but four are greater than 10 acres in size six are larger than 20 acres with two larger than 50 acres. Improvements are recorded for six tax lots, with a median value of $156,355. Improvements with values over $200,000 occur on one lot, with a maximum value of $211,660. The analysis area is in agricultural use with a few rural residences dispersed throughout the area. Agricultural uses are primarily for field crops and a tributary of Storey Creek flows south through the northwestern corner of the area

GOAL 14 LOCATIONAL FACTORS (METRO CODE SECTION 3.01.020)

Public Facilities and Services

Orderly and economic provision of public facilities and services

The preliminary sanitary sewer, water and transportation suitability analyses completed by the Core Four Technical Team for the urban and rural reserve study area indicated this general location had high suitability for sanitary sewer services, water services and transportation connectivity. The City of Hillsboro's Pre-Qualifying Concept Plan, completed as part of the Washington County

urban and rural reserve designation process, indicates that the city has the ability and willingness to provide urban services to this area.

The following cost estimates for sanitary sewer, water and storm water represent preliminary estimates for the major components of the individual systems. The estimates were provided by the City of Hillsboro and were generated using very general assumptions about the level of large site industrial development that could occur in the analysis area. The estimates also include the Shute Road Interchange (8B) analysis area. More detailed concept plans, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11 will be necessary to develop more refined cost estimates. Attachment 4 contains the breakdown for the transportation cost estimates generated by Metro. A map of the proposed collector and arterial transportation network is attached to this summary.

Sanitary Sewer Services - $2,795,000

Water Distribution Services - $2,655,000

Storm Sewer Services – $3,069,000

Transportation Services - $153,470,000

ESEE Analysis

Comparative environmental, energy, economic and social consequences

Environmental

A tributary to Storey Creek runs north-south through the northwest portion of the analysis area with agricultural activities occurring right up to the stream bank. There are no wetlands or 100-year flood plain in the area. The area is flat with no significant topographic constraints. The limited amount of environmental resources within the area and the current level of agricultural activity adjacent to the stream indicate that urbanization can occur in this area with minimal additional impacts to environmental resources due to required urban level natural resource protection measures that would provide stream buffers and the localized nature of the resources located along one edge. Attachment 5 contains a breakdown of the environmental factors.

Energy, Economic & Social

This analysis area contains 15 parcels with all but four of the parcels greater than ten acres in size. Four of the parcels are greater than 35 acres, the largest being 54 acres. Forty percent of the parcels contain improvements. Agricultural activities dominate the area with a few rural residences located along all four perimeter roads. The loss of the economic impact from the significant agricultural uses in this area may be considerable; however the potential economic impact of urbanization for industrial use on these large flat parcels will reduce or outweigh the impact of this loss. There are 62 acres of identified habitat along the tributary to Storey Creek that

is located in the northwest corner of the area. The costs for protecting these linear resources will be small in contrast to the potential economic impact of urbanizing the larger internal locations, as the location of the resource easily allows for preservation away from development. Urbanization will negatively impact the current residents through the loss of the rural lifestyle; however since there are no residences not associated with the agricultural activities occurring, the impact would be less than if there were separate pockets of rural residences. Overall this analysis area has low economic, social and energy consequences from urbanization.

Avoidance of conflict with regionally significant fish and wildlife habitat

Approximately 62 acres of regionally significant riparian and upland habitat are identified within the area, although all of it is currently impacted by agriculture activities. The habitat is centered on the tributary to Storey Creek. The City of Hillsboro, the expected governing body for this area, has adopted habitat protection measures in compliance with Metro's Title 13 program through the Tualatin Basin Natural Resource Coordinating Committee's protection program. Based on the location of the regionally significant habitat at the edges of the analysis area, the current impacted status of the inventoried habitat and the expected protection measures that will be in place prior to urbanization, this area could be urbanized with minimal impacts on regionally significant fish and wildlife habitat.

Agricultural/Forest Compatibility

Protection of farmland that is most important for the continuation of commercial agriculture in the region

The urban and rural reserves process designated the most important land for commercial agriculture as rural reserves and the most suitable land for urbanization as urban reserves. Designation of this area as an urban reserve means farmland within this analysis area is not the most important for the continuation of commercial agriculture in the region.

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

This analysis area is bordered on the south by Highway 26 and on the east by the UGB and the Shute Road Interchange urban reserve area. To the north and west is resource land zoned exclusive farm use (EFU). The land on the south side of Highway 26, between the highway and the UGB is also resource land zoned EFU, as is the Shute Road Interchange urban reserve area (see attached resource land map). The extensive block of farm land to the west and north extends for miles and is intensely farmed for numerous agricultural products. A tributary to Storey Creek located at the northwest edge of the area would provide a buffer for a limited area of agricultural activities to the west. Highway 26 provides a buffer for the farm land that is located on the south side of the highway. There is no buffer between this analysis area and the Shute Road Interchange urban reserve. NW Groveland Road and NW West Union Road provide a buffer along the western and

northern edges of the analysis area; however the roads themselves would not make the proposed urban uses compatible with the adjacent agricultural activities occurring on farm land to the west and north. In addition, increased traffic along both roads due to new urban uses within the analysis area may impact agricultural activities on the farm lands to the west and north. The proposed urban uses would be compatible with agricultural activities to the south of Highway 26. In the other locations where there are no identifiable edges or buffers between the analysis area and the nearby agricultural activities, the proposed urban uses would not be compatible with the agricultural activities that occur on farm land outside the UGB. However mitigation measures could reduce conflicts between urban uses inside the UGB and resource uses outside the UGB. Overall the proposed urban uses are only marginally compatible with adjacent agricultural uses occurring on farm land outside the UGB.

Clear transition between urban and rural lands, using natural and built features to mark the transition

Highway 26 provides a built feature that marks a clear transition between urban and rural lands, for the southern portion of the analysis area. The tributary to Storey Creek is not significant enough to act as a transition between urban and rural lands. Even assuming NW West Union Road develops as an arterial roadway in the future, the road itself will not provide a clear transition area between future urban and rural uses for the land to the north. Additional buffers will need to be incorporated into the planning of the urban reserve analysis area to provide a clear transition from urban to rural uses. Any buffers that are incorporated into the planning study for the analysis area needs to consider the potential for making urban form connections to the land in the Shute Road Interchange urban reserve if it is not included in the UGB at the same time.

2040 Growth Concept

Contribution to the purposes of Centers

The Hillsboro Regional Center, approximately 6 miles from the Groveland Road analysis area, is 295 gross acres in size, serves all of western Washington County along with many rural areas outside of the urban growth boundary, and is the western terminus of the MAX Blue Line. It is linked to the analysis area by NW Helvetia Road/NE Brookwood Parkway/NW Evergreen Road/NE Jackson School Road/NE 5th Avenue. The Orenco Town Center, approximately 2.6 miles from the analysis area, is 235 gross acres in size, and primarily serves the surrounding transit-oriented development. Access to the analysis area is via NW Helvetia Road/NW Brookwood Parkway/NE Shute Road/NE Cornell Road. Currently there is no Tri-Met transit service between the two centers and the analysis area.

The City of Hillsboro, through the 2020 Vision and other initiatives, has identified the historic downtown as the heart of the Hillsboro community, serving as the primary civic and commercial center of the surrounding area. Despite recent investments in infrastructure, transit and civic resources, portions of the center have been inactive and stagnant. The City recently completed a Downtown Urban Renewal Plan, indicating a commitment to increased development and

revitalization of this important regional center, with higher density mixed use and a thriving unique character. Metro's State of the Centers Report, May 2011, indicates that currently the center has a much higher than average jobs to housing ratio, as well as a high number of people per acre, although it still maintains a small city feel through an active main street and grid street network. The Hillsboro Regional Center is considered a transit-oriented static market that may require catalyzing development opportunities, based on research completed by Metro's Development Center for the TOD Strategic Plan.

The Orenco Town Center functions as a local retail destination and medium –density housing location, resulting in a much more residential character than the Hillsboro Regional Center. According to the State of the Centers report, it has low jobs to housing ratio, but a much higher than average number of dwelling units per acre. The center was built as a transit-oriented development surrounding Orenco Station, and has some mixed use residential and commercial. The Orenco Town Center is considered an emerging transit center that may be ripe for increased investment and development, based on research completed by Metro's Development Center for the TOD Strategic Plan.

The Groveland Road analysis area is being evaluated for large-site industrial use, consistent with the city's vision for the area. Urbanization of the Groveland Road analysis area will not contribute to the vision and purpose of either the Hillsboro Regional Center or the Orenco Town Center. The distance of the analysis area from both centers reduces any impact that large-site industrial development might have, especially for enticing new housing opportunities to the Hillsboro Regional Center as there is other underutilized land located between the two areas. Even though the employment uses identified for the analysis area are not in direct conflict with the types of employment needs that the Orenco Town Center may need to help balance jobs to housing, the presence of a large site industrial user will not directly entice new employment opportunities in a town center over 2.6 miles away. However, the creation of traded sector jobs in the analysis area would have a general positive effect on the local economy.

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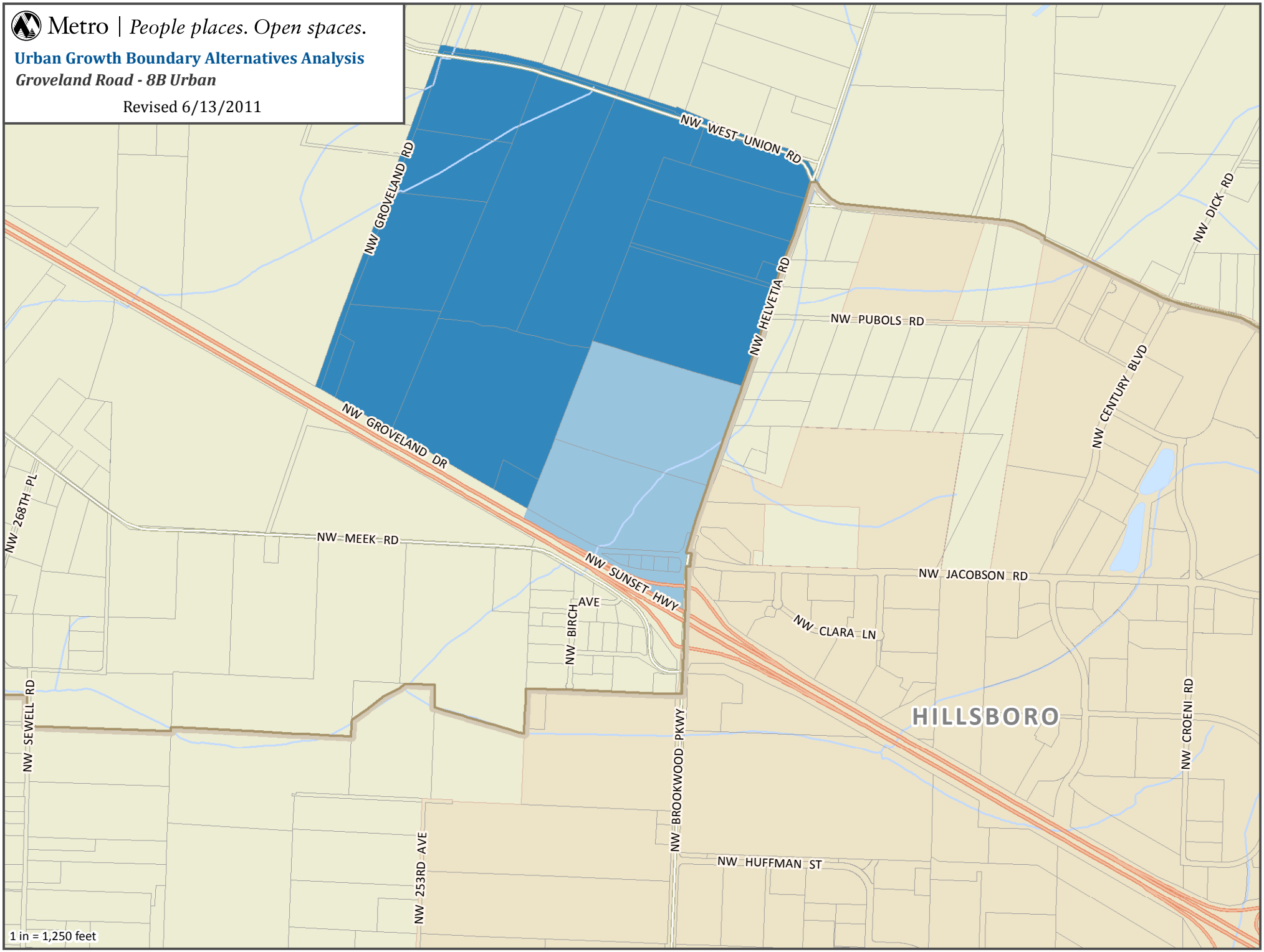
Urban Growth Boundary Alternatives Analysis

Groveland Road - 8B Urban

Revised 6/13/2011



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Urban Growth Boundary Alternatives Analysis

Groveland Road - 8B Urban

Revised 6/13/2011

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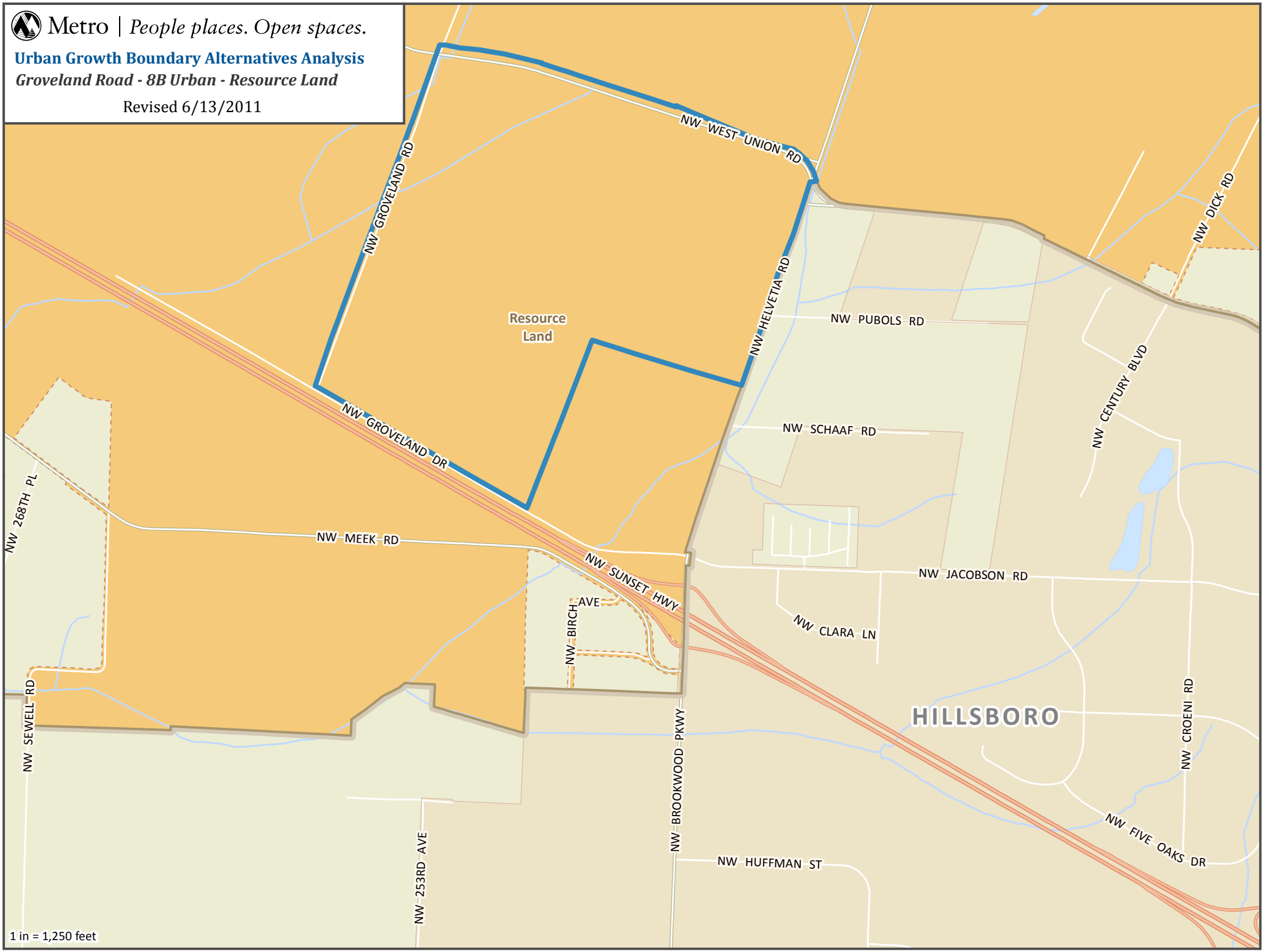
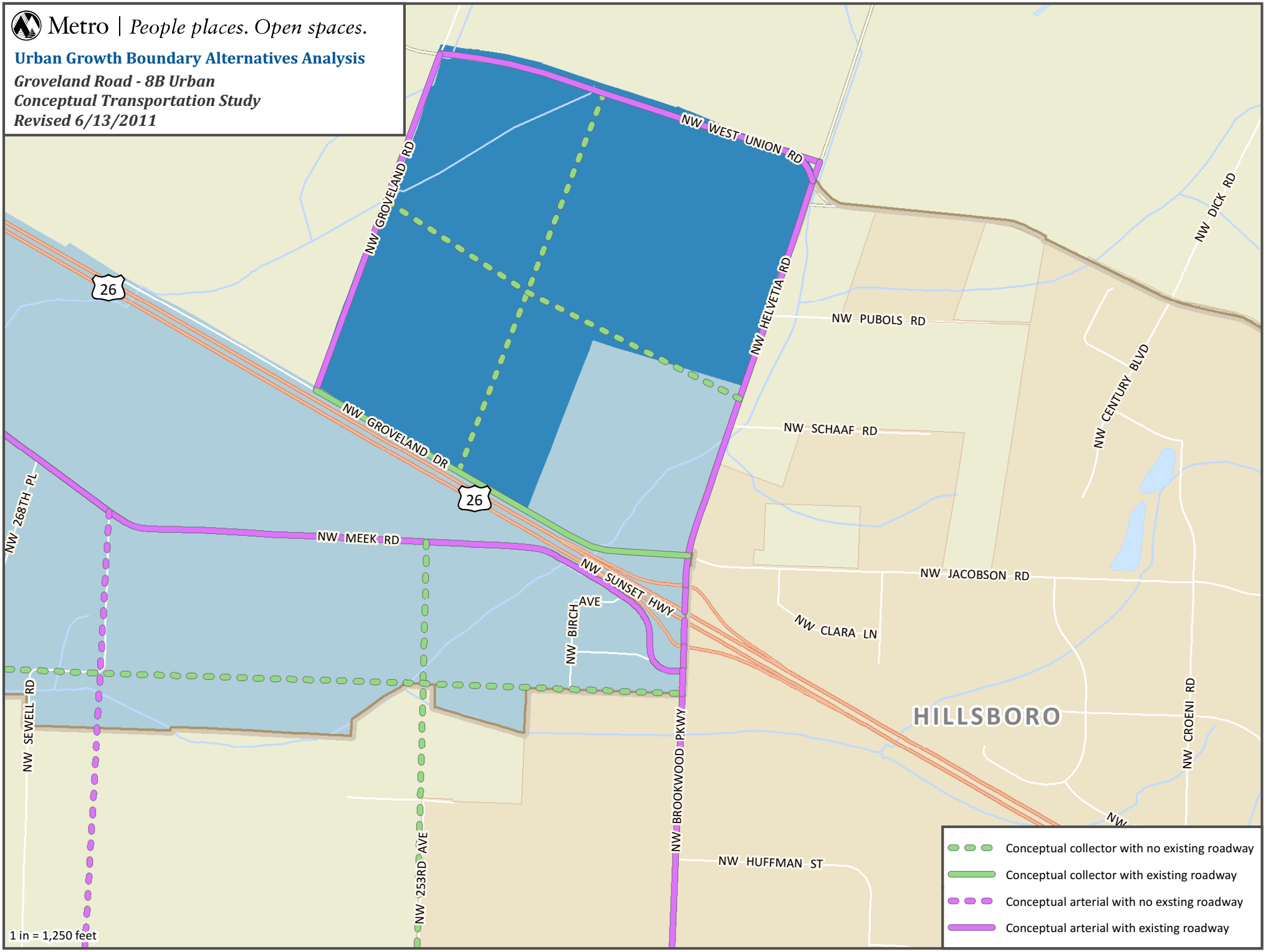
Urban Growth Boundary Alternatives Analysis

Groveland Road - 8B Urban - Resource Land

Revised 6/13/2011





Attachment 3

Public Facilities and Services Cost Summary

	Sanitary Sewer	*Water Distribution*	*Storm Sewer*	*Transportation*	*Parks*	*Schools*
1C - East Gresham	$15,272,000	$3,240,000	$2,858,500	$260,050,000	$43,560,000	$60,000,000
3D - Maplelane	$8,028,000	$6,600,000	$6,914,500	$142,760,000	$33,320,000	$20,000,000
3G - Beaver Creek Bluffs	$4,116,000	$3,290,000	$2,587,500	$64,140,000	$5,960,000	$250,000
4D - Norwood	$13,170,000	$5,990,000	$6,303,000	$80,580,000	$35,920,000	$15,000,000
4E - I-5 East	$15,852,000	$3,605,000	$2,652,500	$124,290,000	$70,920,000	$20,000,000
4F/G - Elligsen	$27,886,000	$12,150,000	$14,064,000	$238,260,000	$81,160,000	$20,000,000
4H - Advance	$9,788,000	$4,570,000	$4,513,000	$107,520,000	$25,600,000	$20,000,000
5B - Sherwood West	$18,760,000	$8,935,000	$8,949,500	$145,460,000	$69,240,000	$80,000,000
5D - Sherwood South	$9,988,000	$4,925,000	$4,483,500	$178,120,000	$35,000,000	$300,000
5F - Tonquin	$592,000	$630,000	$476,500	$75,840,000	-	-
5G - Grahams Ferry	$3,188,000	$2,510,000	$1,906,000	$127,780,000	$15,360,000	$300,000
6A - South Hillsboro	$24,552,000	$5,230,000	$4,357,500	$329,340,000	$59,840,000	$70,000,000
6B - South Cooper Mountain	$14,683,037	$10,241,300	n/a*	$144,470,000	$2,000,000	n/a*
6C - Roy Rogers West	$9,570,000	$4,670,000	$4,224,500	$93,820,000	$13,680,000	$20,000,000
6C - Vandermost Road	n/a*	n/a*	n/a*	n/a*	n/a*	n/a*
7B - Forest Grove North	$2,848,000	$1,590,000	$1,429,500	$80,150,000	-	-
7B - Forest Grove North Purdin	$1,250,000	$1,250,000	n/a*	$47,190,000*	-	-
7C – Cornelius East	$347,415	$360,065	n/a*	n/a*	n/a*	n/a*
7D - Cornelius South	$9,320,000	$4,165,000	$4,431,000	$68,350,000	$6,800,000	$500,000
7E – Forest Grove South	$0 – 68,000*	$0 – 102,000*	$0 – 27,200*	$0 – 676,288*	-	-
8A - Hillsboro North	$6,835,000	$6,080,000	$6,210,500	$463,670,000	-	-
8A - Hillsboro North Jackson School	$2,506,000	$2,380,000	$2,786,500	$86,540,000	-	-
8B - Shute Road IC	$554,000	$525,000	$476,500	n/a*	-	-
8B - Groveland Road*	$2,795,000	$2,655,000	$3,069,000	$153,470,000	-	-

*See analysis summary report for more details.

Attachment 4

Transportation Analysis Summary (ODOT HERS ANALYSIS)

Analysis Area	*Existing lane miles*	*Conceptual lane miles*	*Lanes miles to be built*	*Square miles*	*Total cost (in millions)*	*Cost/square mile (in millions)*	*Cost/added lane mile (in millions)*	*Cost/system lane mile (in millions)*	*Distance to bus (in miles)*	*Distance to LRT (in miles)*
1C - East Gresham	12.03	34.79	22.76	1.34	$260.05	$194.07	$11.43	$7.47	0	2.44
3D - Maplelane	7.54	18.87	11.33	0.9	$142.76	$158.62	$12.60	$7.57	0.53	6.01
3G - Beaver Creek Bluffs	3.88	8.6	4.72	0.35	$64.14	$183.26	$13.59	$7.46	0.74	6.63
4D - Norwood	2.2	8.4	6.2	0.5	$80.58	$153.20	$13.01	$9.58	1.41	9.92
4E - I-5 East	8.2	19.1	10.8	1.3	$124.29	$93.81	$11.46	$6.52	0.25	8.68
4F/G - Elligsen	7.9	28.6	20.7	1.4	$238.26	$171.17	$11.49	$8.32	0.19	9.98
4H - Advance	6.35	15.64	9.29	0.42	$107.52	$256.01	$11.57	$6.87	1.53	1.53
5B - Sherwood West	5.23	18.01	12.78	0.77	$145.46	$188.90	$11.38	$8.08	1.08	3.53
5D - Sherwood South	4.58	18.63	14.05	0.7	$178.12	$254.45	$12.68	$9.56	0.9	2.49
5F - Tonquin	2.23	7.94	5.71	0.19	$75.84	$399.16	$13.28	$9.55	0.24	0.24
5G - Grahams Ferry	4.28	12.6	8.32	0.32	$127.78	$399.33	$15.36	$10.14	0.18	0.18
6A - South Hillsboro	7.19	31.26	24.07	1.66	$329.34	$198.40	$13.68	$10.54	0.01	1.75
6B - South Cooper Mountain	5.1	17.1	12.6	0.8	$144.47	$170.57	$11.47	$8.16	0.6	4.4
6C - Roy Rogers West	5.06	13.09	8.03	0.4	$93.82	$234.56	$11.68	$7.17	1.35	3
6C – Vandermost Road	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.43	5.9
7B - Forest Grove North	2.73	9.23	6.5	0.22	$80.15	$364.31	$12.33	$8.68	1.2	5.73
7B - Forest Grove North Purdin	2.7	6.9	4.1	0.2	$47.19	$263.63	$11.51	$6.84	1.8	6.5
7C – Cornelius East	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	2.02
7D - Cornelius South	2.75	8.78	6.03	0.33	$68.35	$207.11	$11.33	$7.78	0.03	2.02
7E – Forest Grove South	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.95	6.45
8A - Hillsboro North	10.78	49.01	38.23	1.62	$463.67	$286.22	$12.13	$9.46	0	1.8
8A – Hillsboro North Jackson School	3.7	10.7	7.0	0.6	$86.54	$134.84	$12.31	$8.07	1.0	2.6
8B - Shute Rd. Interchange	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.1	2.5
8B – Groveland Road	6.6	19.7	13.1	0.5	$153.47	$302.38	$11.73	$7.79	1.1	2.5

Attachment 5
Environmental Analysis Summary

	Total (ac.)	*Wetlands (ac.)*	*Floodplain (ac.)*	*Total Habitat (ac.)*	*Slopes >25% (ac.)*	*Fully Constrained (ac.)*	*Partially Constrained (ac.)*
1C - East Gresham	857	0	0	117	20	104	65
3D - Maplelane	573	2	0	181	48	153	89
3G - Beaver Creek Bluffs	227	2	0	83	32	54	49
4D - Norwood	337	0	0	46	9	19	32
4E - I-5 East	848	5	0	281	50	96	194
4F/G - Elligsen	890	6	0	203	42	109	145
4H - Advance	317	0	0	73	18	103	32
5B - Sherwood West	495	0	0.	45	23	33	31
5D - Sherwood South	447	5	45	204	46	118	113
5F - Tonquin	120	13	13	36	27	60	3
5G - Grahams Ferry	203	45	37	115	0	54	66
6A - Hillsboro South	1,063	36	38	132	3	108	76
6B - South Cooper Mountain	543	8	0	165	0	74	108
6C - Roy Rogers West	256	0	0	43	6	18	32
6C - Vandermost Road	138	0	0	62	0	13	49
7B - Forest Grove North	216	4	36	39	0	31	10
7B - Forest Grove North Purdin	114	0	0	7	0	7	0
7C - Cornelius East	62	4	2	4	0	6	0
7D - Cornelius South	210	0	0	21	1	3	18
7E - Forest Grove South	37	0	0	2	0	1	1
8A - Hillsboro North	950	25	57	137	2	118	65
8A - Hillsboro North Jackson School	458	7	42	54	0	53	1
8B - Shute Road Interchange	85	0	23	24	0	17	11
8B - Groveland Road	352	0	0	62	0	36	60

Attachment 6
TriMet Estimated Transit Service Cost

Analysis Area	*Annual Service Cost*	*Number of Additional Buses Required*	*Bus Capital Cost*	*Estimated Headway*
1C - East Gresham	24,630	1	400,000	Hourly (peak weekday only)
3D - Maplelane	110,834	1	400,000	Hourly (weekday only)
3G - Beaver Creek Bluffs	Area not serviceable			
4D – Norwood **4E – I-5 East** **4F/G – Elligsen** **4H - Advance**	73,889	1	400,000	Hourly (weekday only)
5B - Sherwood West **5D – Sherwood South**	221,668	1	400,000	Hourly (weekday only)
5F - Tonquin	Area not serviceable			
5G - Grahams Ferry	Area not serviceable			
6A - South Hillsboro	532,004	3	1,200,000	½ hour (peak weekday), hourly (off peak weekday, weekend)
6C - Roy Rogers West **6C – Vandermost Road**	Area not serviceable			
6B – South Cooper Mt.	246,298	3	1,200,000	½ hour (peak weekday), hourly (off peak weekday, weekend)
7B - Forest Grove North **7B – Forest Grove North Purdin**	Area not serviceable			
7C – Cornelius East **7D - Cornelius South**	Area not serviceable			
8A - Hillsboro North **8B – Schute Road/Groveland Road**	147,779	3	1,200,000	½ hour (weekday only)

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Metro
600 NE Grand Ave.
Portland, OR 97232-2736

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