# BEAVER CREEK BLUFFS URBAN RESERVE

| | |
|---|---|
| Total Reserve Area | 228 acres |
| Total Tax Lot Area in Reserve (without Right-of-Way) | 224 acres |
| Gross Vacant Buildable Area | 142 acres |
| **Net Vacant Buildable Area** | **106 acres** |

The Beaver Creek Bluffs Urban Reserve is located along the bluffs south of Oregon City and is comprised of three disconnected "sub-areas". The western sub-area (approximately 163 acres) lies on both sides of S Central Point Road, above Beaver Creek to the south and the UGB to the north. This western sub-area is bisected by multiple powerline easements. The central sub-area (approximately 43 acres) sits between Mud Creek and a tributary of Beaver Creek, and is bounded by S Leland Road to the east, bluffs to the south and west, and the UGB to the north. A single three-acre tax lot separated from the rest of the central sub-area is located at the end of S McCord Road. The eastern sub-area (approximately 22 acres) is made up of one tax lot at the southwest end of S Century Drive and three other tax lots at the southwest end of Nobel Road. Of the roughly 228 total acres within these three sub-areas, 31 are constrained by steep slopes of 25 percent or greater. The remainder of the reserve is generally flat.

## GOAL 14 BOUNDARY LOCATION FACTORS

### Factor 1: Efficient accommodation of identified land needs

The Beaver Creek Bluffs Urban Reserve is comprised of 43 tax lots, which have a combined area of approximately 224 acres within the reserve. According to aerial images, most of the smaller tax lots have rural residential uses or other structures that are at least 20 years old, and some of the larger tax lots do appear from aerial images to have minor agricultural activities. As noted above, the entire reserve contains 142 gross vacant buildable acres and 106 net vacant buildable acres.

This reserve is not a cohesive unit of land, but rather is composed of the three disconnected sub-areas described above. The eastern sub-area contains four tax lots that are entirely within the reserve and range in size from three to eight acres each. The central sub-area contains at least a portion of 17 tax lots, with the in-reserve portion of all but one of these tax lots less than five acres in area. The reserve's remaining tax lots in the western sub-area are nearly entirely within the reserve and range from less than one acre in area to nearly 40 acres. Twenty-six of the reserve's tax lots have improvements, with a median assessed value of those tax lots' improvements being nearly $307,000; 17 of the tax lots have improvements assessed at more than $250,000. There are three sets of powerlines running through the western sub-area and crossing through six tax lots.

Several streets within the UGB stub or otherwise connect to the reserve, including S Central Point Road, Kolar Drive, S White Lane, Cypresswood Street, S Century Drive, and Nobel Road. The nearest transit stop and employment areas to the reserve are about a mile from the eastern sub-area. The nearest highway, Highway 213, is more than a mile away and the nearest interstate, I-205, is several miles away. Wesley Lynn Park is approximately a quarter mile from the central sub-area.

The Mahonia Land Trust Conservancy owns a large parcel immediately adjacent to the eastern edge of the western sub-area.

Given the relatively small size of the three sub-areas, their location on a flatter "bench" at the top edge of a steep-sloped area, their proximity of parks and natural areas and distance from highways, and their location adjacent to existing residential development and street stubs, this reserve is considered able to efficiently accommodate a residential land need, but not an employment land need.

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

***Water Services***

With regard to water services, the Beaver Creek Bluffs Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

The City of Oregon City serves lands within their corporate boundary. Lands within the jurisdiction of Clackamas County are served by Clackamas River Water (CRW). Both Oregon City and the CRW South System receive water from the South Fork Water Board (SFWB). SFWB's water treatment process includes flocculation, sedimentation, filtration, and chlorination of raw water from the Clackamas River to remove harmful bacteria. There are currently no known major treatment system deficiencies.

The existing city and CRW water distribution facilities are understood to have capacity to serve areas already inside the UGB. Under existing conditions, the Boynton, Henrici, and Mountainview reservoirs have a combined storage surplus of 5.89 MG and the Mountainview Pump Station has a surplus of 3,409 GPM. According to the Oregon City Master Plan, the existing Oregon City distribution system performs adequately, with fire flow deficiencies generally isolated to small diameter or dead-end pipes. There are plans to construct a backbone connecting the South System to the North System and the CRW water treatment plant in the future.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

CRW has done planning for service to the area of the Beaver Creek Bluffs Urban Reserve, and most the reserve is in CRW's service area. However, CRW will not likely be the service provider once the reserve is annexed to a city (i.e., Oregon City) and urbanized. Rather, when Oregon City annexes the reserve, the city will likely take ownership of any water related infrastructure within the area, except potentially for facilities that are needed to go beyond the annexed area, such as large-scale transmission lines. Accordingly, CRW, like many water service providers, may be cautious about investing in improvements for currently rural areas that may one day be annexed to cities. While there is some surplus storage and pumping capacity that could be available to serve

urban development of the reserve, once annexed to the city, that surplus is likely insufficient and additional storage and pumping facilities may be necessary. The existing distribution system, however, may be adequate to serve development of the reserve, with fire flow deficiencies generally isolated to small diameter or dead-end pipes.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

As noted above, there are distribution networks in place for the wider area that are expected to be able to serve the reserve without significant upgrades; however, it is likely that Oregon City will need to provide new facilities for storage and pumping.

*d. Estimated water service-related costs for reserve development*

| Water piping, pumping, and storage costs | Cost |
|---|---|
| **10-inch pipe** | $0.91 million |
| **12-inch pipe** | $0 |
| **16-inch pipe** | $0 |
| **Pumping** | $4.06 million |
| **Storage** | $0.15 million |
| **Total:** | **$5.12 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$2,418** |

### *Sanitary Sewer Services*

With regard to sanitary sewer services, the Beaver Creek Bluffs Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Oregon City provides sanitary sewer service to properties within its corporate limits, as well as to some properties near the reserve that are already in the UGB but still in unincorporated Clackamas County. Wastewater flows to the Tri-City Sewer District (TCSD) trunks, interceptors, and, eventually, the Tri-City Water Resource Recovery Facility (WRRF), all of which are owned and operated by Water Environment Services (WES).

Some surcharging, ranging from minor to severe, exists throughout the existing city collection system. There are also known capacity deficiencies in several locations in the WES system. Two of the 12 existing pump stations (Settler's Point and Cook Street) have existing peak flows that exceed their firm capacity. The Parish Road Pump Station has a total capacity of 760 GPM and a future demand of 535 GPM, leaving a surplus of 225

GPM. The Nobel Ridge Pump Station has a total capacity of 140 GPM and a future demand of 55 GPM, leaving a surplus of 85 GPM. There are several locations within the existing system that have predicted flooding under future conditions.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Additional growth beyond the current UGB is going to challenge the existing sanitary sewer system due to the existing deficiencies and limited capacity of major treatment and conveyance facilities. While the Parish Road Pump Station and the Nobel Ridge Pump Station have capacity surpluses, these surpluses are likely not significant enough to serve urban development of the reserve.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Development of the reserve is expected to contribute to further surcharging. New pumping facilities will also likely be needed.

*d. Estimated sanitary sewer service-related costs for reserve development*

| Sanitary sewer piping and pumping costs | Cost |
|---|---|
| **10-inch pipe** | $3.93 million |
| **12-inch pipe** | $0 |
| **15-inch pipe** | $0 |
| **Pump station** | $1.26 million |
| **Force mains** | $1.61 million |
| **Total:** | **$6.8 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$3,216** |

### *Stormwater Management Services*

With regard to stormwater management services, the Beaver Creek Bluffs Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

The City of Oregon City's 2019 Stormwater Master Plan identifies certain system issues related to flooding, infrastructure, maintenance, or natural channels. An undersized conveyance system in the vicinity of Central Point Road is further complicated by a series of irregular flow patterns and structure connections. There are concerns about the ongoing capacity of the Coffee Creek area near Hazelwood Drive. The Plan also identifies a need for an upsized conveyance system in the South End Basin to support future development and expansion of South End Road. Capital improvement projects are identified to address these issues.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

The system issues noted above could be exacerbated if future Beaver Creek Bluffs urban development is connected to that system. However, capital improvement projects are planned for that existing system and stormwater from Beaver Creek Bluffs urban development may be conveyed, treated, and disposed of within the reserve itself; therefore, it is not anticipated that existing facilities would necessarily be utilized or further challenged.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Stormwater will likely be detained and treated within the reserve and, based on topography, outfall directly to Mud Creek and tributaries of Beaver Creek; therefore, no impacts to the existing stormwater infrastructure in the UGB are anticipated.

*d. Estimated stormwater service-related costs for reserve development*

| Stormwater piping and water quality/detention | Cost |
|---|---|
| **18-inch pipe** | $3.2 million |
| **24-inch pipe** | $1.74 million |
| **30-inch pipe** | $0 |
| **Water quality/dentition** | $1.13 million |
| **Total:** | **$6.07 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$2,870** |

### *Transportation Services*

With regard to transportation services, the Beaver Creek Bluffs Urban Reserve is given a "low-medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(e) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Figure 4.36 in Chapter 4 of the 2023 Regional Transportation Plan (RTP) displays 2020 home-based vehicle miles traveled (VMT) per capita by Metro transportation analysis zone, with average VMT per capita considered 11.32. According to Figure 4.36 in Chapter 4, areas in the UGB adjacent to the Beaver Creek Bluffs Urban Reserve had a home-based VMT per capita in 2020 that was significantly above the regional average.

Metro's adopted 2040 Growth Concept Map designates a regional center in the adjacent City of Oregon City. Regional centers are generally meant to: serve populations of hundreds of thousands of people; surround high-quality transit service and multi-modal

street networks; and offer larger commercial uses, healthcare facilities, local government services, and public amenities. The Oregon City Regional Center aligns with the 2040 Growth Concept Map designation.

The City of Oregon City's plans for the Oregon City Regional Center include mixed-use development, enhancements to the main street, and the creation of new open spaces that will provide direct connections to the river. The regional center is also home to Willamette Falls and the Willamette Falls Legacy Project, a public/private partnership working to connect the Falls to Downtown Oregon City through the development of housing, public spaces, habitat restoration, education, and employment opportunities. The regional center currently has a drug store, restaurants, and other retail commercial uses, banks, medical/dental facilities, community centers, government offices, and auto-oriented uses. Metro's 2017 State of the Centers Atlas showed less than 400 people living in the regional center, as well as a low population density (5.2 people per acre), low total employees, and low dwelling unit density compared with other regional centers; in fact, the average population of all regional centers in 2017 was more than 6,000 people and the average population density was 22.8 people per acre. The city's vision to attract more housing and employees to the regional center will elevate it to the activity spectrum levels comparable to other regional centers in the region.

There are also employment uses, including industrial uses, grocery stores, and other commercial uses, as well as education and medical facilities, government offices, and parks, closer to the reserve in the Red Soils area near the intersection of Beavercreek Road and Molalla Avenue and between Highway 213 and Beavercreek Road.

Growth in and near the regional center and other employment areas will not necessarily cause a significant increase in home-based VMT per capita in the future, as area residents will be able to access some daily needs and find employment opportunities with relatively short trips. The transit service and bike and pedestrian facilities that serve these areas, described further below, can also help to ensure that additional growth nearby does not adversely impact home-based VMT per capita.

Four TriMet bus lines serve Oregon City, all of which generally focus on the regional center and the central portion of the city along Molalla Avenue. Service is provided to Clackamas Community College and the employment areas near the intersection of Beavercreek Road and Molalla Avenue and between Highway 213 and Beavercreek Road; however, large portions of the City, including a roughly three-square-mile residential area in the UGB north of the reserve, are not served by TriMet. Figure 4.3 in Chapter of the 2023 RTP indicates that there are gaps in planned frequent regional transit service network along certain routes in the UGB near the reserve, including along Leland Road, S Meyers Road, and South End Road.

Oregon City has at least 29 miles of dedicated bike lanes and 3.5 miles of established bikeways, with most of them located in the "up-top" section (southern end) of the City. The Park Place neighborhood is also fairly well served and Highway 213 has dedicated

bike lanes. Most of the downtown streets are classified as "bike with caution" streets and the South End neighborhood has minimal bike facilities. There are dedicated bike facilities along most of Beavercreek Road and Molalla Avenue, as well as on a few streets in the UGB nearer to the reserve, including Frontier Parkway, S Meyers Road, and South End Road. Those existing bike facilities on Beavercreek Road, Molalla Avenue, S Meyers Road, South End Road, and others in the City are identified as part of the regional bike network on Figure 4.5 in Chapter 4 of the 2023 RTP. However, the figure also identifies gaps in the planned regional network in areas near the reserve and areas closer to the regional center.

The regional center is well served by sidewalks, as are employment areas near the intersection of Beavercreek Road and Molalla Avenue and between Highway 213 and Beavercreek Road. Much of the residential areas in the UGB near to the reserve also have sidewalks. However, there are a number of pockets of older subdivisions that do not yet have sidewalks. Of the roads in the UGB near the reserve, S Finnegans Way, S Impala Lane, South End Road, and Wheeler Farm Road have sections lacking complete sidewalks on both sides. Chapter 4, Figure 4.4 of the 2023 RTP identifies gaps in the planned regional pedestrian network along S Central Point Road, Leland Road, and South End Road. There are also gaps in the planned regional trail network in the UGB near the reserve, as indicated in Chapter 4, Figure 4.6 of the 2023 RTP.

Figure 4.14 in Chapter of the 2023 RTP identifies Molalla Avenue inside the UGB as a high injury corridor.

The sections of Highway 99E, Highway 213, and I-5 in Oregon City are identified as a throughways Chapter 4, Figure 4.7 of the 2023 RTP. Figure 4.8 of that chapter indicates that these highway sections currently meet travel speed reliability performance thresholds, with no more than four hours per day when travel speeds fall below the identified minimum speed. RTP models indicate this reliability will continue at least to the year 2045.

### *b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Highway 213 is the nearest RTP-designated throughway to the reserve, but is more than one mile away. As noted above, the section of the highway in the City currently meets travel speed reliability performance thresholds. Considering the distance of the reserve to this highway, and the relatively small size of the reserve, development of the reserve is not expected to jeopardize the throughway reliability of the highway.

There is currently no TriMet bus service to the reserve. The nearest stop is on Molalla Avenue, roughly one mile from the eastern sub-area of the reserve; the nearest stop to the western sub-area is nearly two miles away on Warner Milne Road.

There are no existing dedicated bike facilities on roads adjacent to the reserve. The closest bike lanes to any of the reserve's sub-areas are on Frontier Parkway, Leland Road, S Meyers Road, and South End Road, each generally about a quarter of a mile from

a reserve sub-area. Central Point Road has been classified as a "bike with caution" street.

Many of the local residential streets stubbing to the reserve have sidewalks, including Cypresswood Street, Derringer Drive, Kolar Drive, Myrtlewood Way, Nobel Road, and Parrish Road. White Lane, stubbing to the western sub-area, appears to have sidewalks only on one side. However, there are gaps in the pedestrian connections between the adjoining residential neighborhoods and other areas of the City.

It was noted in response to Factor 1 that the reserve is not likely to be able to efficiently accommodate an employment land need, but could support a small residential land need. However, the regional center is approximately three miles to the reserve via either S Central Point Road or S Leland Road, and then by S Linn Avenue and the eastern sub-area is roughly a mile from the commercial uses on Molalla Avenue. Considering the distance between the reserve and areas where future residents could access daily services and employment opportunities, and considering the lack of direct transit service and connecting bike facilities, it is likely that future residents will rely primarily on private motor vehicle transportation.

### *c. Impacts to existing facilities that serve nearby areas already inside the UGB*

S Central Point Road, S Century Drive, Leland Road, S McCord Road, Molalla Avenue, Myrtlewood Way, Nobel Road, and Orchard Grove Drive would be expected to see additional private vehicle traffic from development of the reserve. Existing bike and pedestrian facilities nearby would also be expected to see additional use.

As noted above, future residents of the reserve will likely rely primarily on private motor vehicle transportation to access their daily needs and employment opportunities. However, in part given the relatively small size of the reserve, it is not expected that development of the reserve would significantly increase home-based VMT per capita of the area. Considering the distance of the reserve to Highway 213, development of the reserve is also not expected to jeopardize this highway's throughway reliability. Any additional motor vehicle traffic on Molalla Avenue resulting from development of the reserve, however, may exacerbate its high-crash conditions.

### *d. Need for major transportation facility improvements and associated costs*

A preliminary analysis's illustration of road network improvements potentially needed to serve urban development of the reserve is included in a following map. A roughly 0.26-mile section of S Central Point Road and a 0.31-mile length of Parrish Road may need to be improved to urban collector standards to serve the western sub-area, including with acquisition of some additional right-of-way for each road. The needed Parrish Road improvements are considered half-street improvements in this analysis, as a portion of the relevant roadway section is already inside the UGB. A new collector, extending south from Parrish Road through the western sub-area and ultimately arcing west through the UGB to connect with S South End Road, may also be needed; the nearly

half-mile-long portion of this new collector's length within/adjacent to the reserve is figured in the costs below. Some of the transportation facility improvement costs will be higher than normal on a per-mile basis due in part to topography.

| Facilities | Cost |
|---|---|
| **Arterials, existing/improved full street** | $0 |
| **Arterials, existing/improved half street** | $0 |
| **Arterials, new** | $0 |
| **Collectors, existing/improved full street** | $6.99 million |
| **Collectors, existing/improved half street** | $7.78 million |
| **Collectors, new** | $23.41 million |
| **Total:** | **$38.18 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$18,043** |

*e. Provision of public transit service*

TriMet evaluated the reserve for providing transit service. Actual service will depend, in part, on the level of development in the reserve and in the corridors leading to it. Nonetheless, in TriMet's review of planned and conceptual roads in the reserve, and the dispersed natured of the reserve, they determined that transit service may not be supportable. There are few corridors into/around the reserve and on the adjacent lands that would be required to support transit service.

Prior to land being included in the UGB, a more detailed concept plan, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11, will be required. This concept plan process will develop more refined public facility and service needs and cost estimates.

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

### *Environmental consequences*

Approximately 327 feet of Mud Creek flows through a ravine on the edge of the eastern sub-area of the Beaver Creek Bluffs Urban Reserve. About 2,100 feet of an unnamed stream also flows south through the western sub-area; a 900-foot segment of this stream, including an associated 1.5-acre National Wetland Inventory wetland, is located on the flat portion of the sub-area above the bluff. Riparian and upland habitat are identified along both stream segments.

Urbanization may impact the stream, wetland, and upland habitat areas on the flatter portion of the western sub-area, but the remainder of the unnamed stream flows through a wooded sloped area and would be minimally impacted by urbanization of the western sub-area. Mud Creek and its associated habitat areas would be less impacted by urbanization, in part because the stream is located over 200 feet from the flat portion of the eastern sub-

area were development would likely occur. There are no currently identified streams or wetlands in or near the central sub-area.

Inclusion in the UGB will provide some increased protection for streams, habitat areas, and floodplains, but there may be some impacts. Overall, development of this urban reserve is considered to have comparatively low environmental consequences, particularly for the streams and wetlands described above. Additional environmental consideration, however, specifically regarding avoidance of conflict between urban development and regionally significant fish and wildlife habitat, is provided in the Metro Code Factors Analysis (Appendix 7A).

Considering the comparative environmental consequences of urbanization, the Beaver Creek Bluffs Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location sub-factor.

### *Social, energy, and economic consequences*

As noted above, this reserve is made up of three very small and disconnected sub-areas. Over half of the reserve is adjacent to existing urban residential subdivisions, with much of the remaining reserve's area adjacent or nearly adjacent to undeveloped urban land zoned largely for low density residential uses. The primary land use in this rural reserve is rural residential development, with the majority of tax lots already having improvements. Existing urban streets provide access to the reserve's tax lots. Urbanization of the reserve will not cause significant changes for current residents of the reserve or for the wider area. Indeed, the small sub-areas are, in some senses, already more urban than rural due to their existing development and proximity to urban development.

As detailed more fully in response to Factor 2, it is likely that future residents of the reserve will rely primarily on private motor vehicle transportation, which will have some energy consequences.

There are comparatively minimal agricultural activities occurring in this reserve and urbanization would result in a relatively small loss of farm-related economic activity.

This analysis finds that, in part because of the reserve's small buildable area, there would be comparatively low social, energy, and economic consequences from urbanization of this reserve. The Beaver Creek Bluffs Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location sub-factor.

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

All of the land outside of the UGB adjacent to the Beaver Creek Bluffs Urban Reserve has Goal 3 or 4 resource land zoning by Clackamas County for agricultural and forest activities, specifically with Exclusive Farm Use (EFU) or Timber (TBR) designations. There are significant slopes along almost the entire southern edge of the reserve's sub-areas; these slopes are generally forested, except

where abutting a powerline easement. Neighboring EFU-zoned land located between the western sub-area and Beaver Creek contains pockets of forest, some rural residences, and very limited agricultural activities consisting of largely of pastureland. Beaver Creek itself provides a natural boundary between a larger tract of EFU-zoned land to the south that also appears to include nursery operations. The majority of the TBR-zoned land adjacent to the reserve drops steeply to the south away from the reserve's sub-areas. Most of these TBR-zoned tax lots include rural residences and streams, including Mud and Canfield Creeks.

Due to the limited nature of the nearby agricultural and forest activities, the number of existing rural residences spread throughout the resource lands, the relatively small developable area of the reserve, and the natural barrier created by topography and water bodies, urban uses of the reserve would have high compatibility with the nearby agricultural and forest activities occurring on farm and forest land.

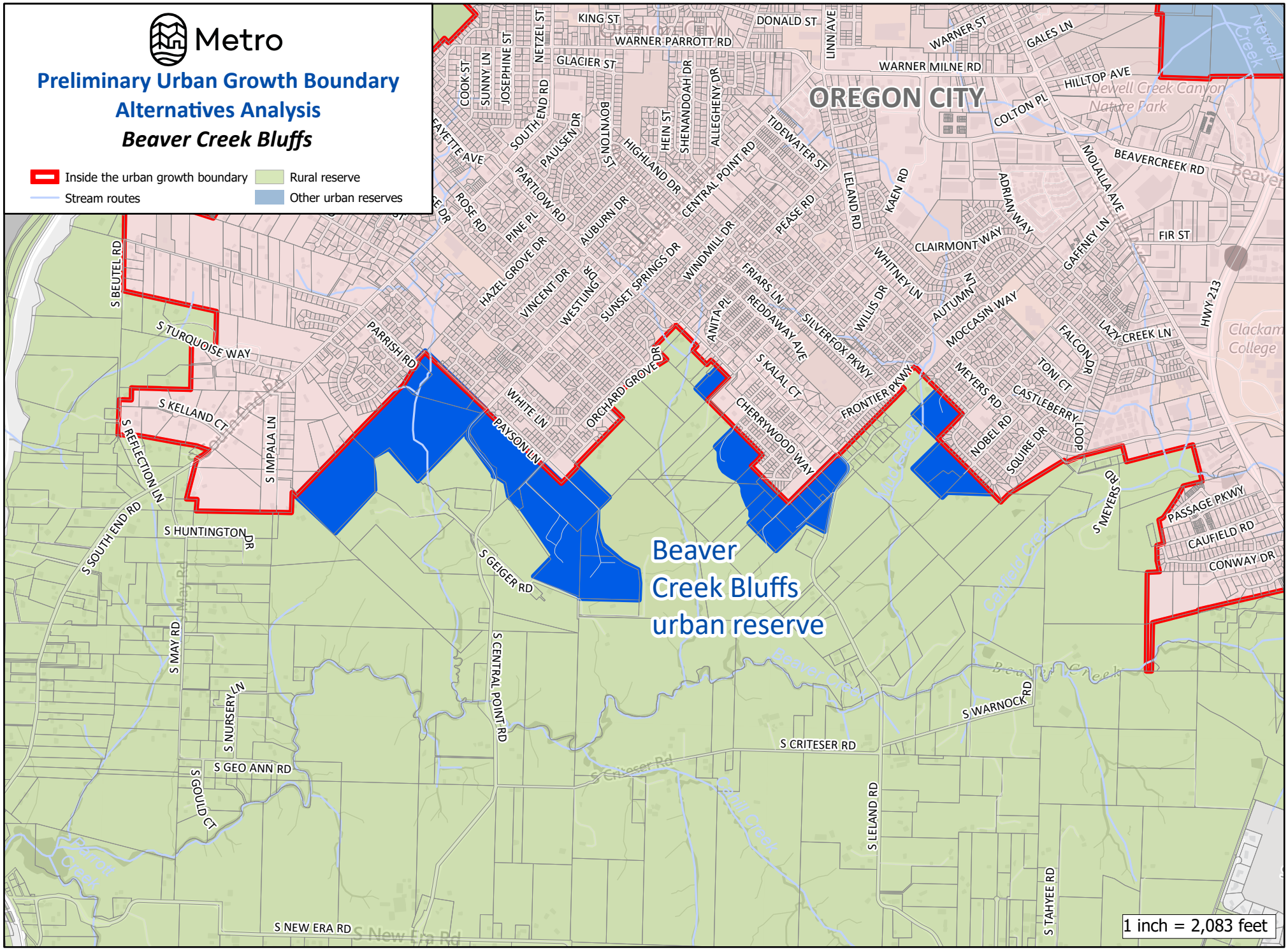
The Beaver Creek Bluffs Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location factor.

Metro

# Preliminary Urban Growth Boundary Alternatives Analysis

## *Beaver Creek Bluffs*

Inside the urban growth boundary
Stream routes
Rural reserve
Other urban reserves



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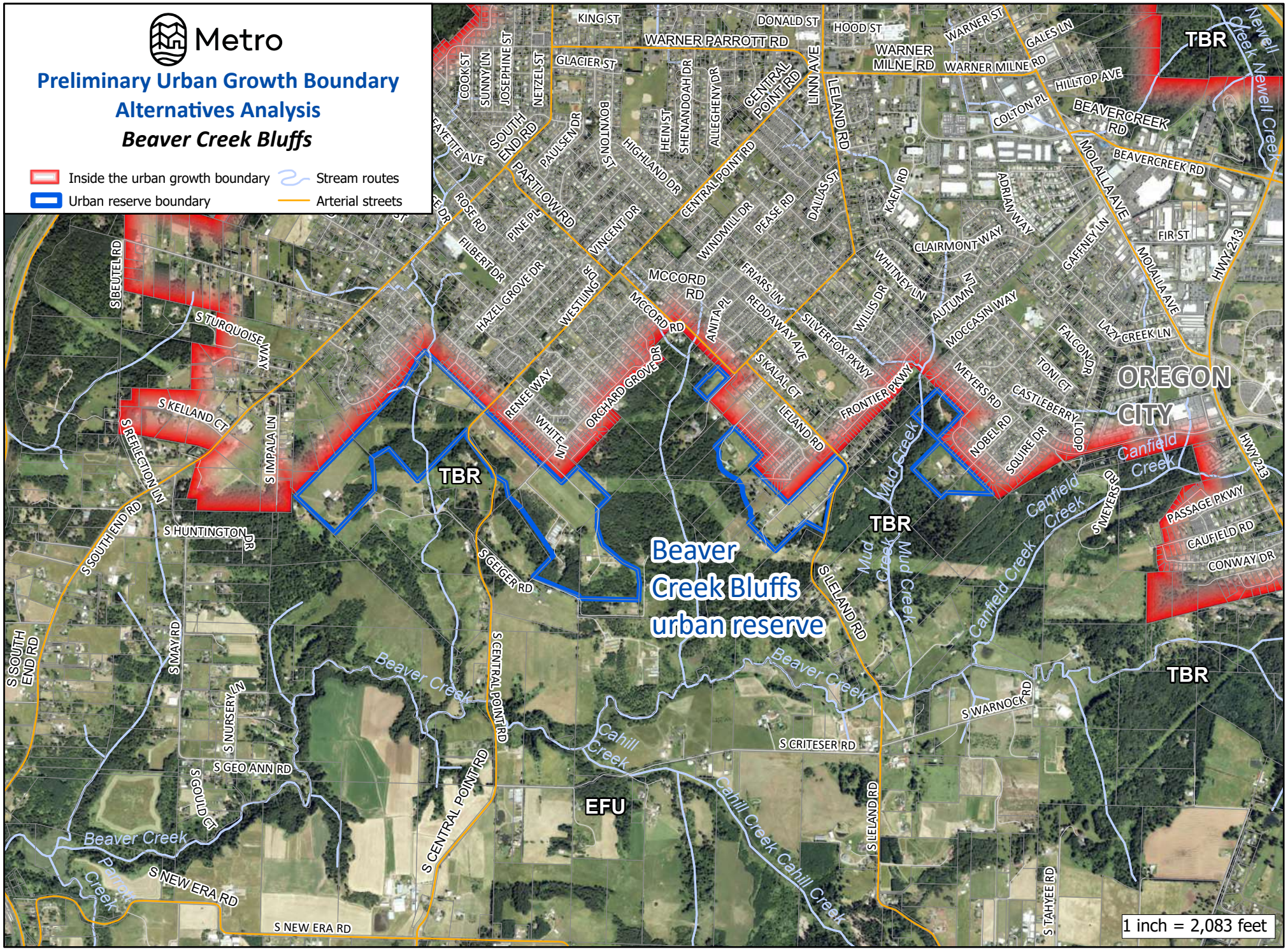
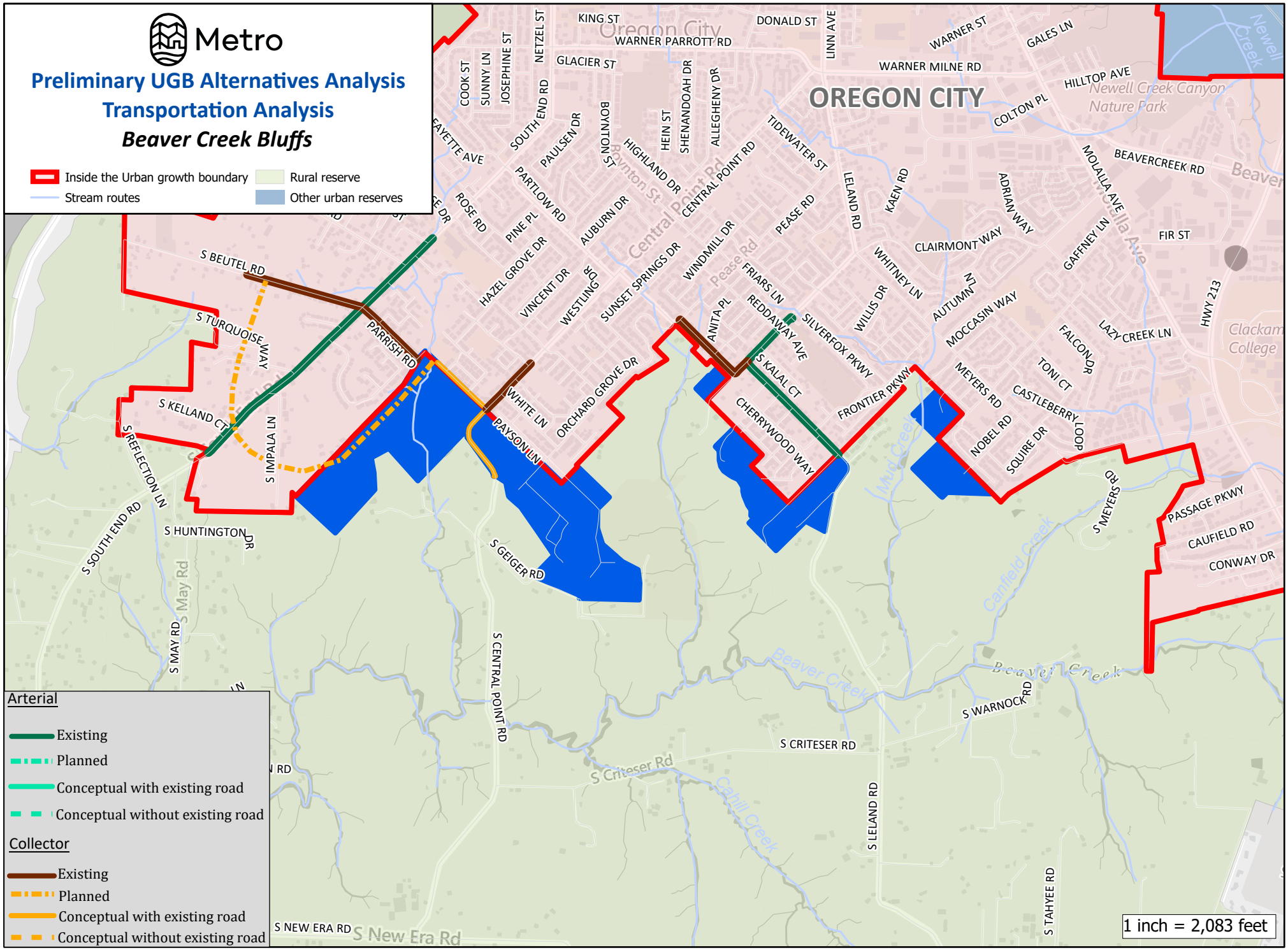
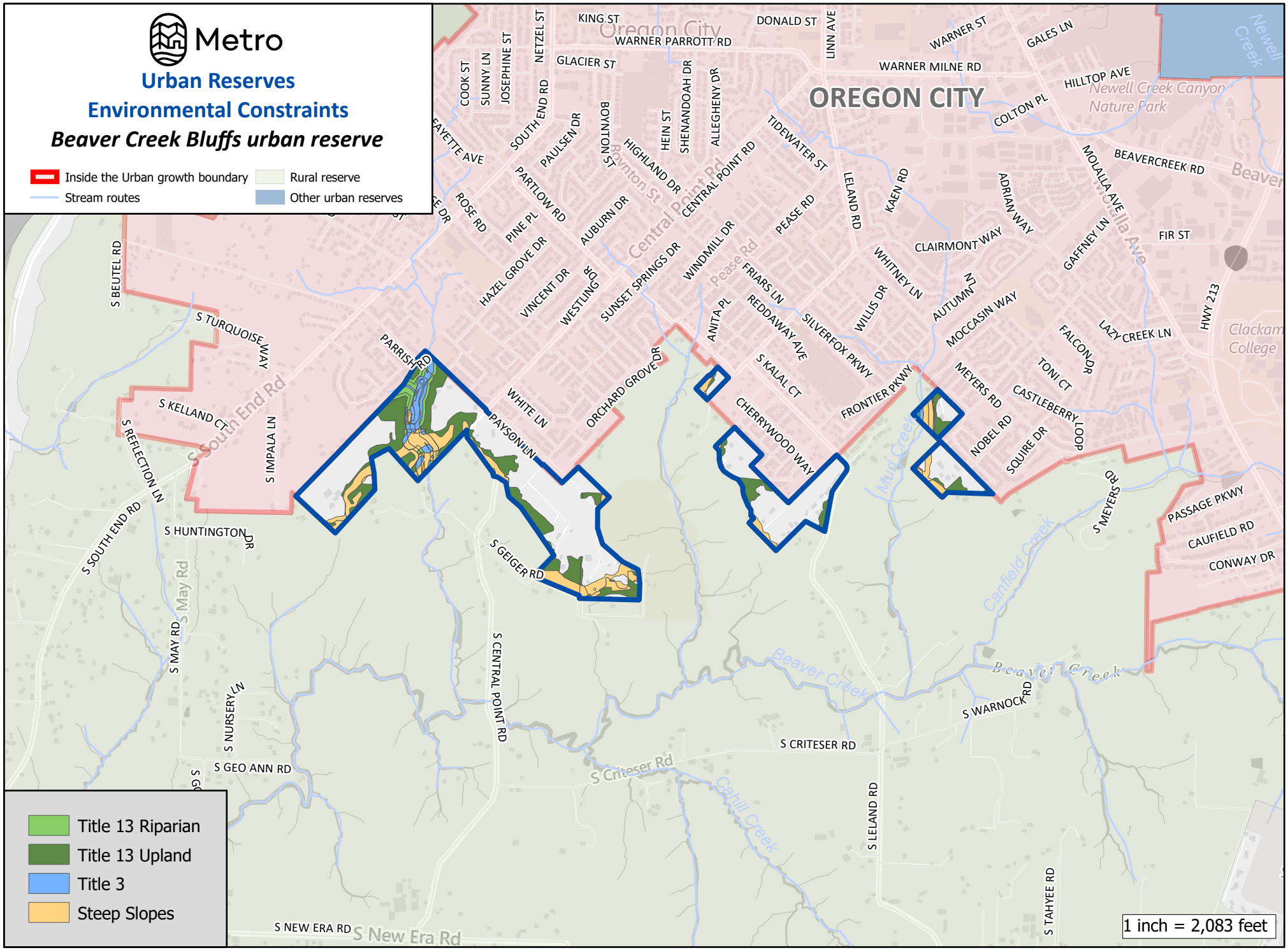
# Preliminary Urban Growth Boundary Alternatives Analysis

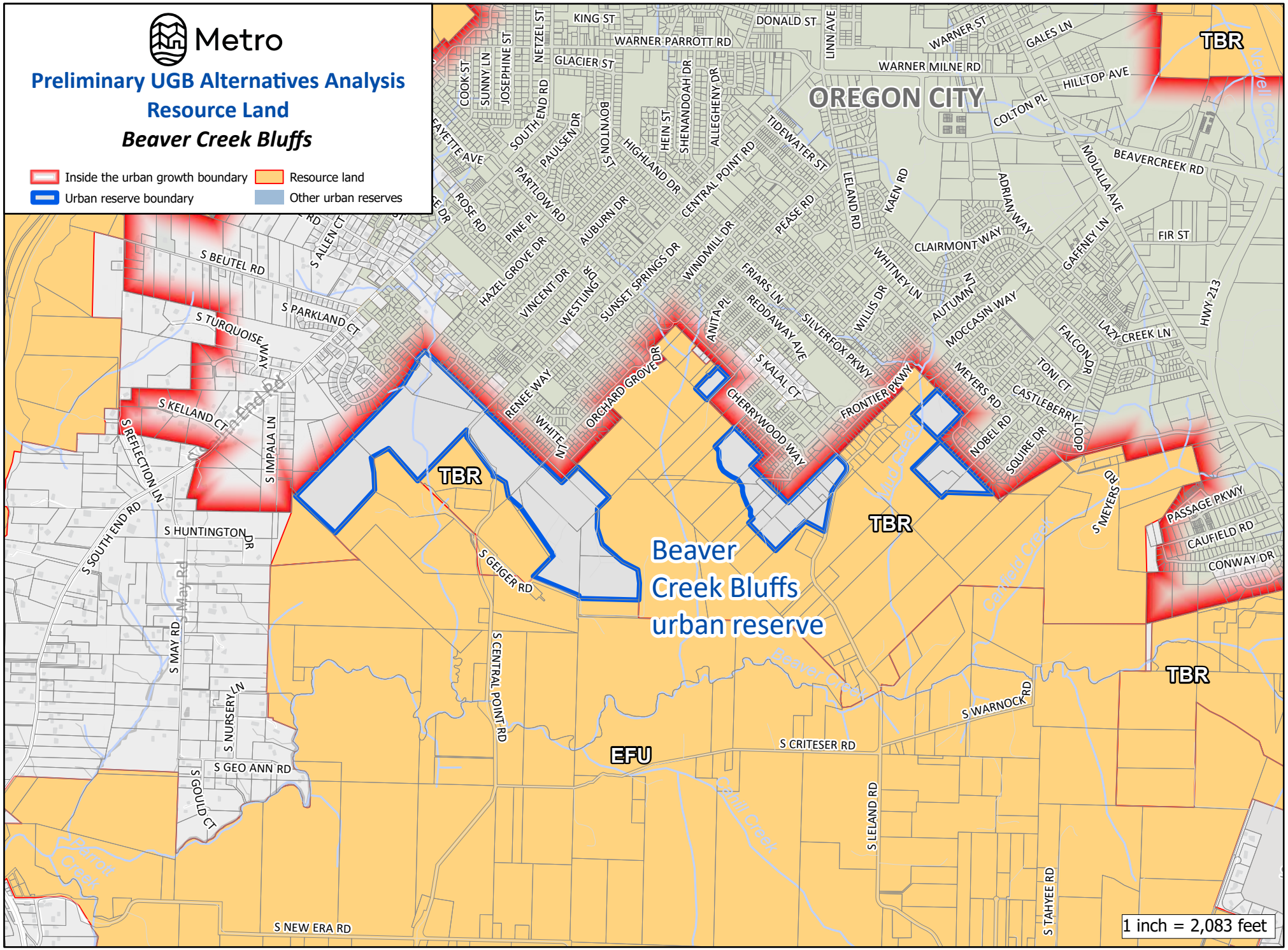
## *Beaver Creek Bluffs*

Inside the urban growth boundary
Urban reserve boundary
Stream routes
Arterial streets









## BENDEMEER URBAN RESERVE

| | |
|---|---|
| Total Reserve Area | 573 acres |
| Total Tax Lot Area in Reserve (without Right-of-Way) | 545 acres |
| Gross Vacant Buildable Area | 318 acres |
| **Net Vacant Buildable Area** | **237 acres** |

The Bendemeer Urban Reserve is north of NW West Union Road between NW Bendemeer Road and NW 185th Avenue. The UGB is the reserve's eastern and southern boundaries and rural reserves are to the west and north. Most of the adjacent land within the UGB is in the corporate limits of the City of Hillsboro, while the remainder is in unincorporated Washington County. Holcomb Creek and Holcomb Lake form a portion of the northern edge of the reserve. Access to the reserve is provided by NW West Union Road, NW Cornelius Pass Road, and NW 185th Avenue.

## GOAL 14 BOUNDARY LOCATION FACTORS

### Factor 1: Efficient accommodation of identified land needs

The Bendemeer Urban Reserve is comprised of 73 contiguous tax lots, all but four of which are entirely within the reserve. Of those tax lots entirely within the reserve, nearly 60 percent are less than two acres, more than 80 percent are less than five acres, four are larger than 40 acres, and one is nearly 120 acres. The four tax lots only partially within the reserve each have area within the reserve ranging from nearly four acres to 30 acres. The combined tax lot area for the whole reserve is approximately 545 acres. As noted above, the reserve contains 318 gross vacant buildable acres and 237 net vacant buildable acres.

The western portion of the reserve between NW Bendemeer Road and NW Cornelius Pass Road is developed with rural residences on smaller wooded tax lots, though aerial imagery indicates a few tax lots in this area are engaged in agricultural activity. The area between NW Cornelius Pass Road and NW 185th Avenue, however, is almost entirely in agricultural use, with the exception of a local retail commercial use at its southeast and sections with natural resources (e.g., wetlands and riparian habitat), including a 32-acre Metro-owned tax lots reserved as a natural area along Holcomb Creek. Assessment records suggest that this Metro-owned property may be the only publicly-owned tax lot in the reserve. Overall, 58 of the reserve's tax lots have assessed improvements, with the median assessed value of those tax lots' improvements exceeding $560,000.

At its south, the reserve abuts existing urban low density residential development, multifamily housing, utility facilities, and commercial and industrial uses. Liberty High School, Westview High School, and Lenox Elementary School are all about half a mile of the reserve and the Portland Community College Rock Creek Campus is located on the opposite side of NW 185th Avenue. Bethany Lake Park, Northwest Park, the Rock Creek Country Club, other recreational facilities are also within half a mile of the reserve. Highway 26 is less than a mile away via NW Cornelius Pass

Road. TriMet Route 52 has a stop at the reserve's southeast corner at the intersection of NW West Union Road and NW 185th Avenue.

East of NW Cornelius Pass Road, stream corridors dissect the reserve into a few large locations of relatively flat land that could accommodate residential and employment development. Residential development could be supported by nearby schools, recreational uses, and commercial uses and could be cohesive with the nearby existing residential uses. Employment uses could benefit from the relatively close access to the highway and transit, and could potentially develop on the tax lots that are larger than 30 acres. Therefore, this area is considered able to accommodate both residential and employment land needs.

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

### *Water Services*

With regard to water services, the Bendemeer Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

#### *a. Capacity of existing facilities to serve areas already inside the UGB*

Adjacent lands inside the UGB are served by the Tualatin Valley Water District (TVWD), which purchases water from the Portland Water Bureau (PWB) and the Joint Water Commission (JWC). According to TVWD, the water from PWB currently accounts for nearly three-quarters of TVWD's supply; this water primarily comes from the Bull Run watershed, is piped to a 50-million gallon storage reservoir on Powell Butte on the east side of Portland, and is treated with chlorine and ammonia. PWB also obtains water from wells and aquifers in the Columbia South Shore Wellfield. JWC, which is jointly owned by TVWD and the Cities of Hillsboro, Beaverton, and Forest Grove, obtains water from Hagg Lake (Scoggins Reservoir) and the Barney Reservoir released into the upper portion of the Tualatin River. When flows are available, water from the Tualatin River is used. It is then withdrawn and filtered through the JWC water treatment plant. Chlorine and pH adjustments are added before leaving the plant, where chlorine and pH adjustments are added to the water. TVWD is working on a new Willamette River sourced water supply system; that expanded system is expected to be online in 2026 and will allow TVWD to transition off its PWB supply, though an emergency connection to the PWB system will remain in the event of a regional water emergency.

According to TVWD, they: maintain more than 700 miles of pipe and 12 pumping stations; have a gravity line capacity of 42.3 MGD, with another 10 MGD available from JWC; can access emergency standby pumping with a capacity of 20 MGD when needed to back up the gravity flow main; and utilize a storage system with 22 active covered reservoirs with a combined storage capacity of about 65 million gallons.

TVWD has indicated that there is sufficient capacity in terms of water supply, treatment, storage, and piping to serve areas that are both within the current UGB and in their service district.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

TVWD is understood to have the system capacity to serve urban development of the Bendemeer Urban Reserve, though some local pipe upsizing may be necessary.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

It does not appear at this time that TVWD's water facilities already inside the UGB will experience marked impacts resulting from being connected to new urban development in the Bendemeer Urban Reserve, though, as noted above and depending on specific future urban land uses and other regional development patterns, there may be some pipe and other facility upsizing needed to ensure not adverse impacts to areas already inside the UGB.

*d. Estimated water service-related costs for reserve development*

| Water piping, pumping, and storage costs | Cost |
|---|---|
| **10-inch pipe** | $3.31 million |
| **12-inch pipe** | $0 |
| **16-inch pipe** | $0 |
| **Pumping** | $0 |
| **Storage** | $0.32 million |
| **Total:** | **$3.63 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$698** |

### *Sanitary Sewer Services*

With regard to sanitary sewer services, the Bendemeer Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Clean Water Services (CWS) provides sewer service in the adjacent areas of the UGB in unincorporated Washington County. The City of Hillsboro has existing facilities that extend near the intersection of NW West Union Road and NW Cornelius Pass Road, which feed into the CWS system. CWS provides wastewater treatment at the Rock Creek Wastewater Treatment Plant. The treatment plant is understood to have sufficient capacity to serve lands already inside the UGB. An existing 24-inch sanitary trunk line

running parallel to Rock Creek, a likely point of connection for development in the Bendemeer Urban Reserve, is also believed to have adequate capacity.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

The topography of the reserve suggests that sewer from development of the reserve will likely flow from the eastern portion of the reserve toward the existing 24-inch CWS Rock Creek trunk line. Development in the western portion of the reserve, however, may flow toward NW Cornelius Pass Road. As noted above, the City of Hillsboro has existing sewer pipes near the intersection of NW West Union Road and NW Cornelius Pass Road.; these pipes range in size from eight inches to 18 inches in diameter and ultimately to the CWS trunk line. The additional capacity within the existing pipes is not fully known at this time, but it is believed to be adequate to serve development of the Bendemeer Urban Reserve. CWS has previously indicated that there is additional capacity at the Rock Creek treatment plant as well.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Impacts to the treatment plant are expected to be minimal with no anticipated major upgrades needed due to the possible amount of development from the relatively small amount of buildable land in the reserve. The amount of upsizing, if any, that would be needed is not fully known at this time, but CWS is expected to address infrastructure needs to accommodate planned growth.

*d. Estimated sanitary sewer service-related costs for reserve development*

| Sanitary sewer piping and pumping costs | Cost |
|---|---|
| **10-inch pipe** | $3.82 million |
| **12-inch pipe** | $0 |
| **15-inch pipe** | $0 |
| **Pump station** | $1.44 million |
| **Force mains** | $1.02 million |
| **Total:** | **$5.85 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$1,233** |

### *Stormwater Management Services*

With regard to stormwater management services, the Bendemeer Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

There is no indication of significant challenges with existing stormwater management facilities being able to serve existing development in adjacent areas inside the UGB.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Stormwater related to new development in the Bendemeer Urban Reserve is expected to be conveyed, treated, and disposed of within the reserve itself and/or outfall directly to nearby creeks, rather than relying on existing facilities already in the UGB.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

As noted above, stormwater related to new development in the Bendemeer Urban Reserve is expected to be conveyed, treated, and disposed of within the reserve itself and/or outfall directly to nearby creeks, rather than relying on existing facilities already in the UGB. Therefore, no adverse impacts to existing facilities serving areas already inside the UGB are anticipated.

*d. Estimated stormwater service-related costs for reserve development*

| Stormwater piping and water quality/detention | Cost |
|---|---|
| **18-inch pipe** | $3.44 million |
| **24-inch pipe** | $1.45 million |
| **30-inch pipe** | $0 |
| **Water quality/dentition** | $8.94 million |
| **Total:** | **$13.83 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$2,917** |

### *Transportation Services*

With regard to transportation services, the Bendemeer Urban Reserve is given a "medium-high" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(e) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Figure 4.36 in Chapter 4 of the 2023 Regional Transportation Plan (RTP) displays 2020 home-based vehicle miles traveled (VMT) per capita by Metro transportation analysis zone, with average VMT per capita considered 11.32. According to Figure 4.36 in Chapter 4, areas in the UGB adjacent to the Bendemeer Urban Reserve had average, above average, and significantly above average home-based VMT per capita in 2020.

Metro's adopted 2040 Growth Concept Map designates two regional centers and separate town centers in the City of Hillsboro, as well as a town center in unincorporated Washington County within the UGB and near to the reserve. Regional

centers are generally meant to: serve populations of hundreds of thousands of people; surround high-quality transit service and multi-modal street networks; and offer larger commercial uses, healthcare facilities, local government services, and public amenities. Town centers are meant to: serve populations of tens of thousands of people; offer more locally-focused retail uses and public amenities; and be well served by transit. The Bethany Town Center in unincorporated Washington County and the Tanasbourne/Amber Glen Regional Center in Hillsboro are the closest 2040 Growth Concept designated centers to the Bendemeer Urban Reserve.

The Bethany Community Plan calls for a mix of local retail and small community-based office uses in the Bethany Town Center that provide a community village atmosphere. The town center is almost completely built out with a mixture of housing types, a grocery store, banks, restaurants, an athletic club, a library, a place of worship, and a small amount of other employment/institutional uses, including a Providence medical facility. The town center scored very high in Metro's 2017 State of the Centers Atlas for parks access and sidewalk and bike route density.

The Tanasbourne/Amber Glen Regional Center is a mixture of higher density residential uses, a grocery store and multiple department stores, banks, and medical facilities, including a Kaiser Permanente hospital and an Oregon Health Sciences University research facility. Metro's 2017 State of the Centers Atlas showed a high level of employees and total population, slightly higher dwelling units per acre, and an average population density compared with other regional centers.

There are also employment uses, including industrial uses and commercial uses, as well as school uses inside the UGB near the reserve on the west side of NE Cornelius Pass Road north of Highway 26. Further still, there is a grocery store and other commercial uses in the UGB at the northeast corner of NW West Union Road and NW 185th Avenue.

Growth in and near these 2040 Growth Concept centers and employment areas near the reserve will not necessarily cause a significant increase in home-based VMT per capita in the future, as area residents will be able to access some daily needs with relatively short trips. The transit service and bike and pedestrian facilities that serve these areas, described further below, can also help to ensure that additional growth nearby does not adversely impact home-based VMT per capita.

Six TriMet bus routes provide service to Hillsboro and/or nearby unincorporated Washington County, mainly along the arterial streets in the central portion of the city, focusing on the Hillsboro and Tanasbourne/Amber Glen Regional Centers, the Orenco Town Center, and employment areas. There is generally more minimal transit service to the southern and northern portions of the city. However, TriMet Route 52 provides service in the portion of the UGB near the reserve, connecting the area to Rock Creek Elementary School, Westview High School, and the Tanasbourne/Amber Glen Regional Center via NW 185th Avenue. Route 52, as well as Route 67, also connect areas within the UGB near the reserve to the Portland Community College (PCC) Rock Creek campus.

The MAX Light Rail Blue Line stops at nine stations within Hillsboro, connecting Hillsboro to Beaverton and Portland. Figure 4.3 in Chapter of the 2023 RTP indicates that there are gaps in planned frequent transit service along certain routes in the UGB near the reserve, including along NW 185th Avenue and NW Springville Road.

Hillsboro has over 54 miles of dedicated bike lanes, more than 24 miles of established bikeways, and numerous streets considered "bike friendly" that, together, create a fairly well-connected system that is focused mostly on the central portion of the city and its two regional centers, including the Tanasbourne/Amber Glen Regional Center. Within the UGB and near the reserve, there are dedicated bike facilities along NW 185th Avenue, NW Cornelius Pass Road, NW Jacobson Street, NW Springville Road, and NW West Union Road. In addition, there are some local trails that provide key connections to the greater bike network. The existing bike facilities on NW 185th Avenue and NW Cornelius Pass Road are identified as part of the regional bike network on Figure 4.5 in Chapter 4 of the 2023 RTP. However, the figure also identifies gaps in the planned network in other areas in the UGB near the reserve.

A large proportion of the residential neighborhoods in Hillsboro, including those in the UGB near the reserve, have sidewalks, although there are other residential areas of the city that do not have sidewalks. The Tanasbourne/Amber Glen Regional Center and the Bethany Town Center have sidewalks, as do the employment areas around NE Cornelius Pass Road near the reserve. Trails, such as the Rock Creek Trail, provide additional pedestrian opportunities. Several existing pedestrian routes in the UGB near the reserve are identified in Chapter 4, Figure 4.4 of the 2023 RTP as in the regional pedestrian network, though there are also gaps, including along NW West Union Road.

Figure 4.14 in Chapter of the 2023 RTP identifies a number of high injury corridors in the area already inside the UGB near the reserve and in Hillsboro, including NW 185th Avenue and NW Cornelius Pass Road. The figure also identifies the intersection of NW 185th Avenue and NE Evergreen Parkway, as well as other intersections in the area, as high injury intersections.

Highway 26 within the UGB near the reserve is identified as a throughway Chapter 4, Figure 4.7 of the 2023 RTP. Figure 4.8 of that chapter indicates that this section of Highway 26 currently meets travel speed reliability performance thresholds, with no more than four hours per day when travel speeds fall below the identified minimum speed. RTP models indicate this reliability will continue at least to the year 2045.

### *b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Highway 26, an RTP-designated throughway, is approximately one mile away from the reserve via NW 185th Avenue. As noted above, the section of the highway near the reserve currently meets travel speed reliability performance thresholds.

There is currently no transit service into the reserve itself, though TriMet Routes 52 has stops along NW 185th Avenue adjacent to the southeast corner of the reserve and

connect to Rock Creek Elementary School, Westview High School, and the Tanasbourne/Amber Glen Regional Center. Route 67 has stops on NW Springwille Road near the east side of the reserve, connecting to the PCC Rock Creek Campus, and the Bethany Town Center.

There is a dedicated bike lane on NW 185th Avenue adjacent to a portion of the reserve that extend south past Westview High School and Rock Creek Elementary. NW Springville Road, which extends from the reserve's east, has bike facilities that connect to the PCC Rock Creek Campus and to transit stops. The Rock Creek Trail, which runs east for over two miles and west for over a mile, intersects with NW 185th Avenue. The Waterhouse Trail connects to the Rock Creek Trail, providing a north-south route that extends to Highway 26. NW West Union Road has a short section of a dedicated bike lane on either side of the 185th Avenue intersection. The remainder of NW West Union Road is classified as "bike with caution".

There are sidewalks on NW West Union Road east of the 185th Avenue intersection that extend for approximately one mile with direct connections to the Rock Creek Trail and the Waterhouse Trail. Sidewalks on NW 185th Avenue extend north from NW West Union Road to NW Springville Road on one side and south past Westview High School and Rock Creek Elementary school to south of Highway 26 on both sides of the road. There are a couple of sidewalk connections to the residential neighborhoods south of NW West Union Road, two of which ultimately connect to the Rock Creek Trail. Otherwise, the sidewalks provide internal circulation for the neighborhood. Painted crossings at the intersection of NW 185th Avenue and NW Springville Road lead to sidewalks that connect to the PCC Rock Creek campus. There are also painted crossings at the intersection of NW West Union Road and NE Cornelius Pass Road, and at the intersection of NW West Union Road and NW 185th Avenue, that lead to sidewalks connected to these areas' existing employment uses.

The proximity of existing residential, employment, institutional uses to the reserve, as well as the existing transit services and bike and pedestrian amenities to them, could allow for development of the reserve without significantly increasing home-based VMT per capita.

### *c. Impacts to existing facilities that serve nearby areas already inside the UGB*

NW 185th Avenue, NW Cornelius Pass Road, NW Springville Road, and NW West Union Road would be expected to see additional private vehicle traffic from development of the reserve. Existing bike and pedestrian facilities nearby would also be expected to see additional use.

As noted above, the proximity of existing residential, employment, institutional uses to the reserve, as well as the existing transit services and bike and pedestrian amenities to them, could allow for development of the reserve without significantly increasing home-based VMT per capita. Moreover, if the reserve were to be developed with both

residential and employment uses, as considered possible in response to Factor 1, residents could meet more of their daily needs, and employees could potentially find housing, within the reserve without having to travel longer distances.

With these considerations, development of the reserve may result in only minor impacts to the performance of Highway 26 as a throughway. Any additional motor vehicle traffic on NW 185th Avenue and NW Cornelius Pass Road resulting from development of the reserve, however, may exacerbate these roadways' high-crash conditions.

### *d. Need for major transportation facility improvements and associated costs*

NW Cornelius Pass Road, NW West Union Road, and NW 185th Avenue north of NW Springville Road will likely need to be improved to urban arterial standards, including with acquisition of additional right-of-way. NW West Union Road and the portion of NW 185th Avenue are considered to be half-street improvements in the costs below, as the other half of the roadway will be inside the UGB. A new, nearly half-mile-long arterial is likely needed between NW West Union Road and NW 185th Avenue at NW Springville Road. A new, roughly 0.87-mile-long collector is also likely needed between NW West Union Road and NW Cornelius Pass Road to provide access to the middle of the reserve.

| Facilities | Cost |
|---|---|
| **Arterials, existing/improved full street** | $26.07 million |
| **Arterials, existing/improved half street** | $50.95 million |
| **Arterials, new** | $31.27 million |
| **Collectors, existing/improved full street** | $0 |
| **Collectors, existing/improved half street** | $0 |
| **Collectors, new** | $37.22 million |
| **Total:** | **$145.51 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$30,705** |

### *e. Provision of public transit service*

TriMet evaluated the Bendemeer Urban Reserve for providing transit service. TriMet could provide services to the reserve, although there is no guarantee of service. Actual service will depend on the level of development in the reserve and in the corridors leading to it. Nearby transit services are expected to be improved by 2045 and could be extended to provide 30-minute off-peak headways, and 15-minute peak service for weekdays, with 30- and 60-minute services on weekends. Two new vehicles would be required with zero-emission bus capital costs being approximately $2,000,000 – $3,000,000 (recurs every 12 years). Annual service cost is $736,320 and grows with inflation each year.

Prior to land being included in the UGB, a more detailed concept plan, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11, will

be required. This concept plan process will develop more refined public facility and service needs and cost estimates.

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

***Environmental consequences***

Holcomb Creek flows into the Bendemeer Urban Reserve just north of NW Old Pass Road before crossing under NW Cornelius Pass Road and heading southeast for approximately 3,200 feet into Holcomb Lake. Rock Creek enters the reserve just prior to joining Holcomb Creek on the east side of Holcomb Lake and flows south through a Metro-owned natural area for approximately 4,500 feet to NW West Union Road. Two unnamed tributaries to Rock Creek flow through the eastern portion of the reserve for approximately one mile, before ultimately joining Rock Creek at the southern end of the Metro-owned property. Two unnamed streams flow through the middle portion of the reserve and join and flow north into Holcomb Lake; these two streams total approximately 4,900 feet.

There are two wetlands identified on a 1998 National Wetlands Inventory (NWI) that are located in the eastern portion of the reserve. The first, approximately 32 acres in area, is associated with Rock Creek and is mostly on the Metro property; the second, nearly three acres in area, is associated with a tributary of Rock Creek. Additional NWI wetlands associated with Holcomb Creek and Holcomb Lake are located along the northern edge of the reserve and would need to be formally delineated prior to development.

There is riparian and upland habitat associated with the stream corridors and wetlands noted above. Inclusion in the UGB will provide some increased protection for streams, habitat areas, and floodplains; however, given how the stream corridors form four distinct pockets of unconstrained land, significant impacts to the habitat areas may occur depending on street connectivity requirements. Metro ownership of certain property in the reserve can limit east–west street connections in the reserve, leading to additional environmental protections. Overall, urbanization of this reserve may have comparatively moderate to high impacts on stream corridors and habitat areas, though the layout of the urban road system will be a key determinant in the level of environmental impact. Additional environmental consideration, specifically regarding avoidance of conflict between urban development and regionally significant fish and wildlife habitat, is provided in the Metro Code Factors Analysis (Appendix 7A).

Considering the comparative environmental consequences of urbanization, the Bendemeer Urban Reserve is given a “low” score in Attachment 3 for this Goal 14 boundary location sub-factor.

***Social, energy, and economic consequences***

The western portion of the reserve contains numerous rural residences on tax lots that are generally between half an acre and four acres in size. While the larger tax lots provide some opportunity for additional residential development, the amount of infill would not be

significant and would likely occur over a longer period of time. These rural residential uses are already proximate to urban industrial, commercial, and residential uses as well, so urbanization of this area is not expected to cause significant changes in residents' sense of place or in degradation of an existing rural lifestyle. Moreover, urbanization of the reserve could bring new social, educational, and recreational opportunities for existing residents. There are only a few residences in the remainder of the reserve east of NW Cornelius Pass Road.

As noted previously, the reserve also already contains some commercial uses and the reserve is adjacent to substantial urban development. As detailed more fully in response to Factor 2, additional VMT and, therefore, related energy impacts from urbanization would not be significant.

There are about half a dozen sections of agricultural activity occurring in the reserve, with a combined area of about 210 acres. These sections are generally separated from each other by stream corridors, forested areas, and publicly-owned land that is unlikely to be urbanized. So, urbanization of one agricultural area will not necessarily have significant adverse impacts on another. Moreover, the economic consequences of a loss in farming activity in the reserve may be outweighed by the economic benefits of residential and/or employment development of the reserve.

This analysis finds that there would be comparatively low social, energy, and economic consequences from urbanization of this reserve. The Bendemeer Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location sub-factor.

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

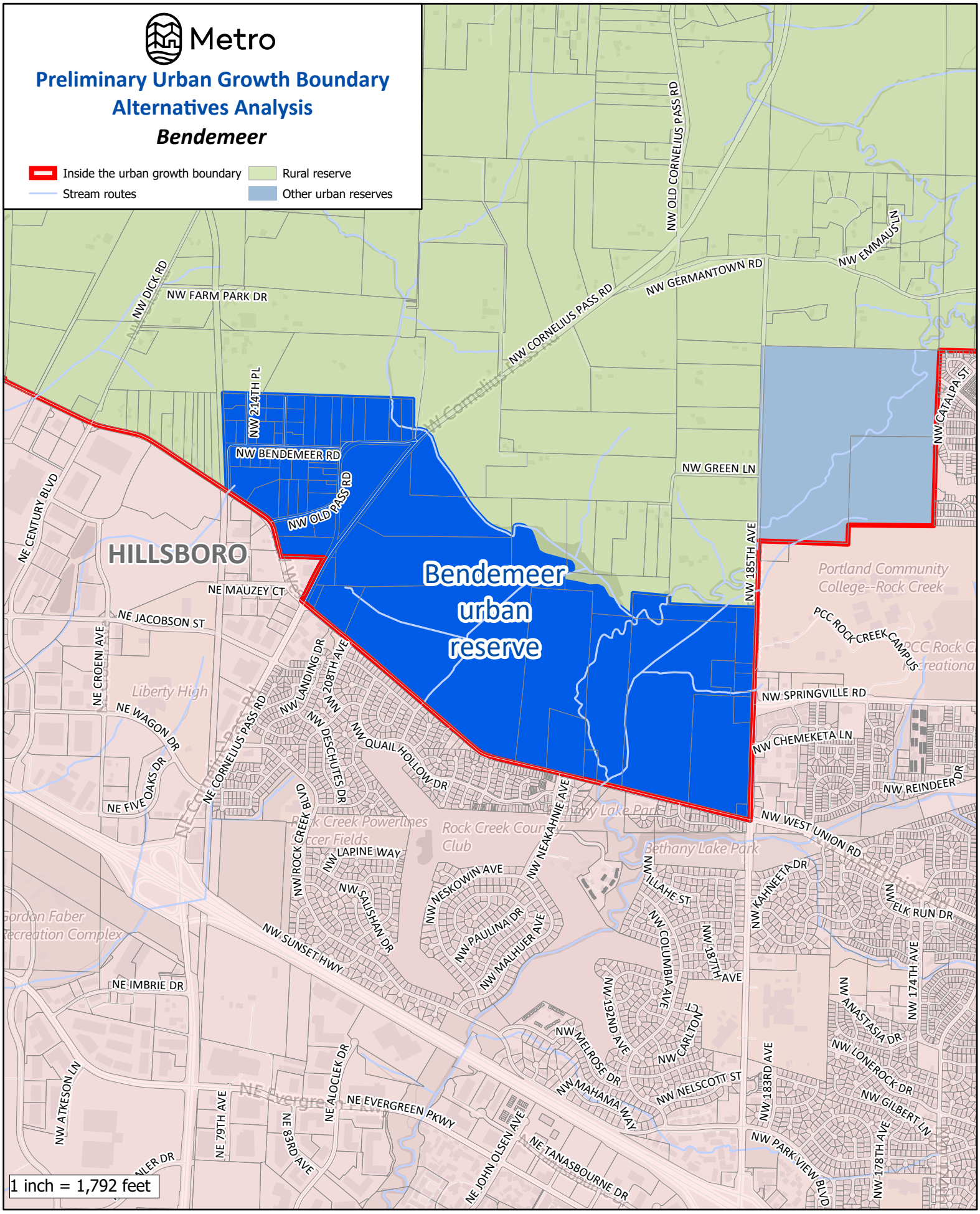
Goal 3 agricultural lands, specifically lands zoned Exclusive Farm Use (EFU) by Washington County, border the Bendemeer Urban Reserve to the north and extend further into unincorporated areas for a number of miles. This land is mostly in nursery and field crop production, though there is some rural residential development and stands of trees. Holcomb Creek, Holcomb Lake, and Rock Creek, as well as their associated habitat areas, provide a large buffer to most of the agricultural activities occurring east of NW Cornelius Pass Road. A forested patch, along with some rural residences, provide a buffer for most of the agricultural activities occurring west of NW Cornelius Pass Road. The 100-foot railroad right-of-way along the western edge of the reserve also provides a buffer for the agricultural activities occurring northwest of the area near NW Dick Road. Urbanization of the reserve would increase traffic on NW Cornelius Pass Road and NW 185th Avenue, which could impact the movement of farm goods to Highway 26. Overall, the proposed urban uses have medium to high compatibility with nearby agricultural and forest activities occurring on farm and forest land outside the UGB.

The Bendemeer Urban Reserve is given a "medium-high" score in Attachment 3 for this Goal 14 boundary location factor.

Metro

# Preliminary Urban Growth Boundary Alternatives Analysis

## *Bendemeer*

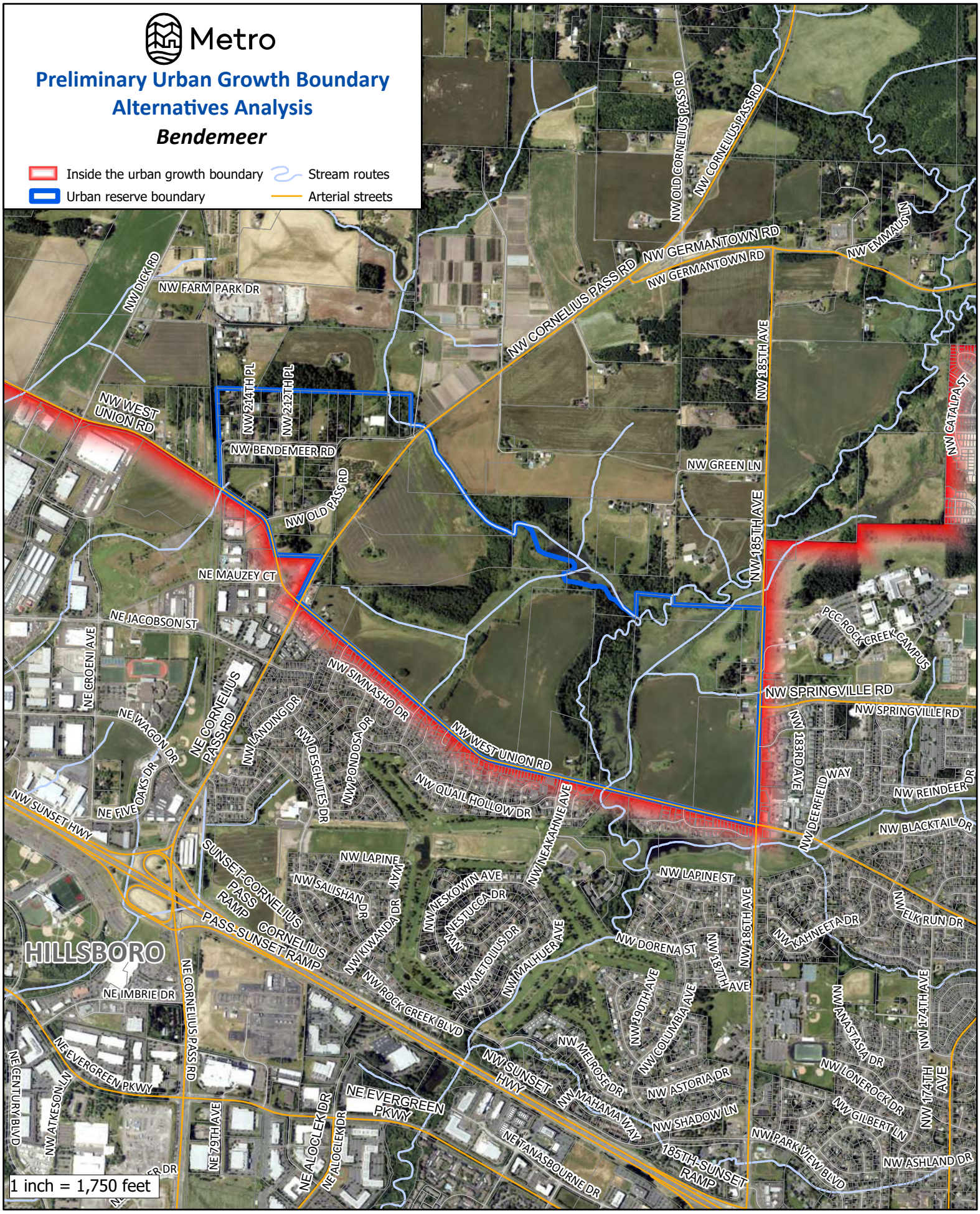


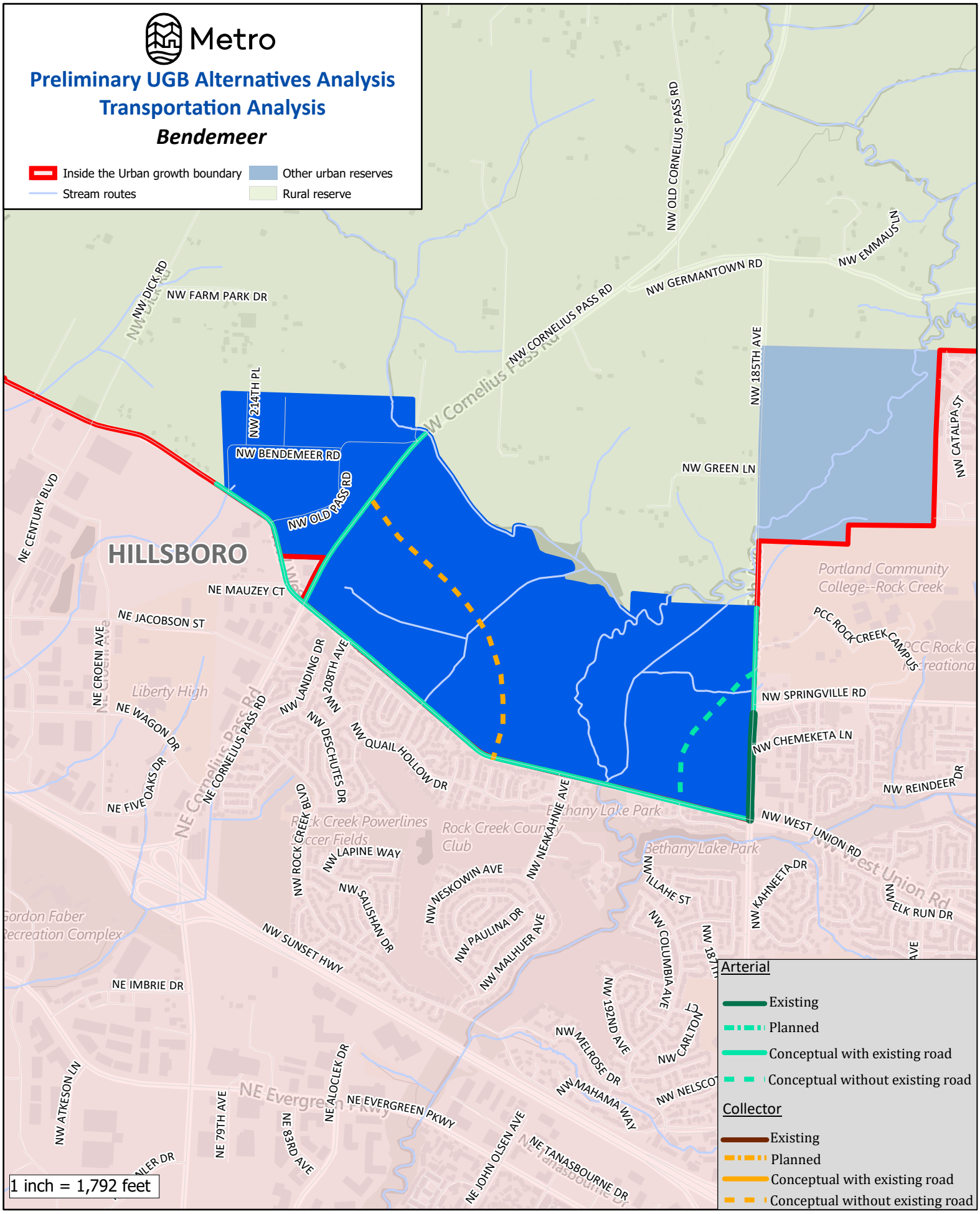
Metro

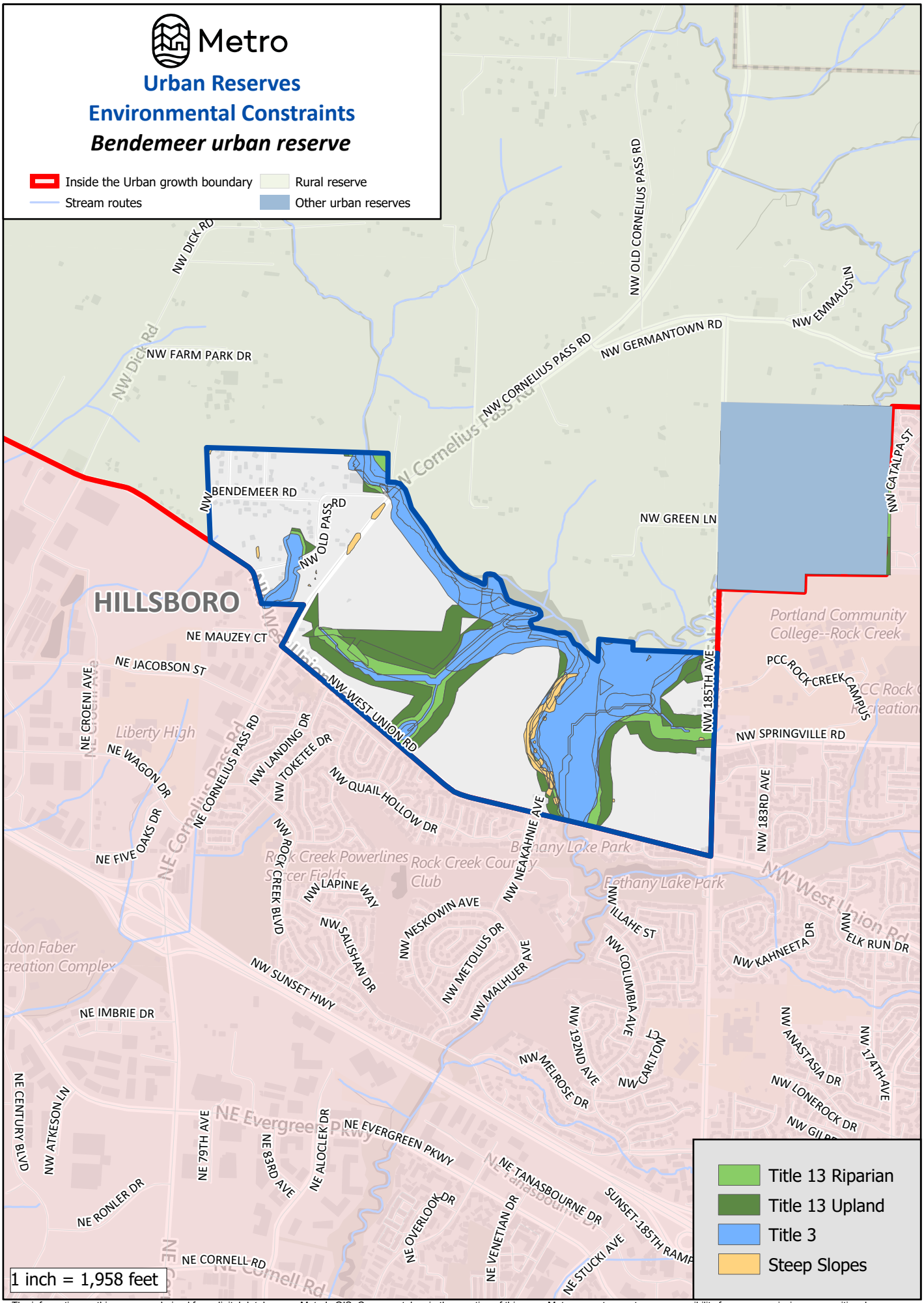
# Preliminary Urban Growth Boundary Alternatives Analysis

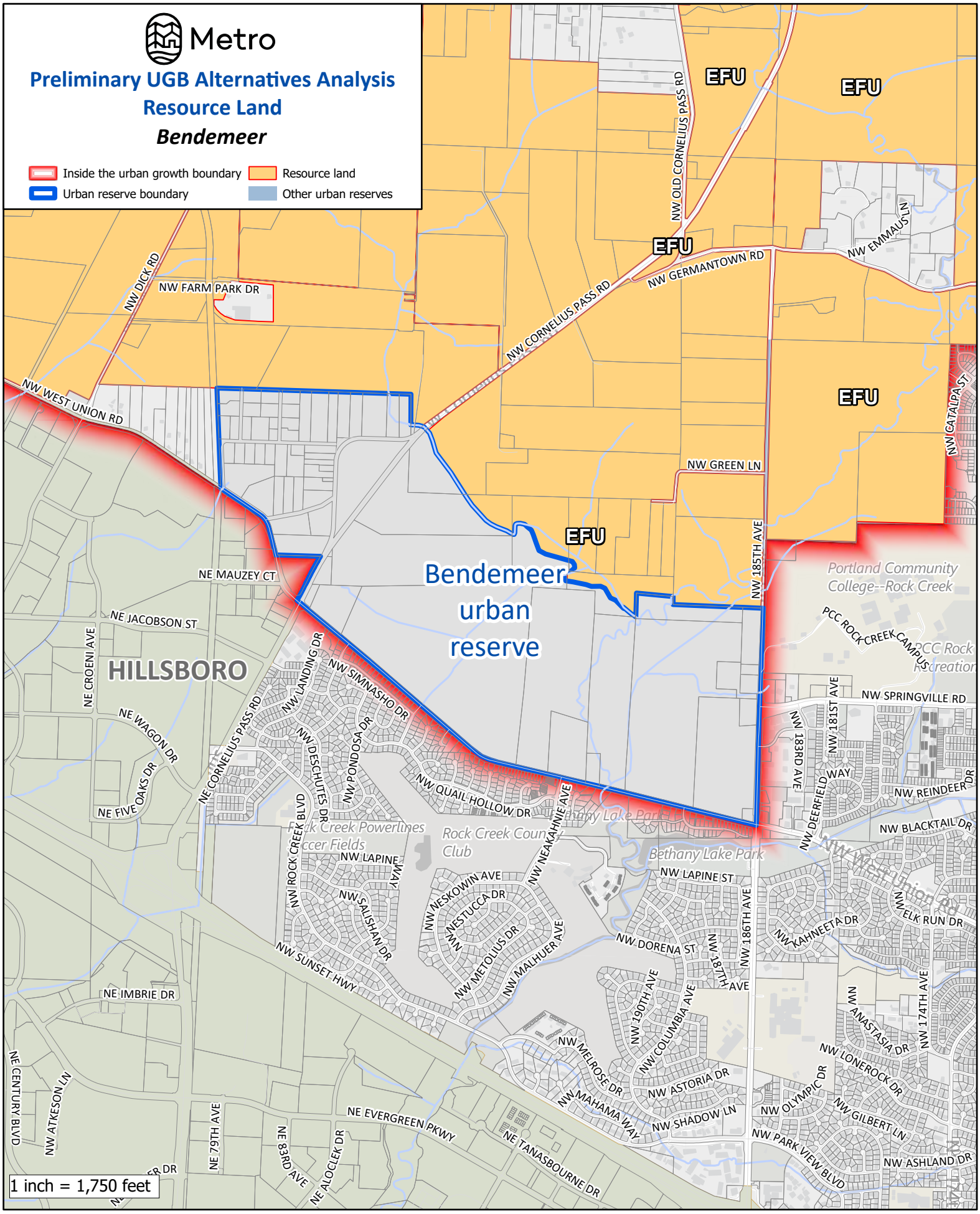
## *Bendemeer*

Inside the urban growth boundary
Urban reserve boundary
Stream routes
Arterial streets







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# BETHANY WEST URBAN RESERVE

| | |
|---|---|
| Total Reserve Area | 168 acres |
| Total Tax Lot Area in Reserve (without Right-of-Way) | 167 acres |
| Gross Vacant Buildable Area | 60 acres |
| **Net Vacant Buildable Area** | **44 acres** |

The Bethany West Urban Reserve is a relatively small, nearly square area on the north side of the Portland Community College Rock Creek campus. The UGB is the reserve's southern and eastern boundaries, while rural reserves are adjacent to the west and north. Access to the urban reserve is provided by NW 185th Avenue and NW Shackelford Road in the community of North Bethany.

## GOAL 14 BOUNDARY LOCATION FACTORS

### Factor 1: Efficient accommodation of identified land needs

The Bethany West Urban Reserve contains the entirety of one privately-owned 127-acre tax lot and nearly 40 acres of a 203-acre tax lot owned by Portland Community College (PCC). As noted above, the reserve has 60 gross vacant buildable acres and 44 net buildable acres.

According to aerial imagery and tax assessment records, the reserve is essentially undeveloped, except for powerlines crossing both tax lots and some minor agriculture-related structures. Approximately half of the reserve's area is used for field agriculture, while the other half includes Rock Creek and vegetated areas.

There is existing low density residential development to the east of the reserve and the PCC Rock Creek campus neighbors to the south. Springville Elementary School is less than half a mile away and various recreational facilities, including sports fields at the PCC campus, are within one mile of the reserve.

Multiple urban roads, including NW Shackelford Rd and NW Antonio St, stub to the reserve's eastern boundary. Highway 26 is approximately two miles to the south. There is no existing transit service to the reserve, though TriMet Route 67 has stops on the neighboring PCC Rock Creek Campus.

Given the proximity of existing residential uses, as well as educational and residential facilities, the reserve is considered appropriate for accommodating a small residential land need. However, given the relatively flat topography of the portions currently and agricultural uses, the minimal parcelization, the powerlines, and the possibility that employment uses may be a more appropriate buffer to rural land uses to the north and west, the reserve may be suitable for employment uses as well. This reserve is therefore considered able to accommodate both residential and employment land uses.

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

### *Water Services*

With regard to water services, the Bethany West Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Adjacent lands inside the UGB are served by the Tualatin Valley Water District (TVWD), which purchases water from the Portland Water Bureau (PWB) and the Joint Water Commission (JWC). According to TVWD, the water from PWB currently accounts for nearly three-quarters of TVWD's supply; this water primarily comes from the Bull Run watershed, is piped to a 50-million gallon storage reservoir on Powell Butte on the east side of Portland, and is treated with chlorine and ammonia. PWB also obtains water from wells and aquifers in the Columbia South Shore Wellfield. JWC, which is jointly owned by TVWD and the Cities of Hillsboro, Beaverton, and Forest Grove, obtains water from Hagg Lake (Scoggins Reservoir) and the Barney Reservoir released into the upper portion of the Tualatin River. When flows are available, water from the Tualatin River is used. It is then withdrawn and filtered through the JWC water treatment plant. Chlorine and pH adjustments are added before leaving the plant, where chlorine and pH adjustments are added to the water. TVWD is working on a new Willamette River sourced water supply system; that expanded system is expected to be online in 2026 and will allow TVWD to transition off its PWB supply, though an emergency connection to the PWB system will remain in the event of a regional water emergency.

According to TVWD, they: maintain more than 700 miles of pipe and 12 pumping stations; have a gravity line capacity of 42.3 MGD, with another 10 MGD available from JWC; can access emergency standby pumping with a capacity of 20 MGD when needed to back up the gravity flow main; and utilize a storage system with 22 active covered reservoirs with a combined storage capacity of about 65 million gallons.

TVWD has indicated that there is sufficient capacity in terms of water supply, treatment, storage, and piping to serve areas that are both within the current UGB and in their service district.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

TVWD is understood to have the system capacity to serve urban development of the Bethany West Urban Reserve, though some local pipe upsizing may be necessary.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

It does not appear at this time that TVWD's water facilities already inside the UGB will experience marked impacts resulting from being connected to new urban development in the Bethany West Urban Reserve, though, as noted above and depending on specific

future urban land uses and other regional development patterns, there may be some pipe and other facility upsizing needed to ensure not adverse impacts to areas already inside the UGB.

*d. Estimated water service-related costs for reserve development*

| Water piping, pumping, and storage costs | Cost |
|---|---|
| **10-inch pipe** | $0.93 million |
| **12-inch pipe** | $0 |
| **16-inch pipe** | $0 |
| **Pumping** | $0 |
| **Storage** | $0.06 million |
| **Total:** | **$0.99 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$1,112** |

### *Sanitary Sewer Services*

With regard to sanitary sewer services, the Bethany West Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Clean Water Services (CWS) provides sewer service in the adjacent areas of the UGB in unincorporated Washington County. CWS provides wastewater treatment at the Rock Creek Wastewater Treatment Plant. An existing 24-inch sanitary sewer trunk crosses the reserve along the north side of Rock Creek; that trunk is believed to have adequate capacity to meet current demands. Flows continue via gravity through the CWS trunk and interceptor sewer lines and reach the treatment plant, which is understood to have sufficient capacity to serve lands already inside the UGB.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

The existing 24-inch sewer trunk line that, as noted above, already crosses the reserve is believed to have capacity to serve the limited amount of additional urban development this relatively small reserve would provide. CWS has previously indicated that there is additional capacity at the Rock Creek treatment plant as well.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Impacts to the treatment plant are expected to be minimal with no anticipated major upgrades needed due to the possible amount of development from the relatively small amount of buildable land in the reserve. The amount of upsizing, if any, that would be

needed is not fully known at this time, but CWS is expected to address infrastructure needs to accommodate planned growth.

*d. Estimated sanitary sewer service-related costs for reserve development*

| Sanitary sewer piping and pumping costs | Cost |
|---|---|
| **10-inch pipe** | $0.69 million |
| **12-inch pipe** | $0 |
| **15-inch pipe** | $0 |
| **Pump station** | $0 |
| **Force mains** | $0 |
| **Total:** | **$0.69 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$772** |

### *Stormwater Management Services*

With regard to stormwater management services, the Bethany West Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

There is no indication of significant challenges with existing stormwater management facilities being able to serve existing development in adjacent areas inside the UGB.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Stormwater related to new development in the Bethany West Urban Reserve is expected to be conveyed, treated, and disposed of within the reserve itself and/or outfall directly to Rock Creek, rather than relying on existing facilities already in the UGB. It is expected that Rock Creek will be able to accommodate this stormwater.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

As noted above, stormwater related to new development in the Bendemeer Urban Reserve is expected to be conveyed, treated, and disposed of within the reserve itself and/or outfall directly to Rock, rather than relying on existing facilities already in the UGB. Therefore, no adverse impacts to existing facilities serving areas already inside the UGB are anticipated.

*d. Estimated stormwater service-related costs for reserve development*

| Stormwater piping and water quality/detention | Cost |
|---|---|
| **18-inch pipe** | $1 million |
| **24-inch pipe** | $0 |
| **30-inch pipe** | $0 |
| **Water quality/dentition** | $1.83 million |
| **Total:** | **$2.83 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$3,180** |

### *Transportation Services*

With regard to transportation services, the Bethany West Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(e) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Figure 4.36 in Chapter 4 of the 2023 Regional Transportation Plan (RTP) displays 2020 home-based vehicle miles traveled (VMT) per capita by Metro transportation analysis zone, with average VMT per capita considered 11.32. According to Figure 4.36 in Chapter 4, areas in the UGB adjacent to the Bethany West Urban Reserve had above average and significantly above average home-based VMT per capita in 2020.

Metro's adopted 2040 Growth Concept Map designates two regional centers and separate town centers in the City of Hillsboro, as well as a town center in unincorporated Washington County within the UGB and near to the reserve. Regional centers are generally meant to: serve populations of hundreds of thousands of people; surround high-quality transit service and multi-modal street networks; and offer larger commercial uses, healthcare facilities, local government services, and public amenities. Town centers are meant to: serve populations of tens of thousands of people; offer more locally-focused retail uses and public amenities; and be well served by transit. The Bethany Town Center in unincorporated Washington County and the Tanasbourne/Amber Glen Regional Center in Hillsboro are the closest 2040 Growth Concept designated centers to the Bethany West Urban Reserve.

The Bethany Community Plan calls for a mix of local retail and small community-based office uses in the Bethany Town Center that provide a community village atmosphere. The town center is almost completely built out with a mixture of housing types, a grocery store, banks, restaurants, an athletic club, a library, a place of worship, and a small amount of other employment/institutional uses, including a Providence medical

facility. The town center scored very high in Metro's 2017 State of the Centers Atlas for parks access and sidewalk and bike route density.

The Tanasbourne/Amber Glen Regional Center is a mixture of higher density residential uses, a grocery store and multiple department stores, banks, and medical facilities, including a Kaiser Permanente hospital and an Oregon Health Sciences University research facility. Metro's 2017 State of the Centers Atlas showed a high level of employees and total population, slightly higher dwelling units per acre, and an average population density compared with other regional centers. There are also employment uses, including a grocery store and other commercial uses, less than a mile south of the reserve in the UGB at the northeast corner of NW West Union Road and NW 185th Avenue.

Growth in and near these 2040 Growth Concept centers and employment areas near the reserve will not necessarily cause a significant increase in home-based VMT per capita in the future, as area residents will be able to access some daily needs with relatively short trips. The transit service and bike and pedestrian facilities that serve these areas, described further below, can also help to ensure that additional growth nearby does not adversely impact home-based VMT per capita.

Six TriMet bus routes provide service to Hillsboro and/or nearby unincorporated Washington County, mainly along the arterial streets in the central portion of the city, focusing on the Hillsboro and Tanasbourne/Amber Glen Regional Centers, the Orenco Town Center, and employment areas. There is generally more minimal transit service to the southern and northern portions of the city. However, TriMet Route 52 provides service in the portion of the UGB approximately half a mile from the reserve, connecting the area to Rock Creek Elementary School, Westview High School, and the Tanasbourne/Amber Glen Regional Center via NW 185th Avenue. Route 52, as well as Route 67, also connect areas within the UGB near the reserve to the Portland Community College (PCC) Rock Creek campus. The MAX Light Rail Blue Line stops at nine stations within Hillsboro, connecting Hillsboro to Beaverton and Portland. Figure 4.3 in Chapter of the 2023 RTP indicates that there are gaps in planned frequent transit service along certain routes in the UGB near the reserve, including along NW 185th Avenue and NW Springville Road.

Hillsboro has over 54 miles of dedicated bike lanes, more than 24 miles of established bikeways, and numerous streets considered "bike friendly" that, together, create a fairly well-connected system that is focused mostly on the central portion of the city and its two regional centers, including the Tanasbourne/Amber Glen Regional Center. There are dedicated bike facilities on NW Shackelford Road in the UGB adjacent to the east side of the reserve. Within the UGB and less than a mile from the reserve, there are also dedicated bike facilities along NW 185th Avenue and NW Springville Road. In addition, there are some local trails that provide key connections of the area further south to the greater bike network. The existing bike facilities on NW 185th Avenue are identified as part of the regional bike network on Figure 4.5 in Chapter 4 of the 2023 RTP. However,

the figure also identifies gaps in the planned network in other areas in the UGB near the reserve.

A large proportion of the residential neighborhoods in Hillsboro, including those in the UGB near the reserve, have sidewalks, although there are other residential areas of the city that do not have sidewalks. The Tanasbourne/Amber Glen Regional Center and the Bethany Town Center have sidewalks. Trails, such as the Rock Creek Trail, provide additional pedestrian opportunities. Existing portions of NW Springville Road in the UGB near the reserve are identified in Chapter 4, Figure 4.4 of the 2023 RTP as in the regional pedestrian network, though there are also gaps, including along NW 185th Avenue and NW Shackelford Road leading to the reserve.

Figure 4.14 in Chapter of the 2023 RTP identifies a number of high injury corridors in the area already inside the UGB near the reserve and in Hillsboro, including NW 185th Avenue and NW Cornelius Pass Road. The figure also identifies the intersection of NW 185th Avenue and NE Evergreen Parkway, as well as the intersection of NW West Union Road and NW Laidlaw Road, as high injury intersections.

Highway 26 within the UGB, nearly two miles south of the reserve, is identified as a throughway Chapter 4, Figure 4.7 of the 2023 RTP. Figure 4.8 of that chapter indicates that this section of Highway 26 currently meets travel speed reliability performance thresholds, with no more than four hours per day when travel speeds fall below the identified minimum speed. RTP models indicate this reliability will continue at least to the year 2045.

### *b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Highway 26, an RTP-designated throughway, is approximately two miles away from the reserve via NW 185th Avenue. As noted above, the section of the highway near the reserve currently meets travel speed reliability performance thresholds.

There is currently no transit service into the reserve itself, though TriMet Routes 52 has stops along NW 185th Avenue approximately half a mile from the southwest corner of the reserve and connect to Rock Creek Elementary School, Westview High School, and the Tanasbourne/Amber Glen Regional Center. Route 67 has stops on NW Springwille Road within a mile of the reserve, connecting to the PCC Rock Creek Campus, and the Bethany Town Center.

There are dedicated bike lanes on NW Shackelford Road stubbing to the east side of the reserve that lead through the adjoining residential areas. There are also dedicated bike facilities on NW 185th Avenue approximately half a mile south of the reserve that extend south to the employment uses at the corner of NW West Union Road and NW 185th Avenue and past Westview High School and Rock Creek Elementary. Nearby NW Springville Road has bike facilities that connect to the PCC Rock Creek Campus and to transit stops. The Rock Creek Trail, which runs east for over two miles and west for over a mile, intersects with NW 185th Avenue roughly one mile south of the reserve. The

Waterhouse Trail also then connects to the Rock Creek Trail, providing a north-south route that extends to Highway 26. NW West Union Road has a short section of a dedicated bike lane on either side of the 185th Avenue intersection. The remainder of NW West Union Road is classified as "bike with caution".

The residential development to the east of the reserve includes local streets with sidewalks that stub to the reserve. There are no sidewalks on the portion of NW 185th Avenue adjacent to the west side of the reserve; however, there are sidewalks on NW 185th Avenue approximately half a mile to the south near the intersection with NW Springville Road that lead to the employment uses at the corner of NW West Union Road and NW 185th Avenue. Painted crossings at the intersection of NW 185th Avenue and NW Springville Road lead to sidewalks that connect to the PCC Rock Creek campus.

The proximity of existing residential, employment, institutional uses to the reserve, as well as the existing nearby transit services and bike and pedestrian amenities to them, could allow for development of the reserve without significantly increasing home-based VMT per capita. Bike and pedestrian facilities will need to be extended on NW 185th Avenue to the reserve in order to provide complete connections.

### *c. Impacts to existing facilities that serve nearby areas already inside the UGB*

NW 185th Avenue, NW Antonio Street, NW Shackelford Road, NW Springville Road, and NW West Union Road would be expected to see additional private vehicle traffic from development of the reserve. Existing bike and pedestrian facilities nearby would also be expected to see additional use.

As noted above, the proximity of existing residential, employment, institutional uses to the reserve, as well as the existing transit services and bike and pedestrian amenities to them, could allow for development of the relatively small reserve without significantly increasing home-based VMT per capita. Moreover, if the reserve were to be developed with both residential and employment uses, as considered possible in response to Factor 1, residents could meet more of their daily needs, and employees could potentially find housing, within the reserve without having to travel longer distances.

With these considerations, development of the relatively small reserve may result in only minor impacts to the performance of Highway 26 as a throughway, roughly two miles south of the reserve. Any additional motor vehicle traffic on NW 185th Avenue resulting from development of the reserve, however, may exacerbate its high-crash conditions.

### *d. Need for major transportation facility improvements and associated costs*

The roughly half-mile length of NW 185th Avenue along the west side of the reserve will likely need to be improved to urban arterial standards, including with acquisition of additional right-of-way. A new half-mile-long collector road will also likely be needed to connect NW 185th Avenue to NW Shackleford Road in the North Bethany area.

| Facilities | Cost |
|---|---|
| **Arterials, existing/improved full street** | $32.06 million |
| **Arterials, existing/improved half street** | $0 |
| **Arterials, new** | $0 |
| **Collectors, existing/improved full street** | $0 |
| **Collectors, existing/improved half street** | $0 |
| **Collectors, new** | $23.18 million |
| **Total:** | **$55.24 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$62,067** |

*e. Provision of public transit service*

TriMet evaluated the Bethany West Urban Reserve for providing transit service. TriMet could provide services to the reserve, although there is no guarantee of service. Actual service will depend on the level of development in the reserve and in the corridors leading to it. Nearby transit services are expected to be improved by 2045 and could be extended to provide 30-minute off-peak headways, and 15-minute peak service, every day, with two additional zero-emission buses at an approximate capital cost of $1,500,000 per bus (recurs every 12 years). Annual service cost is $936,000 and grows with inflation year.

Prior to land being included in the UGB, a more detailed concept plan, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11, will be required. This concept plan process will develop more refined public facility and service needs and cost estimates.

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

### *Environmental consequences*

Rock Creek flows in a southwest direction through wooded and open land in the Bethany West Urban Reserve for 4,700 feet. A second unnamed stream that is located south of Rock Creek also flows in the same direction for approximately 3,180 feet, mostly in open fields. Both streams are located within a large floodplain. Two National Wetland Inventory (NWI) wetlands that are 0.8 and 2.3 acres in area and one PCC-identified 12.5-acre wetland are associated with the stream corridors. There is riparian and upland habitat associated with the streams and floodplain area. Inclusion in the UGB provides some increased protection for streams, habitat areas, and floodplains. When also considering the location of the stream corridors and the powerlines in the southern portion of the reserve adjacent to the PCC Rock Creek campus which will preclude some development, urbanization of this reserve is expected to be able to occur with comparatively minimal impact to stream corridors, wetlands, and habitat areas. Additional environmental consideration, specifically regarding

avoidance of conflict between urban development and regionally significant fish and wildlife habitat, is provided in the Metro Code Factors Analysis (Appendix 7A).

Considering the comparative environmental consequences of urbanization, the Bethany West Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location sub-factor.

### *Social, energy, and economic consequences*

This relatively small reserve does not appear to have any existing residences, so there are no residents of the reserve that are expected to be affected by its urbanization. Considering the urban residential development adjacent to the reserve has streets stubbing to the reserve, eventual urbanization of the reserve appears to be expected.

As detailed more fully in response to Factor 2, additional traffic and, therefore, related energy impacts from urbanization would not be significant.

Because the reserve has only about 70 acres (42 percent) of land in agricultural use, the economic loss in farming activity from urbanization is not considered significant; indeed, the economic benefits of residential and/or employment development of the reserve, particularly near to the PCC Rock Creek Campus, may outweigh this loss.

This analysis finds that there would be comparatively low social, energy, and economic consequences from urbanization of this small reserve. The Bethany West Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location sub-factor.

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

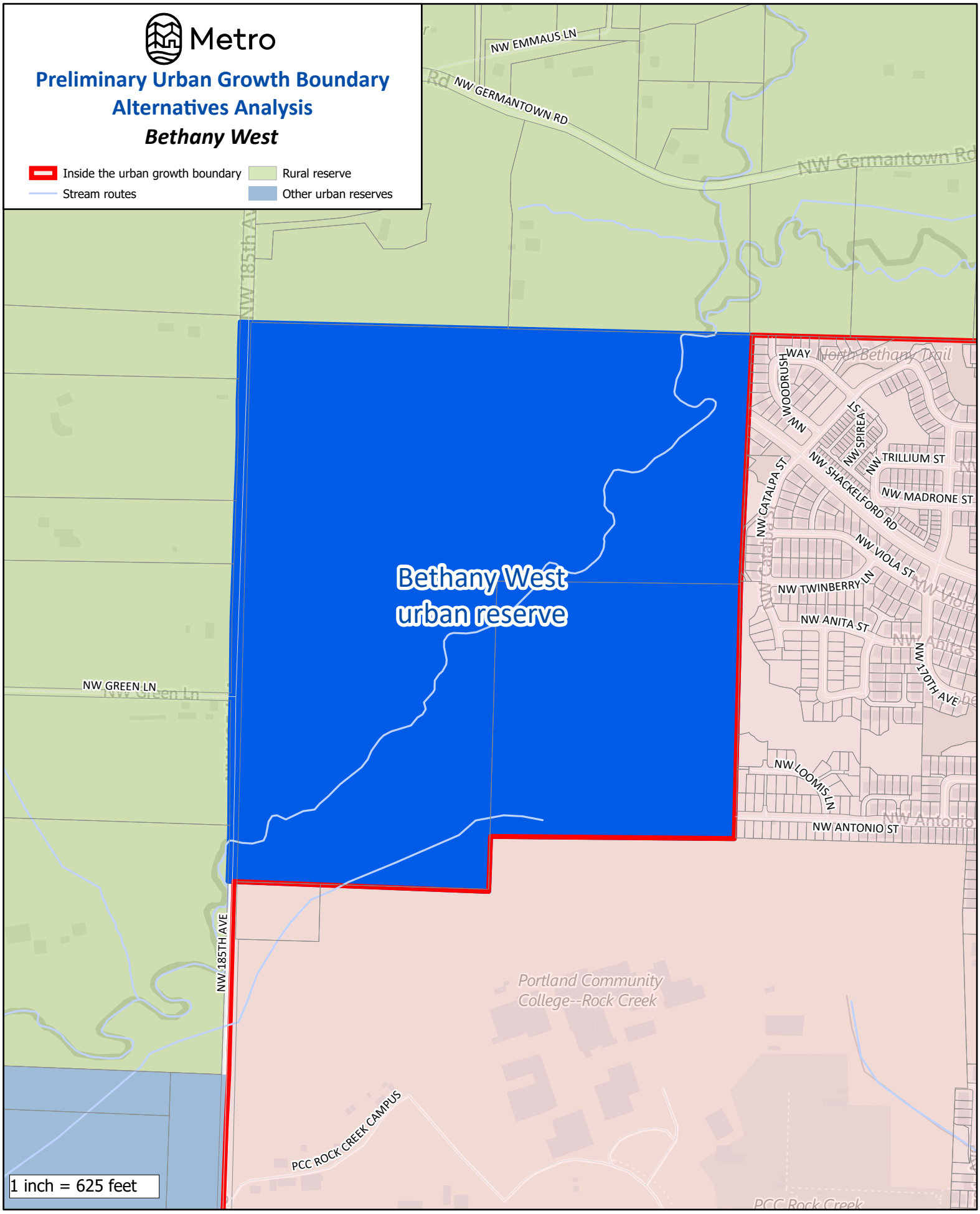
Goal 3 agricultural lands, specifically lands zoned Exclusive Farm Use (EFU) by Washington County, border the Bethany West Urban Reserve to the north and west.

The EFU-zoned land directly to the north appear to have some agricultural activities, including field crops and Christmas tree plantings, as well as some small forested patches and rural residential development. The forested patches are mostly in riparian habitat or near to the residential development, which may limit their use for commercial timber harvesting. Urbanization of the reserve would result in new development directly adjacent to active farm uses, which could result in land use conflicts related to safety, liability, and vandalism and complaints due to noise, odor, dust, and the use of pesticides and fertilizer. Urbanization would also increase traffic on NW 185th Avenue, which could impact the movement of both farm equipment and goods, although most of the traffic would be expected to move south towards Highway 26 away from the agricultural activities. Generally however, the proposed urban uses are considered incompatible with the directly-adjacent agricultural activities occurring to the north.

To the west of the reserve on the opposite side of NW 185th Avenue is a tract of EFU-zoned land that extends for quite a distance and includes field and row crops, nursery production, and some small

stands of trees. The land directly adjacent to the reserve includes a forested tax lot and a few rural residences with some associated agricultural activities. NW 185th Avenue itself would not provide an adequate buffer between urban development and agricultural activity. Development of the reserve could lead to land use conflicts related to safety, liability, and vandalism and complaints due to noise, odor, dust, and the use of pesticides and fertilizer, although the forested areas and rural residential development could help to provide some buffer. The improvement of NW 185th Avenue to urban standards, and associated street light illumination and bicycle and pedestrian movements, may further jeopardize the compatibility of the two uses, though the impacts of urban roadways on adjacent agricultural activity may be minimized through road design. Urbanization of the reserve would increase traffic on NW 185th Avenue, which could impact the movement of both farm equipment and goods, although most of the traffic would be expected to move south towards Highway 26 away from the neighboring agricultural activities. In addition, most of the agricultural activities occurring further west gain access from NW Cornelius Pass Road, rather than NW 185th Avenue. Therefore, the proposed urban uses are somewhat compatible with the agricultural activities occurring on the EFU-zoned land west of NW 185th Avenue, though impact mitigation measures may still be warranted.

Overall, the proposed urban uses are considered to have medium compatibility with nearby agricultural and forest activities occurring on farm and forest land outside the UGB. The Bethany West Urban Reserve is given a “medium” score in Attachment 3 for this Goal 14 boundary location factor.

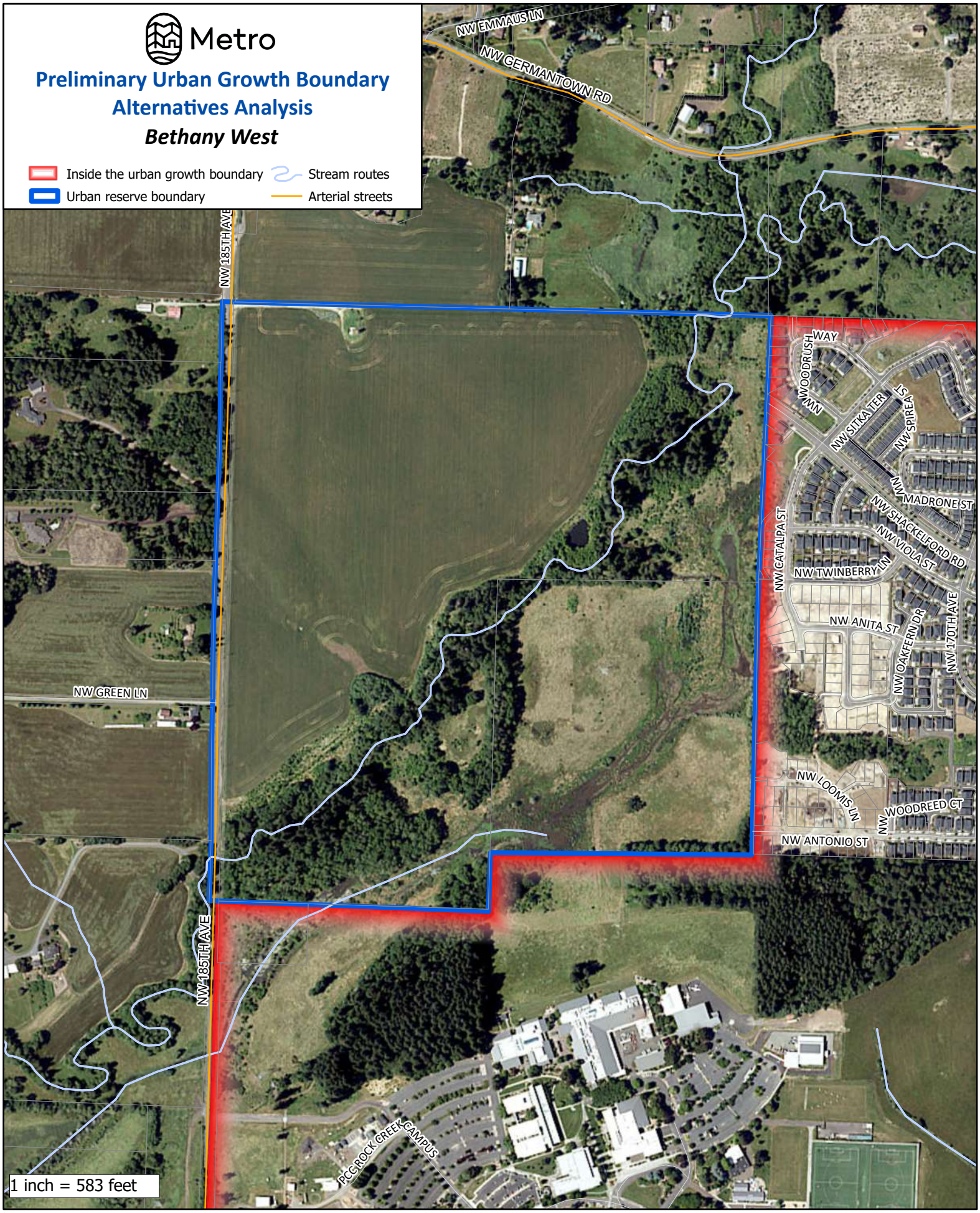


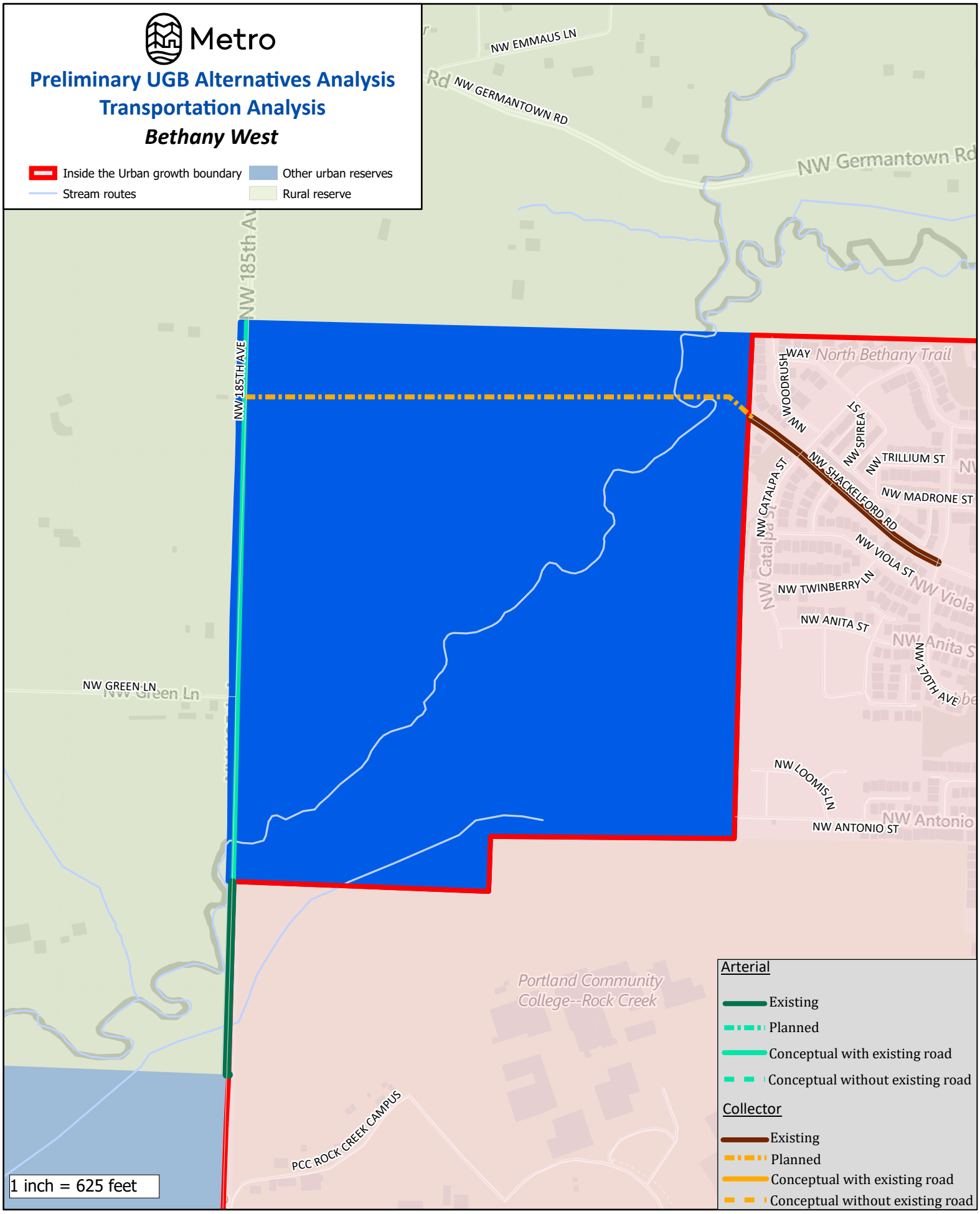
Metro

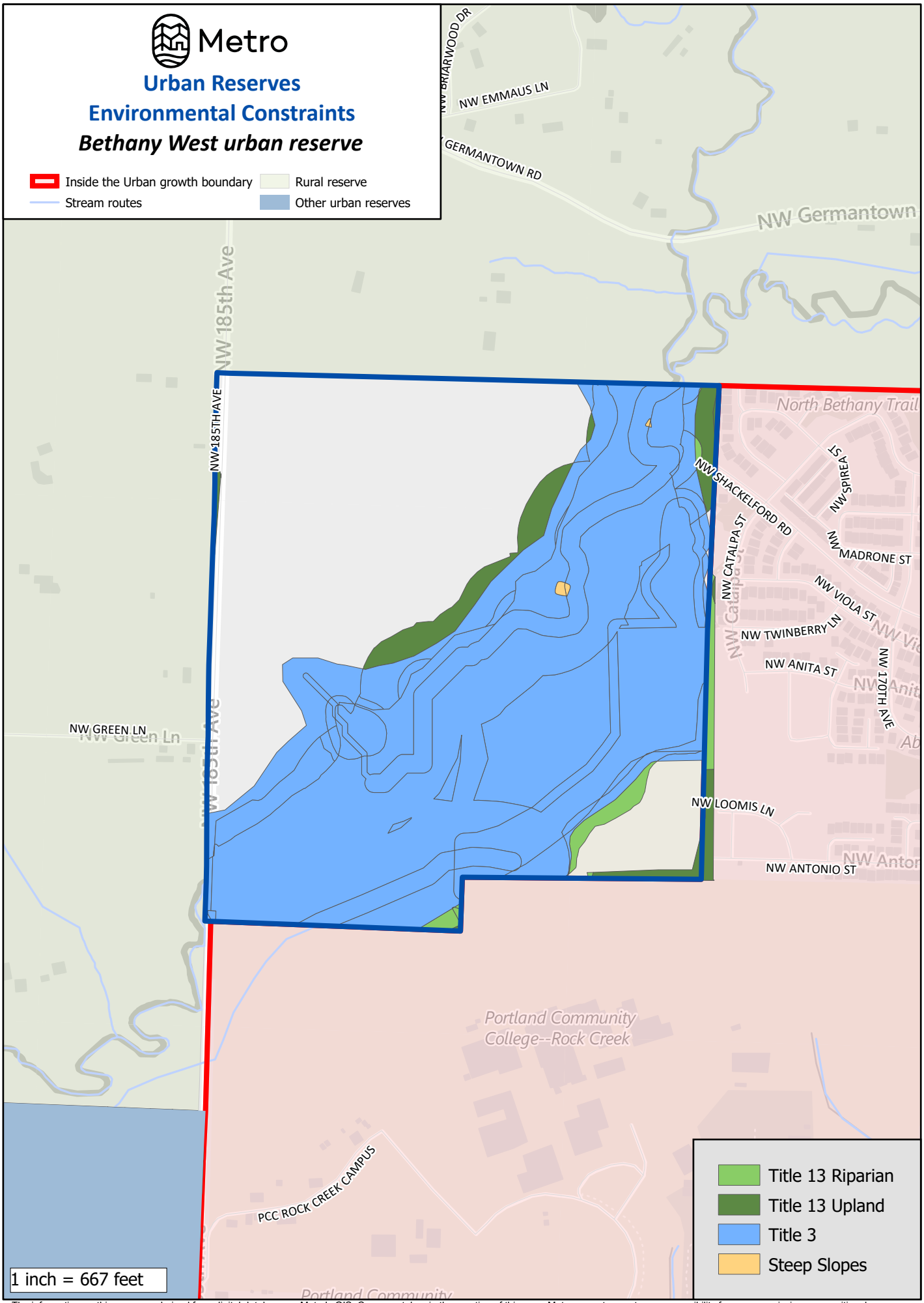
# Preliminary Urban Growth Boundary Alternatives Analysis

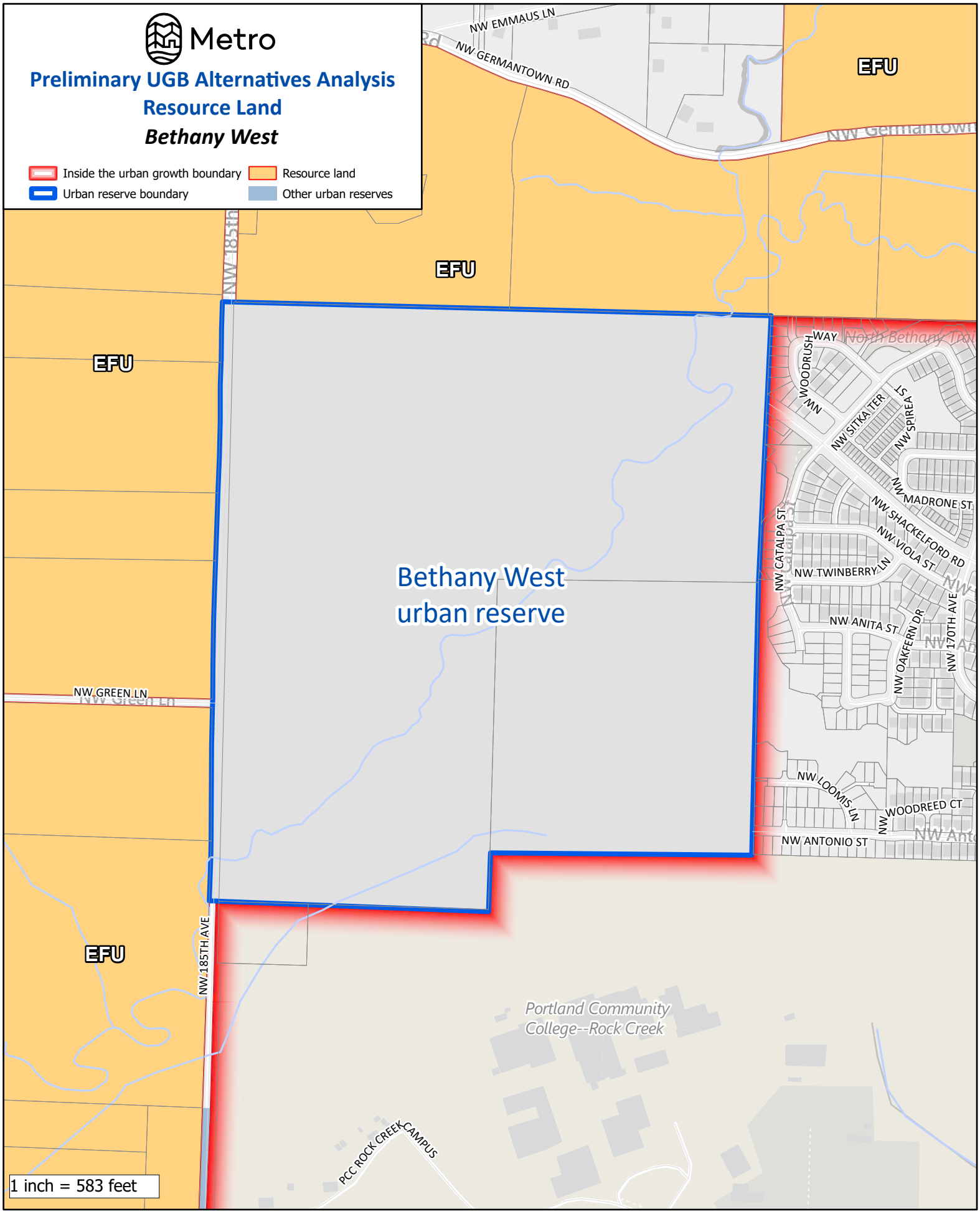
## *Bethany West*

Inside the urban growth boundary
Urban reserve boundary
Stream routes
Arterial streets









# BORING URBAN RESERVE

| | |
|---|---|
| Total Reserve Area | 2,727 acres |
| Total Tax Lot Area in Reserve (without Right-of-Way) | 2,564 acres |
| Gross Vacant Buildable Area | 1,279 acres |
| **Net Vacant Buildable Area** | **953 acres** |

The Boring Urban Reserve, which includes some of the business district of the community of Boring, is an irregularly shaped area west of Highway 26 and bounded by SE Rugg Road to the north, SE Kelso Road to the south, SE 242nd Avenue to the west. The UGB is the reserve's northern boundary. The separate "Boring – Highway 26 Urban Reserve" is adjacent to the reserve, on the east side of SE 282nd Avenue and north of Highway 212 and undesignated rural lands removed from the UGB in 2023 border to the west, and nearly four acres undesignated rural lands neighbor to the northwest. The reserve is otherwise entirely surrounded by rural reserve lands.

## GOAL 14 BOUNDARY LOCATION FACTORS

### Factor 1: Efficient accommodation of identified land needs

The Boring Urban Reserve is comprised of 1,053 contiguous tax lots, all but 21 of which are entirely within the reserve. Of those tax lots entirely within the reserve, more than 65 percent are less than two acres, roughly 90 percent are less than five acres, and only five are larger than 20 acres, with the largest tax lot being less than 50 acres. The 21 tax lots only partially within the reserve have area within the reserve ranging from less than one acre to 53 acres. The combined tax lot area within the reserve is approximately 2,564 acres. As noted above, the entire reserve contains 1,279 gross vacant buildable acres and 953 net vacant buildable acres.

The reserve is bisected by the Springwater Corridor and Cazadero Trails, SE Telford Road, Highway 212, SE Church Road, and North Fork Deep Creek. The reserve is also adjacent to Highway 212 and includes a roughly 1,500-foot section of Highway 26, but access to the highway is about a third of a mile from the reserve's north end via SE Rugg Road, SE 267th Avenue, and SE Stone Road. There is access to the highway about two-thirds of a mile from the reserve's south end via Highway 212, as well. There is currently to transit service to or near the reserve.

Five distinct land uses define the reserve: rural residential development on larger and often forest tax lots on the buttes; small- to mid-sized rural residential development between SE 282nd Avenue and the Springwater Corridor Trail; pockets of agricultural land; golf course lands at the southwest along SE Kelso Road, and the community of Boring, which includes both residential and a variety of employment uses (e.g., a grocery store, auto-oriented retail, landscaping and construction related businesses, and self-storage facilities). Overall, 886 of the reserve's tax lots have assessed improvements, with the median value of those tax lots' improvements being just over $350,000.

The reserve includes: a Clackamas County Water Environment Services (WES) Sanitary Sewer Treatment Facility along SE Richey Road; a PGE substation between the Springwater Corridor Trail and SE 282nd Avenue; two Boring Water District storage facilities; one two-acre tax lot owned by

Sunrise Water Authority at the reserve's west. The reserve also includes the Boring Middle School, Naas Elementary School, and Hoodview Adventist School, as well as several places of worship and the majority of the Mountain View Golf Course. The Springwater Corridor and Cazadero Trails are on land owned by the City of Portland and Clackamas County, and powerlines run along portions of these trails. Metro owns three contiguous tax lots between North Fork Deep Creek and SE Richey Road, with a combined area of approximately two acres.

The western portion of the reserve north of Highway 212 includes two forested buttes, "Tower" and "Zion. Relatively flat areas are located south of Highway 212 and west of SE 282nd Avenue. An intrusion of rural reserve land follows the Springwater Corridor in the North Fork Deep Creek canyon from SE 262nd Avenue/SE Kelso Road to the center of the business district. North Fork Deep Creek, along with a few tributaries, generally flow west towards the canyon area along the Springwater Corridor Trail. A few tributaries to Johnson Creek flow north and west through the area north of Highway 212.

Generally, much of the reserve is either developed or otherwise constrained by natural features, such as steep slopes. Most of the central area of the Boring community is also already built out; however, there is some underdeveloped land in the commercial/business area that could provide additional employment uses. There are also two large pockets of agricultural land near SE Kelso Road that provide an opportunity for either residential or employment uses. While an employment use in these locations would be at the edge of the future urbanized area, such uses could benefit from proximity to Highway 26 and may provide a better buffer than residential uses between new urban development and nearby agricultural activity. There are two areas along SE Haley Road west of SE 282nd Avenue that are better suited to residential uses, considering their smaller tax lots and adjacent existing uses. There are other pockets of land throughout the reserve that could also provide for future residential uses, depending on availability of urban services. The proximity of existing schools, retail commercial uses, and recreational facilities could support residential uses.

The Boring Urban Reserve is considered able to accommodate both residential end employment land needs.

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

### *Water Services*

With regard to water services, the Boring Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

#### *a. Capacity of existing facilities to serve areas already inside the UGB*

Most of the land near to the Boring Urban Reserve that is already inside the UGB is not currently served by public water services, except for a roughly 70-acre area north of Highway 212 and west of SE 257th Avenue, which is served by the Boring Water District. Sunrise Water Authority provides water service to some of the nearby land within the UGB as well, although the district boundary is about two miles from the Boring Urban

Reserve. The Boring Water District also already provides service to most of the unincorporated community of Boring, which includes some of the Boring Urban Reserve.

The Boring Water District has four wells in the deep Troutdale Aquifer and has been granted water rights by Oregon Water Resources Department (OWRD) to withdraw up to 5.8 MGD. Existing storage is provided by three tanks: two tanks are located at Meier Dairy, one of which is sized at 352,000 gallons and another at 443,000 gallons; the other tank is located at SE Wally Road at the top of Polivka Hills and has a capacity of 100,000 gallons. There are no definitive determinations of an existing supply deficit for service to lands already in the UGB. While the Boring Water District's distribution system may be adequate to meet current demands, aged piping may eventually need to be replaced. As of 2009, there was not sufficient storage capacity to provide for peak day demands as well as fire requirements and efforts to improve that capacity are not currently known.

### *b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Existing supply and storage facilities are not currently available to meet the demands of urbanization of the Boring Urban Reserve. Urbanization of the reserve would require system-level increases in supply and storage capacity that are not entirely known and therefore not fully included in the costs listed below.

### *c. Impacts to existing facilities that serve nearby areas already inside the UGB*

As noted above, the Boring Water District only serves a small area that is already inside the UGB. However, the district's supply and storage facilities would need to be expanded to serve urban development in the reserve without creating or exacerbating any deficits. Aging/undersized pipes may also need to be replaced/upgraded.

### *d. Estimated water service-related costs for reserve development*

| Water piping, pumping, and storage costs | Cost |
|---|---|
| **10-inch pipe** | $0 |
| **12-inch pipe** | $0 |
| **16-inch pipe** | $11.55 million |
| **Pumping** | $0 |
| **Storage** | $1.32 million |
| **Total:** | **$12.87 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$675** |

### *Sanitary Sewer Services*

With regard to sanitary sewer services, the Boring Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

There is no existing public sanitary sewer service within the UGB near the Boring Urban Reserve. Rather, this portion of the UGB is currently served by private septic systems. Clackamas Water Environment Services (WES) provides service in the UGB, but its service district boundary in the UGB is nearly five miles to the west. WES also operates a sewer treatment plant (the Boring Water Resource Recovery Facility, or WRRF) in the unincorporated community Boring, outside the UGB. Boring WRRF consists of lagoons and a sand filter to provide tertiary treatment for up to 20,000 gallons per day, which is believed to be just nearly adequate to continue serving existing customers. Considerations have been given to abandoning the Boring WRRF and to have wastewater pumped to another facility for treatment, perhaps in Sandy, Gresham, or another WES facility. Any additional treatment facility costs, and extended distribution system costs, that may be needed to accommodate this service, which are likely to be significant, are not included in the below costs.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

The existing treatment plant and facilities are not adequate to serve the Boring Urban Reserve.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Because there is no existing public sanitary sewer service within the UGB near the Boring Urban Reserve, there are no existing facilities necessarily to be impacted. However, as noted above, existing facilities outside the UGB do not have capacity to serve the Boring Urban Reserve.

*d. Estimated sanitary sewer service-related costs for reserve development*

| Sanitary sewer piping and pumping costs | Cost |
|---|---|
| **10-inch pipe** | $0 |
| **12-inch pipe** | $0 |
| **21-inch pipe** | $19.04 |
| **Pump station** | $16.56 million |
| **Force mains** | $0 |
| **Total:** | **$35.60 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$1,868** |

### *Stormwater Management Services*

With regard to stormwater management services, the Boring Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

No public stormwater management facilities exist to serve the adjacent area already inside the UGB.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

No public stormwater management facilities exist.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Because there is no existing public stormwater service within the UGB near the Boring Urban Reserve, there are no existing facilities necessarily to be impacted. Stormwater conveyance, water quality, and detention for roadways would be developed during construction. Based on topography, it seems likely that stormwater could outfall directly to North Fork Deep Creek.

*d. Estimated stormwater service-related costs for reserve development*

| Stormwater piping and water quality/detention | Cost |
|---|---|
| **18-inch pipe** | $9.60 million |
| **24-inch pipe** | $5.48 million |
| **30-inch pipe** | $2.75 million |
| **Water quality/dentition** | $19.22 million |
| **Total:** | **$37.05 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$1,944** |

### *Transportation Services*

With regard to transportation services, the Boring Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(e) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Figure 4.36 in Chapter 4 of the 2023 Regional Transportation Plan (RTP) displays 2020 home-based vehicle miles traveled (VMT) per capita by Metro transportation analysis

zone, with average VMT per capita considered 11.32. According to Figure 4.36, areas in the UGB adjacent to the Boring Urban Reserve had significantly above average home-based VMT per capita in 2020.

Metro's adopted 2040 Growth Concept Map designates numerous walkable, higher-density, mixed-use centers of employment, housing, cultural and recreational activities, and transit service across the region in the UGB. Those centers are intended to grow the economy, provide affordable housing, and promote vibrant and distinctive communities that minimize transportation costs and allow people to meet their daily needs without having to utilize a private motor vehicle. There are no 2040 Growth Concept centers that have been planned for urban uses within three miles of the reserve; residents of areas already within the UGB near the reserve therefore have to travel several miles to reach a 2040 Growth Concept Center that has been planned for urban uses. Areas already inside the UGB near to the reserve are also about three miles from major commercial uses (e.g., grocery store and other retail uses) in the UGB.

Furthermore, because there are currently no on-road bike facilities and no sidewalks within the UGB near to the reserve, and because there is only limited bus service (i.e., every few hours) on the Sandy Area Metro (SAM) connecting these areas to commercial areas in Damascus and Clackamas, residents of these areas are particularly reliant on private motor vehicle transport to get to services within the UGB. The Springwater Corridor Trail, however, does connect areas within the UGB adjacent to the north side of the reserve with Gresham and its 2040 Growth Concept regional center approximately 2.5 miles to the north.

Figure 4.14 in Chapter of the 2023 RTP identifies several high injury corridors inside the UGB in the areas of Gresham, Happy Valley, and Pleasant Valley, including Foster Road, Powell Boulevard, and sections of Highway 212. The figure also identifies the intersection of SE 242nd Avenue and SE Hoffmeister Road, as well as the intersection of Highway 26 and SE 282nd Avenue, as high injury intersections.

Highway 26 and Highway 212 are identified as throughways in Figure 4.7 in Chapter of the 2023 RTP. Figure 4.8 of the chapter indicates that these routes currently meet travel speed reliability performance thresholds, with no more than four hours per day when travel speeds fall below the identified minimum speed. RTP models indicate these facilities' reliability will continue at least to the year 2045.

### *b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Highway 26 and Highway 212 run adjacent to and/or through the reserve. As noted above, these throughways currently meet travel speed reliability performance thresholds.

There is currently no frequent transit service, on-road bike facilities, or sidewalks connecting the reserve to areas already inside the UGB. The Springwater Corridor Trail does, however, run through the reserve and connects the reserve to Gresham to the

north. SAM also provides occasional bus service from the reserve to commercial areas of Damascus and Clackamas. There are sidewalks within the reserve on Highway 212 from about SE Grange Street nearly to SE Jons Lane, as well as along SE 282nd Avenue for about 300 feet northward from the intersection with Highway 212. This intersection also has a dedicated bike lane.

As noted in response to Factor 1, the reserve already contains some commercial uses, including a grocery store, school uses, places of worship, and some residential development. A post office is just across Highway 212 in the separate Boring – Highway 26 Urban Reserve. These existing non-residential uses could support new residential uses in the reserve and help to limit the need for new residents to travel far to access their daily needs. Similarly, if the reserve were to be developed with additional employment uses, those uses could provide nearby employment opportunities to existing residents of the reserve and neighboring areas already inside the UGB, with limited commutes.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Portions of Highway 26, Highway 212, SE Telford Road, and SE 282nd Avenue already within the UGB would be expected to see additional private vehicle traffic from development of the reserve. Indeed, the reserve is several miles from the nearest 2040 Growth Concept center and currently lacks frequent transit service, bike, and pedestrian facilities to commercial areas in Damascus and Gresham, suggesting the need for private motor vehicle use on these roadways. However, as noted in response to Factor 1 and above, the reserve already has a mixture of uses and is considered able to accommodate new residential and employment uses in the future. If the reserve itself were to be developed with a mixture of uses, future residents could get more of their daily needs met locally without having to drive as much on roads already in the UGB. The existing school uses in the reserve will also help to limit driving by new residents on roads already in the UGB. Moreover, nearby residences in the current UGB could provide housing to employees of the reserve, and new employment uses in the reserve could provide jobs for nearby residents of the current UGB, further limiting new traffic impacts on roads already in the UGB.

With these considerations, development of the reserve may result in only moderate impacts to home-based VMT per capita in nearby areas already inside the UGB and the performance of Highway 26 and Highway 212 as throughways. Any additional motor vehicle traffic on Foster Road or Highway 212 resulting from development of the reserve, however, may exacerbate these roadways' high-crash conditions.

Urban development of the reserve would result in greater use of the Springwater Corridor Trail and the existing sidewalks and bike facility already inside the reserve.

*d. Need for major transportation facility improvements and associated costs*

In order to serve urban development, a 1.39-mile section of SE 282nd Avenue and a 0.58-mile section SE Highway 212 at the east of the reserve will likely need to be improved to urban arterial standards. Both of these roadway sections' improvements are considered to be a half-street improvements in this analysis, as their eastern and northern sides, respectively, would be improved within the urbanization of the separate Boring – Highway 26 Urban Reserve. Another roughly 1.5 miles of SE Highway 212 west of SE 282nd Avenue, as well as 0.83 miles of SE Richey Road and 1.13 miles of SE Kelso Road, will also likely need to be improved/extended to urban arterial standards, including with acquisition of additional right-of-way. It is expected that the following roadway sections will need to be improved to urban collector standards, with acquisition of additional right-of-way: 0.80 miles of SE Church Road; 0.54 miles of SE 257th Avenue; 0.74 miles of SE Stewart Lane; 0.2 miles of SE Fireman Way; 0.26 miles of SE Gillespie Court/SE Zion Hill Drive; 0.28 miles of SE School Avenue; 0.84 miles of SE 272nd Avenue; 1.97 miles of SE Sunshine Valley Road/SE Victoria Street; 0.83 miles of SE 258th Place/SE 257th Drive; 1.09 miles of SE Telford Road; and 0.67 miles of SE Haley Road. In addition, four new collectors with a combined length of approximately 2.81 miles will need to be built. Some sections of these new and improved roadways may need to traverse areas of steeper topography and/or water bodies; therefore, some per-mile costs are higher than normal.

| Facilities | Cost |
|---|---|
| **Arterials, existing/improved full street** | $166.76 million |
| **Arterials, existing/improved half street** | $52.90 million |
| **Arterials, new** | $0 |
| **Collectors, existing/improved full street** | $278.45 million |
| **Collectors, existing/improved half street** | $0 |
| **Collectors, new** | $156.20 million |
| **Total:** | **$149.31 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$34,329** |

### *e. Provision of public transit service*

The reserve's area was withdrawn from the TriMet service district; thus, no analysis of future/additional transit service was completed by TriMet. As described above, SAM currently serves the reserve.

Prior to land being included in the UGB, a more detailed concept plan, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11, will be required. This concept plan process will develop more refined public facility and service needs and cost estimates.

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

### *Environmental consequences*

North Fork Deep Creek flows westward near the unincorporated community of Boring for nearly a mile in the Boring Urban Reserve, mostly within an intact riparian corridor. About 1.5 total miles of very small tributaries also flow in this area, generally through rural residential development, though about 1,600 feet of these tributaries flow through agricultural land. Riparian habitat is identified along the stream corridors, with some upland habitat near the eastern edge of the reserve.

Two additional tributaries to North Fork Deep Creek, with combined lengths of approximately 6,100 feet, flow south through the southwest corner of the reserve on the north side of Highway 212. These streams cross pastureland and wooded tax lots. Riparian habitat is identified along the stream corridors with some upland habitat identified along the wooded surroundings of the streams. A 2.5-acre wetland identified through the National Wetland Inventory (NWI) is located along North Fork Deep Creek at the eastern edge of the reserve.

The riparian corridors of North Fork Deep Creek and of the tributaries described above, as well as wetlands, floodplains, and upland habitat, could receive enhanced regulatory protections as a result of adding the reserve to the UGB.

The area between SE 282nd Avenue and the Springwater Corridor contains a few tributaries to Johnson Creek that flow north and that have a combined length of approximately two miles. Significant portions of these small streams flow through a forested riparian corridor and the remaining portions generally traverse open fields. Riparian habitat is identified along the stream corridors with some upland habitat identified along the wooded areas near the streams. In several locations, it appears that the streams have been altered to create ponds. Inclusion of the area in the UGB may result in greater protections and even enhancements of the existing forested riparian corridor due to increased urban water quality and habitat regulations.

A 2,000-foot section of stream in the vicinity of SE Sunshine Valley Road and SE 250th Place flows west out of the reserve to connect with other streams and ultimately join Johnson Creek to the north. This stream is in forested portions of large rural residential tax lots and has been identified as having associated riparian and upland habitat.

Urbanization of the flat, less vegetated, developable land near the streams within the reserve could have some impacts water bodies. However, restoration of degraded stream edges and enhancement of wetland buffers would provide protection from urbanization. The tributaries that mostly flow through the rural residential areas may be impacted by future development, as they generally flow through the remaining developable portions of the properties; however, the existing housing pattern and lot consolidation concerns may reduce options for impact reduction measures. Urbanization of the agricultural lands provides the opportunity to restore and enhance the riparian corridor of the streams that

flow along the edges of the fields. There are some significant locations of upland habitat identified in the butte areas, although most of it is also located on slopes greater than 25 percent, which would limit the amount of urbanization that could occur.

This analysis finds that urbanization of the reserve could occur with moderate to high impacts to the stream corridors, habitat areas, and wetlands, but impacts will depend in part on building and lot consolidation patterns and the opportunities to enhance riparian corridors on agricultural lands.

Considering the comparative environmental consequences of urbanization, the Boring Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location sub-factor.

### *Social, energy, and economic consequences*

The relatively large Boring Urban Reserve has a variety of land uses that would be impacted differently by urbanization.

There is somewhat urban-like development, including residential, commercial, industrial, and institutional uses, in the unincorporated community of Boring around the intersection of Highway 212 and SE 282nd Avenue. Given the levels of existing development and parcelization, new urban development here would be expected to occur more slowly and have less of a noticeable impact on the existing character of the area.

There are also substantial amounts of rural residential development on smaller tax lots near the Mountain View Golf Course. The golf course is not considered buildable land and urban redevelopment of the nearby rural residential areas is likely to occur very slowly, and thereby cause comparatively less change in the character of the area.

The forested buttes north of Highway 212 and west of SE Telford Road are less developed and have more of a rural character, in part because they are not as close to the unincorporated community of Boring and are nearer to more rural and undeveloped areas. Nonetheless, there are a number of rural residences in this area, as well and platted rural residential subdivisions. That existing development, as well as topography and natural resources, may encourage a less dense, smaller-scale urban redevelopment patters that are not as likely to generate a significant change in sense of place or degradation of rural lifestyle for existing residents.

While urbanization may have generate some changes to the character of the area over time, it could also could foster new civic, recreational, and social opportunities for the reserve's existing residents, particularly if it features a mixture of uses.

As detailed more fully in response to Factor 2, urbanization of the reserve may only have moderate impacts on VMT, thereby limiting adverse energy consequences.

While there is the potential for loss of some existing jobs through redevelopment of the existing commercial/employment center of Boring, the potential to generate a significant

number of new jobs with urban employments uses may be a positive for the area. The agricultural activity within the reserve is not insignificant; however, the economic benefits of urban residential development and employment uses may outweigh the economic costs from a loss in farming activity.

Overall, there would be comparatively moderate social, energy, and economic consequences from urbanization of this reserve. The Boring Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location sub-factor.

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

There are three locations where lands outside the UGB but contiguous to the Boring Urban Reserve have Goal 3 or 4 resource land zoning for agricultural and forest activities.

The first location is land along SE 282nd Avenue on the opposite side of Highway 26 from the reserve. This land is zoned Exclusive Farm Use (EFU) by Clackamas County and, while generally lacking in trees, is in active agriculture use. Additional traffic along SE 282nd Avenue to and from Gresham caused by development of the reserve could impede the movement of farm equipment. SE 282nd Avenue itself would not provide an appropriate buffer between urban and agricultural uses; indeed, there could be land use conflicts in this location related to safety, liability, and vandalism and complaints of noise, odor, dust, and the use of pesticides and fertilizer.

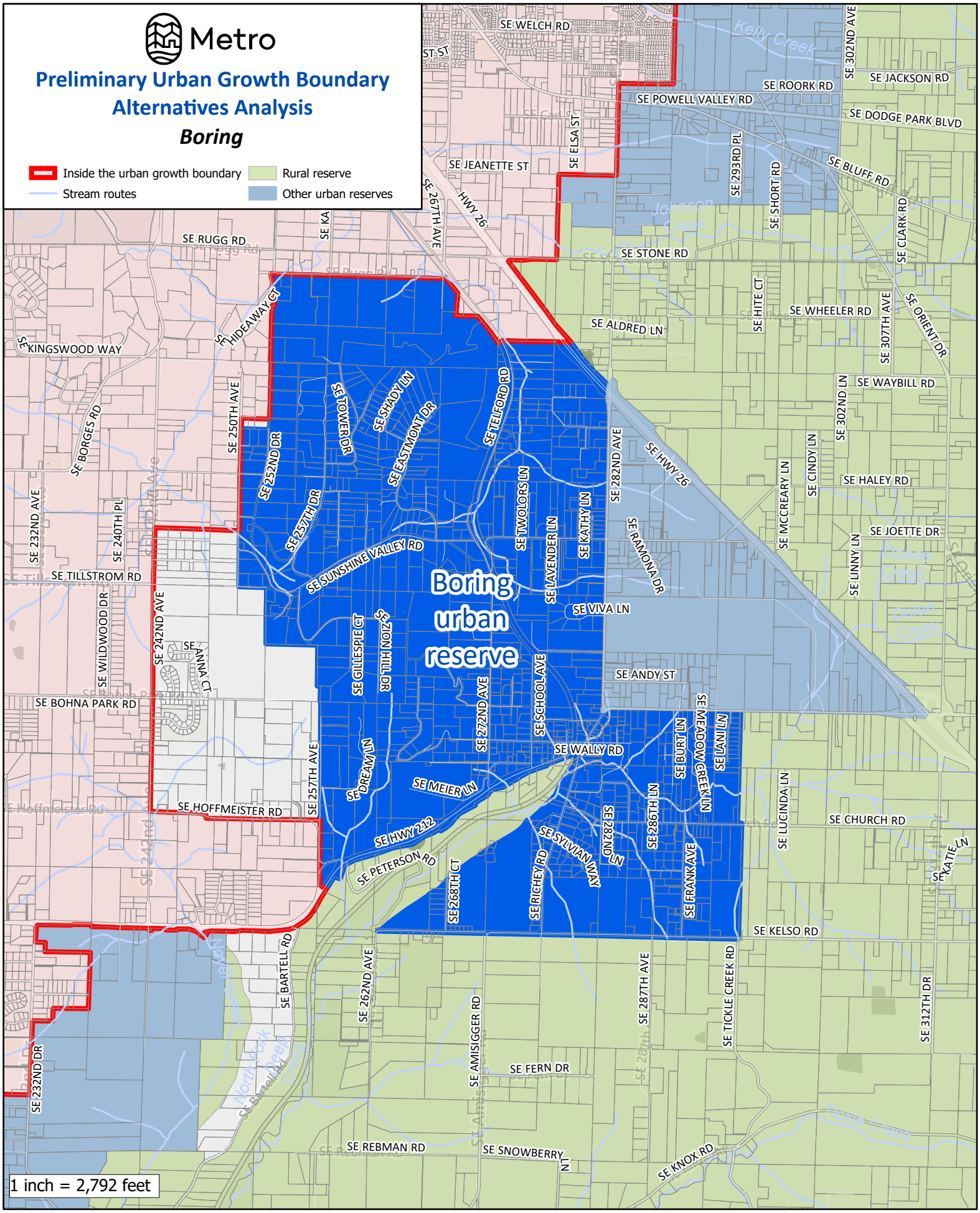
The second location is east of SE 282nd Avenue in the vicinity of SE Viva Lane and consists of one 80-acre tax lot that is part of the larger commercial nursery operation to the east. Additional traffic along SE 282nd Avenue to and from Gresham caused by urbanization of the reserve could impede the movement of farm equipment in this location; however, since this 80-acre tax lot has field access from the remainder of the nursery that is headquartered off Highway 212, there are alternative ways to move equipment. Even though the frontage of the EFU land along SE 282nd Avenue is not very long, the right-of-way width would not provide an appropriate buffer between urban and agricultural uses, and land use conflicts related to safety, liability, and vandalism and complaints due to noise, odor, dust, and the use of pesticides and fertilizer could still occur in this location.

The third location is an extensive tract of EFU-zoned land south of SE Kelso Road and east of the urban reserve along both sides of SE Church Road. The agricultural land south of SE Kelso Road is in nursery production and extends over a mile south in some locations. Additional traffic along SE Kelso Road to and from Highway 26 could impede the movement of farm equipment and goods as that is the most direct route to the highway from this extensive agricultural area. This is especially true if the large tax lots in the reserve are developed with residential uses. SE Kelso Road would not provide an appropriate buffer to between urban and agricultural uses and issues related to safety, liability, and vandalism and complaints due to noise, odor, dust, and the use of pesticides and fertilizer could still occur. The EFU-zoned land adjacent to SE Church Road is in nursery and field crop use and is also more intermixed with pockets of residences. However, there is some large single-owner operations that could be impacted by increased traffic on SE Church Road, which also

provides good access for agricultural activities to Highway 26. Most of the EFU land directly adjacent to the reserve is in residential use and would provide a bit of a buffer between the new urban area and the agricultural activities further east.

The nearby agricultural activities occurring on farm and forest land would be impacted by urbanization of the reserve, especially in the southern portion of the area. Therefore, the proposed urban uses (i.e., urban development of the reserve) would be considered to have low compatibility with the nearby agricultural and forest activities occurring on farm and forest land.

The Boring Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location factor.

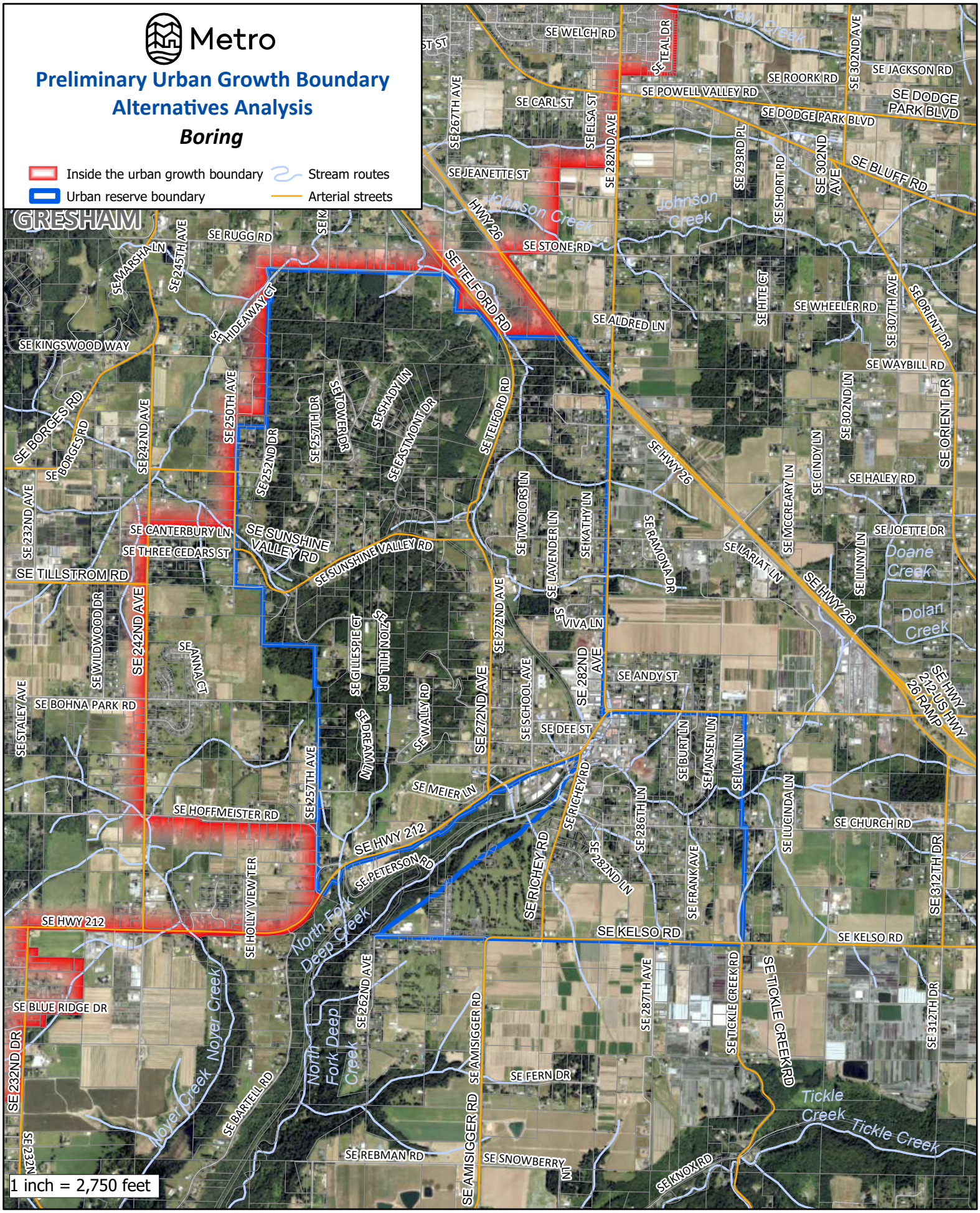


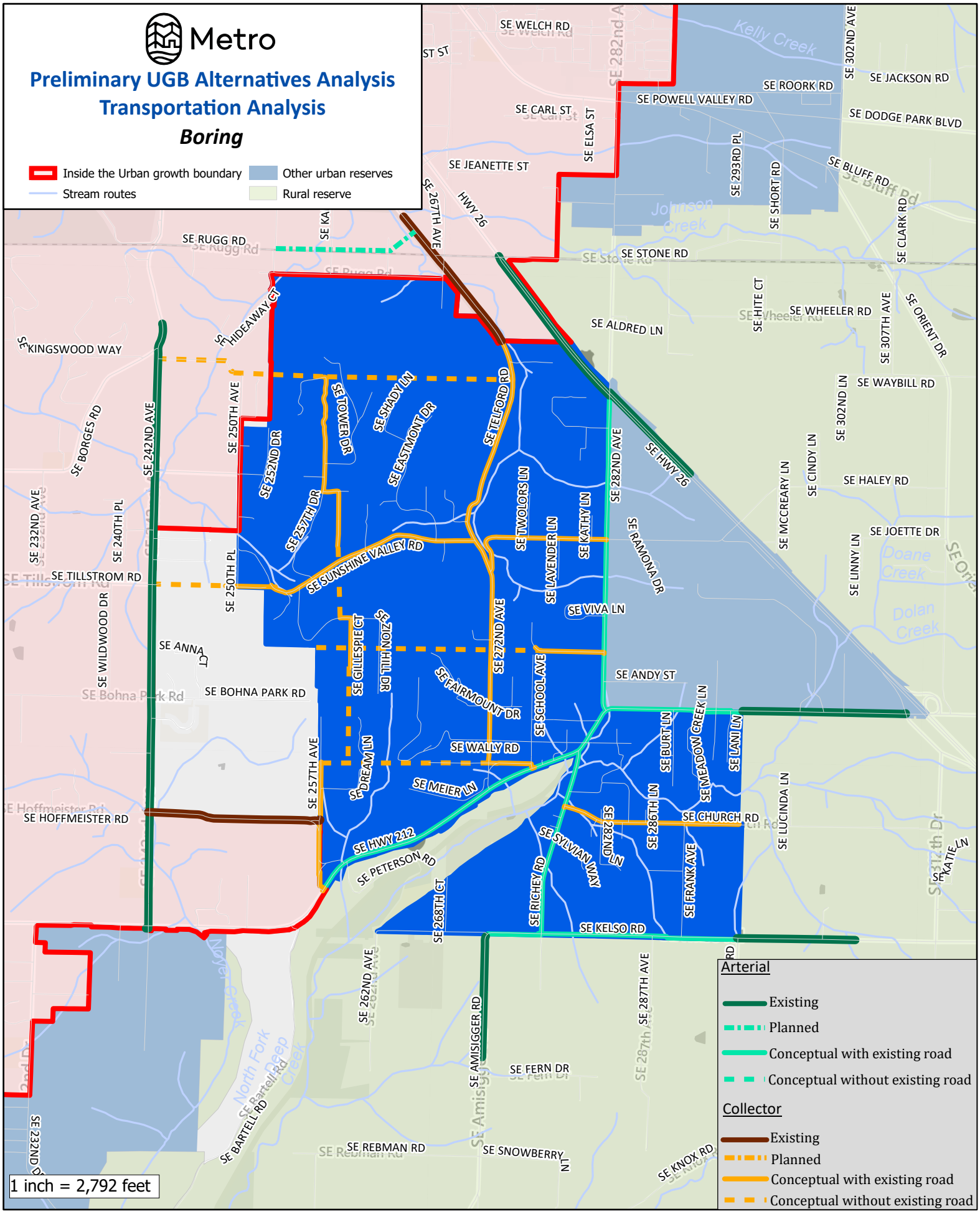
Metro

# Preliminary Urban Growth Boundary Alternatives Analysis

## *Boring*

Inside the urban growth boundary
Urban reserve boundary
Stream routes
Arterial streets



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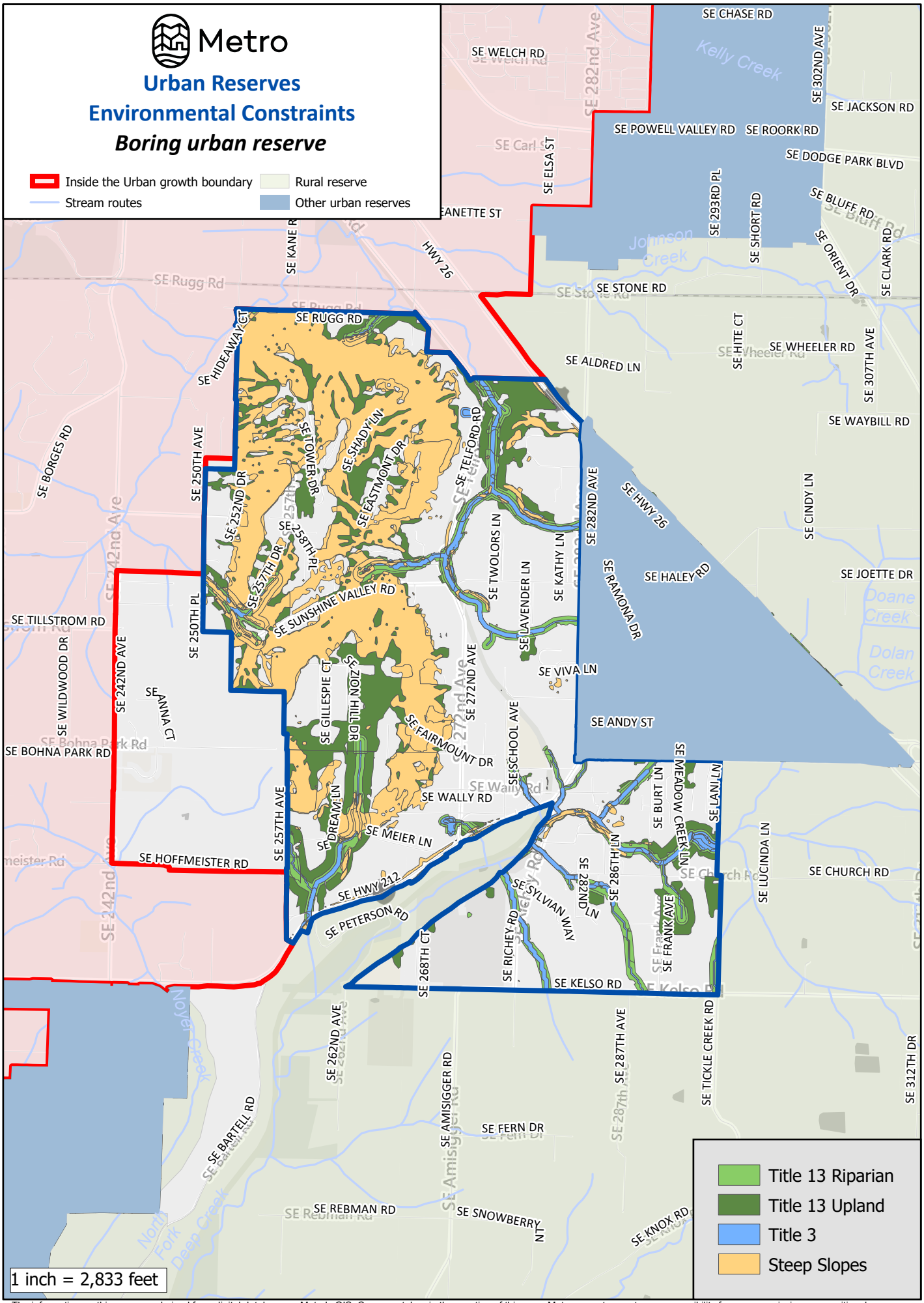
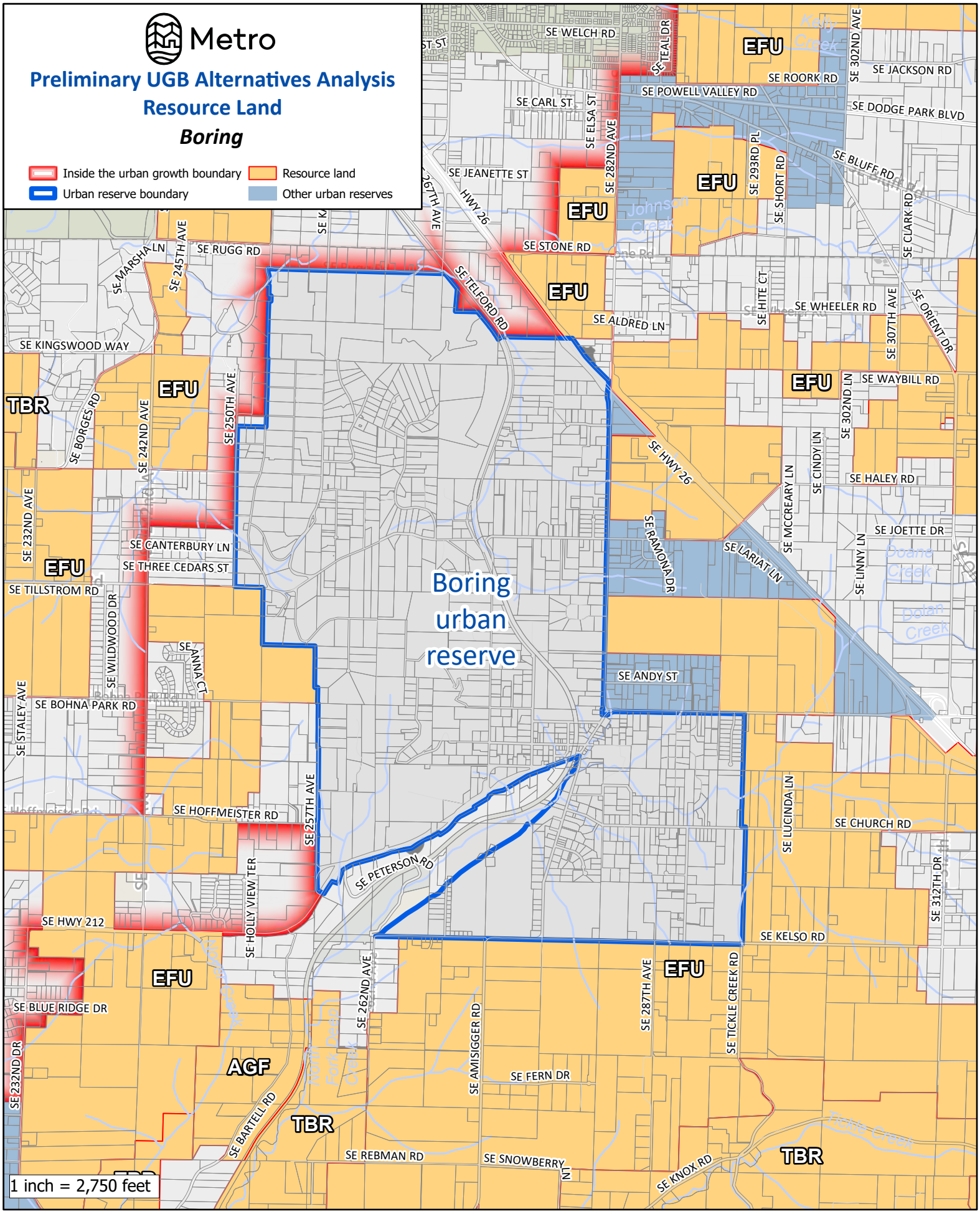




# BORING – HIGHWAY 26 URBAN RESERVE

| | |
|---|---|
| Total Reserve Area | 671 acres |
| Total Tax Lot Area in Reserve (without Right-of-Way) | 591 acres |
| Gross Vacant Buildable Area | 503 acres |
| **Net Vacant Buildable Area** | **375 acres** |

The Boring – Highway 26 Urban Reserve is a triangular-shaped area with Highway 26 along its northeast side, SE 282nd Avenue along its west side, and Highway 212 along its south side. Uniquely, the Boring – Highway 26 Urban reserve is not immediately adjacent to the UGB, but rather is separated from it by the "Boring Urban Reserve" on the opposite side of SE 282nd Avenue and Highway 212. Rural reserve lands are on the other side of Highway 26 and the east end of Highway 212.

## GOAL 14 BOUNDARY LOCATION FACTORS

### Factor 1: Efficient accommodation of identified land needs

The Boring – Highway 26 Urban Reserve is comprised of 150 contiguous tax lots, but one of those tax lots, owned by the State of Oregon, is occupied by Highway 26 on- and off-ramps. Of the other 149 tax lots, two-thirds are smaller than two acres each, 85 percent are smaller than five acres each, and 12 are 10 acres or larger, including one that is nearly 80 acres. The combined tax lot area within the reserve is approximately 591 acres. As noted above, the entire reserve contains 503 gross vacant buildable acres and 375 net vacant buildable acres.

Four distinct land uses define the reserve: rural residential pockets along SE Haley Road and SE Andy Street; two significant tracts of agricultural land; a section of the business district of the community of Boring; and wholesaling/industrial uses near the Highway 212 interchange with Highway 26. Along Highway 212, the reserve contains a post office on a 2.7-acre tax lot and a fire district facility on a 4.3-acre tax lot. The Good Sheppard Community Church and School is on a 30-acre tract of land in the center of the reserve along SE Haley Road, and includes a mile-long secondary access from Highway 212 through the John Holmlund Nursery property. Overall, 146 of the reserve's tax lots have assessed improvements, with the median assessed value of those tax lots' improvements being approximately $271,000.

Naas Elementary School, Boring Elementary School, and the Springwater Corridor Trail are less than half a mile from the southwest corner of the reserve via Highway 212 and SE School Avenue. The Mountain View Golf Course is within two miles.

In addition to frontage along Highway 212, the reserve contains two access points to Highway 26, which leads to the City of Gresham just two miles to the north and to the City of Sandy approximately three miles to the south. There is currently no transit service to the reserve.

The reserve is primarily flat, though North Fork Deep Creek flows south through the southeast corner of the reserve and two tributaries of Johnson Creek flow west through the central and northern portion of the reserve.

With its direct highway access, existing commercial and industrial land uses, and relatively large and flat agricultural properties, the reserve is considered able to accommodate an employment need, particularly near to Highway 26, SE Haley Road, and the commercial center of Boring. Close proximity of schools, recreational uses, and commercial services would also benefit residential uses and such uses may be compatible with existing residential development on smaller lots. Therefore, the reserve is considered able to accommodate both a residential and employment land need.

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

### *Water Services*

With regard to water services, the Boring – Highway 26 Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Most of the land near to the Boring – Highway 26 Urban Reserve that is already inside the UGB is not currently served by public water services, except for a roughly 70-acre area north of Highway 212 and west of SE 257th Avenue, which is served by the Boring Water District. Sunrise Water Authority provides water service to some of the nearby land within the UGB as well, although the district boundary is about two miles from the Boring – Highway 26 Urban Reserve. The Boring Water District also already provides service to most of the unincorporated community of Boring, which includes most of the Boring – Highway 26 Urban Reserve.

The Boring Water District has four wells in the deep Troutdale Aquifer and has been granted water rights by Oregon Water Resources Department (OWRD) to withdraw up to 5.8 MGD. Existing storage is provided by three tanks: two tanks are located at Meier Dairy, one of which is sized at 352,000 gallons and another at 443,000 gallons; the other tank is located at SE Wally Road at the top of Polivka Hills and has a capacity of 100,000 gallons. There are no definitive determinations of an existing supply deficit for service to lands already in the UGB. While the Boring Water District's distribution system may be adequate to meet current demands, aged piping may eventually need to be replaced. As of 2009, there was not sufficient storage capacity to provide for peak day demands as well as fire requirements and efforts to improve that capacity are not currently known.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Existing supply and storage facilities are not currently available to meet the demands of urbanization of the Boring – Highway 26 Urban Reserve. Urbanization of the reserve

would require system-level increases in supply and storage capacity that are not entirely known and therefore not fully included in the costs listed below.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

As noted above, the Boring Water District only serves a small area that is already inside the UGB. However, the district's supply and storage facilities would need to be expanded to serve urban development in the reserve without creating or exacerbating any deficits. Aging/undersized pipes may also need to be replaced/upgraded.

*d. Estimated water service-related costs for reserve development*

| Water piping, pumping, and storage costs | Cost |
|---|---|
| **10-inch pipe** | $3.19 million |
| **12-inch pipe** | $0 |
| **16-inch pipe** | $0 |
| **Pumping** | $0 |
| **Storage** | $0.50 million |
| **Total:** | **$3.69 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$492** |

### *Sanitary Sewer Services*

With regard to sanitary sewer services, the Boring – Highway 26 Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

There is no existing public sanitary sewer service within the UGB near the Boring – Highway 26 Urban Reserve. Rather, this portion of the UGB is currently served by private septic systems. Clackamas Water Environment Services (WES) provides service in the UGB, but its service district boundary in the UGB is more than five miles to the west. WES also operates a sewer treatment plant (the Boring Water Resource Recovery Facility, or WRRF) in the unincorporated community Boring, outside the UGB. Boring WRRF consists of lagoons and a sand filter to provide tertiary treatment for up to 20,000 gallons per day, which is believed to be just nearly adequate to continue serving existing customers. Considerations have been given to abandoning the Boring WRRF and to have wastewater pumped to another facility for treatment, perhaps in Sandy, Gresham, or another WES facility. Any additional treatment facility costs, and extended distribution system costs, that may be needed to accommodate this service, which are likely to be significant, are not included in the below costs.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

The existing treatment plant and facilities are not adequate to serve the Boring – Highway 26 Urban Reserve.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Because there is no existing public sanitary sewer service within the UGB near the Boring – Highway 26 Urban Reserve, there are no existing facilities necessarily to be impacted. However, as noted above, existing facilities outside the UGB do not have capacity to serve the Boring – Highway 26 Urban Reserve.

*d. Estimated sanitary sewer service-related costs for reserve development*

| Sanitary sewer piping and pumping costs | Cost |
|---|---|
| **10-inch pipe** | $2.83 million |
| **12-inch pipe** | $0 |
| **15-inch pipe** | $0 |
| **Pump station** | $0 |
| **Force mains** | $0.50 million |
| **Total:** | **$3.69 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$485** |

### *Stormwater Management Services*

With regard to stormwater management services, the Boring – Highway 26 Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

No public stormwater management facilities exist to serve the adjacent area already inside the UGB.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

No public stormwater management facilities exist.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Because there is no existing public stormwater service within the UGB near the Boring – Highway 26 Urban Reserve, there are no existing facilities necessarily to be impacted.

Stormwater conveyance, water quality, and detention for roadways would be developed during construction.

*d. Estimated stormwater service-related costs for reserve development*

| Stormwater piping and water quality/detention | Cost |
|---|---|
| **18-inch pipe** | $2.16 million |
| **24-inch pipe** | $1.06 million |
| **30-inch pipe** | $0 |
| **Water quality/dentition** | $12.41 million |
| **Total:** | **$15.63 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$2,086** |

### *Transportation Services*

With regard to transportation services, the Boring – Highway 26 Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(e) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Figure 4.36 in Chapter 4 of the 2023 Regional Transportation Plan (RTP) displays 2020 home-based vehicle miles traveled (VMT) per capita by Metro transportation analysis zone, with average VMT per capita considered 11.32. According to Figure 4.36, areas in the UGB nearest to the Boring – Highway 26 Urban Reserve had significantly above average home-based VMT per capita in 2020.

Metro's adopted 2040 Growth Concept Map designates numerous walkable, higher-density, mixed-use centers of employment, housing, cultural and recreational activities, and transit service across the region in the UGB. Those centers are intended to grow the economy, provide affordable housing, and promote vibrant and distinctive communities that minimize transportation costs and allow people to meet their daily needs without having to utilize a private motor vehicle. There are no 2040 Growth Concept centers that have been planned for urban uses within three miles of the reserve; residents of areas already within the UGB near the reserve have to travel several miles to reach a 2040 Growth Concept Center that has been planned for urban uses. Areas already inside the UGB near to the reserve are also more than three miles from major commercial uses (e.g., grocery store and other retail uses) in the UGB.

Furthermore, because there are currently no on-road bike facilities and no sidewalks within the UGB near to the reserve, and because there is only limited bus service (i.e., every few hours) on the Sandy Area Metro (SAM) connecting these areas to commercial areas in Damascus and Clackamas, residents of these areas are particularly reliant on

private motor vehicle transport to get to services within the UGB. The Springwater Corridor Trail, however, does connect areas within the UGB near to the north side of the reserve with Gresham and its 2040 Growth Concept regional center approximately three miles to the north.

Figure 4.14 in Chapter of the 2023 RTP identifies several high injury corridors inside the UGB in the areas of Gresham, Happy Valley, and Pleasant Valley, including Foster Road, Powell Boulevard, and sections of Highway 212. The figure also identifies the intersection of SE 242nd Avenue and SE Hoffmeister Road, as well as the intersection of Highway 26 and SE 282nd Avenue, as high injury intersections.

Highway 26 and Highway 212 are identified as throughways in Figure 4.7 in Chapter 4 of the 2023 RTP. Figure 4.8 of the chapter indicates that these routes currently meet travel speed reliability performance thresholds, with no more than four hours per day when travel speeds fall below the identified minimum speed. RTP models indicate these facilities' reliability will continue at least to the year 2045.

### *b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Highway 26 and Highway 212 run adjacent to and/or through the reserve. As noted above, these throughways currently meet travel speed reliability performance thresholds.

There is currently no frequent transit service, on-road bike facilities, or sidewalks connecting the reserve to areas already inside the UGB. The Springwater Corridor Trail, however, which is less than 1,000 feet from the southwest corner of the reserve, connects to Gresham to the north. SAM also provides occasional bus service from the reserve to commercial areas of Damascus and Clackamas. There are sidewalks within the reserve for about 1,600 feet on Highway 212, as well as along SE 282nd Avenue for about 300 feet northward from the intersection with Highway 212. This intersection also has a dedicated bike lane.

As noted in response to Factor 1, the reserve already contains some commercial uses, school uses, places of worship, a post office, and some residential development. A grocer story is just across Highway 212 in the separate Boring Urban Reserve. These existing non-residential uses could support new residential uses in the reserve and help to limit the need for new residents to travel far to access their daily needs. Similarly, if the reserve were to be developed with additional employment uses, those uses could provide nearby employment opportunities to existing residents of the reserve and neighboring areas already inside the UGB, with limited commutes.

### *c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Portions of Highway 26, Highway 212, SE Telford Road, and SE 282nd Avenue already within the UGB would be expected to see additional private vehicle traffic from development of the reserve. Indeed, the reserve is several miles from the nearest 2040

Growth Concept center and currently lacks frequent transit service, bike, and pedestrian facilities to commercial areas in Damascus and Gresham, suggesting the need for private motor vehicle use on these roadways. However, as noted in response to Factor 1 and above, the reserve already has a mixture of uses and is considered able to accommodate new residential and employment uses in the future. If the reserve itself were to be developed with a mixture of uses, future residents could get more of their daily needs met locally without having to drive as much on roads already in the UGB. The existing school uses in the reserve will also help to limit driving by new residents on roads already in the UGB. Moreover, nearby residences in the current UGB could provide housing to employees of the reserve, and new employment uses in the reserve could provide jobs for nearby residents of the current UGB, further limiting new traffic impacts on roads already in the UGB.

With these considerations, development of the reserve may result in only moderate impacts to home-based VMT per capita in nearby areas already inside the UGB and the performance of Highway 26 and Highway 212 as throughways. Any additional motor vehicle traffic on Foster Road or Highway 212 resulting from development of the reserve, however, may exacerbate these roadways' high-crash conditions.

Urban development of the reserve would result in greater use of the Springwater Corridor Trail and the existing sidewalks and bike facility already inside the reserve.

### *d. Need for major transportation facility improvements and associated costs*

In order to serve urban development, a 1.39-mile section of SE 282nd Avenue and a 1.2-mile section SE Highway 212 at along the western and southern edges of the reserve will likely need to be improved to urban arterial standards. Both of these roadway sections' improvements are considered to be a half-street improvements in this analysis, as their western and southern sides, respectively, would be improved within the urbanization of the separate Boring Urban Reserve. A 0.61-mile section of SE Haley Road would likely need to be improved to urban collector standards, and a new 0.75-mile-long collector is expected to be needed to SE Highway 212 to SE Haley Road. Given the relatively flat topography, most of the new and improved facilities would have normal per-mile costs, though there are some potential stream crossings that could increase per-mile costs in a few areas.

| Facilities | Cost |
|---|---|
| **Arterials, existing/improved full street** | $0 |
| **Arterials, existing/improved half street** | $75.78 million |
| **Arterials, new** | $0 |
| **Collectors, existing/improved full street** | $17.72 million |
| **Collectors, existing/improved half street** | $0 |
| **Collectors, new** | $29.93 million |
| **Total:** | **$123.43 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$16,471** |

*e. Provision of public transit service*

The reserve's area was withdrawn from the TriMet service district; thus, no analysis of future/additional transit service was completed by TriMet. As described above, SAM currently serves the reserve.

Prior to land being included in the UGB, a more detailed concept plan, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11, will be required. This concept plan process will develop more refined public facility and service needs and cost estimates.

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

### *Environmental consequences*

North Fork Deep Creek flows south through the southeast corner of the Boring – Highway 26 Urban Reserve for approximately 2,290 feet. About half of this creek length is in or along the edge of a parking lot, while the other length flows through an open lot that is associated with a nursery before crossing under Highway 212. There are sporadic locations of trees along the stream, but no continuous natural riparian corridor.

A tributary of Johnson Creek, with approximately 2,900 feet within the reserve, flows westward from the central area of the reserve mostly through open fields but also through a couple forested areas. There is no vegetated riparian corridor associated with most of the stream length. A more northerly tributary of Johnson Creek flows through a nursery and consists of two segments that form a "Y". The lower main segment is about 2,800 feet in length and mostly flows through cleared land, although there is a 500-foot segment that is forested. The upper segment is about 950 feet in length and flows through cleared land. Riparian habitat is identified along all the stream corridors.

There are two wetlands in the reserve identified through the National Wetland Inventory (NWI). The first wetland is a 0.6-acre pond located on a commercial property that includes some limited adjacent buffer vegetation. The second wetland, about 5.7 acres in size, is located on a vacant tax lot and appears to have been significantly altered. The proximity of flat, open, developable land adjacent to all the streams and wetlands indicates potential impact from urbanization of this area, except for the forested segment of the Johnson Creek tributary. Required restoration of degraded stream edges and enhancement of the wetland buffer to meet required urban riparian habitat and water quality needs will provide some level of protection from urbanization.

This analysis finds that urbanization of the reserve could occur with comparatively low to moderate impacts to the stream corridors and wetlands, depending on urban street connectivity. Nonetheless, there is the potential with urbanization to significantly improve

the riparian corridors given the increased natural resource protection requirements on land inside the UGB.

Considering the comparative environmental consequences of urbanization, the Boring – Highway 26 Urban Reserve is given a "medium-high" score in Attachment 3 for this Goal 14 boundary location sub-factor.

### *Social, energy, and economic consequences*

The Boring – Highway 26 Urban Reserve, located along two highways, is generally made up of three different land uses: rural residential areas; commercial and industrial uses; and two significant tracts of agricultural lands, largely for nursery stock. The reserve also has a post office, several places of worship, and a fire station. Residential, commercial, industrial, and institutional development is mostly along SE Haley Road and Highway 212. While it is expected that urbanization will result in new development replacing some of these existing rural residences and other existing development, more immediate, larger-scale new development is mostly likely to occur on the larger agricultural tax lots. Considering the unincorporated community of boring already has a semi-urban character, urbanization is less likely to contribute to a change in sense of place for existing residents or degradation of a rural lifestyle. Additionally, new development, particularly if it features a mixture of uses, could foster new civic, recreational, and social opportunities for existing residents. It should also be noted that the adjacent Boring Urban Reserve would likely need to be urbanized before this reserve; so, by the time this reserve is urbanized, the overall character of the Boring community will have already become more urban.

As detailed more fully in response to Factor 2, urbanization of the reserve may generate only moderate VMT, with only moderate energy consequences.

There are approximately 46 acres of rural industrial land with excellent access to Highway 26. While there is the potential for loss of the current rural industrial jobs, the potential to generate a significant number of new jobs with urban employments uses may be a positive for the area. There are two large locations of nursery activity within the reserve. The loss of the economic impact from these agricultural uses may be considerable; however, the potential economic impact of urbanizing these large relatively flat lands would likely outweigh this loss, especially considering potential employment uses.

Overall, there would be comparatively low to moderate social, energy, and economic consequences from urbanization of this reserve. The Boring – Highway 26 Urban Reserve is given a "medium-high" score in Attachment 3 for this Goal 14 boundary location sub-factor.

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

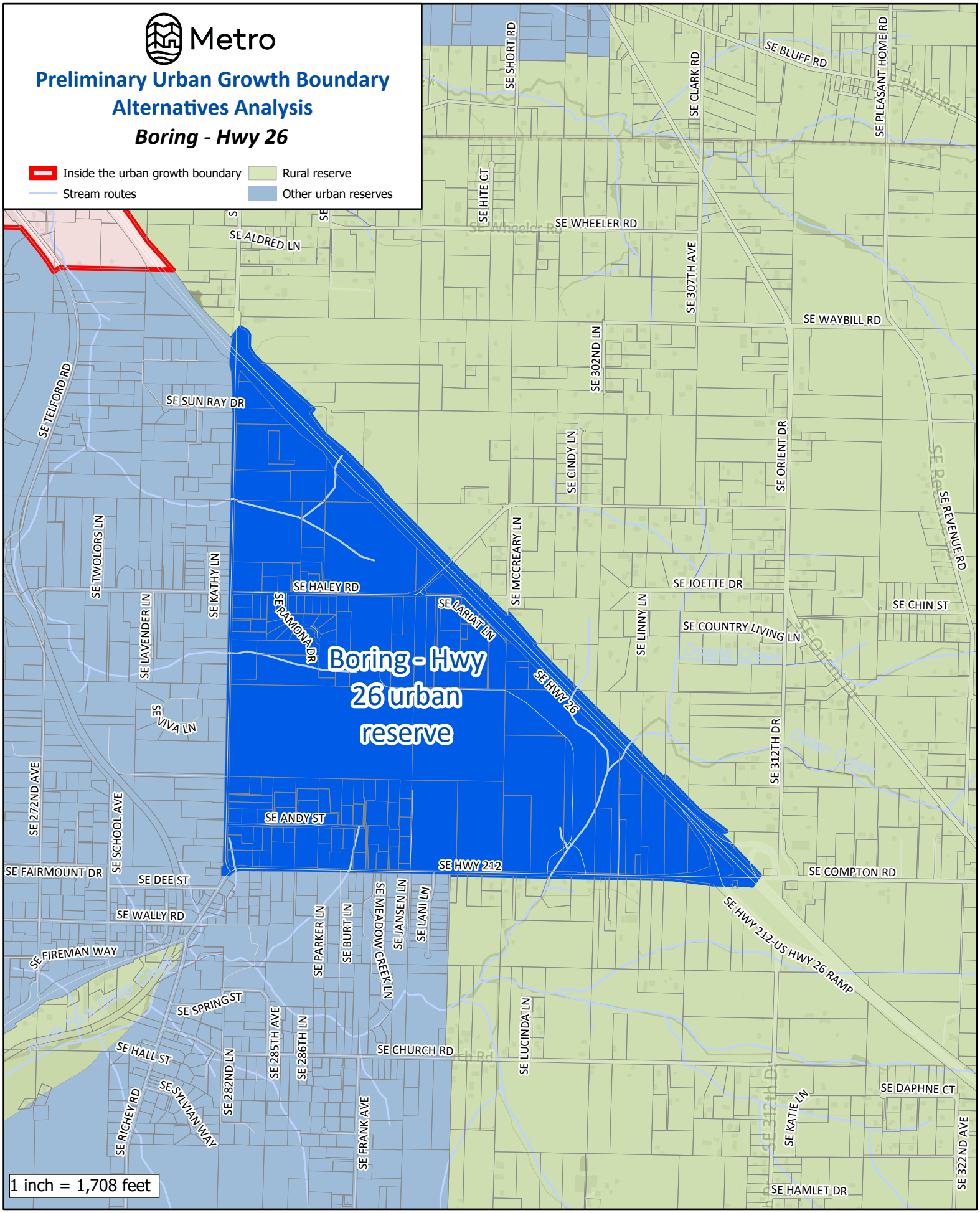
There are three locations where lands outside the UGB but contiguous to the Boring – Highway 26 Urban Reserve have Goal 3 or 4 resource land zoning for agricultural and forest activities.

The first location is a tract of land zoned Exclusive Farm Use (EFU) by Clackamas County, situated on the opposite (east) side of Highway 26 between SE 282nd Avenue and SE Haley Road and adjacent to the northern portion of the reserve. While this area has active agricultural activities and some stands of trees, the more than 200-foot-wide right-of-way of Highway 26 will serve as a buffer between natural resource activities on in this area and development of the reserve. Additional traffic along SE 282nd Avenue to and from Gresham that results from urbanization of the reserve, however, could impede the movement of farm equipment. There is less possibility of traffic impacts along SE Haley Road, however, as most of the increased traffic would not likely continue east into the rural area but rather head along Highway 26.

South of Highway 212, there are two locations where EFU-zoned land abuts the south side of the urban reserve. One of these locations, just east of the rural residential subdivision along SE Lani Lane, has four EFU-zoned tax lots with a 750-foot-long stretch of frontage along Highway 212 adjoining the reserve. These four tax lots don't appear to have any agricultural uses and have relatively few tress, none of which appear to be planted for timber harvesting. The tax lots have residential uses and three are smaller than three acres. The other location, at the southeast corner of the reserve on the opposite side of Highway 212, has two EFU-zoned tax lots with less than 500 feet adjoining the reserve. Neither of these tax lots appear to have agricultural uses or trees being raised for timber production.

In summary, Highway 26 could serve as an effective buffer between urban development of the reserve and agricultural and forest activities occurring on the opposite side of the highway, and there is existing residential development and lack of agricultural and forest activities on the small number of EFU-zoned properties adjoining the reserve south of Highway 212. However, additional traffic along SE 282nd Avenue could impede the movement of farm equipment. Therefore, the proposed urban uses (i.e., urbanization of the reserve) would be considered to have medium to high compatibility with the nearby agricultural and forest activities occurring on farm and forest land.

The Boring – Highway 26 Urban Reserve is given a "medium-high" score in Attachment 3 for this Goal 14 boundary location factor.

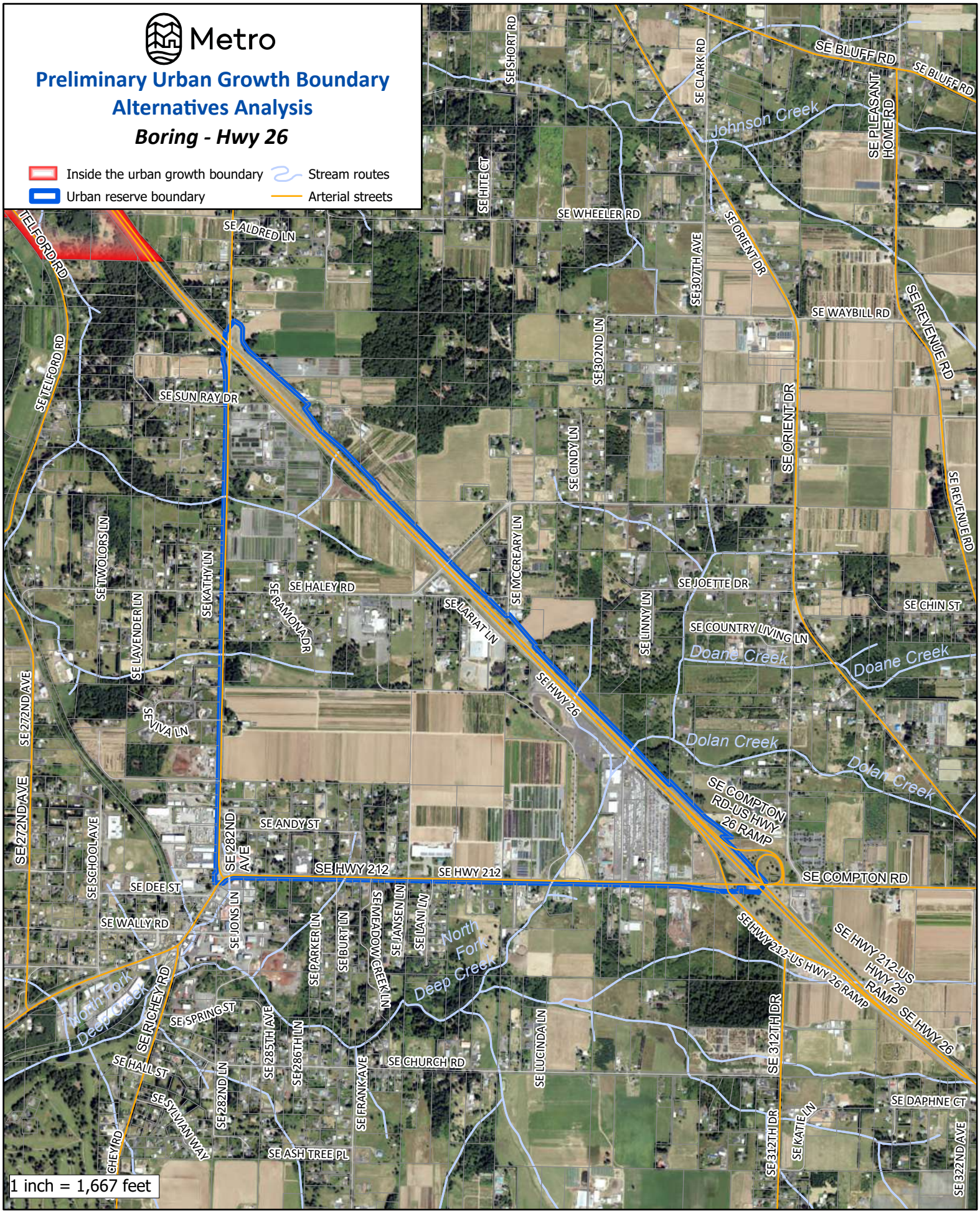


Metro

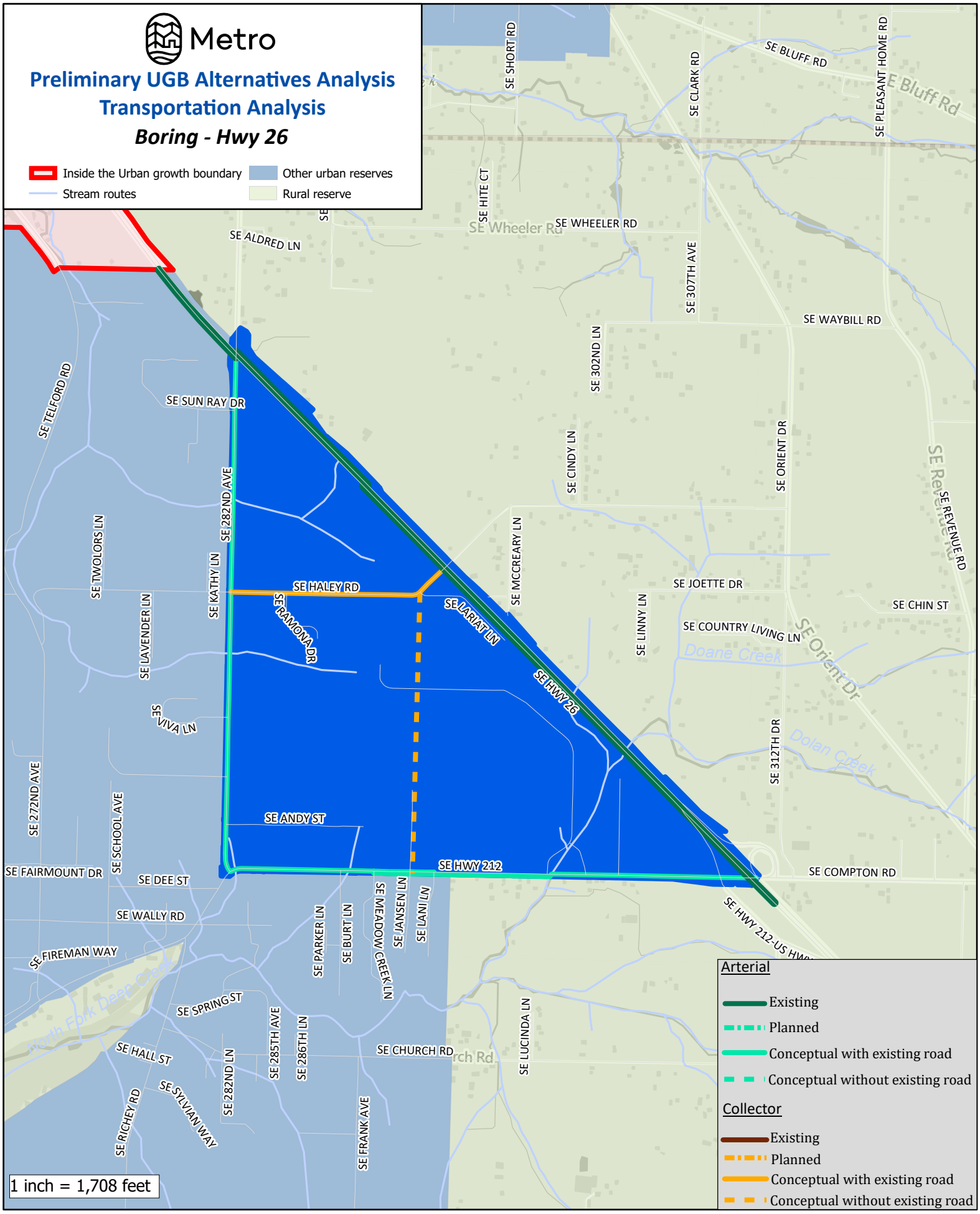
# Preliminary Urban Growth Boundary Alternatives Analysis

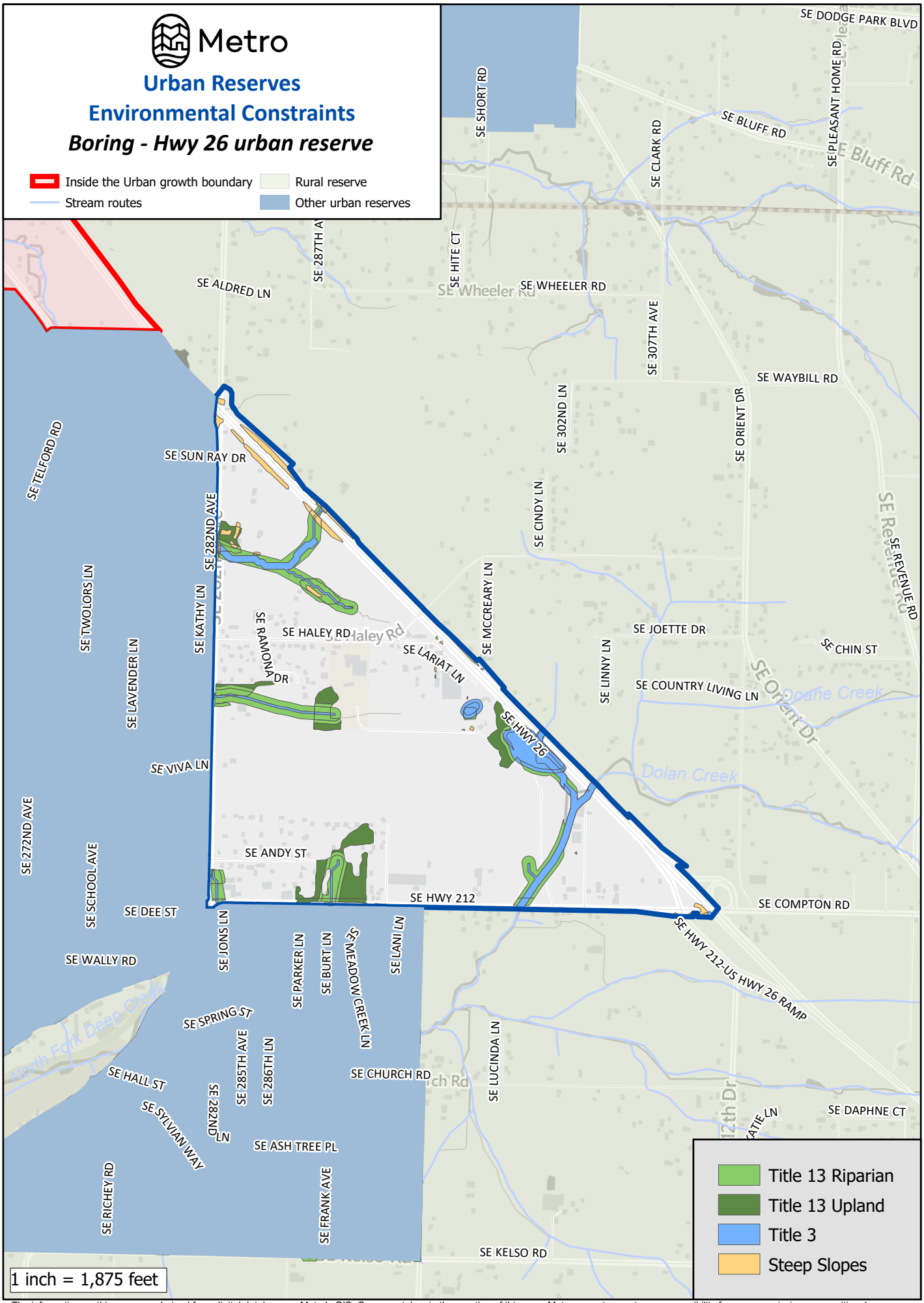
## *Boring - Hwy 26*

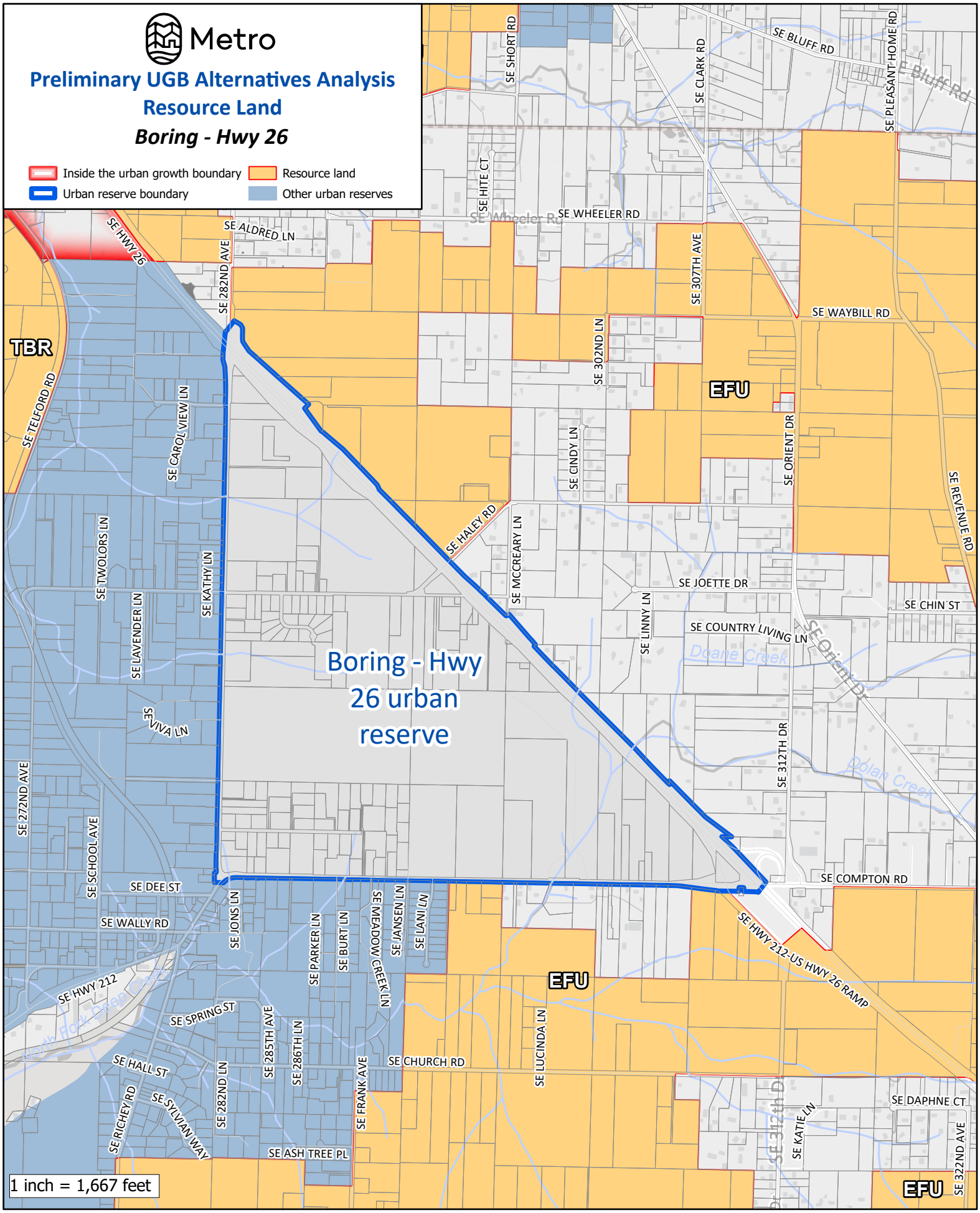
Inside the urban growth boundary
Urban reserve boundary
Stream routes
Arterial streets




1 inch = 1,667 feet







## BORLAND URBAN RESERVE

| | |
|---|---|
| Total Reserve Area | 1,359 acres |
| Total Tax Lot Area in Reserve (without Right-of-Way) | 1,170 acres |
| Gross Vacant Buildable Area | 537 acres |
| **Net Vacant Buildable Area** | **400 acres** |

The Borland Urban Reserve is a long, somewhat linearly shaped area on both sides of I-205 along SW Borland Road. The reserve's northwestern and southeastern ends are adjacent to the UGB and, respectively, the cities of Tualatin and West Linn. The Tualatin River is the reserve's northern boundary. Land north of the Tualatin River, as well as land south and west of SW Stafford Road, are in other designated urban reserves. Athey Creek and Fields Creek, along with numerous other streams, flow north through the reserve to the Tualatin River. The reserve is generally flat, though there are some slopes greater than 10 percent along the stream corridors and some minor areas of slopes greater than 25 percent. Access to the area is provided by SW Borland Road, SW Ek Road, SW Halcyon Road, SW Stafford Road, and SW Ulsky Road.

## GOAL 14 BOUNDARY LOCATION FACTORS

### Factor 1: Efficient accommodation of identified land needs

The Borland Urban Reserve is comprised of 343 contiguous tax lots, all of which are entirely within the reserve. The combined area of the reserve's tax lots is approximately 1,170 acres. More than half of the tax lots are smaller than two acres, and nearly 70 percent of those are smaller than one acre. Just 19 tax lots are larger than 10 acres and they include properties owned by Metro, the West Linn – Wilsonville School District (Stafford Primary School and Riverside High School), Clackamas County, and various places of worship. As noted above, the entire reserve contains 537 gross vacant buildable acres and 400 net vacant buildable acres.

According to aerial imagery and assessment records, the reserve is characterized by pockets of rural residential uses, agriculture, schools, and places of worship, and a stretch of rural commercial uses (e.g., a lumber supply store, a landscape supply store, a tavern, and a dog training center) along SW Borland Road. Overall, 269 tax lots have improvements, and the median assessed value of those tax lots' improvements exceeds $383,000.

In addition to the aforementioned primary school and high school within the reserve, Athey Creek Middle School, is essentially adjacent to the south end of the reserve on the opposite side of the Tualatin River across Willamette Falls Drive from Fields Bridge Park. Low density residential development abuts to the north end of the reserve. The nearest 2040 Growth Concept designated Centers, the Willsonville Town Center and the Willamette Town Center, are nearly two miles away. There is currently no transit service directly to the reserve, though, as noted later in response to Factor 2, TriMet is expected to provide an hourly connection of the reserve to Oregon City via Route 76 in the fall of 2024.

Riparian, connecting upland habitat areas, some slopes greater than 10 percent, and the I-205 corridor generally divide the reserve into multiple separate pockets of potentially developable land. Existing development, public ownership, and ownership by places of worship reduce the development opportunities of unconstrained land. Nonetheless, some properties near the SW Borland Road and SW Stafford Road intersection may be large enough to accommodate an employment land need and the I-205 interchange in the middle of the reserve could help to support traffic to small-scale employment uses. School uses within and near to the reserve and existing residential uses could support or be compatible with new residential land uses. This analysis finds that the reserve is able to accommodate residential and employment land needs.

However, regarding the "efficient" accommodation of identified land needs, it is important to note that the cities adjacent to the "Stafford Triangle" area, which includes the Borland Urban Reserve, have for decades opposed UGB expansions in that area, and those cities' elected officials have taken steps to restrict any city's ability to plan for the accommodation of future urban development. In 2019, the cities of Lake Oswego, Tualatin, and West Linn entered into an agreement that prohibits any of those cities from completing a concept plan for any part of the Borland, Rosemont, and Stafford Urban Reserve areas until, at the earliest, December 31, 2028. This restriction and the ongoing opposition of the three adjacent cities to planning, annexing, and developing the Borland Urban Reserve weighs heavily against this area regarding its ability to efficiently accommodate the identified needs for residential or employment land under Factor 1.

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

### *Water Services*

With regard to water services, the Borland Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

#### *a. Capacity of existing facilities to serve areas already inside the UGB*

The City of Tualatin provides water service to the adjacent areas inside the UGB to the west of the Borland Urban Reserve. Tualatin's sole source of water is treated water purchased from Portland Water Bureau. Water is then delivered through a 36-inch supply line from the Washington County Supply Line. The reserve might be in Pressure Zone B. According to the city's March 2023 Water System Master Plan, the zone has a storage surplus under current conditions, but may have a storage deficit under UGB buildout conditions. The Martinazzi and Boones Ferry Pump Stations previously serving Zone B have reached the end of their usable lives and do not currently operate, and Zone B is now served by the Boones Ferry flow control valve/pressure reducing valve. There are also existing transmission deficiencies in Zone B.

The City of West Linn serves the adjacent areas inside the UGB to the east. The West Linn Water System receives potable water from the South Fork Water Board (SFWB), with a treatment plant in Oregon City jointly owned by the Cities of West Linn and

Oregon City. SFWB's water treatment process includes flocculation, sedimentation, filtration, and chlorination of raw water from the Clackamas River to remove harmful bacteria. The water treatment plant was upgraded in October 2016. There are currently no known major treatment system deficiencies. An emergency supply of water is water is potentially available from the City of Lake Oswego Water Treatment Plant. The SFWB system also includes intake facilities and a transmission pipeline to a pump station located in Oregon City. There are no known storage capacity deficits with the system in West Linn under current, normal (non-emergency) conditions or under UGB buildout conditions; however, it is unclear whether there is sufficient pumping and distribution system capacity to fully serve buildout conditions, at least without system improvements.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Water could be provided from Tualatin, West Linn, or both. Treatment plant upgrades may be needed for either or both cities to serve urban development of the Borland Urban Reserve, depending in part on the amount of development each city would serve. Additional storage capacity, as well as transmission line and pumping system improvements, would also likely be needed. Because service from West Linn would require a new line crossing the Tualatin River, the costs listed below are assume service is provided only by Tualatin.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Additional treatment plant, storage, and distribution system capacity may be needed to serve urban development of the Borland Urban Reserve while avoiding negative impacts to service to areas already inside the UGB.

*d. Estimated water service-related costs for reserve development*

| Water piping, pumping, and storage costs | Cost |
|---|---|
| **10-inch pipe** | $9.56 million |
| **12-inch pipe** | $0 |
| **16-inch pipe** | $0 |
| **Pumping** | $0 |
| **Storage** | $0.56 million |
| **Total:** | **$10.12 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$1,265** |

### *Sanitary Sewer Services*

With regard to sanitary sewer services, the Borland Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Wastewater from nearby lands to the west in the City of Tualatin is treated at the Durham Advanced Wastewater Treatment Facility (AWWTF), which is owned and operated by Clean Water Services (CWS) and understood to have sufficient capacity to meet current needs within the UGB. CWS is also responsible for the system's gravity sewers over 24 inches in size, pump stations, and force mains. Borland Urban Reserve development's likely connection point to the Tualatin system would be either the Orchard Hill Pump Station or the Borland Pump Station, both in the Nyberg Basin. There appears to be surplus capacity at these pump stations under current conditions, but there are sections of the Nyberg Trunk line that may have limited remaining additional capacity.

The City of West Linn provides service to nearby lands in the UGB to the east. If urban development to the reserve were to connect to the West Linn system, it would likely be to an existing gravity sanitary main in Willamette Falls Drive in the Willamette Town Basin. From this point of connection, sewage flows southeast toward the Willamette River and the Willamette Pump Station owned by Clackamas Water Environment Services (WES). The Willamette Falls force main follows I-205 and the Willamette River. At the downstream end of the City of West Linn system are WES-owned pumps and force mains. Sewage ultimately gets pumped to the Tri-City Water Resource Recovery Facility (WRRF) located on the east side of the Willamette River. There do not appear to be any capacity issues downstream of the assumed point of connection to the city of West Linn infrastructure under existing conditions, but there are identified deficiencies under UGB buildout conditions. Those deficiencies occur in gravity piping near where the city system crosses the Willamette River. There is a WES capital improvement project currently in the design phase to increase capacity of the Willamette Pump Station to meet future wet weather flows, with expected completion in 2027. It is not clear what the current capacity is or what increased capacity would be provided by the project. The 2019 WES Master Plan identifies an expansion of the existing treatment plant within the 2020-2040 timeframe to increase its capacity.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Sewage from the western portion of the reserve could be routed into the CWS system. While the treatment plant may have sufficient capacity now, additional flows could require plant improvements, particularly if another urban reserve was added to the UGB and connected to the system beforehand. Pump station and trunk line improvements would also likely be needed.

The eastern portion of the reserve may connect to an existing City of West Linn sewer located in Willamette Falls Drive. The city has previously indicated that the treatment plant would likely need some upgrades to accommodate additional flow. The existing piping and pumping deficiencies mentioned above would need to be addressed in order for the system to potentially have sufficient capacity to serve the Borland Urban Reserve. A crossing of the Tualatin River would also be needed.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

As explained above, treatment plant improvements and pumping and piping capacity improvements will likely be needed to avoid negative impacts to service within the existing UGB. Potential treatment plant improvement costs and other system-wide costs are not included in the below figures.

*d. Estimated sanitary sewer service-related costs for reserve development*

| Sanitary sewer piping and pumping costs | Cost |
|---|---|
| **10-inch pipe** | $0 |
| **12-inch pipe** | $2.80 million |
| **15-inch pipe** | $0 |
| **Pump station** | $2.52 million |
| **Force mains** | $2.36 million |
| **Total:** | **$7.68 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$960** |

### *Stormwater Management Services*

With regard to stormwater management services, the Borland Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

There is no indication of major capacity issues with existing stormwater facilities that serve the adjacent land inside the UGB. Based on topography, at least some stormwater from development of the Borland Urban Reserve would likely discharge directly to Saum Creek; the City of Tualatin's 2019 Stormwater Master Plan did not identify the Saum Creek Basin as currently facing capacity challenges. Stormwater could also directly outfall to the Tualatin River.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

At least some stormwater will be conveyed, treated, and disposed of within the reserve and discharge to Saum Creek, rather than connecting to existing facilities in the UGB.

Saum Creek is believed to have sufficient capacity to serve development in the reserve. Stormwater could also directly outfall to the Tualatin River.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

As noted above, at least some stormwater could be conveyed, treated, and disposed of within the reserve and discharge to Saum Creek, rather than connecting to existing facilities in the UGB. Saum Creek is believed to have sufficient capacity. Stormwater could also directly outfall to the Tualatin River without impacting existing facilities in West Linn. Therefore, no adverse impacts to existing facilities are anticipated.

*d. Estimated stormwater service-related costs for reserve development*

| Stormwater piping and water quality/detention | Cost |
|---|---|
| **18-inch pipe** | $5.04 million |
| **24-inch pipe** | $2.55 million |
| **30-inch pipe** | $0 |
| **Water quality/dentition** | $10.61 million |
| **Total:** | **$18.20 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$2,276** |

### *Transportation Services*

With regard to transportation services, the Borland Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(e) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Figure 4.36 in Chapter 4 of the 2023 Regional Transportation Plan (RTP) displays 2020 home-based vehicle miles traveled (VMT) per capita by Metro transportation analysis zone, with average VMT per capita considered 11.32. According to Figure 4.36, areas in the UGB adjacent to and near the Borland Urban Reserve had average and above average home-based VMT per capita in 2020.

Metro's adopted 2040 Growth Concept Map designates a town center in the adjoining cities of Tualatin and West Linn. Town centers are meant to: serve populations of tens of thousands of people; offer more locally-focused retail uses and public amenities; and be well served by transit.

The roughly 300-acre Tualatin Town Center aligns with this 2040 Growth Concept Map area. The Tualatin 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. Metro's 2017 State of the Centers Atlas shows that the Tualatin Town Center has a low number of dwelling units per acre and a much higher total number of employees compared with other town centers in the region. The town center has a very high "access to parks" score in the atlas, due in part to the numerous open space/natural areas and the Tualatin Community Park along the Tualatin River nearby. The town center also includes grocery stores and other retail commercial uses, medical/dental facilities, a post office, and multi-family housing, but also storage facilities, auto-oriented uses, and large parking lots. Within the UGB and adjoining the town center are Title 4 designated Industrial Area and Employment Area lands, as well as low- and medium-density residential uses.

Seven TriMet bus lines and the Westside Express Service (WES) Commuter Rail serve Tualatin. The routes are spread out along the major roadways including Highway 99W, SW Tualatin-Sherwood Road, and SW Boones Ferry Road, providing service to the town center and employment areas. WES connects the town center with Beaverton to the north and Wilsonville to the south. Figure 4.3 in Chapter 4 of the 2023 RTP does identify gaps in the planned regional transit network along SW Boones Ferry Road, SW Tualatin – Sherwood Road, and elsewhere in the city.

Nonetheless, the Tualatin Town Center's existing land uses and transit service, and some availability for new development in and near the town center, demonstrate that growth in the current UGB near this town center will not necessarily cause a significant increase in home-based VMT per capita in the future, as residents will be able to access some daily needs with relatively short trips. Growth in other areas of the city where residential uses surround schools and parks are is also unlikely to significantly impact home-based VMT per capita in the future, for similar reasons.

The Tualatin Town Center is more than a mile away from areas in the UGB adjacent to the reserve, and these areas are on the opposite side of I-5 from the reserve. I-5 also separates residential uses in the UGB to the west of the reserve from the town center further to the west; there are just two overpasses that connect these residential uses to the town center, limiting connectivity. Residents of these areas, where there are also fewer bus routes, may be more reliant on private motor vehicle transportation to get to the town center and areas to the west.

Tualatin has a fairly well-established bike route system, with approximately 25 miles of dedicated bike lanes, seven miles of established bikeways, and local trails that connect the employment areas and town center to the residential areas. There are two bike lane connections across I-5 to provide access to the eastern portion of the city. Figure 4.5 in Chapter 4 of the 2023 RTP shows several existing bike facilities in Tualatin as a part of the planned regional bike network, including facilities on SW Boones Ferry Road, SW Nyberg Street, and SW Tualatin-Sherwood Road. There are identified gaps in planned regional bike facilities in the southwest and east of the city.

The Tualatin Town Center has a well-established pedestrian network that also includes access to some trails. Most of the residential areas of Tualatin also have sidewalks, but there are fewer exiting pedestrian facilities in employment areas outside of the town center. The Tualatin River Greenway Trail connects the town center to parks in Durham and Tigard to the north, as well as to Browns Ferry Park along the Tualatin River on the east side of I-5. Figure 4.4 in Chapter 4 of the 2023 RTP shows a number of existing streets in Tualatin as in the regional pedestrian network, including sections of SW Boones Ferry Road, SW Borland Road, and SW Tualatin – Sherwood Road. The figure identifies gaps in the future regional pedestrian network, however, in the south and east of the city.

There is also a town center in neighboring West Linn that aligns with the 2040 Growth Concept Map, the Willamette Town Center. The Willamette Historic District is within the town center. The town center area includes local retail commercial uses, medical facilities, school uses, police and fire stations, and some residential uses. Growth in and near this town center will not necessarily cause a significant increase in home-based VMT per capita in the future, as residents will be able to access some daily needs with relatively short trips.

Two TriMet bus lines serve West Linn, including Route 35, which runs along Willamette Drive, and Route 154, which runs along Willamette Falls Drive. They provide transit service to the Willamette Town Center and other portions of West Linn. Figure 4.3 in Chapter 4 of the 2023 RTP shows these existing routes as in the regional transportation network.

There are more than nine miles of dedicated bike lanes and five miles of bikeways in West Linn, including on portions of Blankenship Road and Willamette Falls Drive that help connect western ends of West Linn to the Willamette Town Center. Figure 4.5 in Chapter 4 of the 2023 RTP shows some existing bike facilities in West Linn, including along Salamo Road, as in the regional bike network. However, there are gaps in the planned regional bike network in the city, such as along Willamette Falls Drive.

Large portions of West Linn are well served by sidewalks, especially in areas that have been developed more recently. There are sidewalks on the SW Borland Road bridge over the Tualatin River that join sidewalks on Brandon Place and Dollar Street in the UGB near to the reserve that connect with the Fields Bridge Park, Athey Creek Middle School, and, eventually, the Willamette Town Center. The Willamette Falls Drive Streetscape Project improved pedestrian accessibility in the historic Willamette neighborhood. The Rosemont and Salamo Trails provide pedestrian connection routes along Rosemont and Salamo Roads and that tie the lower and upper portions of West Linn together on the west side. Figure 4.4 in Chapter 4 of the 2023 RTP shows that there are some gaps in the planned regional pedestrian network in West Linn.

Figure 4.14 in Chapter 4 of the 2023 RTP identifies the SW Tualatin-Sherwood Road in Tualatin as a high injury corridor. The intersection of SW Tualatin-Sherwood Road and

SW Boones Ferry Road, as well as the intersection of SW Martinazzi Avenue and SW Boones Ferry Road, are identified in Figure 4.14 as top five percent high injury intersections. There are no high injury corridors or high injury intersections in West Linn's portion of the UGB identified on Figure 4.14.

The portions of I-5 and I-205 that cross through Tualatin, and the portion of I-205 that crosses through West Linn, are identified as throughways in Figure 4.7 in Chapter 4 of the 2023 RTP. Figure 4.8 of the chapter indicates that the portions of these interstates that cross through these cities currently meet travel speed reliability performance thresholds, with no more than four hours per day when travel speeds fall below the identified minimum speed. RTP models indicate this reliability will continue at least to the year 2045.

### *b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

The reserve is bisected by I-205 and includes and interchange with I-205 at SW Stafford Road. The portion of I-205 that crosses through the reserve, Tualatin, and West Linn are expected to continue to meet RTP travel speed reliability performance thresholds at least to the year 2045. Town centers, other commercial/employment areas, school uses, and parks are within two miles of both ends of the reserve and accessible with off-interstate roads. There are also commercial uses, school uses, and places of worship within and adjacent to the reserve already. As noted elsewhere, TriMet will begin bus service through the reserve in the fall of 2024. With these conditions, urban development of the reserve is unlikely to generate sufficient traffic on I-205 to cause it to no longer meet performance thresholds. Future residents of the reserve, even if reliant on private motor vehicles for transportation, could use roadways other than these interstates to access employment opportunities and to meet their daily needs closer to home.

TriMet Route 76 runs along SW Borland Road and TriMet plans to extend this route through the reserve in fall of 2024. TriMet Route 154 serving West Linn is approximately two-thirds of a mile from the reserve via Willamette Falls Drive.

A portion of SW Borland Road in Tualatin has a dedicated bike lane; however, it ends approximately 1,000 feet from the west end of the reserve. There also is a bike facility gap between SW 65th Avenue and SW 61st Terrace. SW 50th Avenue and SW Nyberg Lane also have dedicated bike lanes, but do not completely connect with the rest of Tualatin. The Tualatin River Greenway Trail is located fairly close to the reserve and follows a similar route as the bike lane on SW Nyberg Lane. There is a dedicated bike lane on Dollar Street that connects to the Tualatin River Greenway Trail in West Linn and the sidewalks on the bride across the Tualatin River along SW Borland Road/Willamette Drive. There are dedicated bike lanes along portions of SW Borland Road and SW Stafford Road within the reserve as well.

The residential subdivision in Tualatin that is nearest the reserve has sidewalks, although there are numerous gaps along SW Borland Road that connect to other parts of Tualatin. The Tualatin River Greenway Trail, which is close to the reserve, extends along the river to the west side of I-5 with potentially one short gap that may yet to be completed. A small portion of the adjacent residential subdivisions in West Linn contain sidewalks and, as noted above, there are sidewalks along the SW Borland Road bridge that crosses the Tualatin River; however, there are not yet sidewalks leading up to the bridge structure from within the reserve. A short section of the Tualatin River Greenway Trail is nearby, but does not extend beyond Fields Bridge Community Park.

The existing school, park, and employment uses, as well as the medical facilities (e.g., Meridian Park Hospital) already in or within a mile of the reserve could be accessed by future residents of the reserve without significant driving distances. The planned transit service connection through the reserve, and nearby existing transit services and bike and pedestrian facilities, can provide for some alternative modes of transportation. The analysis in Factor 1 noted that the reserve could potentially accommodate both residential and employment uses; if the reserve were to develop with employment uses, residents of nearby existing neighborhoods and Tualatin and West Linn could find employment opportunities in the reserve that don't necessitate long commutes.

### *c. Impacts to existing facilities that serve nearby areas already inside the UGB*

SW Boreland Road, SW Ek Road, and SW Stafford Road would see additional private motor vehicle traffic as a result of urbanization of the reserve. However, TriMet plans to extend transit service through the reserve, as described further below, which can help to limit new private motor vehicle traffic. Moreover, if the reserve were to be developed with a mix of residential and employment uses and if gaps in bike and pedestrian facility connections were to be completed, there could be even less additional traffic on these roadways. Providing the bike and pedestrian facility connections would lead to more use of the existing facilities within the UGB.

Given the distance of SW Tualatin-Sherwood Road from the reserve, development of the reserve is not expected to exacerbate the road's existing high-crash conditions. As future residents of the reserve would be able to use roadways other than I-205 to access nearby schools, parks, places of worship, medical facilities, and employment uses, and with the planned TriMet service route extension and existing nearby bike and pedestrian facilities, development of the reserve is not expected to cause I-205 to no longer meet throughway reliability thresholds.

### *d. Need for major transportation facility improvements and associated costs*

To serve urban development, roughly one mile of SW Stafford Road and 3.31 miles of SW Borland Road would likely need to be improved to urban arterial standards, including with acquisition of additional right-of-way. Approximately 0.88 miles of SW Ek Road would also likely need to be improved to urban collector standards, including with acquisition of additional right-of-way. While the costs below consider that some of

the topography these improved roadways would cross has steeper slopes, the costs do not reflect a likely need for new enhanced crossings (e.g., under- and/or overpasses) on SW Stafford Road or SW Borland Road, as determining the appropriate improvements and their costs with any meaningful accuracy is beyond the scope of this preliminary analysis.

| Facilities | Cost |
|---|---|
| **Arterials, existing/improved full street** | $198.61 million |
| **Arterials, existing/improved half street** | $0 |
| **Arterials, new** | $0 |
| **Collectors, existing/improved full street** | $24.73 million |
| **Collectors, existing/improved half street** | $0 |
| **Collectors, new** | $0 |
| **Total:** | **$223.34 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$27,928** |

*e. Provision of public transit service*

TriMet evaluated the reserve for providing transit service. TriMet is expected to begin hourly service along Borland Road to Oregon City beginning in the fall of 2024 via Route 76, although, due to land use and population factors, service will deviate south at Stafford to use I-205. There would be no additional cost to serve this reserve if/when it is added to the UGB, as Route 76 is already slated for service. As density and development increases, TriMet may reevaluate routing to be entirely local along Borland Road.

Prior to land being included in the UGB, a more detailed concept plan, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11, will be required. This concept plan process will develop more refined public facility and service needs and cost estimates.

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

### *Environmental consequences*

There are six main stream corridors that flow through the Borland Urban Reserve. Saum Creek meanders along the western edge of the reserve for just over a mile. Wetlands, identified in the Tualatin local wetland inventory, coincide with the stream corridor and total approximately 7.1 acres in area. The creek and wetlands are located on wooded portions of smaller rural residential tax lots that are also identified as riparian and upland habitat and contain some areas of slopes greater than 25 percent. In addition, a portion of the northwest corner of the reserve where Saum Creek joins the Tualatin River is within the "100-year" floodplain. The increased protection levels for streams, wetlands, steep slopes, and habitat areas within the UGB will lessen any potential impacts to these environmental

features from urban development. Given the relatively small size of the reserve's tax lots and that so many of them already contain residences, there may be limited amounts of new development that could jeopardize the stream corridors and habitat areas.

Two short tributaries to Saum Creek, both approximately 1,500 feet in length, are located along the western edge of the reserve, one north of I-205 and one south of it. The stream on the north side flows through wooded portions of a few larger tax lots, including the Arbor School of Arts and Sciences property, and includes riparian and upland habitat. The stream south of I-205 flows through a wooded ravine that has slopes greater than 25 percent and also includes a 0.44-acre wetland identified on the National Wetland Inventory (NWI). This stream also has adjacent riparian and upland habitat identified along the corridor, which would receive new protections once the land was added to the UGB. Based on the increased protection levels for streams, wetlands, steep slopes, and habitat areas for streams inside the UGB, these two stream segments could be minimally impacted by future urbanization.

Athey Creek and a small tributary flow north through the reserve for approximately 1.3 miles. The portion of the creek that is south of I-205 flows mostly through a privately-owned cleared area and then is piped under I-205. The portion of the creek north of I-205 flows mainly through a wooded ravine that contains slopes greater than 25 percent. There is a 2.8-acre wetland that coincides with the stream corridor identified in the NWI and an additional pond. Riparian and upland habitat is identified along the stream corridor. In addition, the area where Athey Creek joins the Tualatin River is within the "100-year" floodplain. Most of the tax lots Athey Creek flows through are large enough to be subdivided and the stream corridor would complicate additional east-west transportation connections. However, the location of the public schools on the eastern side of the stream reduces the likelihood of new east-west street connections north of SW Borland Road and the land that is east of Athey Creek and south of SW Borland Road has an existing access point on SW Stafford Road. Again considering the increased protection levels for streams, wetlands, steep slopes, and habitat areas that come with inclusion in the UGB, urbanization could occur with minimal impacts to Athey Creek, depending on local street connection requirements.

The third stream flows north through the area where SW Borland Road crosses under I-205 for approximately 3,100 feet before draining into the Tualatin River. The stream flows mainly through forested portions of tax lots that either contain rural residences or are vacant. Riparian habitat is identified along the stream corridor with some upland habitat identified on the more forested parcels near I-205. There are small locations where the adjacent slopes are greater than 25 percent. A small area of "100-year" floodplain is located where the stream meets the Tualatin River. Most of the stream flows along edges of developed rural residential properties and would not be further impacted by urbanization of the area. However, there are a couple of locations where the stream could be impacted by future development, depending on the density and design of the development and street connection requirements. A second stream or drainage area flows within the I-205 right-of-way and appears to join the first stream on the north side of the highway. Given the

locations of the stream corridors, the increased protection levels for streams and habitat areas on land inside the UGB, urbanization of the area could occur with minimal impact to the streams and habitat areas depending on local street connection requirements.

The fourth stream flows north through the area, just east of the intersection of SW Borland Road and SW Ek Road. This stream flows mainly along the side and back portions of rural residential properties for approximately 2,650 feet. The stream is mainly within a forested canopy and both riparian and upland habitat is identified along the stream corridor. This area is mostly developed with single-family homes on lots that are between one and three acres in size. Impacts to the stream would be minimal given the increased protection level for streams and habitat areas for land inside the UGB.

The fifth stream flows north through the area near the intersection of SW Borland Road and SW Turner Road. This stream corridor flows between two rural residential properties and then through an undeveloped tax lot owned by the Lake Oswego Corporation before it drains into the Tualatin River. Similar to above, the stream is mainly within a forested canopy and both riparian and upland habitat is identified along the stream corridor. In addition, there is an area of "100-year" floodplain where the stream meets the Tualatin River. Given the location of the stream within a narrow location of the reserve and the presence of slopes greater than 25 percent at the "back" of the tax lots that would limit additional development, urbanization could occur with no or very limited impacts to the stream corridor.

Finally, Fields Creek flows through the very eastern portion of the reserve in the vicinity of SW Bosky Dell Lane and SW Elderberry Lane for approximately 2,000 feet. Similar to the other streams, Fields Creek also flows along forested edges of one- to three-acre tax lots that contain rural residences and has riparian and upland habitat identified along the stream corridor. In addition, there is an area of "100-year" floodplain where the stream meets the Tualatin River. Redevelopment of the land near the stream could be challenging and would likely take place over a longer period of time. There are a few locations near SW Bosky Dell Lane where minor impacts on the stream corridor could occur, depending on density and design of the development. The tax lots along SW Elderberry Lane and SW Alderwood Drive are less than one acre each and additional development will also be challenging. Impacts to the stream would be minimal given the increased protection level for streams and habitat areas for land inside the UGB. There is a small 820-foot tributary to Fields Creek that also flows along forested edges of parcels at the end of SW Alderwood Drive. Similarly, redevelopment of the tax lots in this area would be somewhat difficult.

Overall, urbanization of the reserve could occur with comparatively minimal to moderate consequences to the stream corridors and habitat areas. Additional environmental consideration, specifically regarding avoidance of conflict between urban development and regionally significant fish and wildlife habitat, is provided in the Metro Code Factors Analysis (Appendix 7A).

Considering the comparative environmental consequences of urbanization, the Borland Urban Reserve is given a "medium-high" score in Attachment 3 for this Goal 14 boundary location sub-factor.

### *Social, energy, and economic consequences*

There are already numerous rural residences on smaller tax lots in the Borland Urban Reserve, as well as schools, places of worship, and commercial uses. Major roadways, including I-205, SW Stafford Road, and SW Borland Road, already cross through the reserve. The reserve is also near to existing urban development in neighboring Tualatin and West Linn, though somewhat separated from these developments by natural features. There are no rural reserves adjacent to this urban reserve. Urban development of the reserve is, therefore, not expected to cause a significant change in sense of place or degradation of rural lifestyle for the existing residents of the reserve. Moreover, the level of existing development and parcelization could help to slow new development and therefore slow the loss of sense of place and rural lifestyle. Urbanization of the reserve could also bring new social, educational, and recreational opportunities for existing residents.

As more fully detailed in response to Factor 2, urbanization of the reserve will not necessarily result in significant increases in VMT, particularly if the reserve were to be developed with a mixture of uses that allow residents to access more of their daily needs in close proximity. Indeed, as noted above, the reserve already has a mixture of uses, including schools, places of worship, and some commercial uses. Limiting VMT result in limits to energy consequences.

The reserve is primarily in non-agricultural uses and there are only a few sites of commercial agricultural activity in the reserve that are larger than 10 acres each. While there would be economic consequences from urbanization in terms of a loss in these farming activities in the reserve, that loss may be outweighed by the economic benefits of residential and employment development. Moreover, farmlands in the reserve are somewhat separated from each other by I-205, existing development, and natural areas, so urbanization of one area may not necessarily impact agricultural activity that continues to occur on other farmlands until they too are ready to develop.

This analysis finds that there would be comparatively low social, energy, and economic consequences from urbanization of this reserve. The Borland Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location sub-factor.

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

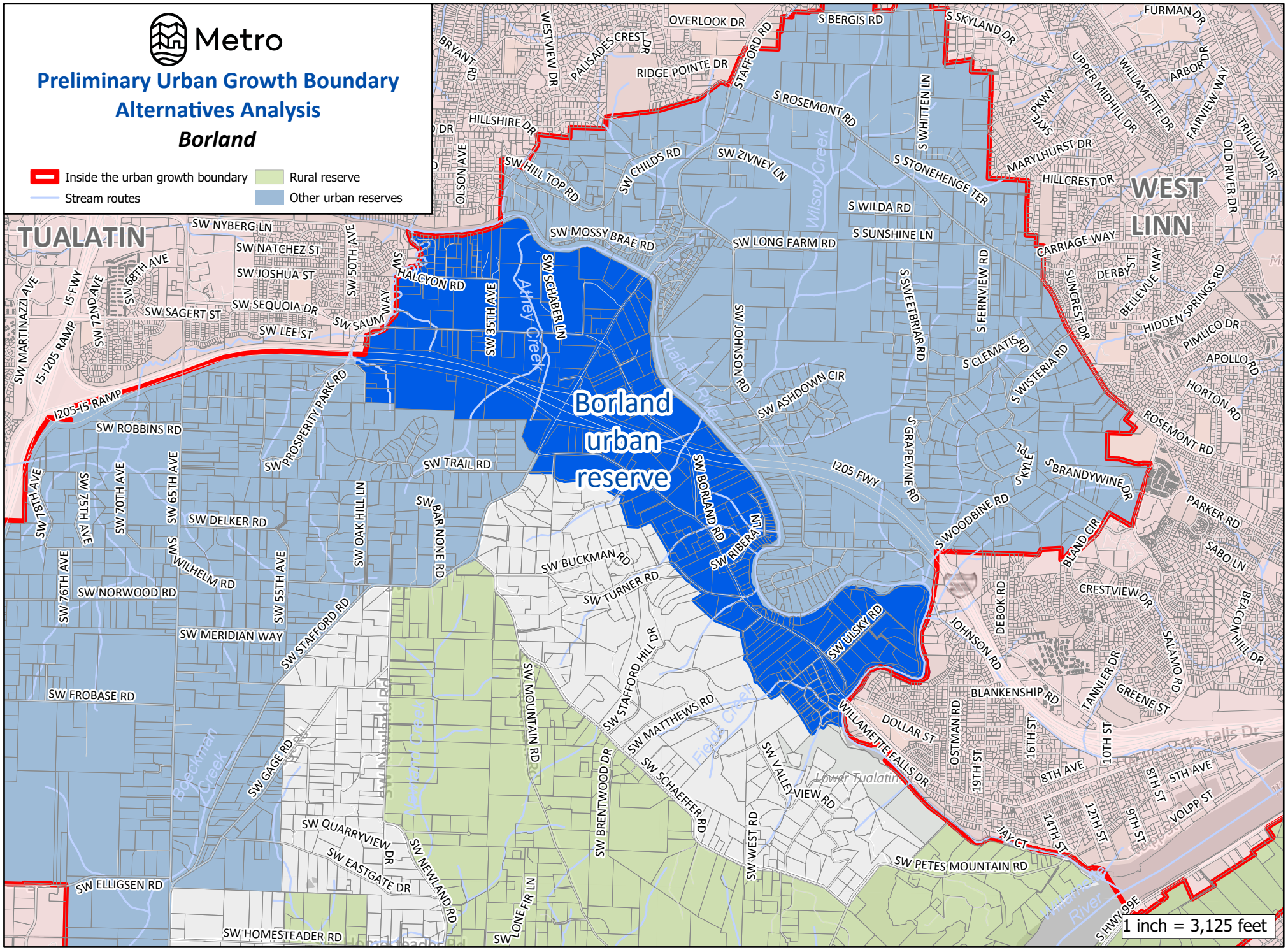
There are two locations where lands outside the UGB but contiguous to the reserve have Goal 3 or 4 resource land zoning for agricultural and forest activities.

The first location is on the north side of the reserve on the opposite side of the Tualatin River, in the vicinity of SW Johnson Road. The land in this area is zoned Exclusive Farm Use (EFU) by Clackamas

County. Only a small portion of this land closest to the river appears to be in agricultural use, with the remainder being forested or developed with rural residential uses. The river, including the riparian habitat along both its banks, provides an adequate buffer between urban development of the reserve and the limited agricultural activities in this area. The forested portions of these EFU-zoned areas are not directly accessible via the reserve.

A roughly 1.1-mile portion of the southern edge of the reserve borders lands zoned Timber (TBR) by Clackamas County. These TBR-zoned lands, located near SW Turner Road, are on a bluff overlooking the reserve and do not appear to have agricultural activity. Most of the tax lots in this TBR-zoned area have high value homes, though some are vacant and forested. Timber harvesting of these vacant tax lots could occur, but forestry operations could use access roads that don't go through the reserve. Topography would also help to limit conflicts between any commercial timber operations and urban development of the reserve.

Overall, the proposed urban uses are considered to have medium to high compatibility with nearby agricultural and forest activities occurring on farm and forest land. The Borland Urban Reserve is given a "medium-high" score in Attachment 3 for this Goal 14 boundary location factor.

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Metro

# Preliminary Urban Growth Boundary Alternatives Analysis

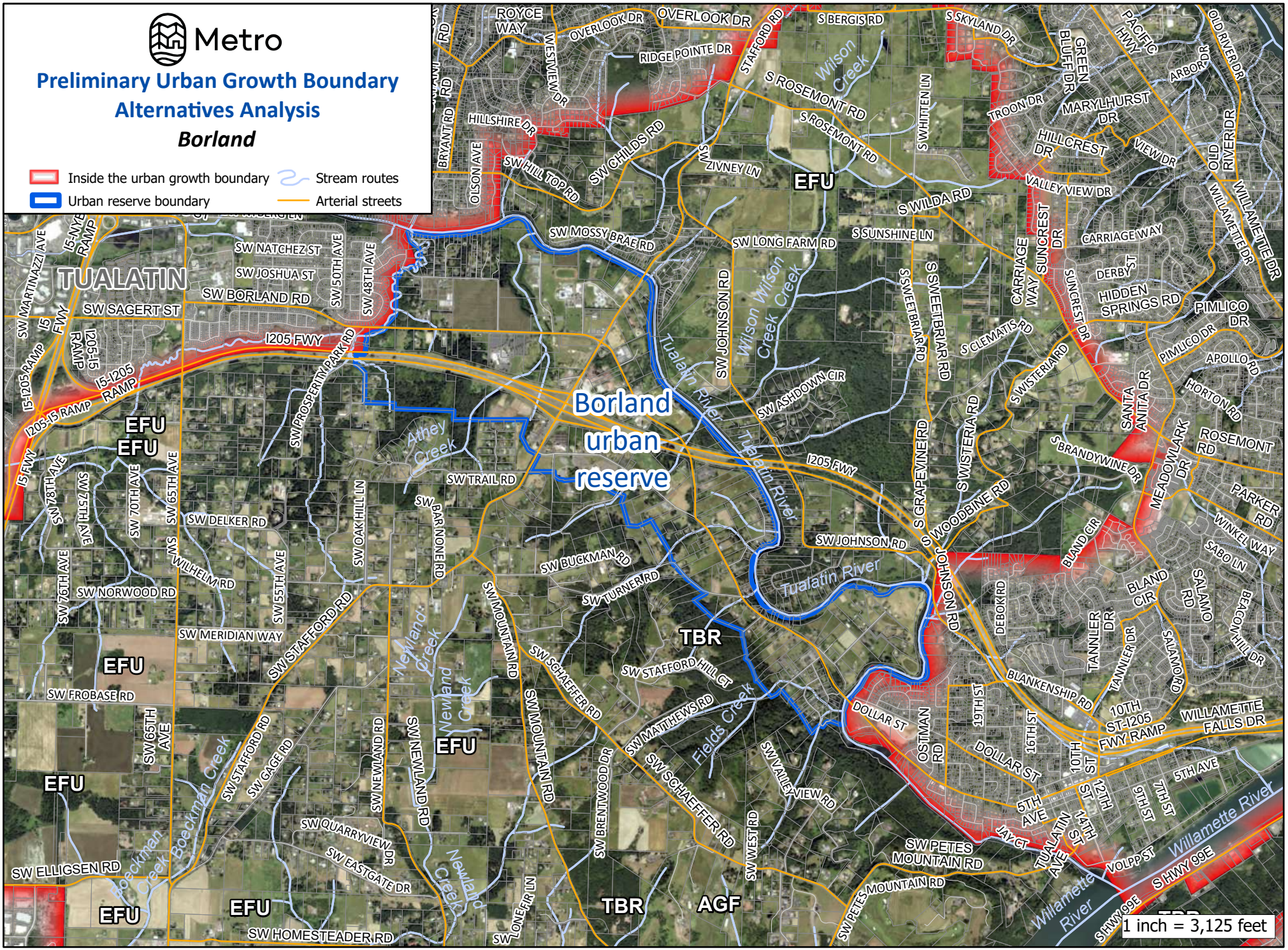
## *Borland*

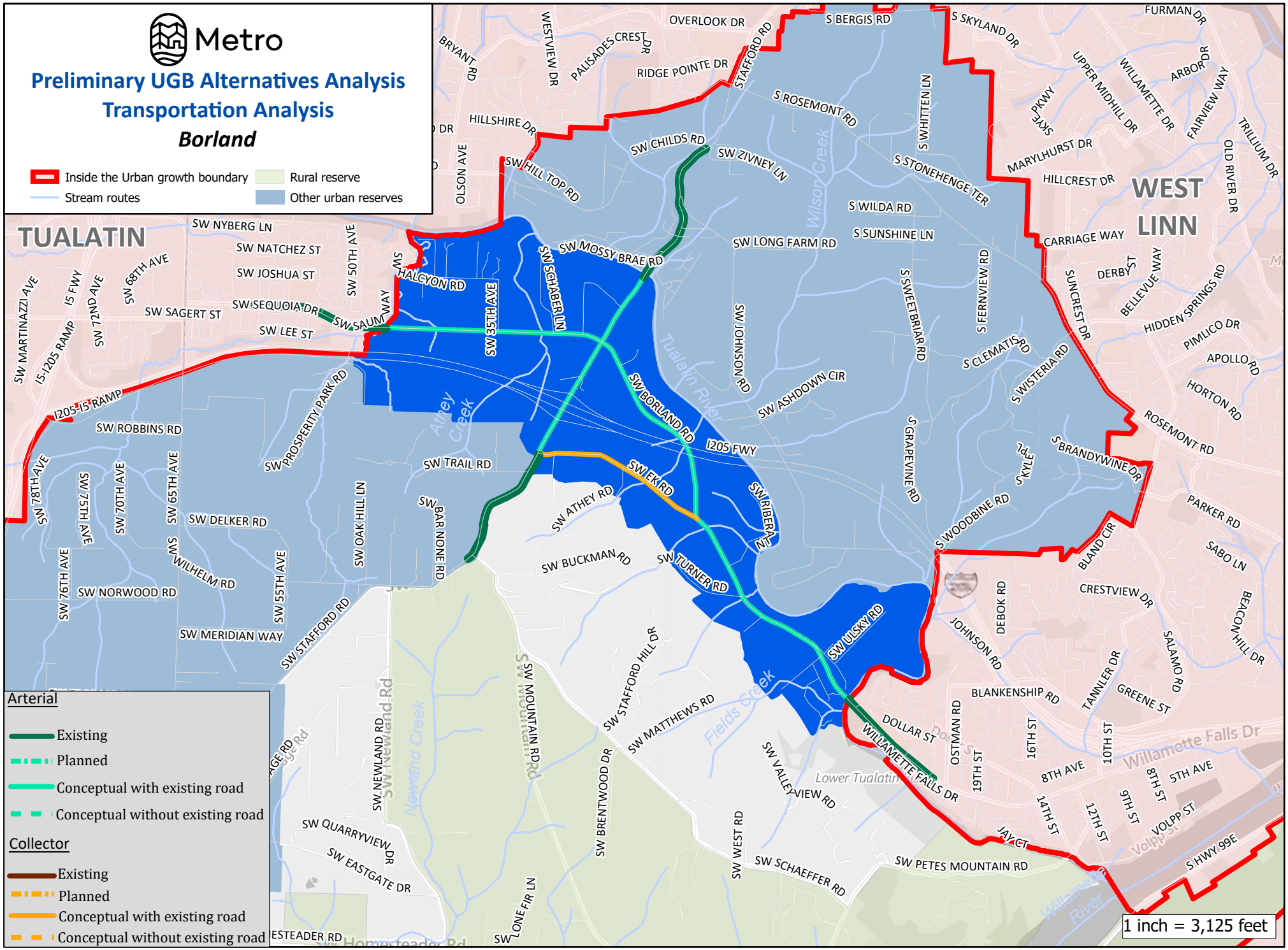
Inside the urban growth boundary

Urban reserve boundary

Stream routes

Arterial streets



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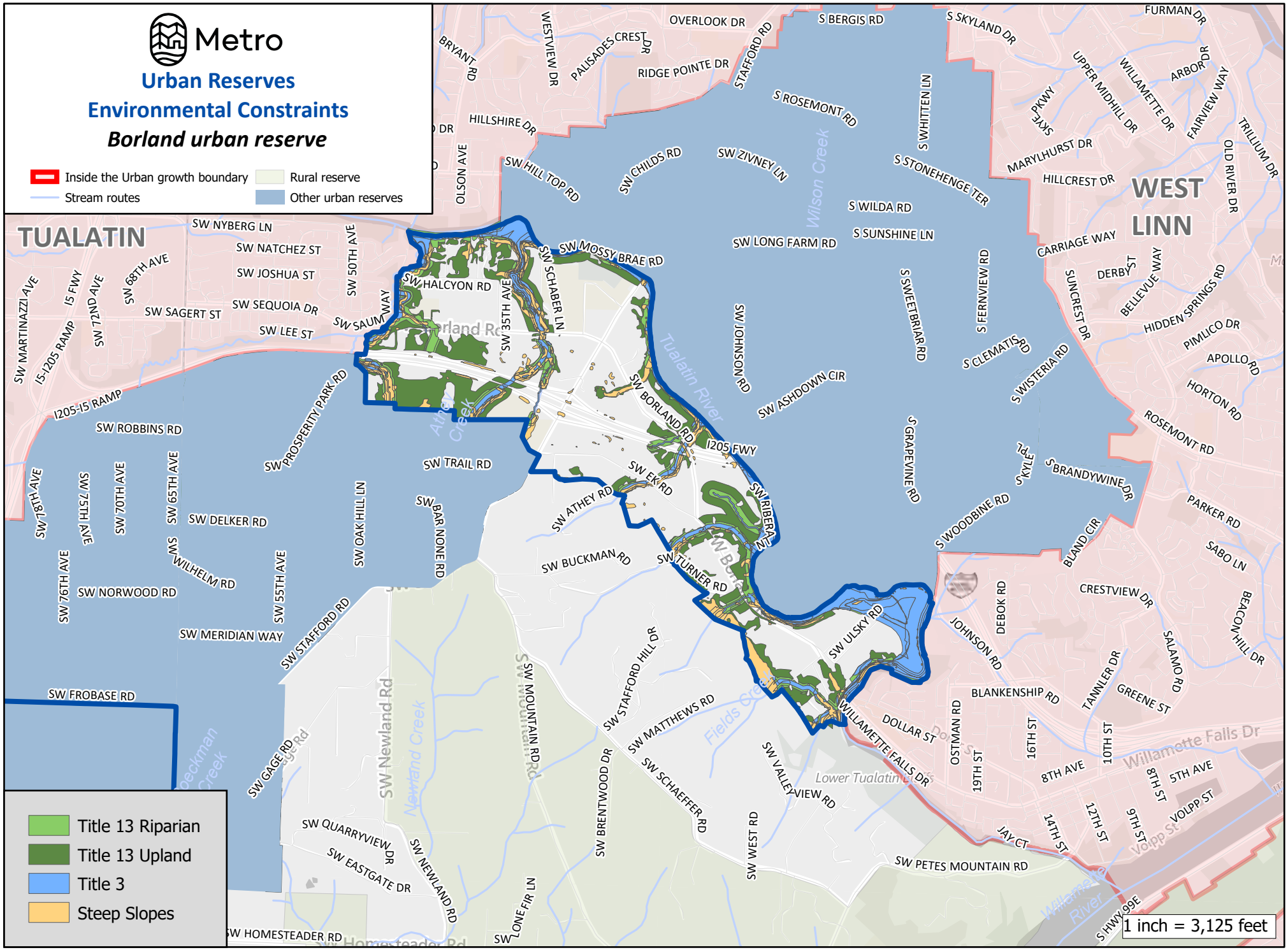


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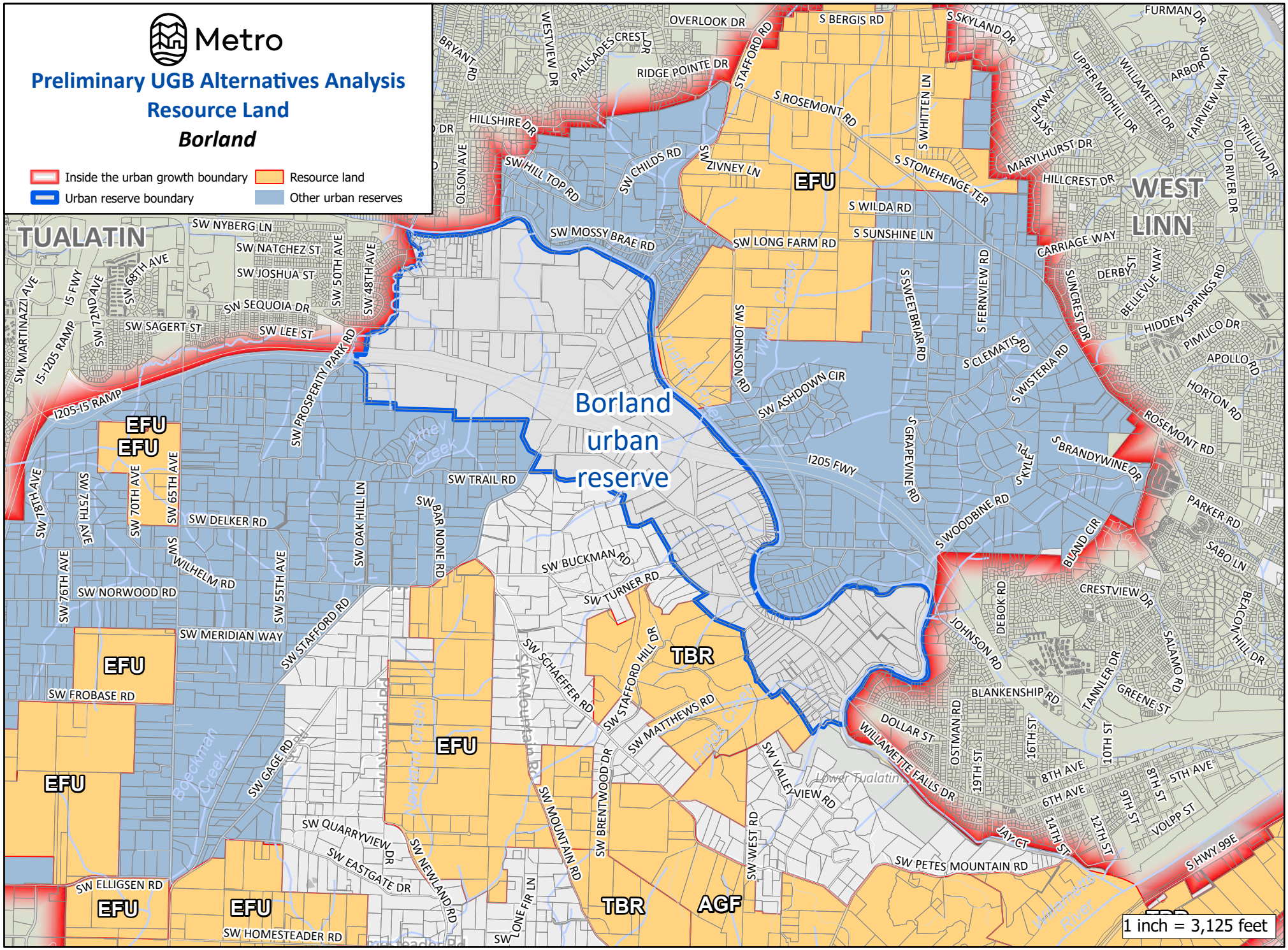


# BROOKWOOD PARKWAY URBAN RESERVE

| | |
|---|---|
| Total Reserve Area | 62 acres |
| Total Tax Lot Area in Reserve (without Right-of-Way) | 38 acres |
| Gross Vacant Buildable Area | 32 acres |
| **Net Vacant Buildable Area** | **24 acres** |

The Brookwood Parkway Urban Reserve is a relatively small area on the north side of Hillsboro at the Brookwood Parkway/Highway 26 interchange. Except for its north side, the reserve is entirely surrounded by the UGB and the corporate limits of the City of Hillsboro; Highway 26 occupies and forms the edge to the northern portion of the reserve. Access to the area is provided by NW Meek Road, NW Oak Drive, and NW Birch Ave.

## GOAL 14 BOUNDARY LOCATION FACTORS

### Factor 1: Efficient accommodation of identified land needs

The Brookwood Parkway Urban Reserve is comprised of 24 contiguous tax lots, all of which are entirely within the reserve. More than 80 percent of the tax lots are smaller than two acres and only one tax lot is larger than five acres; no tax lot in the reserve is larger than 10 acres. The combined tax lot area within the reserve is approximately 38 acres. As noted above, the entire reserve contains 32 gross vacant buildable acres and 24 net vacant buildable acres.

The reserve is characterized by rural residential development, though aerial imagery suggests there is some very limited agricultural activity. Assessment records indicate the North Hillsboro Congregation of Jehovah's Witnesses owns a 3.46-acre tax lot in the reserve's southeast. All but three of the reserve's tax lots have assessed improvements, with the median assessed value of those tax lots' improvements being just under $300,000.

A parking lot for a large-scale industrial use neighbors the reserve to the south. Other industrial uses and undeveloped land zoned for industrial uses neighbor to the west. The Topgolf golfing facility is just across NE Brookwood Parkway to the southeast. On the opposite side of Highway 26 but within one mile of the reserve, there are existing retail commercial uses and the West Union Elementary School. The reserve is adjacent to – indeed, includes a portion of – a Highway 26 interchange with NE Brookwood Parkway. TriMet Route 46 has a stop at the intersection of NE Evergreen Parkway and NE Brookwood Parkway less than a mile to the south of the reserve.

Despite the proximity of existing employment land uses, urban industrial zoning, and the highway, the small size of the reserve's tax lots and their existing residential development make it less likely to be able to accommodate new employment land uses. Rather, the reserve is considered able to accommodate a small residential land need.

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

### *Water Services*

With regard to water services, the Brookwood Parkway Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Adjacent lands inside the UGB are served by the City of Hillsboro. The city owns and operates two municipal drinking water systems, the City System, which is the primary system, and the Upper System, which is a secondary system. It utilizes wholesale water purchased from the Joint Water Commission (JWC). JWC, which is jointly owned by the Tualatin Valley Water District (TVWD) and the Cities of Hillsboro, Beaverton, and Forest Grove, obtains water from Hagg Lake (Scoggins Reservoir) and the Barney Reservoir released into the upper portion of the Tualatin River. When flows are available, water from the Tualatin River is used. It is then withdrawn and filtered through the JWC water treatment plant. Chlorine and pH adjustments are added before leaving the plant, where chlorine and pH adjustments are added to the water. The city is working with TVWD on development of a new water supply system that will draw water from the Willamette River in order to, among other goals, better accommodate growth in the city and surrounding areas. The project is expected to be completed in 2026. There are also plans to an upgrade of the JWC Water Treatment Plant. In the meantime, it is assumed there is generally sufficient treatment, storage, and transmission capacity to meet existing demands, though additional storage may be needed for areas within the existing UGB during regional supply shortage events and to accommodate full buildout.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

The City of Hillsboro has previously indicated there is or will be adequate water supply to serve the reserve as it develops, but capacity availability will ultimately depend on specific land uses in the reserve and the timing of any other urban development connected to the system. Additional supply capacity (e.g., from the WWSS project planned for completion in 2026), additional storage capacity, and pipe upsizing may be needed. Connections to existing water lines are potentially available in NE Brookwood Parkway and NE Starr Boulevard. If the reserve were to be connected to new storage facilities on the north side of Highway 26, infrastructure would need to cross the highway.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Additional supply and storage capacity, as well as pipe upsizing, may be needed in order to avoid adversely impacting existing facilities in areas already inside the UGB.

*d. Estimated water service-related costs for reserve development*

| Water piping, pumping, and storage costs | Cost |
|---|---|
| **10-inch pipe** | $0 |
| **12-inch pipe** | $0 |
| **18-inch pipe** | $2.03 million |
| **Pumping** | $0 |
| **Storage** | $0.04 million |
| **Total:** | **$2.07 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$4,908** |

### *Sanitary Sewer Services*

With regard to sanitary sewer services, the Brookwood Parkway Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

In adjacent areas already in the UGB, the City of Hillsboro provides sanitary sewer services that feed into the regional sanitary sewer system operated by Clean Water Services (CWS). CWS treats wastewater at the Rock Creek Wastewater Treatment Plant. Capacity is believed to be adequate to meet current demand, though CWS is in the process of developing the West Basin Master Plan (WBMP), which, when completed as early as 2025, will identify projects needed to accommodate redevelopment and new development in the UGB.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

There is an 18-inch sewer line at Brookwood Parkway where future development of the reserve could potentially connect to; alternatively, it may be possible to connect to a 24-inch sewer in Huffman Road. Depending on the type of development that occurs in the reserve, these lines may be sufficient or else upsizing will be needed. The forthcoming WBMP will help to identify projects needed to accommodate development in and beyond the existing UGB. In the meantime, no significant facility improvements are assumed.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

If existing lines where service is connected to are insufficient, upsizing will be needed to avoid adverse impacts to existing facilities already inside the UGB. The WBMP will help to identify projects needed to accommodate development beyond the existing UGB

while maintaining adequate service elsewhere. In the meantime, no significant facility improvements are assumed.

*d. Estimated sanitary sewer service-related costs for reserve development*

| Sanitary sewer piping and pumping costs | Cost |
|---|---|
| **10-inch pipe** | $0 |
| **12-inch pipe** | $0 |
| **15-inch pipe** | $0 |
| **Pump station** | $0 |
| **Force mains** | $0 |
| **Total:** | **$0** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$0** |

### *Stormwater Management Services*

With regard to stormwater management services, the Brookwood Parkway Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

There is no indication of significant challenges with existing stormwater management facilities being able to serve existing development in adjacent areas inside the UGB.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Based on topography, stormwater related to new development in the Brookwood Parkway Urban Reserve could potentially discharge directly to Waibel Creak via private and public outfalls, without connecting to other existing stormwater infrastructure.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

As noted above, stormwater related to new development in the Brookwood Parkway Urban Reserve could potentially discharge directly to Waibel Creak via private and public outfalls, without connecting to other existing stormwater infrastructure. Therefore, no adverse impacts to existing facilities serving areas already inside the UGB are anticipated.

*d. Estimated stormwater service-related costs for reserve development*

| Stormwater piping and water quality/detention | Cost |
|---|---|
| **18-inch pipe** | $1.20 million |
| **24-inch pipe** | $0.30 million |
| **30-inch pipe** | $0 |
| **Water quality/dentition** | $0.77 million |
| **Total:** | **$2.27 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$5,379** |

### *Transportation Services*

With regard to transportation services, the Brookwood Parkway Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(e) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Figure 4.36 in Chapter 4 of the 2023 Regional Transportation Plan (RTP) displays 2020 home-based vehicle miles traveled (VMT) per capita by Metro transportation analysis zone, with average VMT per capita considered 11.32. According to Figure 4.36 in Chapter 4, areas in the UGB adjacent to the Brookwood Parkway Urban Reserve had below average and above average home-based VMT per capita in 2020.

Metro's adopted 2040 Growth Concept Map designates two regional centers and separate town centers in the City of Hillsboro adjacent to the reserve. Regional centers are generally meant to: serve populations of hundreds of thousands of people; surround high-quality transit service and multi-modal street networks; and offer larger commercial uses, healthcare facilities, local government services, and public amenities. Town centers are meant to: serve populations of tens of thousands of people; offer more locally-focused retail uses and public amenities; and be well served by transit. The Orenco Town Center and the Tanasbourne/Amber Glen Regional Center in Hillsboro are the closest 2040 Growth Concept designated centers to the Brookwood Parkway Urban Reserve.

The Orenco Town Center is essentially fully built out with a mixture of housing types and retail commercial uses. There's also a nearby grocery store, medical facilities, and educational uses. The center was developed as a transit-oriented development surrounding the Orenco Light Rail Station. Metro's 2017 State of the Centers Atlas shows it has a higher-than-average total population, population density, and a much higher than average number of dwelling units per acre compared with other town centers in the region. Orenco also scored very high in the atlas with regard to parks access and sidewalk and bike route density.

The Tanasbourne/Amber Glen Regional Center is a mixture of higher density residential uses, a grocery store and multiple department stores, banks, and medical facilities, including a Kaiser Permanente hospital and an Oregon Health Sciences University research facility. Metro's 2017 State of the Centers Atlas showed a high level of employees and total population, slightly higher dwelling units per acre, and an average population density compared with other regional centers.

Growth in and near these 2040 Growth Concept will not necessarily cause a significant increase in home-based VMT per capita in the future, in part because area residents will be able to access some daily needs with relatively short trips. The transit service and bike and pedestrian facilities that serve these centers, described further below, can also help to ensure that additional growth nearby does not adversely impact home-based VMT per capita.

Six TriMet bus routes provide service to Hillsboro and/or nearby unincorporated Washington County, mainly along the arterial streets in the central portion of the city, focusing on the Hillsboro and Tanasbourne/Amber Glen Regional Centers, the Orenco Town Center, and employment areas. There is generally more minimal transit service to the southern and northern portions of the city. TriMet Routes 46 and 47 respectively have stops approximately three-quarters of a mile and 1.5 miles from the southeast corner of the reserve. The MAX Light Rail Blue Line stops at nine stations within Hillsboro, connecting Hillsboro to Beaverton and Portland. Figure 4.3 in Chapter of the 2023 RTP indicates that there are gaps in planned frequent transit service along certain routes in the UGB near the reserve, including along NE Brookwood Parkway and NW Evergreen Road.

Hillsboro has over 54 miles of dedicated bike lanes, more than 24 miles of established bikeways, and numerous streets considered "bike friendly" that, together, create a fairly well-connected system that is focused mostly on the central portion of the city and its two regional centers, including the Tanasbourne/Amber Glen Regional Center. Within the UGB and near the reserve, there are dedicated bike facilities along NE Brookwood Parkway, NE Evergreen Road, NE Huffman Street, NE Jacobson Street, and NE Starr Boulevard. In addition, there are some local trails that provide key connections to the greater bike network. The existing bike facilities on NE Brookwood Parkway and NE Evergreen Road are identified as part of the regional bike network on Figure 4.5 in Chapter 4 of the 2023 RTP. However, the figure also identifies gaps in the planned network in other areas in the UGB near the reserve.

A large proportion of the residential neighborhoods in Hillsboro have sidewalks, although there are other residential areas of the city that do not have sidewalks. The Orenco Town Center and Tanasbourne/Amber Glen Regional Center have sidewalks, as do the employment areas adjacent to the reserve. Trails, such as the Rock Creek Trail, provide additional pedestrian opportunities. A pedestrian route along a section of NE Brookwood Parkway in the UGB near the reserve is identified in Chapter 4, Figure 4.4 of the 2023 RTP as in the regional pedestrian network, though there are also gaps,

including along NE Brookwood Parkway north of Highway 26 and along NE Huffman Street.

Figure 4.14 in Chapter of the 2023 RTP identifies a number of high injury corridors in the area already inside the UGB near the reserve and in Hillsboro, including NE Brookwood Parkway north of Highway 26 and NE Evergreen Road east of NE Brookwood Parkway. The figure also identifies the intersection of NE Brookwood Parkway and NE Cornell Road as a high injury intersection.

Highway 26 within the UGB adjacent to the reserve is identified as a throughway Chapter 4, Figure 4.7 of the 2023 RTP. Figure 4.8 of that chapter indicates that this section of Highway 26 currently meets travel speed reliability performance thresholds, with no more than four hours per day when travel speeds fall below the identified minimum speed. RTP models indicate this reliability will continue at least to the year 2045.

### *b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Highway 26, an RTP-designated throughway, is adjacent to – indeed, crosses through – the reserve. As noted above, the section of the highway near the reserve currently meets travel speed reliability performance thresholds.

There is currently no transit service into the reserve itself, though TriMet Routes 46 and 47 respectively have stops approximately three-quarters of a mile and 1.5 miles from the southeast corner of the reserve.

There is a dedicated bike lane on NE Brookwood Parkway adjacent to the reserve that connects to a dedicated bike lane on NW Jacobsen Road, north of the Highway 26 interchange; this bike lane extends east through an employment area to NW Cornelius Pass Road. An established bikeway also runs south from the southern edge of the reserve on NE Brookwood Parkway to south of NE Evergreen Parkway. A dedicated bike lane on NE Huffman Street connects to a dedicated bike lane on NE Starr Boulevard that is just west of the western edge of the reserve. The dedicated bike lane on NE Huffman Road that is east of NE Brookwood Parkway runs through an employment area and connects to the Gordon Faber Recreation Complex via NE Bennett Street. This bike lane continues south on NE Century Boulevard to connect with numerous other bike facilities.

Sidewalks on NE Brookwood Parkway connect the reserve to employment areas to the east on NE Huffman Street and to the south of NE Evergreen Road. There is a short, roughly 250-foot gap in sidewalks on the west side of NE Brookwood Parkway adjacent to the east side of the reserve north of NW Meek Road. There are painted pedestrian crossings at the intersection of NE Brookwood Parkway and the Highway 26 on- and off-ramps. Currently, there are no sidewalks along NW Meek Road leading to the north end of the reserve, nor are there sidewalks within the reserve itself.

As noted in response to Factor 1, the reserve is considered able to efficiently accommodate a small residential land need but not necessarily an employment land need. Future residential development would be very close to industrial uses, where future residents may find employment opportunities that do not require a significant commute. Existing bike and pedestrian facilities to/near the reserve would facilitate access to nearby employment uses and to existing transit stops further to the south. However, the reserve is moderately distant from the Orenco Town Center, the Tanasbourne/Amber Glen Regional Center, and to other areas where future residents could meet more of their daily needs (e.g., a grocery store, schools, medical facilities). Without current direct transit service, it is expected that future residents of the reserve would be somewhat reliant on private motor vehicle transportation.

### *c. Impacts to existing facilities that serve nearby areas already inside the UGB*

NE Brookwood Parkway, NE Huffman Street, NE Jacobson Street, and NE Evergreen Road would be expected to see additional private motor vehicle traffic from development of the reserve. Existing bike and pedestrian facilities nearby would also be expected to see additional use. However, with such a relatively small buildable area, the amount of development from this reserve is not likely to meaningfully impact home-based VMT per capita or have major impacts to the performance of Highway 26 as a throughway. Any additional motor vehicle traffic on NE Brookwood Parkway or NE Evergreen Road resulting from development of the reserve, however, may exacerbate these roadways' high-crash conditions.

### *d. Need for major transportation facility improvements and associated costs*

No major transportation facility improvements (i.e., new or improved urban arterial or collector roads) are expected to be needed to serve urban development of the Brookwood Parkway Urban Reserve.

| Facilities | Cost |
|---|---|
| **Arterials, existing/improved full street** | $0 |
| **Arterials, existing/improved half street** | $0 |
| **Arterials, new** | $0 |
| **Collectors, existing/improved full street** | $0 |
| **Collectors, existing/improved half street** | $0 |
| **Collectors, new** | $0 |
| **Total:** | **$0** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$0** |

### *e. Provision of public transit service*

TriMet evaluated the reserve for providing transit service. TriMet determined that it could provide services to the reserve, although there is no guarantee of service. Actual service will depend on the level of development in the reserve and in the corridors

leading to it. Nearby transit services are expected to be improved by 2045, with future Route 66 traveling along Evergreen Road less than a mile from the southern portion of the reserve. There would be no additional cost to serve this reserve in the future.

Prior to land being included in the UGB, a more detailed concept plan, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11, will be required. This concept plan process will develop more refined public facility and service needs and cost estimates.

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

### *Environmental consequences*

Waible Gulch flows in a southerly direction through the northwest corner of the Brookwood Parkway Urban Reserve for approximately 1,120 feet. The stream crosses both cleared land and a small wooded section of a residential tax lot and is located within a mapped floodplain. There is riparian habitat associated with the stream, but there are no currently identified wetlands in the reserve. The stream isolates a small corner of the reserve; however, since the land to the west is within the UGB, this isolated corner can likely be accessed from the west without the need to provide a stream crossing for connectivity. Given the increased protection levels for streams, habitat areas, and floodplains within the UGB, and the ability to provide access from the west to the isolated corner, urbanization of the area can occur with comparatively minimal impact to this stream corridor and habitat areas. Additional environmental consideration, specifically regarding avoidance of conflict between urban development and regionally significant fish and wildlife habitat, is provided in the Metro Code Factors Analysis (Appendix 7A).

Considering the comparative environmental consequences of urbanization, the Brookwood Parkway Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location sub-factor.

### *Social, energy, and economic consequences*

It is expected that urbanization of the Brookwood Parkway Urban Reserve will result in new housing replacing at least some of the reserve's existing rural residences. However, the small amount of vacant land and the small size of the reserve's tax lots may slow the redevelopment process and thereby slow any change in sense of place and degradation of rural lifestyle. Indeed, this small rural pocket is already adjacent to Highway 26 and has

developed or developing land inside the UGB to the west, south, and east, all of which already limits the reserve's rural character.

As detailed more fully in response to Factor 2 and due in part to the reserve's small size, additional VMT and, therefore, related energy impacts from urbanization would be relatively minimal.

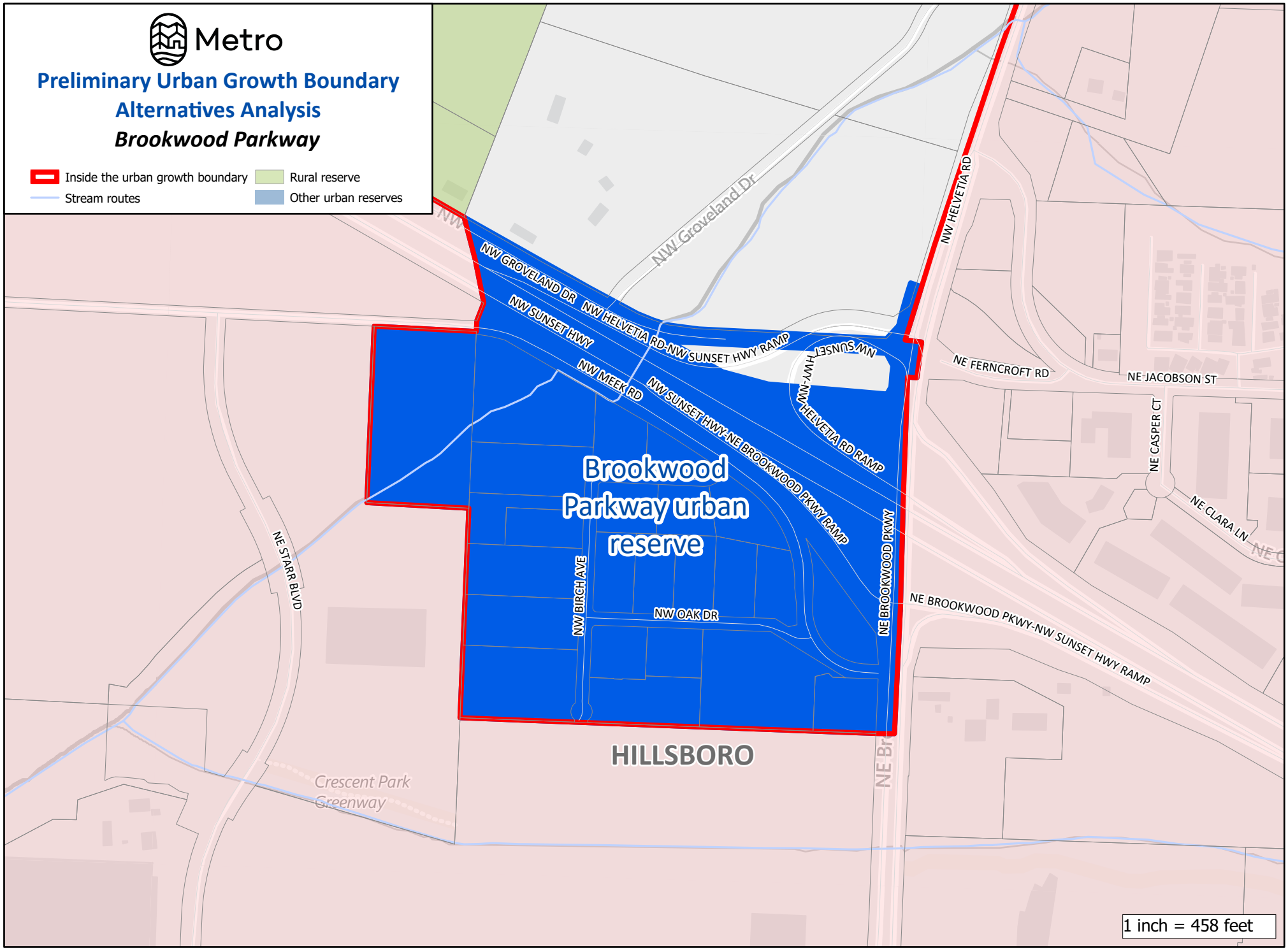
The reserve does not appear to have any commercial agricultural occurring, so urbanization would not have economic consequences as a result of a loss of farming activity in the reserve.

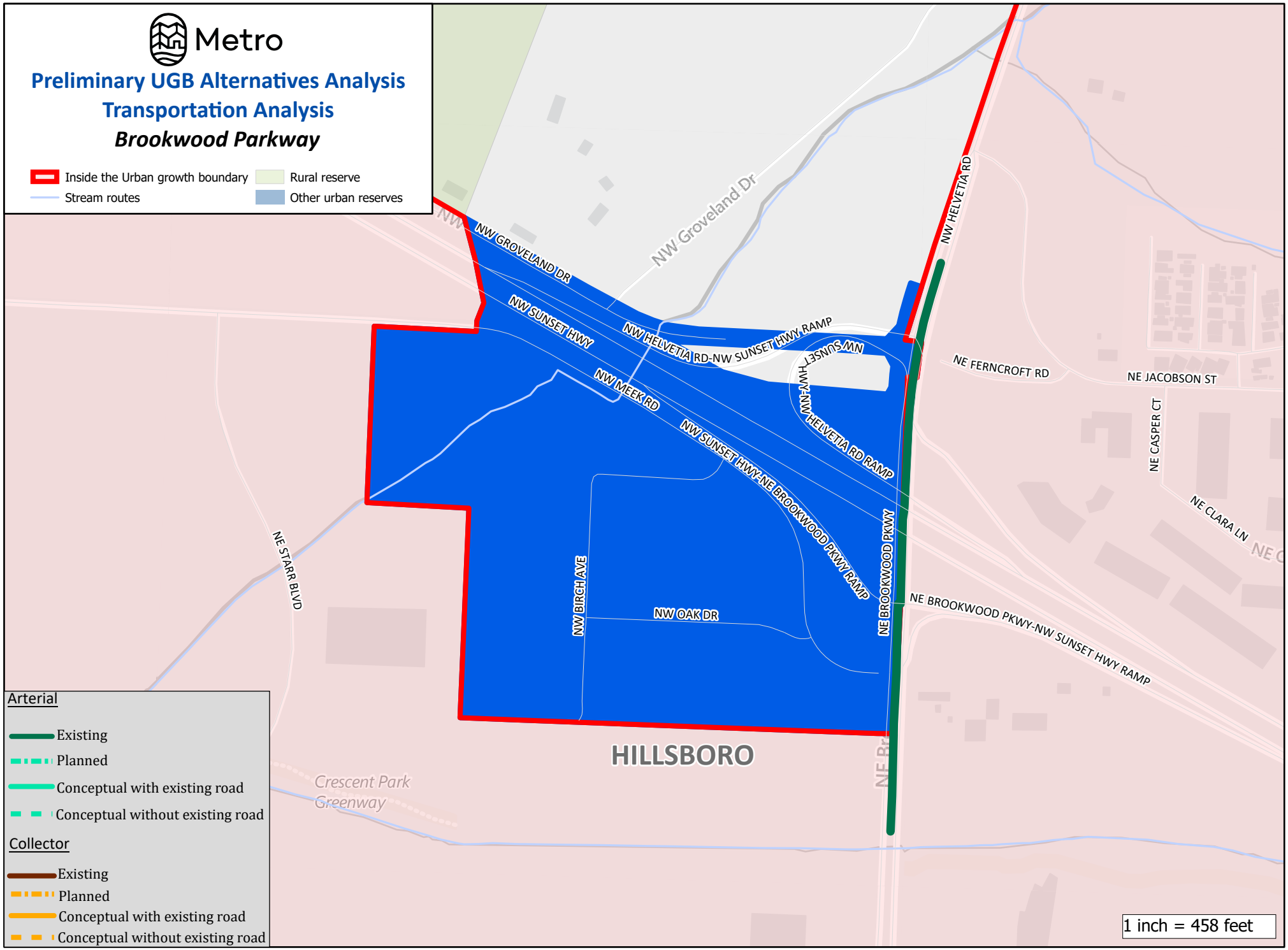
Overall, there would be comparatively low social, energy, and economic consequences from urbanization of this small reserve. The Brookwood Parkway Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location sub-factor.

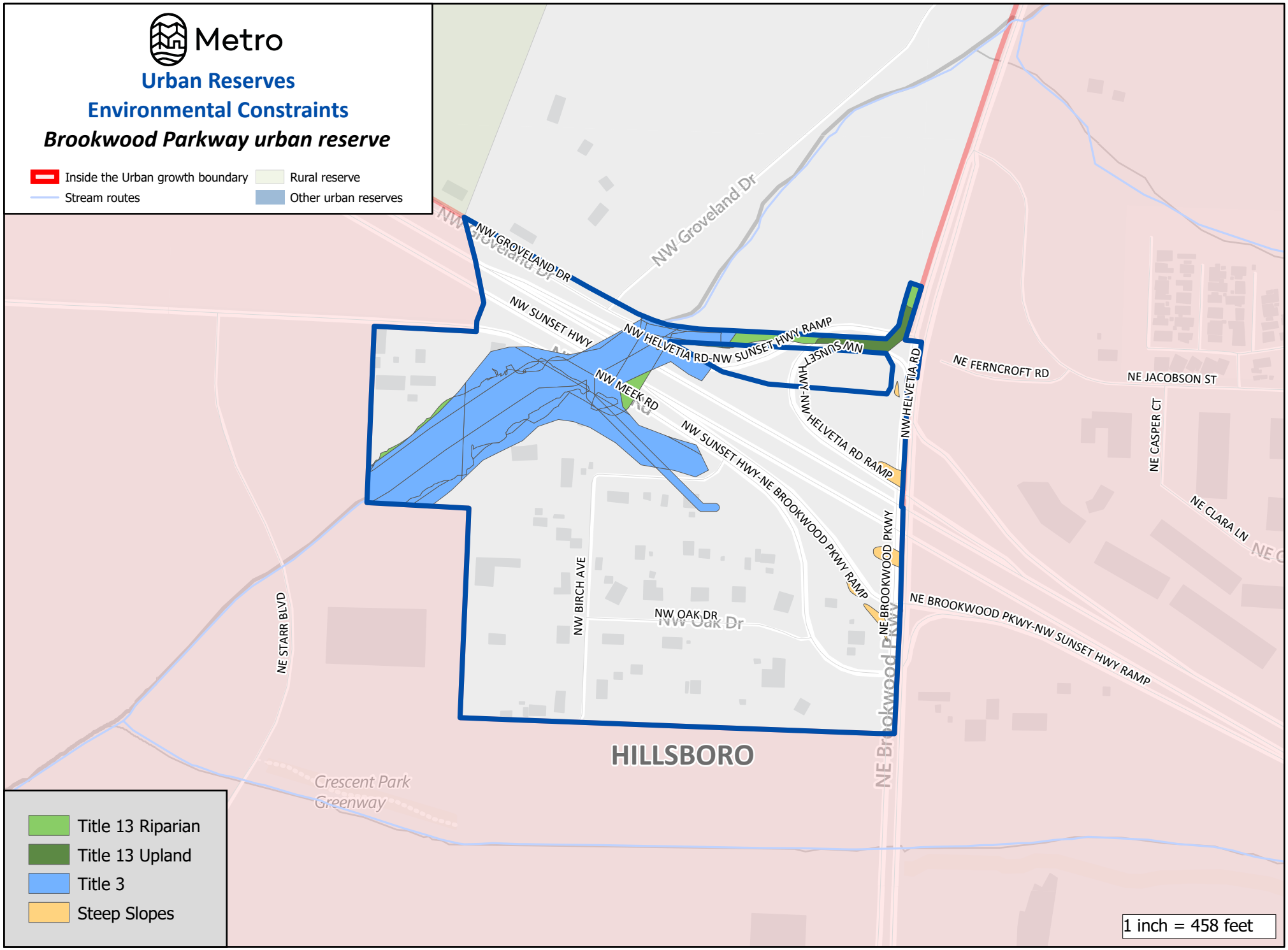
**Factor 4: Compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB**

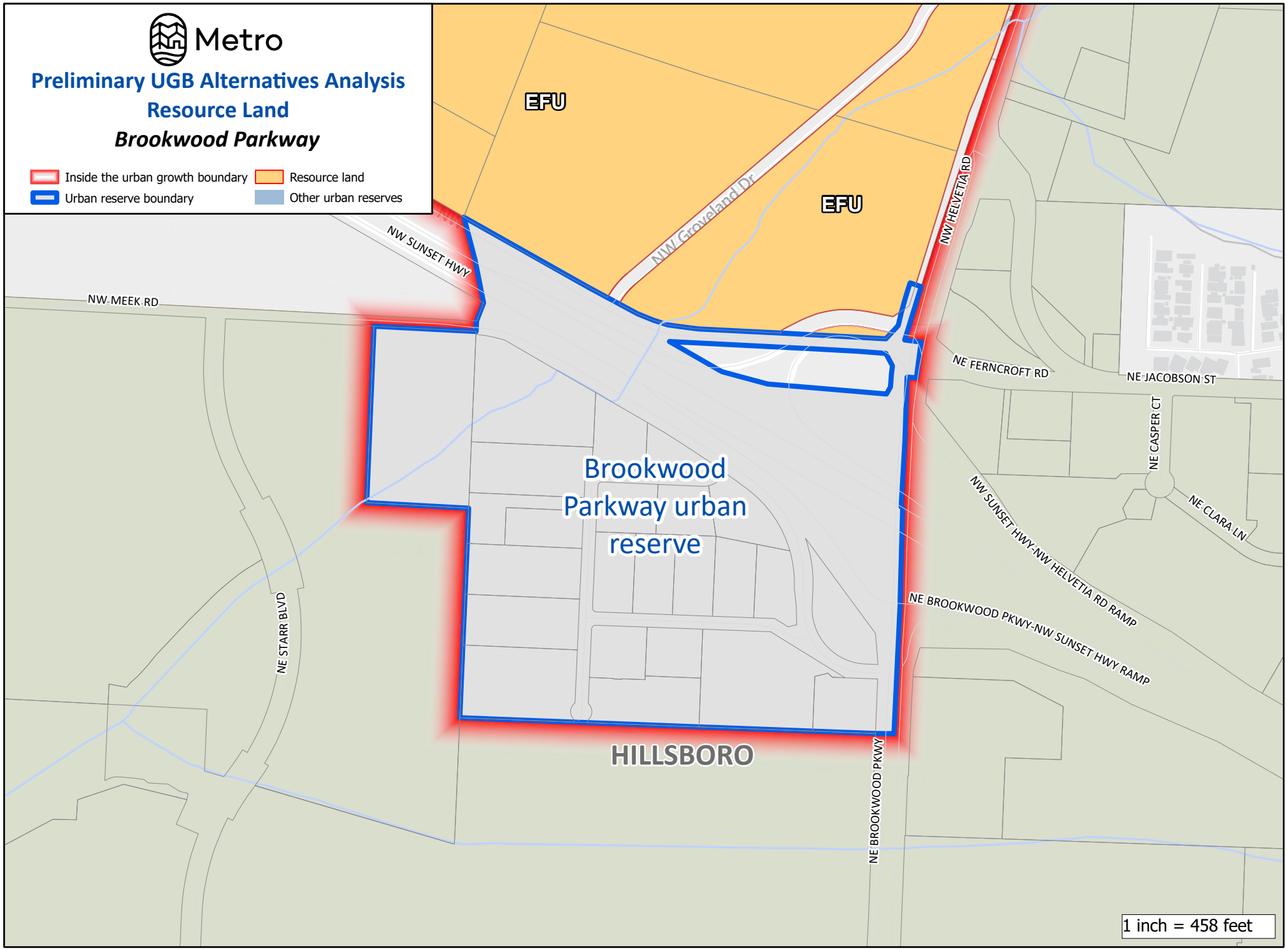
Goal 3 agricultural lands, specifically lands zoned Exclusive Farm Use (EFU) by Washington County, border the Brookwood Parkway Urban Reserve to the north, on the opposite side of Highway 26 from the developable portions of the reserve. This EFU-zoned land is mostly in field croup production; however, the 300-foot-wide Highway 26 right-of-way and the Waible Gulch stream corridor provide an adequate buffer between the reserve and these agricultural activities and urban development of the relatively small reserve is unlikely to result in land use conflicts with agricultural activity. Therefore, the proposed urban uses are considered to have high compatibility with the nearby agricultural and forest activities occurring on the farmland outside the UGB.

The Brookwood Parkway Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location factor.









## DAMASCUS URBAN RESERVE

| | |
|---|---|
| Total Reserve Area | 1,239 acres |
| Total Tax Lot Area in Reserve (without Right-of-Way) | 1,208 acres |
| Gross Vacant Buildable Area | 801 acres |
| **Net Vacant Buildable Area** | **596 acres** |

The Damascus Urban Reserve is comprised of two disconnected "sub-areas". The western sub-area is less than seven acres in size; it is located on the north side of Highway 224 and the east side of SE Tong Road, approximately a quarter mile east of current City of Happy Valley city limits. The northern portion of the western sub-area is relatively flat, while its southern portion near Highway 224 has slopes of 25 percent or greater. The UGB is the western sub-area's western boundary and the sub-area is otherwise entirely surrounded by rural reserve lands. The remaining 1,232 acres of the Damascus Urban Reserve is in its eastern sub-area, more than a mile east of the western sub-area and approximately half a mile from current City of Happy Valley city limits, roughly between Highways 212 and 224, west of Noyer Creek and east of SE Dolphin Road and SE Walgren Road. SE 232nd Drive and SE Royer Road both bisect the eastern sub-area. The UGB forms the northern boundary of the eastern sub-area and a small segment of its western boundary; the eastern sub-area is otherwise entirely surrounded by rural reserve lands, except for a 500-foot-long section in the area of Noyer Creek and a 330-foot-long section near to Highway 212 where it borders undesignated rural lands. The eastern sub-area is characterized by a mixture of flat agricultural lands, rural residences on its smaller tax lots, some rolling hills, and steeper slopes along Noyer Creek and nearer to Highway 224.

## GOAL 14 BOUNDARY LOCATION FACTORS

### Factor 1: Efficient accommodation of identified land needs

As noted above, the combined area of all of the Damascus Urban Reserve's tax lots is approximately 1,208 acres, though the reserve has only about 801 of gross vacant buildable acres and 596 net vacant buildable acres.

While the reserve has two disconnected "sub-areas", the 6.4-acre western sub-area accessed by SE Tong Road is comprised of just one tax lot, which has one dwelling, accessory uses, and a stand of trees on the steep slope above Highway 224 to the south. The tax lot's improvements are assessed at $660,000. Other properties neighboring this tax lot are of a similar or smaller size and are also generally developed with rural residential uses. The Richardson Creek Natural Area and is just on the opposite side of the highway from the sub-area's tax lot. Werne A Duncan Elementary School and Adrienne C Nelson High School are about a mile and a half away. Commercial uses in Carver are roughly a mile to the west, and commercial uses in the unincorporated community of Damascus are nearly two miles to the northeast. With its smaller size, existing and surrounding residential development, sloping terrain, and distance from commercial areas, the western sub-area is considered able to accommodate only a very small residential land need and no employment land need.

The eastern sub-area, however, has 215 contiguous tax lots fully within the Damascus Urban Reserve. Approximately 44 percent of these tax lots are smaller than two acres each and approximately 70 percent are smaller than five acres each. Slightly more than 10 percent are larger than 10 acres each, including four that are larger than 40 acres each. The eastern sub-area is characterized by agriculture lands, particularly near Highway 212, as well as rural residences and forested areas closer to Highway 224 and Noyer Creek. St. Paul Damascus Lutheran Church owns a nearly eight-acre tax lot in the eastern sub-area. More than 80 percent of the eastern sub-area's tax lots have assessed improvements, with the median assessed value of those tax lots' improvements being nearly $400,000.

The eastern sub-area is adjacent to Highway 212 and includes a portion of Highway 224. TriMet Route 30 has a stop on Highway 224 in the southeastern end of the eastern sub-area at the intersection with SE Royer Road. The eastern sub-area is served by a number of existing through- and dead-ending streets, and SE Ceielo Court in the UGB stubs to the edge of sub-area.

The Deep Creek – Damascus K-8 School occupies a 20-acre tax lot in the north end of the reserve's eastern sub-area. Lewis & Clark Montessori Charter School is outside of the reserve, but less than 1,000 feet from the north end of the eastern sub-area, on the opposite side of Highway 212. The Gresham-Barlow School District also owns more than 50 acres of undeveloped land outside of but adjacent to the reserve along SE 232nd Drive, across from the Deep Creek – Damascus K-8 School. The Barton Natural Area is less than 500 feet from the southeastern end of the eastern sub-area, and Barton Park is approximately 1.5 miles away. Existing commercial retail uses of unincorporated Damascus at the intersection of Highway 212, SE Sunnyside Road, and SE Foster Road are about 1.5 miles west of the northern end of the eastern sub-area via Highway 212.

The larger tax lots, vacant lands, and areas already cleared and in agricultural use, generally near to Highway 212, provide the opportunity for efficient urbanization, while the smaller-acreage rural residential pockets on steeper terrain closer to Highway 224 lend themselves to a less efficient level of urbanization. The areas near Highway 212, which are also closer to existing schools, vacant land near to school-district-owned property, and the Damascus commercial area provide an opportunity for employment or residential use. Employment uses in this area would also have better access to Highway 26 through the community of Boring. Therefore, this sub-area is considered able to accommodate both residential and employment land needs.

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

### *Water Services*

With regard to water services, the Damascus Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Sunrise Water Authority currently serves portions of the UGB generally east of I-205 and north of the Clackamas River, including Happy Valley. They will also serve Pleasant

Valley and Carver as they are annexed into Happy Valley and developed with urban uses. Sunrise Water Authority uses two types of sources for drinking water: surface water drawn from the Clackamas River, which is treated at one of three treatment plants; and ground water extracted from wells. There are no known major water system deficiencies at this time. Sunrise Water Authority has a 20-year CIP that includes the necessary investments to serve the district's service area for the current planning horizon.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Sunrise Water Authority is planning on serving the future needs of the Damascus area. System improvements, including pumping, treatment, storage, and transmission facility improvements, would be needed to serve urban development of the Damascus Urban Reserve. The full cost of these improvements is not currently known but could be significant.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

The pumping, treatment, storage, and transmission facility improvements noted above would be needed to avoid negatively impacting services to areas already inside the UGB.

*d. Estimated water service-related costs for reserve development*

| Water piping, pumping, and storage costs | Cost |
|---|---|
| **10-inch pipe** | $8.31 million |
| **12-inch pipe** | $0 |
| **16-inch pipe** | $0 |
| **Pumping** | $0 |
| **Storage** | $0.78 million |
| **Total:** | **$9.09 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$762** |

### *Sanitary Sewer Services*

With regard to sanitary sewer services, the Damascus Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

There is no existing public sanitary sewer service within the UGB near the Damascus Urban Reserve. Rather, this portion of the UGB is currently served by private septic systems. The nearest sanitary district is operated by Clackamas Water Environment Services (WES).

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

As noted above, there is no existing public sanitary sewer service within the UGB near the Damascus Urban Reserve. WES is the logical future provider, due to proximity, topography, and location within Clackamas County; however, WES does not have settled plans to extend service to Damascus and there may be limitations on adding significant new flows to the Clackamas River Basin. If services come from WES, it is likely that new trunk lines and pipe upsizing would be needed.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Because there is no existing public sanitary sewer service within the UGB near the Damascus Urban Reserve, there are no existing facilities necessarily to be impacted. However, if WES is to eventually serve the area, upsizing of existing WES pipes may be necessary to avoid adverse impacts.

*d. Estimated sanitary sewer service-related costs for reserve development*

| Sanitary sewer piping and pumping costs | Cost |
|---|---|
| **10-inch pipe** | $8.31 million |
| **12-inch pipe** | $0 |
| **15-inch pipe** | $0 |
| **Pump station** | $7.02 million |
| **Force mains** | $2.88 million |
| **Total:** | **$18.44 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$1,546** |

***Stormwater Management Services***

*a. Capacity of existing facilities to serve areas already inside the UGB*

No public stormwater management facilities exist to serve the adjacent area already inside the UGB.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

No public stormwater management facilities exist.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Because there is no existing public stormwater service within the UGB near the Damascus Urban Reserve, there are no existing facilities necessarily to be impacted. Stormwater conveyance, water quality, and detention for roadways would be developed

during construction and would likely be used to handle the public sector runoff. Private property runoff would likely need to be treated onsite.

*d. Estimated stormwater service-related costs for reserve development*

| Stormwater piping and water quality/detention | Cost |
|---|---|
| **18-inch pipe** | $5.64 million |
| **24-inch pipe** | $1.19 million |
| **30-inch pipe** | $0 |
| **Water quality/dentition** | $7.85 million |
| **Total:** | **$14.68 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$1,230** |

### *Transportation Services*

With regard to transportation services, the Damascus Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(e) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Figure 4.36 in Chapter 4 of the 2023 Regional Transportation Plan (RTP) displays 2020 home-based vehicle miles traveled (VMT) per capita by Metro transportation analysis zone, with average VMT per capita considered 11.32. According to Figure 4.36, areas in the UGB adjacent to the Damascus Urban Reserve had above average and significantly above average home-based VMT per capita in 2020.

Metro's adopted 2040 Growth Concept Map designates numerous walkable, higher-density, mixed-use centers of employment, housing, cultural and recreational activities, and transit service across the region in the UGB. Those centers are intended to grow the economy, provide affordable housing, and promote vibrant and distinctive communities that minimize transportation costs and allow people to meet their daily needs without having to utilize a private motor vehicle. The nearest 2040 Growth Concept center that has been planned for urban uses is the Happy Valley Town Center, approximately two miles of the reserve; residents of areas already within the UGB near the reserve therefore have to travel about this distance to reach a 2040 Growth Concept Center that has been planned for urban uses.

Nonetheless, there are major commercial uses, including a grocery store and banking services, as well as medical services in the area around the intersection of Highway 212 and SE Sunnyside Road, an area in the UGB that is envisaged in the 2040 Growth Concept as a future town center, but has not yet been planned for urban land uses. This area is closer to the reserve than the Happy Valley Town Center and can provide some

services to the surrounding residents in the UGB. There are also some commercial uses, including restaurants, in the Carver area of the UGB, approximately one mile from the small western sub-area.

There are no dedicated bike facilities or sidewalks within the UGB near to the reserve. There is limited bus service (i.e., every few hours) on the Sandy Area Metro (SAM) connecting the areas of the UGB near the eastern sub-area to the Damascus commercial area and Clackamas via Highway 212. TriMet Route 30 also provides bus service along Highway 224, connecting areas of the UGB near the western sub-area to Carver and Clackamas. Highway 212 does have fairly wide and shoulders, which can provide some space for bicyclists. There are a couple of painted pedestrian crossings of Highway 212 at SE 232nd Drive and SE 242nd Drive. There are also dedicated bike lanes, painted pedestrian crossings, and sidewalks along Highway 212 in the Damascus commercial area, as well as small sections of sidewalk and painted pedestrian crossings at the intersection of Highway 224 and Springwater Road in Carver.

Figure 4.14 in Chapter 4 of the 2023 RTP identifies several high injury corridors inside the UGB in the areas of Happy Valley, including sections of Highway 212. The figure also identifies the intersection of SE 242nd Avenue and SE Hoffmeister Road as a high injury intersection.

Highway 212 and Highway 224 are identified as throughways in Figure 4.7 in Chapter 4 of the 2023 RTP. Figure 4.8 of the chapter indicates that these routes currently meet travel speed reliability performance thresholds, with no more than four hours per day when travel speeds fall below the identified minimum speed. RTP models indicate the facilities' reliability will continue at least to the year 2045.

### *b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Highways 212 and 224 run adjacent to the eastern sub-area, and Highway 224 is adjacent to the western sub-area. As noted above, these throughways currently meet travel speed reliability performance thresholds.

There is currently dedicated bike facilities or sidewalks connecting the reserve to areas already inside the UGB. There are also no bike facilities or sidewalks within the reserve itself. As noted above, SAM provides occasional bus along Highway 212 to the Damascus commercial area and Clackamas, but there are currently no stops on the highway near to the reserve. TriMet Route 30 has stops in the southern end of the eastern sub-area on Highway 2025, providing limited service to Carver and Clackamas.

The eastern sub-area already contains a school use; if this portion of the reserve were to be urbanized with residential uses in close proximity, those residents could potentially access the school without significant private motor vehicle trips. However, there are very few other public services or commercial uses in and near the reserve today. Indeed, the areas of the UGB near to the reserve have not yet even been planned for urban land uses. Unless the reserve and surrounding areas were to be developed with a mixture of

residential uses and uses that could allow those future residents to meet their daily needs, residents will most likely be travelling by private motor vehicle to access them elsewhere (e.g., in the Damascus commercial area, Carver, Happy Valley, and Clackamas).

### *c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Portions of Highway 212, Highway 224, SE 232nd Drive, 242nd Avenue, SE Sunnyside Road, and SE Tong Road already within the UGB would be expected to see additional private vehicle traffic from development of the reserve, in part due to the distance of the reserve from commercial areas, the limited transit service connections, and lack of bike and pedestrian facilities. However, if the reserve itself were to be developed with a mixture of uses, future residents could get more of their daily needs met locally without having to drive as much on roads already in the UGB. The existing school uses in the reserve will also help to limit driving by new residents on roads already in the UGB. Moreover, nearby residences in the current UGB could provide housing to employees of the reserve, and new employment uses in the reserve could provide jobs for nearby residents of the current UGB, further limiting new traffic impacts on roads already in the UGB.

With these considerations, development of the reserve may result in only moderate impacts to home-based VMT per capita in the future in nearby areas already inside the UGB and the performance of Highways 212 and 224 as throughways. Any additional motor vehicle traffic on Highway 212 resulting from development of the reserve, however, may exacerbate existing high-crash conditions.

### *d. Need for major transportation facility improvements and associated costs*

To serve urban development, roughly 0.40 miles of SE 232nd Avenue that border the reserve north of SE Georgia Lee Lane will likely need to be improved to urban arterial standards. These lengths' improvements are considered half-street improvements for the purposes of this analysis, as the west side is already inside the UGB. An additional 1.15 miles of SE 232nd Avenue will likely need to be improved to full-street urban arterial standards, including acquisition of additional right-of-way. Approximately 1.43 miles of SE Royer Road could need to be improved to urban collector standards, with acquisition of additional right-of-way, and two new collectors with a combined length of 1.73 miles are expected to be needed in the eastern portion of the reserve. Given the topography, most of the new and improved roadway sections are expected to have normal per-mile costs.

| Facilities | Cost |
|---|---|
| **Arterials, existing/improved full street** | $70.98 million |
| **Arterials, existing/improved half street** | $9.66 million |
| **Arterials, new** | $0 |
| **Collectors, existing/improved full street** | $44.74 million |
| **Collectors, existing/improved half street** | $0 |
| **Collectors, new** | $73.33 million |
| **Total:** | **$198.71 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$16,659** |

*e. Provision of public transit service*

Much of the reserve was withdrawn from the TriMet service district; thus, no analysis of future/additional transit service was completed by TriMet. The reserve straddles the TriMet district boundary. As described above, both SAM and TriMet currently serve along the northern and southern borders of the reserve, respectively.

Prior to land being included in the UGB, a more detailed concept plan, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11, will be required. This concept plan process will develop more refined public facility and service needs and cost estimates.

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

### *Environmental consequences*

Two segments of Noyer Creek flow south along the eastern edge of the Damascus Urban Reserve for a total length of approximately 2,200 feet. Two small tributaries also connect to Noyer Creek along the reserve's eastern edge and have a combined length of approximately 3,200 feet. All four stream lengths are located in wooded ravines that could help provide protection from future urbanization.

A third tributary to Noyer Creek flows northeasterly through the edge of the large tract of agricultural land near Highway 212 for approximately 3,125 feet. A portion of the stream in this location is redirected under a loading area for a nursery. This stream section is susceptible to impacts from urbanization given its location, already altered state, and lack of an existing vegetated riparian corridor. However, restoration of this degraded stream edge, including the altered section, would provide protection for the water body.

Two tributaries to Richardson Creek flow north through the western portion of the eastern sub-area of the reserve for approximately 4,450 feet. A little more than half of the tributaries' lengths flow through pastureland and the remaining portions flow through locations of sporadic trees and shrubs, with no continuous vegetated riparian corridor. However, there is some riparian and upland habitat identified along the stream corridors.

These two streams are susceptible to impacts of future urbanization and, given their location near SE Royer Road, impacts to the upland habitat would be likely.

A 2,100-foot segment of Deep Creek and a 450-foot segment of Noyer Creek form the southern boundary of the eastern sub-area near Highway 224. There is a riparian buffer between 50 and 100 feet along the creeks, with limited ability to develop additional land given their location at the edge of the reserve.

An unnamed stream flows south along SE 232nd Drive for approximately 3,000 feet before flowing into Noyer Creek near the confluence with Deep Creek. The stream is mostly located in steep sloped wooded areas of rural residential tax lots and would be less impacted by urbanization due to steep slope protection measures.

There are two National Wetland Inventory (NWI) wetlands identified in the reserve. The first wetland is a 6,000-square-foot pond located on a rural residential property that is isolated from any stream corridor and includes both tree and shrub buffer vegetation. The isolated nature of this wetland may or may not make it susceptible to impacts from urbanization, depending on the ultimate redevelopment of this residential pocket. The second wetland, about 0.6 acres in size, is located along one of the tributaries to Richardson Creek adjacent to a residence. The wetland does have some significant adjacent tree canopy that continues along the stream corridor, which is identified as riparian habitat. The location of this wetland along a stream corridor with riparian habitat may make the wetland less susceptible to impact given the required protection levels for stream, wetland, and habitat areas within the UGB. There is also a pond located near the intersection of Highway 224 and SE 232nd Drive that may require habitat protection in the future.

There are areas near SE Royer Road and SE 232nd Drive that may have upland wildlife habitat considerations. A significant portion of these areas also contain slopes greater than 25 percent that would limit the impacts of future development; however, impacts to some upland habitat areas would be likely.

Overall, urbanization of the reserve could occur with comparatively low to moderate impacts to the natural resources; most stream corridors and wetlands would be protected by existing naturally-occurring buffers in ravines and steep slopes, as well as by increased stream and wetland protection requirements on land added the UGB. The identified upland habitat areas will need to be evaluated for future protection levels.

Considering the comparative environmental consequences of urbanization, the Damascus Urban Reserve is given a “medium-high” score in Attachment 3 for this Goal 14 boundary location sub-factor.

### *Social, energy, and economic consequences*

The very small western sub-area, which is constrained by slopes and existing development, will not be able to accommodate new development that will have a meaningful social impact on the surrounding area, which is already largely developed with residential uses. Its

urbanization will also not generate significant energy impacts or result in the loss of commercial farming activity on the site.

The large eastern sub-area is characterized by rural residential development on rolling hills at the south, and a significant tract of agricultural activity near Highway 212. It is expected that urbanization of this sub-area would, over time, result in new housing replacing some of the existing rural residences, which could contribute to a loss in sense of place for area residents. Areas along SE Forest Hill Drive, SE Weatherly Lane, and SE Cielo Court, as well as portions of SE Royer Road, would probably see more limited new development due to the existing levels of development, parcelization, topography, and habitat areas.

The portions of the eastern sub-area from SE Curtis Road to east of SE Royer Road, as well as south and east of the Deep Creek – Damascus K-8 School, have large tax lots with far fewer constraints on development. These areas could potentially accommodate wide-scale urban development that would have a significant impact on the overall character of the area and would likely contribute to a loss of sense of place and a degradation of rural lifestyle for existing area residents. However, urbanization could also could foster new civic, recreational, and social opportunities for the reserve's existing residents, particularly if it features a mixture of uses.

As detailed more fully in response to Factor 2, urbanization of the reserve may only generate moderate levels of VMT, if the reserve were to be developed as a complete community with a mixture of uses that allowed residents to meet more of their daily needs closer to home. This would help to limit adverse energy impacts from urbanization as well.

There is a significant amount of commercial agricultural activity occurring in the reserve and urbanization of the reserve's farmland could have considerable adverse economic consequences. However, these economic losses may be outweighed by economic benefits of urban residential development and new urban employment opportunities.

This analysis finds there would be comparatively moderate to high social, energy, and economic consequences from urbanization of this reserve. The Damascus Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location sub-factor.

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

The Damascus Urban Reserve is almost entirely surrounded by lands that have Goal 3 or 4 resource land zoning for agricultural and forest activities. Most of these lands adjoining the reserve but outside the UGB are zoned Timber (TBR) by Clackamas County, though some adjacent to the west end of the eastern sub-area are zoned Exclusive Farm Use (EFU) by the County and others adjacent to the east end of the eastern sub-area around Noyer Creek and its canyon are zoned Ag/Forest (AG/F) by the County.

There are two TBR-zoned tax lots adjacent to the western sub-area, each of which are smaller than five acres. While both largely forested, these trees are on steep slopes and one has residential uses. Given their small size, topography, and existing development, as well as their limited local road access, they are unlikely to be suitable for major commercial timber operations. Neither of these tax lots appears to have commercial agricultural activity. Therefore, urban development of the small western sub-area will not adversely impact agricultural or forest activities on these tax lots.

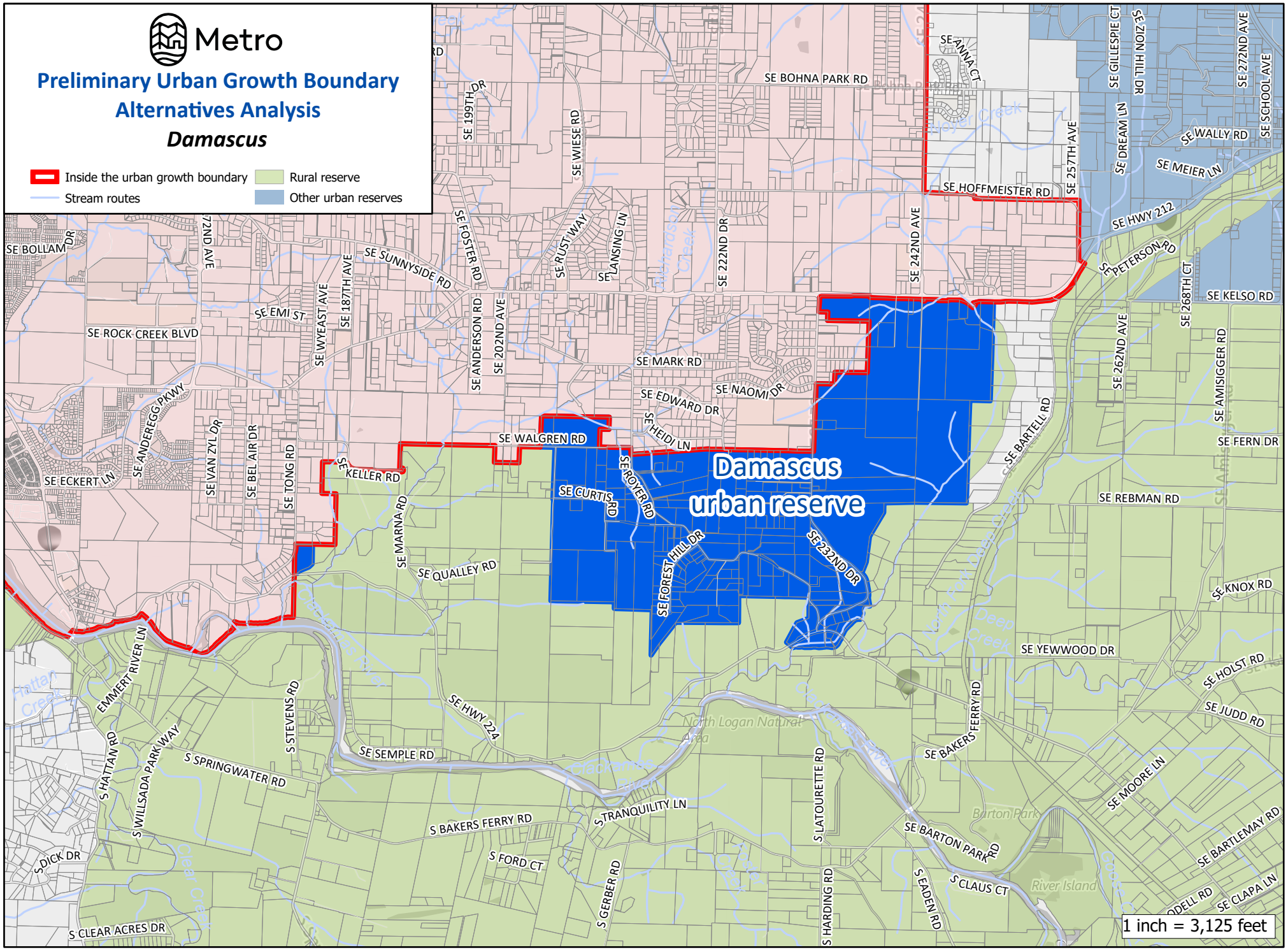
The EFU-zoned land adjacent to the west end of the eastern sub area, located south of SE Walgren Road and west of SE Dolphin Road, has agricultural activities, including productive fields and pasture lands, as well as stands of trees. Within the reserve and directly adjacent to one of the agricultural areas is the Alpha Broadcasting property that, if it stayed in its current use with broadcasting antennas, would provide a buffer between the agricultural activities and future urban development. SE Dolphin Road would not provide a satisfactory buffer between urban development and the agricultural and forested areas and conflicts related to safety, liability, and vandalism and complaints due to noise, odor, dust, and the use of pesticides and fertilizer could occur. Additional traffic along SE Dolphin Road may impact the movement of farm or forestry equipment, but since most of the future traffic would be expected to travel east towards SE 232nd Drive, the impact would likely be minimal.

The TBR-zoned land to adjoining to the south of the reserve's eastern sub-area is mostly forested, though there is some rural development on smaller tax lots. There is no apparent commercial agricultural activity in this area. While there could be commercial harvesting of trees, the topography slopes somewhat steeply down away from the reserve to Highway 224; timber harvesting here would be fairly isolated from development above in the reserve to the north. Moreover, one of the adjacent TBR-zoned properties, while forested, is owned by Metro and therefore not likely to be used for commercial timber harvesting.

Lands to the east of the reserve's eastern sub-area are zoned either TBR or AG/F. Those that are adjacent to the reserve in this area are generally forested, but they are along Noyer Creek and in the creek's canyon. Smaller adjoining tax lots have rural residences and limited apparent commercial agricultural activity. The canyon itself provides a very good buffer for the agricultural activities in this area. If urbanization occurred right up to the edge of the TBR-zoned land, it would not be compatible with any forestry activities that might occur, although restrictions on logging adjacent to Noyer Creek reduces the likelihood that the canyon area would be harvested.

Due to the limited nature of nearby agricultural and forest activities occurring on adjoining farm and forest land, the presence of the Noyer Creek, the functions of the creek's canyon as a buffer, Metro ownership of a large tax lot, and existing rural residential development, the proposed urban uses (i.e., urban development of the reserve) would be considered to have high compatibility with the nearby agricultural and forest activities occurring on farm and forest land.

The Damascus Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location factor.

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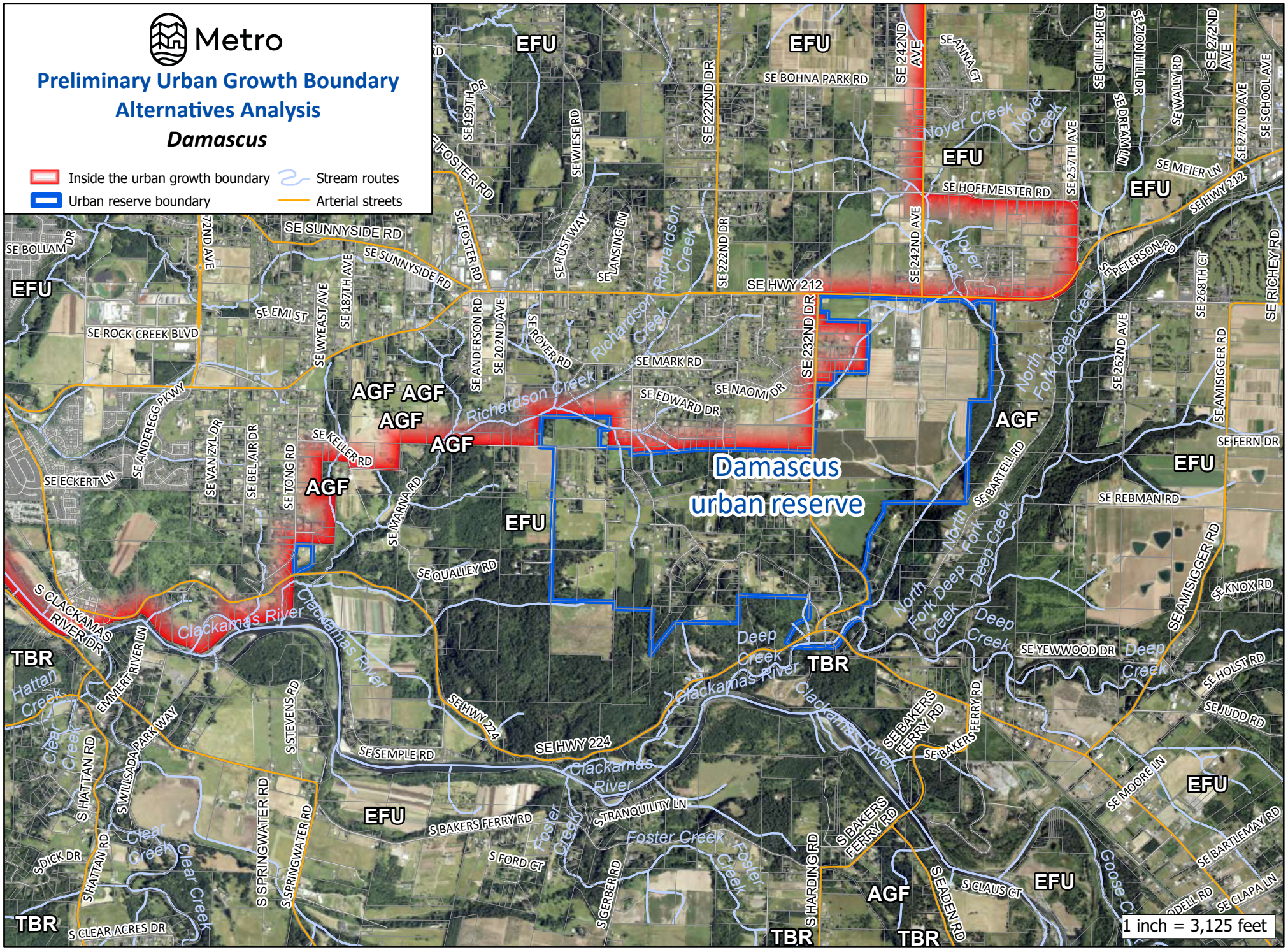
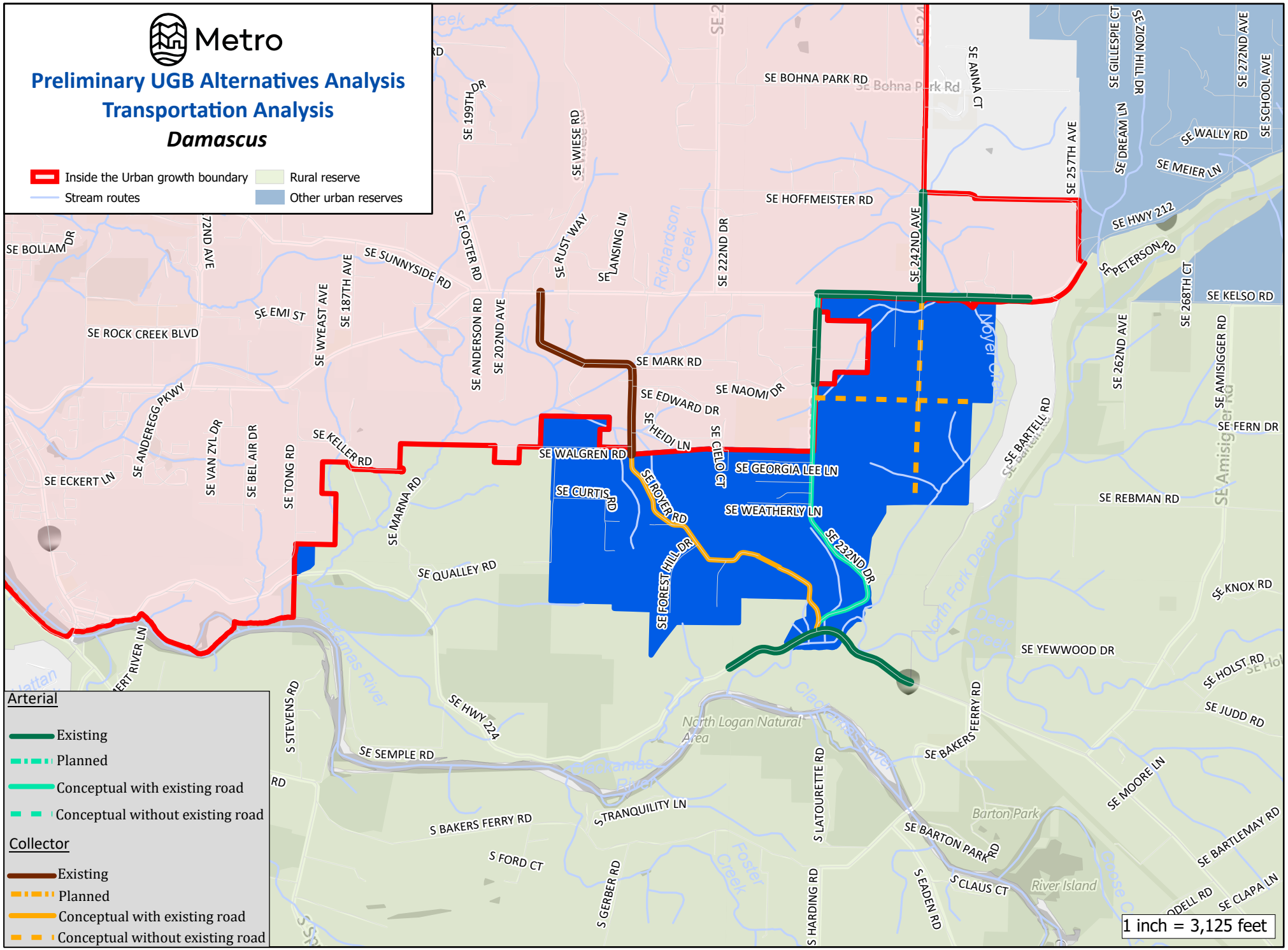
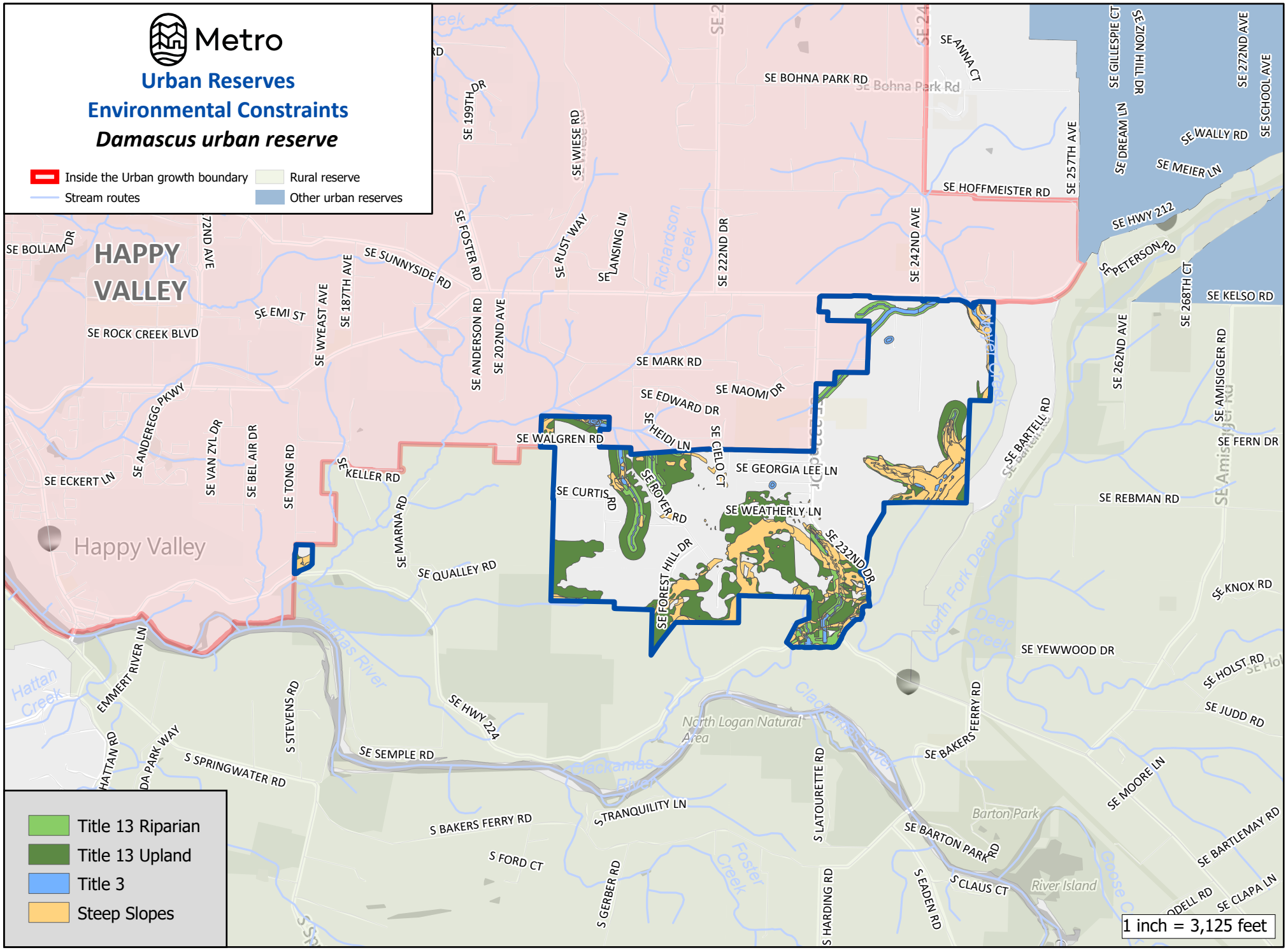
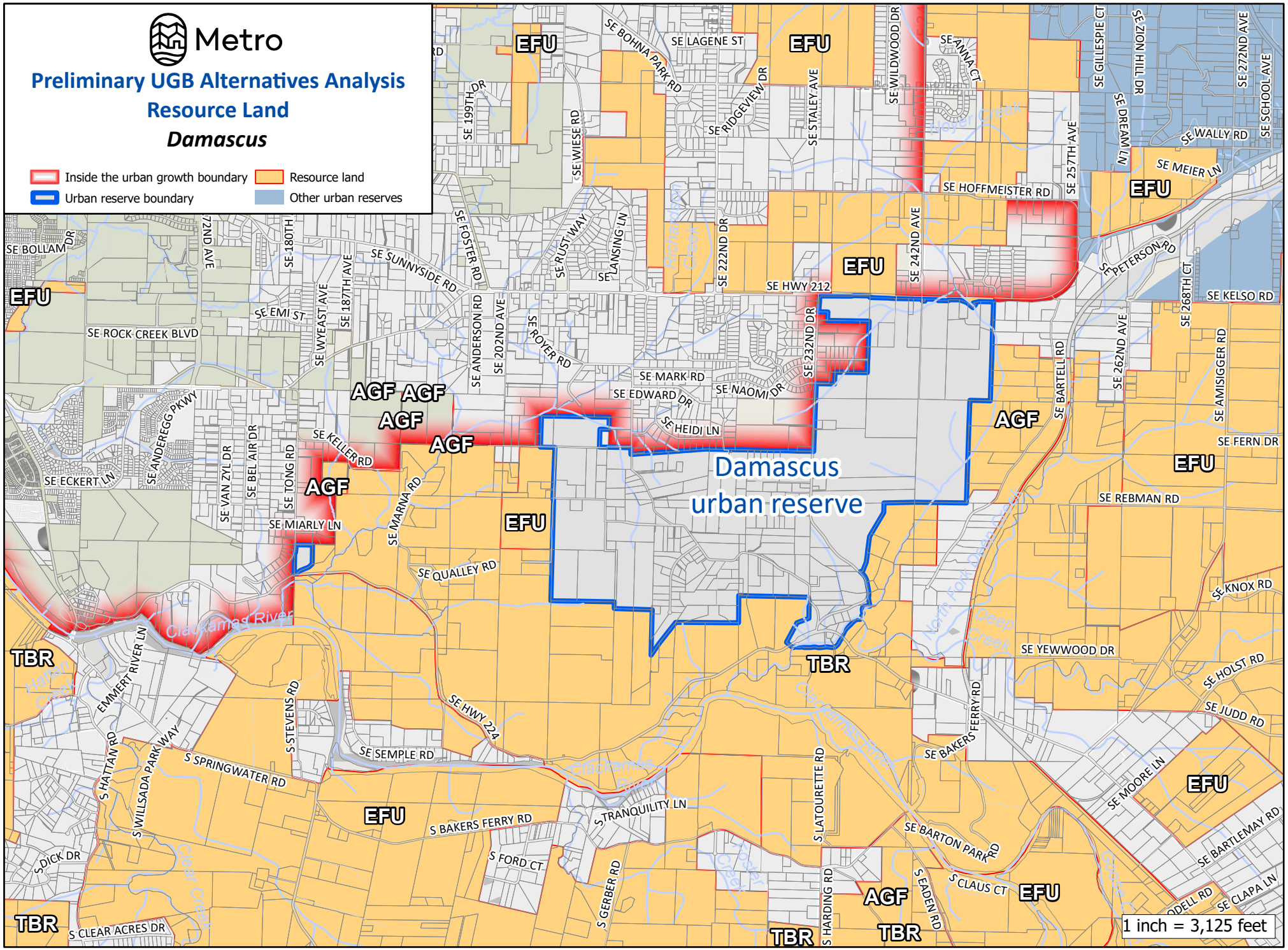








# DAVID HILL URBAN RESERVE

| | |
|---|---|
| Total Reserve Area | 320 acres |
| Total Tax Lot Area in Reserve (without Right-of-Way) | 313 acres |
| Gross Vacant Buildable Area | 172 acres |
| **Net Vacant Buildable Area** | **128 acres** |

The David Hill Urban Reserve is an irregularly shaped area on the northwest edge of Forest Grove in the vicinity of NW David Hill Road. The UGB forms the reserve's eastern boundary and rural reserve land is to the west, north, and south. The high point of the reserve is near NW David Hill Road, with the land sloping down to the south towards NW Gales Creek Road and east towards NW Thatcher Road, dropping 440 and 360 feet, respectively. Access to the reserve is provided by NW David Hill Road, NW Gales Creek Road, and NW Thatcher Road.

## GOAL 14 BOUNDARY LOCATION FACTORS

### Factor 1: Efficient accommodation of identified land needs

The David Hill Urban Reserve is comprised of 23 tax lots, which have a combined area of approximately 313 acres within the reserve. Nearly half of the tax lots have area within the reserve larger than 10 acres and 70 percent have area within the reserve larger than five acres. As noted above, the entire reserve contains 172 gross vacant buildable acres and 128 net vacant buildable acres.

According to aerial imagery, the reserve contains rural residences, tree plantations and groves, and some field agriculture. A 0.88-acre tax lot is owned by the City of Forest Grove and used for a water service facility. Overall, 18 of the reserve's tax lots have improvements, with a median assessed value of those tax lots' improvements exceeding $345,000.

Thatcher Park is less than a mile away from the reserve via NW David Hill Road and Forest Glen Park is less than half a mile away via Gales Creek Road. Forest Gove High School is more than a mile away to the east. The nearest transit stop is more than two miles away; the nearest highway, Highway 26, is more than seven miles away.

Nearly all of the land in the reserve has slopes greater than 10 percent. There are also some locations with slopes greater than 25 percent. Given this topography and the distance of the reserve from a highway and transit, the reserve is not considered suitably able to accommodate an employment land need. It could, however, accommodate a residential land need.

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

#### *Water Services*

With regard to water services, the David Hill Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

### *a. Capacity of existing facilities to serve areas already inside the UGB*

Adjacent lands inside the UGB are served by the City of Forest Grove. The city's water is a combination of city-sourced supply and water from the Joint Water Commission (JWC). The water treatment plant is owned and operated by the city and provides finished water to a city-owned five million gallon reservoir. The city is generally considered to have sufficient supply and treatment capacity, and sufficient finished water transmission capacity, to serve lands already inside the UGB under current conditions. There is also some surplus storage and pumping capacity under current conditions. The city has previously indicated that most piping within the current UGB is adequate; however, some piping in undeveloped areas within the UGB may need upsizing to serve new development. If so, these improvements would likely be completed by the developers, as that development occurs.

### *b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Urban development in the reserve is expected to result in supply, storage, and pumping deficits if current sources and facilities are not improved/expanded. The City of Forest Grove Water System Master Plan (2022) proposes the addition of a 0.5 MG reservoir to serve the 710 pressure zone. The city's capital improvement plan has also identified several projects related to water supply and pumping that would be needed to development of the reserve. As noted above, some existing piping in undeveloped areas already within the UGB may need to be upsized.

### *c. Impacts to existing facilities that serve nearby areas already inside the UGB*

The supply, storage, pumping, and piping capacity improvements noted above would be needed to avoid development of the reserve negatively impacting services to areas already inside the UGB.

### *d. Estimated water service-related costs for reserve development*

| Water piping, pumping, and storage costs | Cost |
|---|---|
| **10-inch pipe** | $2.93 million |
| **12-inch pipe** | $0 |
| **16-inch pipe** | $0 |
| **Pumping** | $1.75 million |
| **Storage** | $0.16 million |
| **Total:** | **$4.84 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$1,887** |

### *Sanitary Sewer Services*

With regard to sanitary sewer services, the David Hill Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

The City of Forest Grove operates a local sanitary sewer utility that feeds into the regional sanitary sewer system operated by Clean Water Services (CWS). The city

facilities generally flow eastward through the city toward CWS trunk line running parallel to Council Creek. CWS provides wastewater treatment through the Rock Creek Wastewater Treatment Plant. The treatment plant is understood to have sufficient capacity to serve lands already inside the UGB; however, there are capacity concerns (e.g., potential surcharging) with some sewer main line infrastructure.

CWS is currently developing the West Basin Master Plan (WBMP), which is anticipated to be completed in early 2025. The WBMP will identify sanitary projects at two Water Resource Recovery Facilities (WRRFs) and in the conveyance system necessary to accommodate redevelopment of underdeveloped areas within the UGB and green-field development of large areas recently brought into the UGB that are undergoing community planning and/or development. Much of the conveyance infrastructure required for growing demands within the UGB is anticipated to be constructed privately during the development process and coordinated by CWS and local jurisdictions.

The CWS WBMP will identify trunk line projects and pump stations necessary to accommodate growth of these areas; these projects will be incorporated into the CWS long-range capital improvement plan (CIP) at strategic times necessary to meet expected capacity demands. The CWS CIP will be updated and adjusted annually to reflect the latest growth patterns and anticipated timing.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

The topography of the reserve is expected to limit the density of new development, potentially placing a smaller burden on the existing system. Development in northern areas will contribute to existing sewer lines, which have been analyzed and have sufficient capacity; southern areas will contribute to a different existing trunk sewer system. Downstream trunk sewers have been sized to accommodate residential growth in this reserve. Both areas are tributary to the existing 36-inch diameter Council Creek Trunk Sewer, which has limited downstream capacity immediately upstream from the Hillsboro WRRF. Plans are underway to construct capacity relief. The existing downstream capacity limitations are expected to be resolved within approximately five years. Any existing main line surcharging would become more significant with development of the David Hill Urban Reserve if left unaddressed.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

As noted above, any existing main line surcharging would become more significant with development of the David Hill Urban Reserve if left unaddressed. The Council Creek Trunk Sewer, which is downstream of the David Hill Urban Reserve, has limited capacity and planning is currently underway to provide additional capacity that will be needed to serve the reserve without negative impacts to the existing system.

*d. Estimated sanitary sewer service-related costs for reserve development*

| Sanitary sewer piping and pumping costs | Cost |
|---|---|
| **10-inch pipe** | $0 |
| **12-inch pipe** | $7.09 million |
| **15-inch pipe** | $0 |
| **Pump station** | $0 |
| **Force mains** | $0 |
| **Total:** | **$7.09 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$2,764** |

***Stormwater Management Services***

With regard to stormwater management services, the David Hill Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

There is no indication of significant challenges with existing stormwater management facilities being able to serve existing development inside the UGB. However, additional development within the UGB under current zoning may require new facilities or facility improvements.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Stormwater related to new development in the David Hill Urban Reserve is expected to be conveyed, treated, and disposed of within the reserve itself and/or outfall directly to Gales Creek, rather than relying on existing facilities already in the UGB.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

As noted above, stormwater related to new development in the David Hill Urban Reserve is expected to be conveyed, treated, and disposed of within the reserve itself

and/or outfall directly to Gales Creek, rather than relying on existing facilities already in the UGB.

*d. Estimated stormwater service-related costs for reserve development*

| Stormwater piping and water quality/detention | Cost |
|---|---|
| **18-inch pipe** | $4.40 million |
| **24-inch pipe** | $1.91 million |
| **30-inch pipe** | $0 |
| **Water quality/dentition** | $3.69 million |
| **Total:** | **$10.00 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$3,901** |

### *Transportation Services*

With regard to transportation services, the David Hill Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(e) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Figure 4.36 in Chapter 4 of the 2023 Regional Transportation Plan (RTP) displays 2020 home-based vehicle miles traveled (VMT) per capita by Metro transportation analysis zone, with average VMT per capita considered 11.32. According to Figure 4.36 in Chapter 4, areas in the UGB adjacent to the David Hill Urban Reserve had a significantly above average home-based VMT per capita in 2020.

Metro's adopted 2040 Growth Concept Map designates a town center in the adjoining City of Forest Grove. Town centers are meant to: serve populations of tens of thousands of people; offer more locally-focused retail uses and public amenities; and be well served by transit. The Forest Grove Town Center aligns with this 2040 Growth Concept Map area. It encompasses the city's historic downtown, which itself includes transit-oriented mixed-use development, cultural amenities, retail commercial uses, civic buildings, and the main campus of Pacific University, but also some detached single-family dwellings, underdeveloped properties, and parking lots. TriMet Route 57 connects the town center to Cornelius, Hillsboro, and the MAX light rail line. GroveLink, a public transportation network for the Forest Grove community, also provides transit services in and around the town center and connects the town center with other parts of Forest Grove and to TriMet Route 57. WestLink is another public transportation service to the Town Center, connecting it with Hillsboro in the UGB, as well as to Banks and North Plains.

The town center's existing land uses and transit service, and some availability for new development in and near the town center, demonstrate that growth in the current UGB near the town center will not necessarily cause a significant increase in home-based VMT per capita in the future.

However, the town center is more than two miles away from the areas in the UGB adjacent to the reserve. Those areas in the UGB near the reserve are primarily zoned for low density residential development rather than for employment uses; they generally lack transit service and do not have services for meeting residents' daily needs, such as grocery stores, medical facilities, or banks. Under these conditions, growth in these areas will likely continue to rely significantly on private motor vehicle transportation.

Forest Grove has about 10 miles of dedicated bike lanes, four or more miles of established bikeways, and a handful of streets considered "bike friendly". Most of these facilities are either focused on the Town Center and Pacific University or provide routes along the edge of the city paralleling Highway 47, though there are also designated bike facilities on NW Gales Creek Road or Sunset Drive. Significant portions of the city do not have bike facilities, including its employment areas. Figure 4.5 in Chapter 4 of the 2023 RTP identifies some gaps in the planned on-street regional bike network, along NW Thatcher Road and NW Willamina Avenue.

Most of the residential neighborhoods in Forest Grove, including both older historic neighborhoods, more recent residential development projects, and areas near the reserve, have sidewalks. The Town Center is well served by sidewalks, though other employment areas are not. There are no sidewalks along stretches of NW Gales Creek Road in the west of the city, which Figure 4.4 in Chapter 4 of the 2023 RTP identifies as a gap in the planned regional pedestrian network. There are also no sidewalks along NW David Hill Road within the UGB near to the reserve. The Gales Creek Trail and the Highway 47 Trail connect the outer edges of Forest Grove with some nearby residential areas.

Figure 4.14 in Chapter of the 2023 RTP identifies Pacific Avenue east of Highway 47 as a high injury corridor, and an intersection of Highway 47 and Maple Street as a high injury intersection. However, Figure 4.14 does not identify any high injury corridors or high injury intersections in the UGB near the reserve.

The portion of Highway 47 within the UGB is identified as a throughway in Figure 4.7 in Chapter 4 of the 2023 RTP. Figure 4.8 of Chapter 4 indicates that it currently meets travel speed reliability performance thresholds, with no more than four hours per day below the identified minimum speed. RTP models indicate this reliability will continue at least to the year 2045.

### *b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

The nearest RTP-designated throughway, Highway 47, is several miles from the reserve. As noted above, Highway 47 currently meets travel speed reliability performance

thresholds. Urban development of the reserve is unlikely to generate sufficient traffic on the highway to cause it to no longer meet those performance thresholds.

There is currently no transit service near to the reserve. The closest TriMet bus stop is well over two miles away at B Street and 19th Avenue. GroveLink stops approximately three-quarters of a mile from the reserve at Watercrest Road and Forest Gale Drive.

There are no dedicated bike facilities on the sections of NW Gales Creek Road or NW David Hill Road connecting to the reserve. However, the Emerald Necklace Trail, which can be accessed off Ridge Pointe Drive, runs through Forest Glen Park to NW Gales Creek Road, where it connects to a dedicated bike lane that runs almost the entire way to downtown. Still, the only way to access the trail from the reserve at this time is to follow local neighborhood streets for three-quarters of a mile due to steep slopes and the development pattern of the adjacent homes within the UGB.

The sidewalks within the nearby residential neighborhoods do not connect to the reserve and, given the existing development pattern, it would be difficult to connect to them in the future, with the exception of one location closer to NW David Hill Road. There are no sidewalks along NW Gales Creek Road. There are no sidewalks in the limited number of roadways in the reserve itself.

### *c. Impacts to existing facilities that serve nearby areas already inside the UGB*

NW Gales Creek Road, NW David Hill Road, NW Thatcher Road, and Forest Gale Drive would see additional private motor vehicle traffic as a result of urbanization of the reserve. Indeed, the reserve is some distance from the Forest Grove Town Center and other employment areas and currently lacks transit service, bike facilities, and complete pedestrian facilities to these areas were future residents of the reserve could shop, access services, or be employed. Therefore, future residents are likely to require private motor vehicle transportation on these and other roadways, potentially impacting home-based VMT per capita in the future.

However, traffic from urbanization of the reserve is unlikely to jeopardize the reliability of Highway 47 as a throughway, or to meaningfully contribute to an increase in injuries on the highway or Pacific Avenue, given these facilities' distance from the reserve and the relatively small net vacant buildable area.

The bike lane on NW Gales Creek Road is the only bike facility that may see observable additional use because of development of the reserve, especially if the bike lane is extended the 3,000 feet to the reserve itself. The existing sidewalks within the nearby residential neighborhoods, which are not connected to the reserve, would not be impacted.

### *d. Need for major transportation facility improvements and associated costs*

A roughly 0.41-mile length of NW Gales Creek Road at the south end of the reserve will likely need to be improved to urban arterial standards, including with acquisition of

additional right-of-way. A nearly half-mile length of NW David Hill Road will also likely need to be improved to urban collector standards and four new collectors totaling approximately 1.87 miles are needed to provide access to the central portion of the area and additional connections to the east. Much of these facility improvement costs will be higher than normal on a per-mile basis due in part to topography.

| Facilities | Cost |
|---|---|
| **Arterials, existing/improved full street** | $47.73 million |
| **Arterials, existing/improved half street** | $0 |
| **Arterials, new** | $0 |
| **Collectors, existing/improved full street** | $24.64 million |
| **Collectors, existing/improved half street** | $0 |
| **Collectors, new** | $98.63 million |
| **Total:** | **$171 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$66,693** |

*e. Provision of public transit service*

The David Hill Urban Reserve is outside the TriMet Service District. TriMet staff evaluated the reserve for providing transit service and determined that future service would be better provided by another entity, such as GroveLink. Actual service depends on the level of development in, and in the corridors leading to, the reserve.

Prior to land being included in the UGB, a more detailed concept plan, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11, is required. This concept plan process will develop more refined public facility and service needs and cost estimates.

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

### *Environmental consequences*

Two different sections of a stream flow south along the eastern edge of the David Hill Urban Reserve for approximately 2,585 feet. All but 460 feet of the stream section is located within an area of slopes greater than 25 percent and is mostly wooded. There is riparian habitat associated with the stream sections along with a few small locations of identified upland habitat. There are no wetlands or floodplains identified in the reserve. The land east of the stream already inside the UGB is either owned by the City of Forest Grove and designated as open space or is developed with single family homes oriented away from the reserve with no likely potential for connection to the reserve. These conditions eliminate the ability or need for any east-west road connections that would impact the stream corridor.

Given the increased protection levels for streams, habitat areas, and steep slopes that are provided when lands area added to the UGB, and considering the adjacent land uses to the

east and already inside the UGB, urbanization of the reserve can occur with comparatively minimal impact to this stream corridor and habitat areas. Additional environmental consideration, specifically regarding avoidance of conflict between urban development and regionally significant fish and wildlife habitat, is provided in the Metro Code Factors Analysis (Appendix 7A).

Considering the comparative environmental consequences of urbanization, the David Hill Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location sub-factor.

### *Social, energy, and economic consequences*

This relatively small reserve has a mixture of forested areas, rural residences, and agricultural activities on a hill that descends 400 feet from the high to the low point. Much of the land is on slopes greater than 25 percent that would result in a less dense development pattern. These conditions could reduce the overall impact of urbanization on the small number of existing residents in terms of loss of sense of place and degradation of rural lifestyle.

Directly to the east of the reserve is an urban low density residential area, but it is somewhat separated from the reserve by open space tracts and there are no direct local road connections between it and the reserve. Also adjacent to the reserve is a large area of land that, while is inside the UGB, is currently undeveloped. Therefore, current residents of the reserve are somewhat separated from urban areas and urban development of the reserve itself could be a more noticeable change.

As detailed more fully in response to Factor 2, future residents of this reserve are likely to be reliant on private motor vehicle transportation and VMT could have adverse energy consequences. However, given the relatively small developable area in the reserve, traffic impacts from urbanization are not expected to be particularly significant.

The reserve has some agricultural uses, as well as tree stands that may be intended for future commercial harvesting. The economic consequences of a loss in farming activity in the reserve may be outweighed by the economic benefits of residential development, and timber could be harvested as a part of urbanization, though not necessarily replanted. On a per-unit basis, the costs of protecting natural resource areas in the reserve from urbanization and establishing new/improved roadways to serve a residential development could be considerable.

This analysis finds that there would be comparatively moderate social, energy, and economic consequences from urbanization of this reserve. The David Hill Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location sub-factor.

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

Nearly all of the land outside of the UGB adjacent to the David Hill Urban Reserve has Goal 3 or 4 resource land zoning by Washington County for agricultural and forest activities, specifically with Agriculture and Forest (AF20) and Exclusive Farm Use (EFU) designations.

To the south of the reserve on the opposite side of NW Gales Creek Road is a large tract of EFU zoned land that extends into unincorporated areas for a number of miles. All the land that abuts the south side of NW Gales Creek Road is in field crop production. NW Gales Creek Road itself would not provide an adequate buffer between urban development and agricultural activity. Development of the reserve could lead to land use conflicts related to safety, liability, and vandalism and complaints due to noise, odor, dust, and the use of pesticides and fertilizer. In addition, the improvement of NW Gales Creek Road to urban standards, and associated street light illumination and bicycle and pedestrian movements, may further jeopardize the compatibility of the two uses, though the impacts of urban roadways on adjacent agricultural activity may be minimized through road design. Urbanization of the reserve would increase traffic on NW Gales Creek Road, which could impact the movement of both farm equipment and goods; however, the amount of additional traffic generated from urbanization is not expected to be significant given this reserve's limited buildable area. Nonetheless, the proposed urban uses would be considered generally incompatible with the extensive nearby agricultural activities occurring on the farmland to the south and impact mitigation measures would warranted.

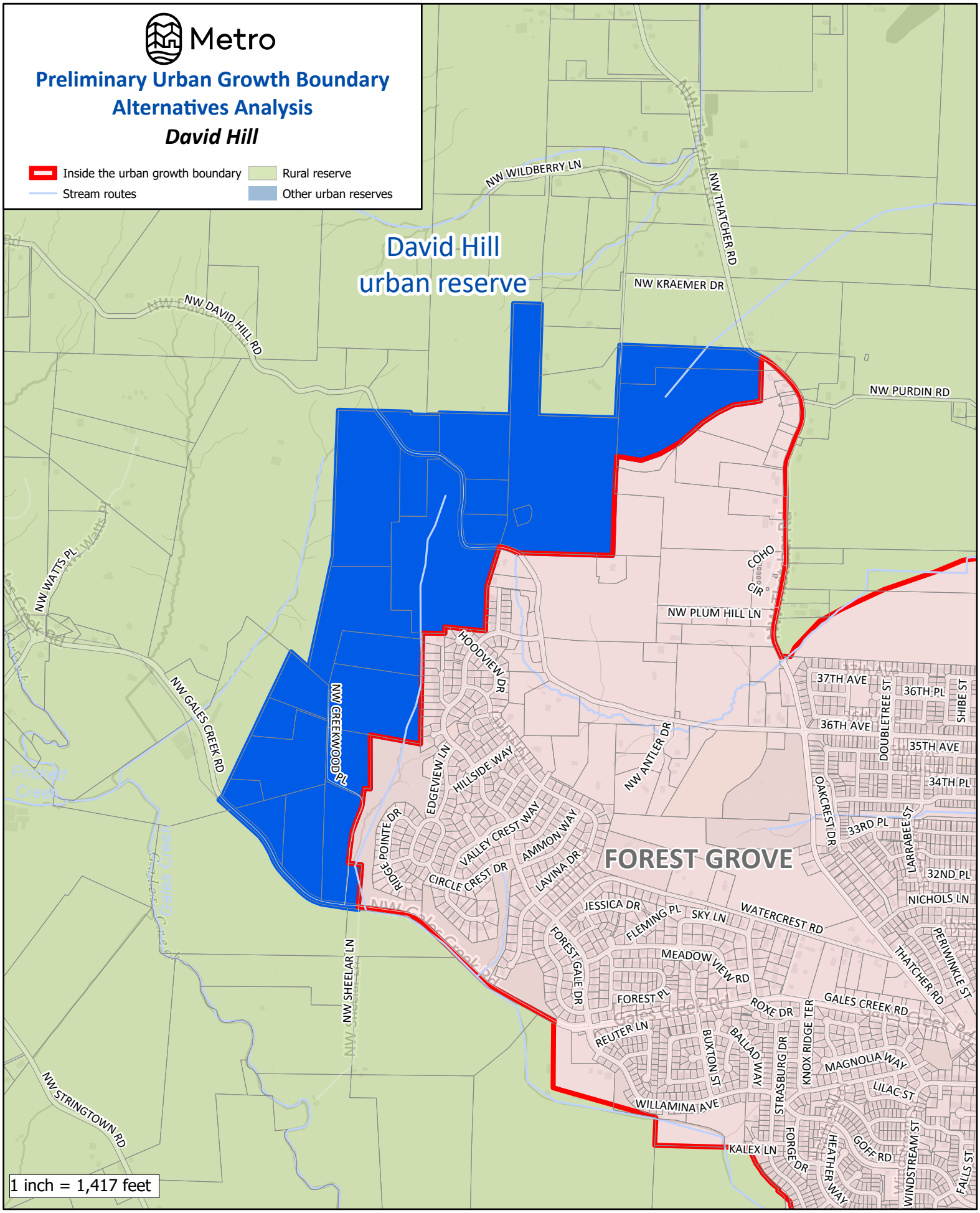
To the west of the reserve, between NW Gales Creek Road and NW David Hill Road, is another large tract of resource lands. These lands are zoned AF20 and are mostly forested, with some sporadic locations of agricultural activities including the David Hill Vineyards and Winery. An unnamed stream flows in a forested ravine along the western edge of the reserve, buffering the vineyard from the reserve to some degree. There does not appear to be any active commercial forestry activities occurring to the west. Considering the stream and ravine, the apparent lack of forestry activities on these adjacent lands, and the limited amount of development this relatively small reserve is expected to provided, the proposed urban uses would be considered compatible with nearby agricultural and forest activities in this location.

There is also small area of AF20-zoned land on the north side of the reserve in the vicinity of NW David Hill Road. There are some agricultural activities occurring in this area and it appears that some of this land has been logged in the past. In addition, directly north is land zoned Exclusive Forest and Conservation (EFC) that is owned by Stimson Lumber, with evidence of recent logging. While it is conceivable that the trees will be harvested here again in the future, it is not known what the timing would be given the long-term cycle of forest harvesting. Urbanization of the reserve would increase traffic on NW David Hill Road, which could impact the movement of farm and forestry equipment and goods. But again, the timing of future timber harvesting activities in this area is unknown. Thus, the proposed urban uses are considered moderately compatible with the nearby agricultural and forest activities occurring on the AF20 and EFC-zoned land in this location in the near-term, but conflicts may occur in the longer-term.

There is a tract of EFU-zoned land along NW Thatcher Road that extends for a number of miles to the north/northeast. The EFU-zoned land directly adjacent to the reserve in this area is in agricultural production and includes mainly nursery crops. Urbanization of the reserve could lead to land use conflicts related to safety, liability, and vandalism and complaints due to noise, odor, dust, and the use of pesticides and fertilizer. Impact mitigation measures on this short northern edge may be warranted. To the east of NW Thatcher Road is a significant tract of nursery and field crops that extend north to NW Kemper Road and east to Highway 47. This area of agricultural activity could be impacted by the increase in traffic on NW Thatcher Road, although, as noted above, the amount of increased traffic from this reserve is not expected to be significant. Much of the area east of the reserve that is already inside the UGB is still dedicated to rural land uses. Once this area urbanizes, overall impacts to the agricultural activities in this location will increase, especially as more traffic moves north to access Highway 47.

In summary, the proposed urban uses are considered moderately compatible with nearby agricultural and forest activities occurring on farm and forest land outside the UGB to the west and north of the reserve. As noted above, there may be compatibility issues with the forestry lands to the north at some point in the future if and when those lands are harvested and replanted. The proposed urban uses are not considered compatible with the agricultural activities occurring on the farmland to the south and impact mitigation measures on the urban land will likely be warranted.

The David Hill Urban Reserve is given a “medium” score in Attachment 3 for this Goal 14 boundary location factor.

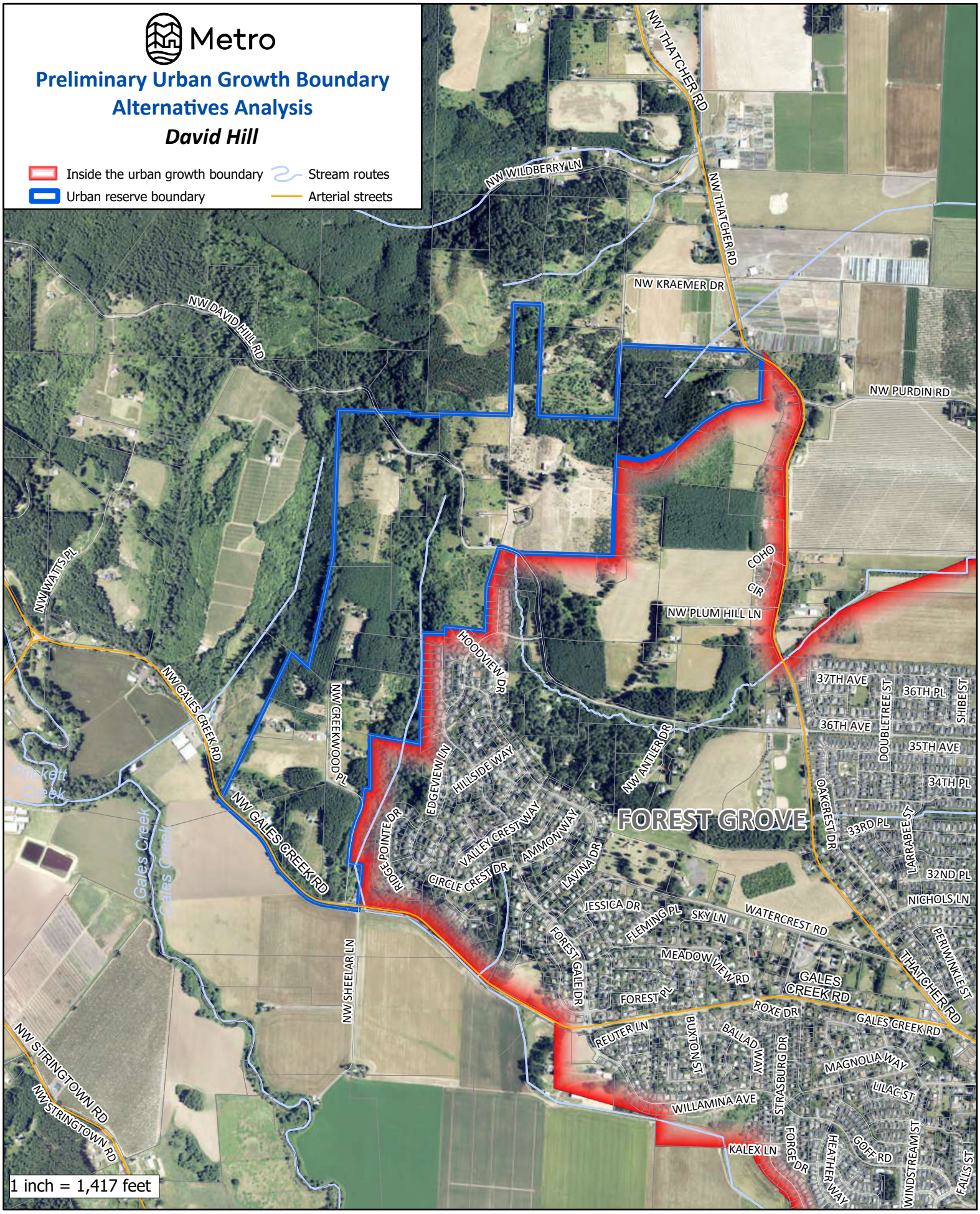


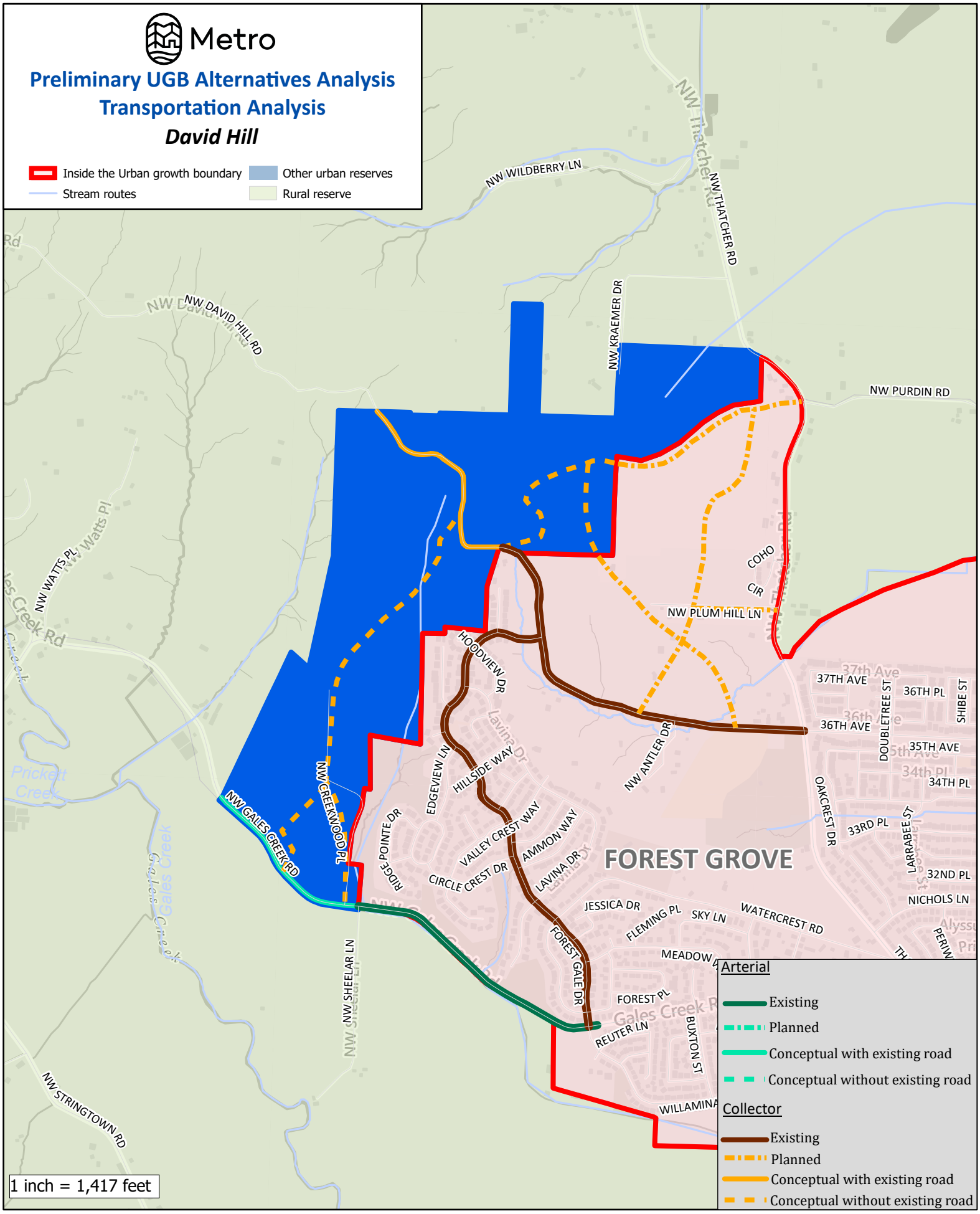
Metro

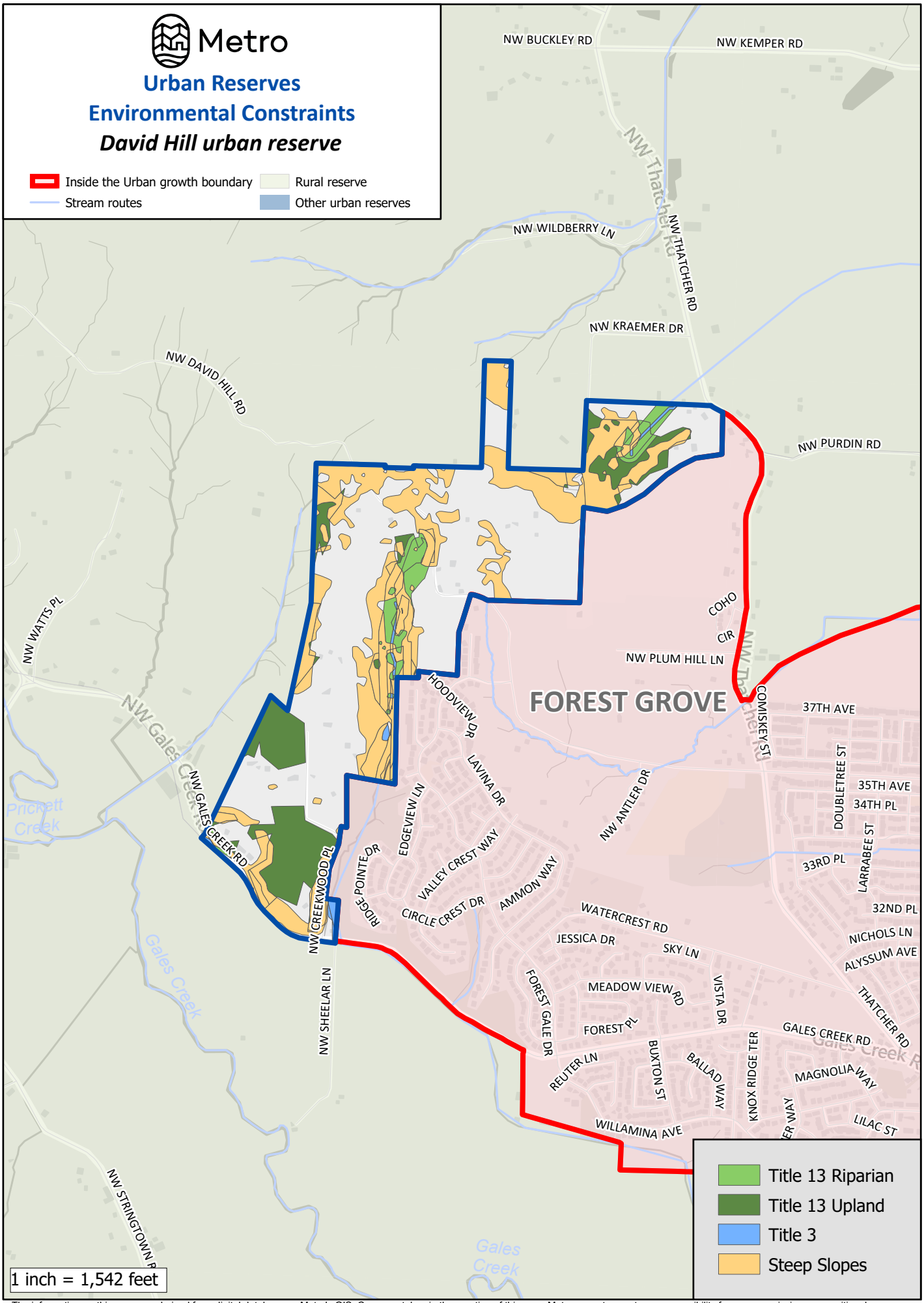
# Preliminary Urban Growth Boundary Alternatives Analysis

***David Hill***

Inside the urban growth boundary
Urban reserve boundary
Stream routes
Arterial streets





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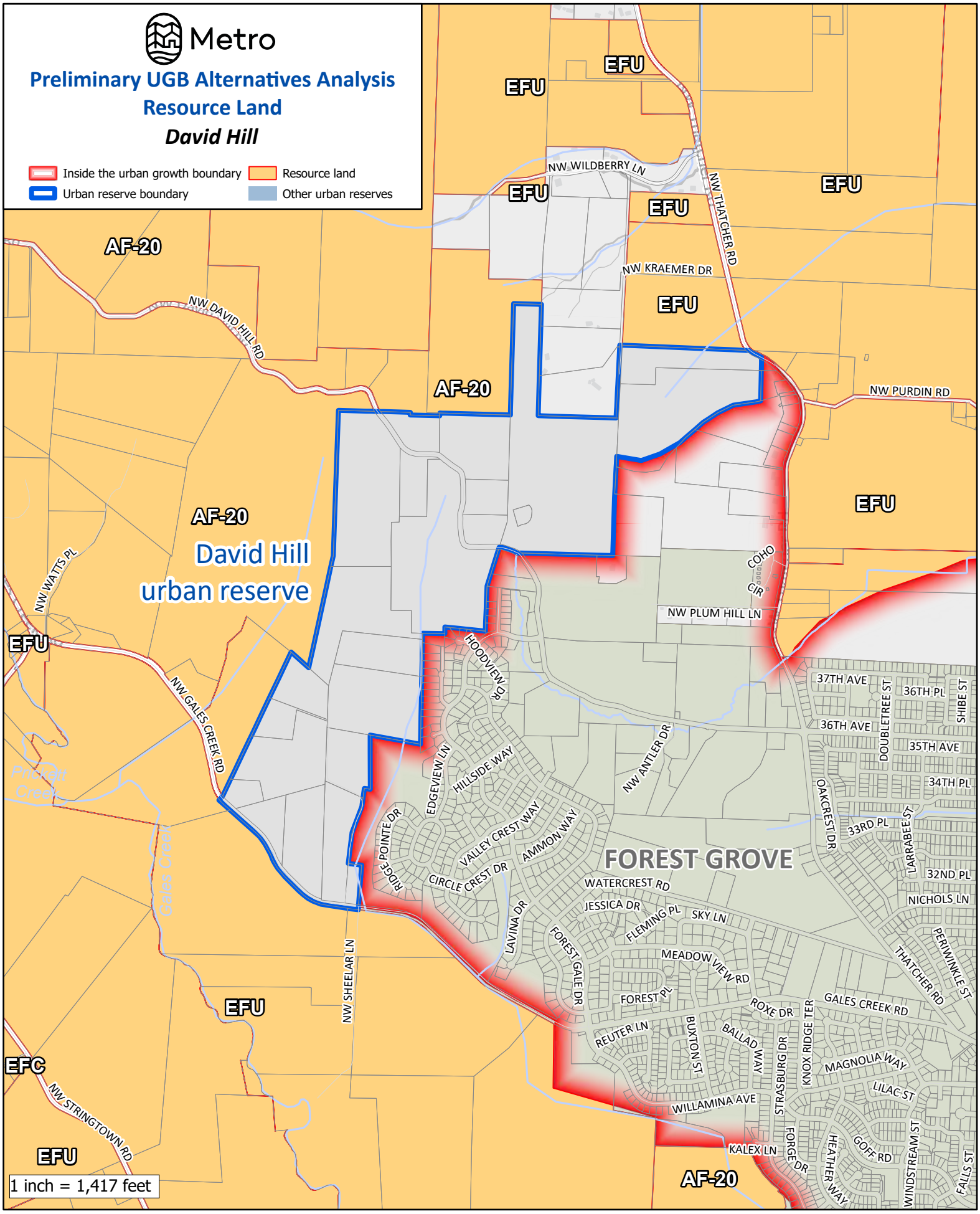


## ELLIGSEN ROAD NORTH URBAN RESERVE

| | |
|---|---|
| Total Reserve Area | 621 acres |
| Total Tax Lot Area in Reserve (without Right-of-Way) | 588 acres |
| Gross Vacant Buildable Area | 442 acres |
| **Net Vacant Buildable Area** | **329 acres** |

The Elligsen Road North Urban Reserve is a somewhat rectangularly shaped area adjacent to both the City of Tualatin and the City of Wilsonville. It is located north of SW Elligson Road, west of SW 65th Avenue, and south of SW Frobase Road. The UGB is the western and southern boundary of the reserve, and it is otherwise entirely surrounded by other urban reserves. I-5 also parallels a portion of the western edge of the reserve. A tributary to Boeckman Creek flows south from the middle of the reserve and then along SW Elligsen Road before crossing underneath the road to the farmland further south. The reserve contains a series of moderately steep hills with some slopes greater than 10 percent through the middle of the area. Access to the reserve is provided by SW Elligsen Road, SW 65th Avenue, SW 82nd Avenue, and SW Frobase Road.

## GOAL 14 BOUNDARY LOCATIONAL FACTORS

### Factor 1: Efficient accommodation of identified land needs

The Elligsen Road North Urban Reserve is comprised of 58 contiguous tax lots, all of which are entirely within the reserve. The combined area of the reserve's tax lots is approximately 588 acres. Nearly half of the tax lots are five acres in size or larger. Nearly a quarter are larger than 10 acres and two are larger than 80 acres. As noted above, the entire reserve contains 442 gross vacant buildable acres and 329 net vacant buildable acres.

According to aerial imagery, there are rural residences and a 1.6-acre cemetery along SW 65th Avenue and the remainder of the reserve is generally in agricultural use. There are also some small stands of trees, as well as an RV park in the reserve's southwest corner on SW Elligsen Rd. Two water reservoirs are at the high point of the reserve, one for the City of Tualatin and another for the City of Wilsonville. Overall, 37 of the reserve's 58 tax lots have improvements, with a median assessed value of those tax lots' improvements exceeding $880,000.

Tualatin High School, Horizon Christian High School, and Edward Byrom Elementary School are within a mile of the reserve "as the crow flies", but on the opposite side of I-5. Meridian Creek Middle School and Wilsonville High School are on the same side of I-5 as the reserve, but slightly further away via SW 65th Avenue. Canyon Creek Park is approximately half a mile from the reserve. Employment uses, including commercial land uses, border to the southwest. The reserve includes a portion of I-5 and is essentially adjacent to its interchange with SW Elligsen Road. South Metro Area Regional Transit (SMART) operates a bus route along SW Elligsen Road and a medical shuttle route along SW 65th Avenue.

There is a significant amount of land in the middle and southern portions of the reserve with slopes greater than 10 percent that may limit employment uses; however, there is a roughly 100-acre section of land adjacent to SW Frobase Road that is generally flat that could be used for employment purposes benefiting from the easy access to I-5. Given the concentration of existing high-value homes along SW 65th Avenue, a residential use may be a more appropriate use for the reserve.

This reserve is considered able to accommodate both a residential and employment land needs.

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

***Water Services***

With regard to water services, the Elligsen Road North Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary locational factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Adjacent lands inside the UGB are served by the City of Wilsonville. The city's primary supply comes from the Willamette River. There is a single water treatment plant, the Willamette River Water Treatment Plant, that serves the city and is in shared ownership with Tualatin Valley Water District. The treatment plant is understood to be capable of processing 15 MGD, and a planned improvement will bring capacity to 20 MGD in order to serve development in the existing UGB through the year 2036. There are currently no significant known storage, pumping, or distribution system deficiencies.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

The ty is believed to have ample water rights for the long term, so water supply to urban development of the reserve is likely not an issue. The planned expansion of the treatment plant should provide sufficient capacity for development of the reserve. Existing storage tanks, however, do not have capacity to serve development outside of the existing UGB. A pump station will also be required to serve urban development of the reserve. The size of existing pipe trunks is adequate for future buildout.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Additional storage capacity, as well as a pump station, will be needed to avoid negative impacts to service in the UGB.

*d. Estimated water service-related costs for reserve development*

| Water piping, pumping, and storage costs | Cost |
|---|---|
| **10-inch pipe** | $0 |
| **12-inch pipe** | $10.22 million |
| **16-inch pipe** | $1.40 million |
| **Pumping** | $0.61 million |
| **Storage** | $0.44 million |
| **Total:** | **$12.67 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$1,925** |

### *Sanitary Sewer Services*

With regard to sanitary sewer services, the Elligsen Road North Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary locational factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Wastewater from adjacent lands in the City of Wilsonville is conveyed in a city-owned and operated collection system to the Wilsonville Wastewater Treatment Plant (WWTP), which was upgraded in 2014 to a capacity of 4.0 MGD, resulting in excess capacity. That excess capacity is believed to be able to accommodate growth in the Frog Pond areas recently added to the UGB. The city is planning to planning on necessary system upgrades to meet future needs. The existing system, including its piping and pump stations, is not known to have any hydraulic deficiencies.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Depending on the timing of additional development in the UGB, planned treatment plant upgrades may be needed sooner in order for the system to also serve new development in the Elligsen Road North Urban Reserve. Both the Canyon Creek and Memorial Park pump stations require capacity improvements to serve the reserve, and there are several trunk line extensions that would be needed as well.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

As noted above, pump station improvements, trunk line extensions, and, depending on timing of other growth, treatment plant facilities upgrades, are needed in order for Elligsen Road North Urban Reserve development to not negatively impact service to areas already inside the UGB.

*d. Estimated sanitary sewer service-related costs for reserve development*

| Sanitary sewer piping and pumping costs | Cost |
|---|---|
| **10-inch pipe** | $0.74 million |
| **12-inch pipe** | $1.51 million |
| **15-inch pipe** | $0 |
| **Pump station** | $3.96 million |
| **Force mains** | $0 |
| **Total:** | **$6.21 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$943** |

### *Stormwater Management Services*

With regard to stormwater management services, the Elligsen Road North Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary locational factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

The City of Wilsonville Stormwater Master Plan (2012) identified "problem areas" (areas with flooding and evidence of significant erosion) based on observation during a 25-year storm event in 2009. The identified problem areas were isolated and there were no serious flooding issues identified under existing conditions.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

The City of Wilsonville requires that stormwater management (water quality and flow control) be provided for all new impervious surfaces. Based on topography, portions of the reserve could outfall directly to a tributary of Boeckman Creek. However, the southwest quadrant flows southwest toward I-5; stormwater fromt his area would likely connect to existing city infrastructure near Elligsen Road and generally flow south and either outfall to Boeckman Creek or Coffee Lake Creek, before flowing south to the Willamette River. The city's assessment of problem areas does not appear to include any stormwater infrastructure between the reserve and either creek.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

The Master Plan does not indicate capacity issues in the stormwater infrastructure that the southwest portion of the reserve would connect to; however, this does not contemplate the addition of stormwater from a portion of the reserve. It is unclear whether existing pipes have the capacity to serve the reserve if it is added to the UGB.

*d. Estimated stormwater service-related costs for reserve development*

| Stormwater piping and water quality/detention | Cost |
|---|---|
| **18-inch pipe** | $4.00 million |
| **24-inch pipe** | $2.64 million |
| **30-inch pipe** | $0 |
| **Water quality/dentition** | $9.20 million |
| **Total:** | **$15.84 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$2,407** |

### *Transportation Services*

With regard to transportation services, the Elligsen Road North Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary locational factor, for the reasons detailed in (a)-(e) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Figure 4.36 in Chapter 4 of the 2023 Regional Transportation Plan (RTP) displays 2020 home-based vehicle miles traveled (VMT) per capita by Metro transportation analysis zone, with average VMT per capita considered 11.32. According to Figure 4.36, areas in the UGB adjacent to the Elligsen Road North Urban Reserve had an above average home-based VMT per capita in 2020.

Metro's adopted 2040 Growth Concept Map designates a town center in the adjoining City of Wilsonville. Town centers are meant to: serve populations of tens of thousands of people; offer more locally-focused retail uses and public amenities; and be well served by transit. The roughly 100-acre and centrally-located Wilsonville Town Center aligns with this 2040 Growth Concept Map area. The City of Wilsonville's Town Center Plan envisions it as vibrant, walkable destination that inspires people to come together and socialize, shop, live, and work. The town center, as well as nearby employment areas on the opposite (west) side of I-5, include grocery and drug stores, a library, medical and dental offices, banks, and restaurants. These areas also contain and are adjacent to residential uses, including higher-density residential uses. The town center is located a short distance from the terminus of the TriMet's Westside Express Service (WES) Commuter Rail line, which provides service up to Beaverton.

South Metro Area Regional Transit (SMART), the City of Wilsonville's bus service, provides transit services to the city through seven bus lines; Routes 2X, 4, and 6 provide service to the portions of Wilsonville east of I-5 and connect to the town center.

The town center's existing land uses and transit service, and some availability for new development in and near the town center, demonstrate that growth in the current UGB

near the town center will not necessarily cause a significant increase in home-based VMT per capita in the future, as residents will be able to access some daily needs through modes other than private motor vehicle transport. Growth in other areas of the city where residential uses surround schools and parks are is also unlikely to significantly impact home-based VMT per capita in the future.

The town center is about two miles away from areas in the UGB adjacent to the reserve. There are other commercial/employment areas that include grocery stores, other retail commercial uses, and industrial uses and that are closer to the residential uses, including apartments, in the UGB adjacent to the reserve. Growth in areas in the UGB near the reserve may continue to rely on private motor vehicle transportation, though existing transit service and bike and pedestrian infrastructure can provide alternatives and the relatively close proximity of a mixture of uses could keep vehicle trips for daily needs and employment relatively short.

In addition to routes described above, SMART also provides Wilsonville with medical transport services, a Villebois shopping shuttle, and connections to Keizer and Woodburn. The vast majority of the city's developed areas are within a quarter of a mile of a transit stop. Figure 4.3 in Chapter 4 of the 2023 RTP does, nonetheless, identify a gap in planned frequent transit service along SW Canyon Creek Road and other locations in the north of the city.

Wilsonville has a well-defined bike network of at least 19 miles of dedicated bike lanes and at least eight miles established bikeways that connect neighborhoods, schools, parks, community centers, business districts, and natural resource areas. Figure 4.5 in Chapter 4 of the 2023 RTP shows several existing bike facilities in Wilsonville as a part of the planned regional bike network, including facilities on SW Canyon Creek Road. There is identified gap in planned regional bike facilities on SW Elligsen Road and SW Stafford Road.

The city also has a fairly well-defined pedestrian network in its town center and residential neighborhoods, though with less pedestrian amenities in some industrial and employment areas. I-5 generally provides a barrier for east-west pedestrian connections, but there are sidewalks along both sides of SW Wilsonville Road as it crosses under I-5; there are no sidewalks on SW Boeckman Road over I-5 of SW Norwood Road over I-5. Figure 4.4 in Chapter 4 of the 2023 RTP shows a number of existing streets in Wilsonville as in the regional pedestrian network, including SW Canyon Creek Road. The figure identifies gaps in the future regional pedestrian network along SW Boeckman Road east of I-5, SW Elligsen Road, and SW Stafford Road.

Figure 4.6 in Chapter 4 of the 2023 RTP identifies a number of trails in the south and west of Wilsonville as in the planned regional trail network. There is a gap in the planned trail network along SW Stafford Road.

There are no high injury corridors or high injury intersections in Wilsonville's portion of the UGB identified on Figure 4.14 in Chapter 4 of the 2023 RTP.

The portion of I-5 bisecting Wilsonville is identified as a throughway in Figure 4.7 in Chapter 4 of the 2023 RTP. Figure 4.8 in Chapter 4 of the RTP indicates that it currently meets RTP travel speed reliability performance thresholds, with no more than four hours per day when travel speeds fall below the identified minimum speed. RTP models indicate this reliability of this section of I-5 will continue at least to the year 2045.

### *b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

An interchange with the nearest RTP-designated throughway, I-5, is practically adjacent to the reserve. As noted above, I-5 through Wilsonville currently meets travel speed reliability performance thresholds. Given the proximity of the town center and other commercial/employment areas to the reserve, and the reserve's size, urban development of the reserve is unlikely to generate sufficient traffic on the highway to cause it to no longer meet those performance thresholds.

Currently, there is no regular SMART service with stops directly at the reserve. Route 2X, however, runs adjacent to the southwest corner of the reserve on SW Elligsen Road and then on to SW Canyon Creek Road. Route 6 also runs along SW Canyon Creek Road.

There is a 825-foot length of SW Elligsen Road adjacent to the southwest corner of the reserve with dedicated bike lanes and sidewalks on both sides. SW Parkway Center Drive and SW Canyon Creek Road also have dedicated bike lanes and sidewalks. Another 225-foot-long section of SW Elligsen Road has sidewalks on its south side, opposite of the reserve. No other roads to or within the reserve currently have bike facilities or sidewalks. There are no established regional trails connected to the reserve.

The reserve is adjacent to Title 4 designated Industrial Area and Employment Area lands and commercial retail uses. Canyon Creek Park is approximately half a mile from the reserve. Future residents of the reserve could access these existing uses without lengthy travel by private motor vehicle; however school uses are more than a mile away. As noted in response to Factor 1, the reserve could potentially accommodate future employment uses, providing employment opportunities with a short commute for residents of adjacent multi-family housing on the opposite side of SW Elligsen Road.

### *c. Impacts to existing facilities that serve nearby areas already inside the UGB*

SW Canyon Creek Road, SW Elligsen Road, SW Parkway Center Drive, and SW Stafford Road would see additional private motor vehicle traffic as a result of urbanization of the reserve. However, given the proximity commercial/employment uses, and the potential for the reserve to include a mixture of uses, additional traffic is not likely to be significant. Nearby bike and pedestrian facilities on SW Canyon Creek Road, SW Elligsen Road, and SW Parkway Center Drive would see some amount of additional use.

Development of this reserve is unlikely to cause facilities in Wilsonville to become high injury corridors or intersections, jeopardize the throughway reliability of I-5, or cause significant increases in the area's home-based VMT per capita.

### *d. Need for major transportation facility improvements and associated costs*

Urbanizing the reserve will likely require that the 0.59 miles of SW Elligsen Road and 0.83 miles of SW 65th Avenue that border the reserve be improved to urban arterial standards. Both roadway sections' improvements are mostly considered to be half-street improvements, as development of the adjacent Elligsen Road South Urban Reserve and the land inside the UGB would see to the improvement of the other halves. A new arterial extending from SW Elligsen Road to SW Day Road is also likely to be needed, and the 0.62-mile roadway's costs are included below. Furthermore, a 0.86-mile-long section SW Frobase Road would need to be improved to urban collector standards and three new collectors with a combined length of just over two miles are expected to be needed to provide access to the remainder of the reserve. Normal per-mile costs are expected for most of these new and improved roadways, though traversing some areas of steeper topography and some water bodies could lead to higher per-mile costs in specific locations.

| Facilities | Cost |
|---|---|
| **Arterials, existing/improved full street** | $0 |
| **Arterials, existing/improved half street** | $58.91 million |
| **Arterials, new** | $48.31 million |
| **Collectors, existing/improved full street** | $0 |
| **Collectors, existing/improved half street** | $13.42 million |
| **Collectors, new** | $89.91 million |
| **Total:** | **$210.55 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$31,998** |

### *e. Provision of public transit service*

Though the Elligsen Road North Urban Reserve is in the TriMet Service District, SMART evaluated the reserve for providing transit service. SMART could potentially provide services to the reserve, although there is no guarantee of service. Actual service depends on the level of development in, and in the corridors leading to, the reserve. Service could be provided weekdays at 30-minute headways with one additional bus at a capital cost of $450,000 (recurs every eight – 12 years). Bus capital costs reflect the purchase of an electric Category C vehicle as SMART plans to provide services with a zero-emission fleet. Annual service cost of adding fixed-route and complementary paratransit service would be $70,000 in addition to services already being provided. This annual service cost would increase with the cost of inflation each year. Because the reserve is within the TriMet service boundary, SMART would need to negotiate with TriMet to provide bus service to the area.

Prior to land being included in the UGB, a more detailed concept plan, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11, is

required. This concept plan process will develop more refined public facility and service needs and cost estimates.

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

***Environmental consequences***

A 3,400-foot segment of a tributary to Boeckman Creek flows south through the middle of the Elligsen Road North Urban Reserve. The majority of the stream segment has been manipulated to flow along the edge of agriculture fields and then along SW Elligsen Road before crossing under the road to the south. Riparian habitat has been identified along the stream corridor along with some upland habitat in the steeper-sloped sections of the reserve. A 15,000-square-foot wetland identified on the National Wetland Inventory (NWI) is located in the northeastern portion of the reserve and a man-made pond, presumably used for irrigation purposes, is located on farmland in the center of the reserve. Given the increased protection levels for streams, wetlands, and habitat areas within the UGB, urbanization could occur with minimal to moderate impacts to the stream tributary, depending on east-west road connections.

This analysis finds that urbanization of the area could occur with comparatively low impacts to natural resources. Additional environmental consideration, specifically regarding avoidance of conflict between urban development and regionally significant fish and wildlife habitat, is provided in the Metro Code Factors Analysis (Appendix 7A).

Considering the comparative environmental consequences of urbanization, the Elligsen Road North Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary locational sub-factor.

***Social, energy, and economic consequences***

The Elligsen Road North Urban Reserve has some rural residential development, mostly along SW 65th Avenue, as well as well as an RV park on SW Elligsen Road. As noted in response to Factor 1, 37 of the reserve's 58 tax lots have improvements, with a median assessed value of those tax lots' improvements exceeding $880,000. These areas, with generally smaller parcel sizes, are unlikely to be part of a large-scale redevelopment, at least not in the near-term. However, there is also a considerable amount of cleared agricultural land that could accommodate larger-scale urban development. Such development could have more noticeable and more immediate impacts on reserve residents' sense of place and their rural lifestyle. Residents closer to existing urban employment areas adjacent to the reserve may experience less of a change, and preserved natural areas crossing the reserve may help to buffer existing rural residences from new urban development. Moreover, urbanization of the reserve could bring new social, educational, and recreational opportunities for existing residents.

As detailed more fully in response to Factor 2, urbanization of the reserve is not expected to result in significant increases in VMT, particularly if the reserve is developed with a mix of uses. Adverse energy impacts are therefore also not expected to be significant.

Aerial imagery suggests there may be about 200 acres of agricultural activity occurring in the reserve, largely field crops and pastureland and not row crops or nurseries. The reserve does include an equestrian center as well. There may also be some timber stands intended for future commercial harvesting. While there would be economic consequences from urbanization in terms of a loss in farming activity in the reserve, that loss may be outweighed by the economic benefits of residential and/or employment development. Timber could also be harvested a part of urbanization, though not necessarily replanted.

Overall, there would be comparatively moderate social, energy, and economic consequences from urbanization of this reserve. The Elligsen Road North Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary locational sub-factor.

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

Goal 3 agricultural lands, specifically lands zoned Exclusive Farm Use (EFU) by Washington County, border the Elligsen Road North Urban Reserve in areas outside the UGB to the north and south.

The more than 100 acres of EFU-zoned land to the north on the opposite side of SW Frobase Road is nearly entirely in agricultural production, mostly for field crops Christmas trees. The tract does have some small stands of trees as well, but they are generally along Saum Creek, which may inhibit harvesting for timber. There is a rural residence centered within the farm fields. SW Frobase Road separates the reserve from these EFU-zoned lands, but the road itself would not provide an adequate buffer between urban development and agricultural activity. Development of the reserve could lead to land use conflicts related to safety, liability, and vandalism and complaints due to noise, odor, dust, and the use of pesticides and fertilizer. The improvement of SW Frobase Road to urban standards, and associated street light illumination and bicycle and pedestrian movements, may further jeopardize the compatibility of the two uses, though the impacts of urban roadways on adjacent agricultural activity may be minimized through road design. Urbanization of the reserve would increase traffic on SW Frobase Road and SW 65th Avenue, which could impact the movement of both farm equipment and goods. Therefore, proposed urban uses are considered incompatible with the nearby agricultural activities occurring on the EFU-zoned land to the north.

The EFU-zoned land across SW Elligsen Road to the south also appears to have active farm uses, but also includes rural residential development. SW Elligsen Road would not provide an adequate buffer between urban development and agricultural activity. Development of the reserve could lead to land use conflicts related to safety, liability, and vandalism and complaints due to noise, odor, dust, and the use of pesticides and fertilizer. In addition, the improvement of SW Elligsen Road to would not provide an adequate buffer between urban development and agricultural activity. Development of the reserve could lead to land use conflicts related to safety, liability, and vandalism and complaints due to noise, odor, dust, and the use of pesticides and fertilizer. Urbanization would

increase traffic on SW Elligsen Road, which could impact the movement of both farm equipment and goods. The proposed urban uses are considered incompatible with the nearby agricultural activities occurring on farmland to the south.

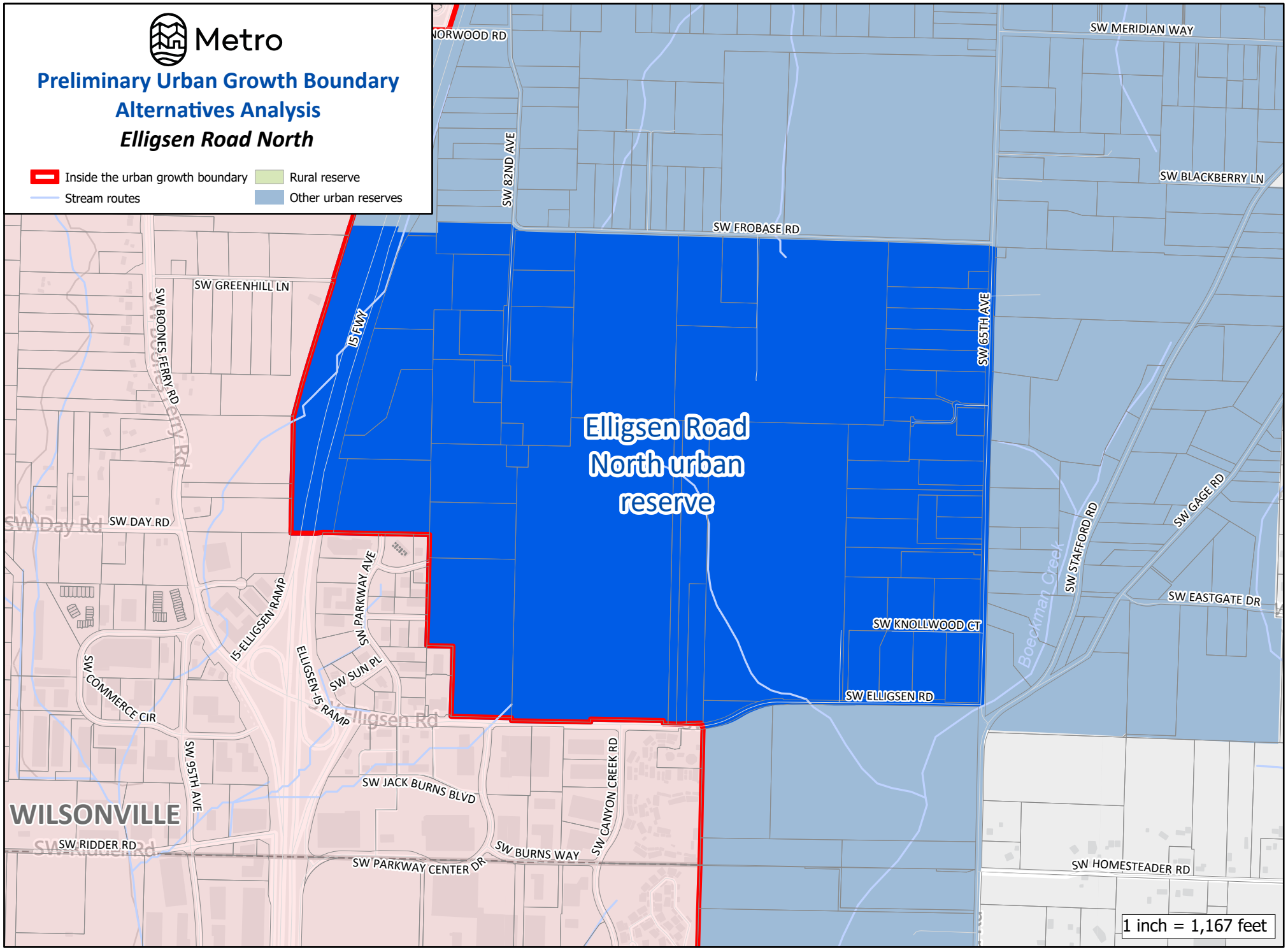
This analysis finds that the proposed urban uses would not be compatible with nearby agricultural and forest activities occurring on farm and forest land outside the UGB to the north and the south. Land use conflict mitigation measures would be warranted.

The Elligsen Road North Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary locational factor.

Metro

# Preliminary Urban Growth Boundary Alternatives Analysis

## *Elligsen Road North*

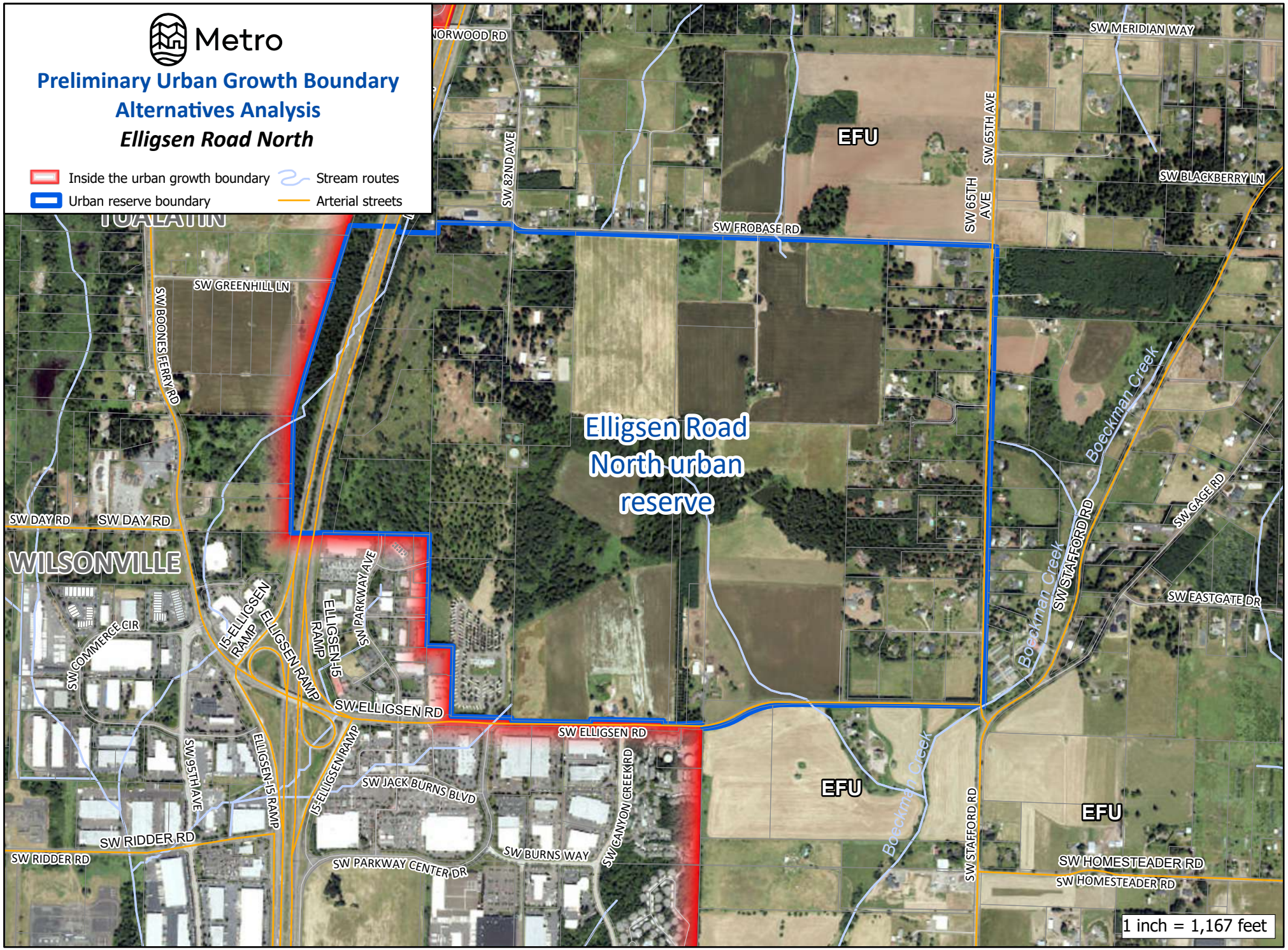


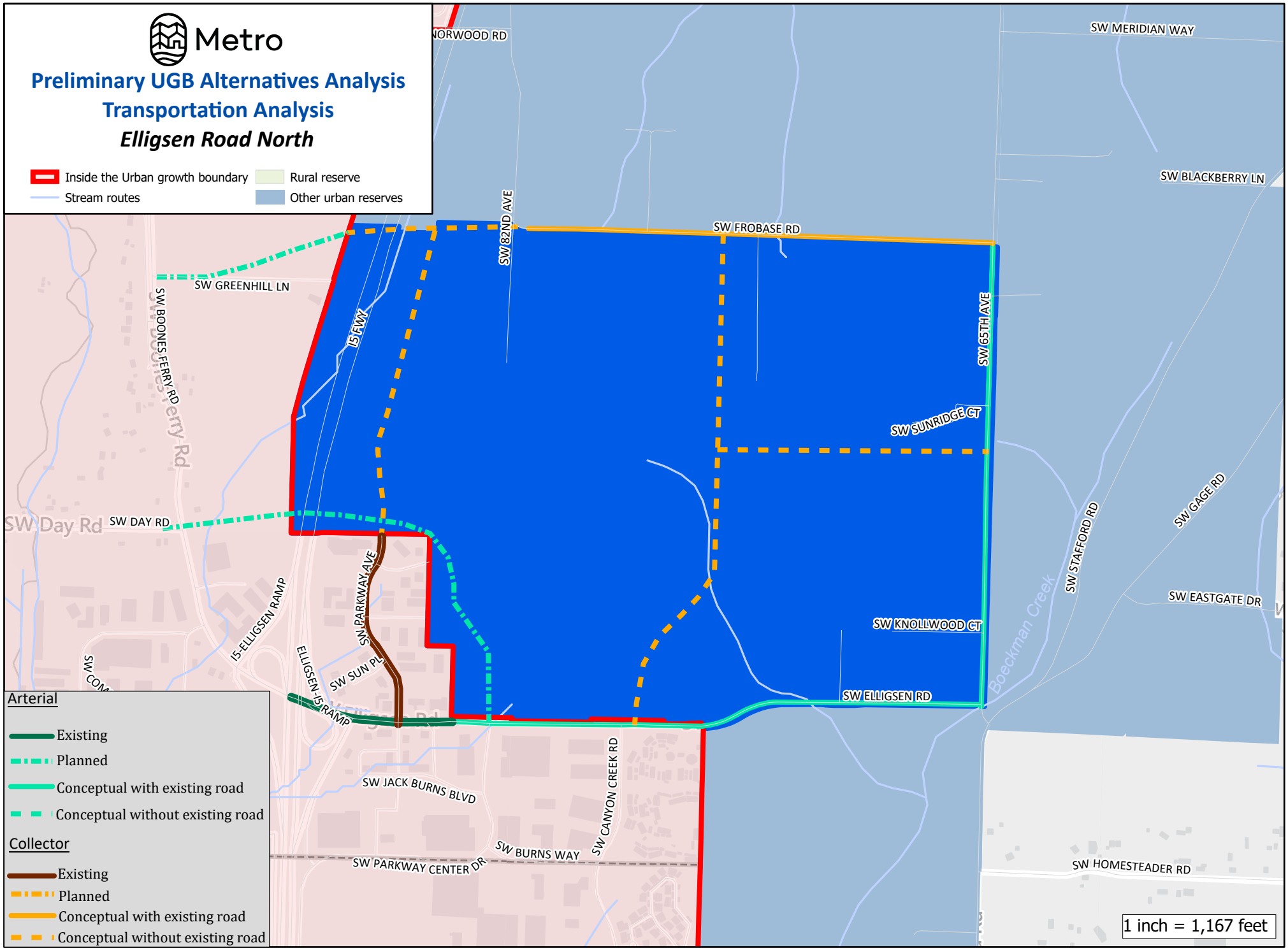
Metro

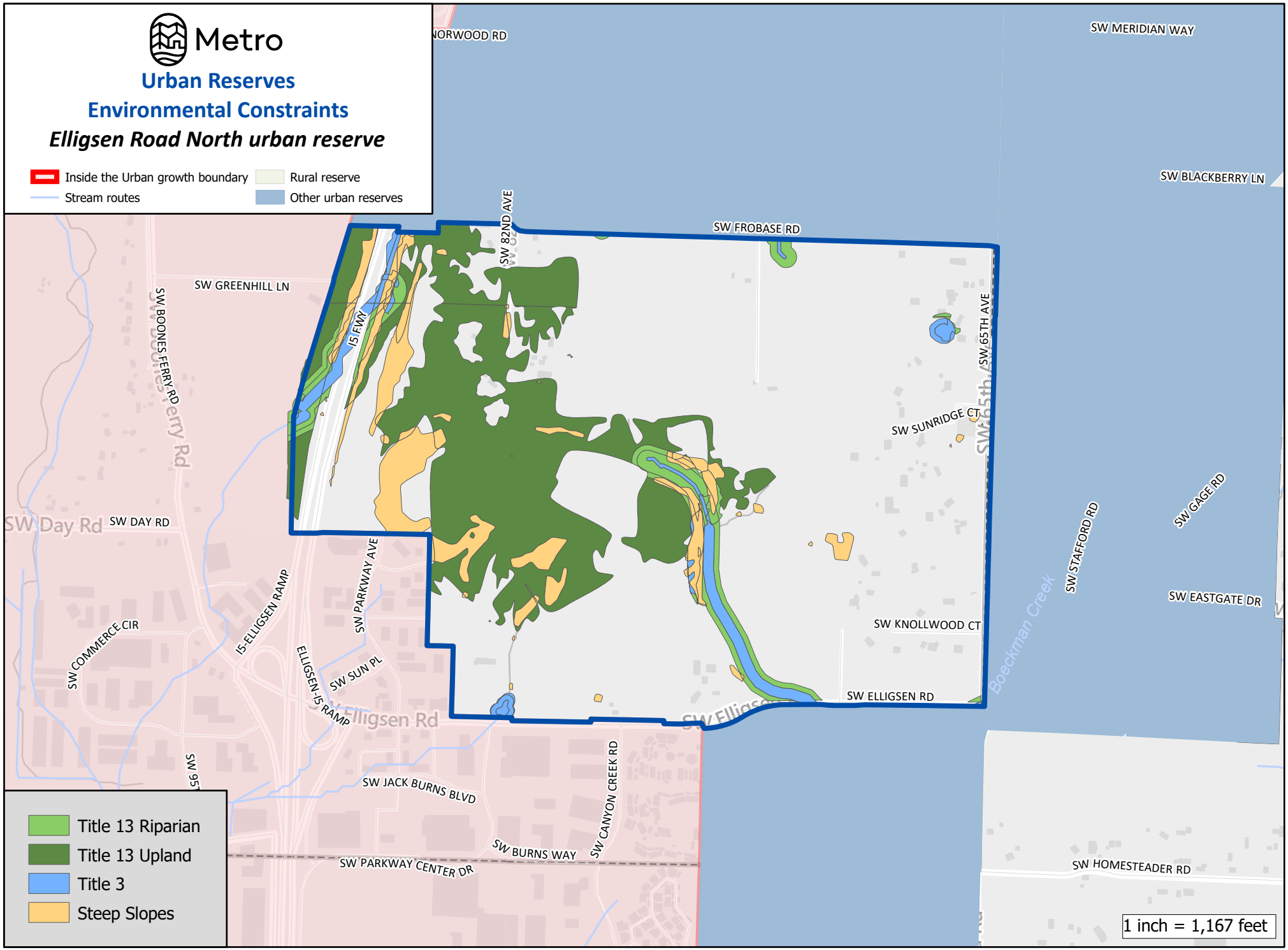
# Preliminary Urban Growth Boundary Alternatives Analysis

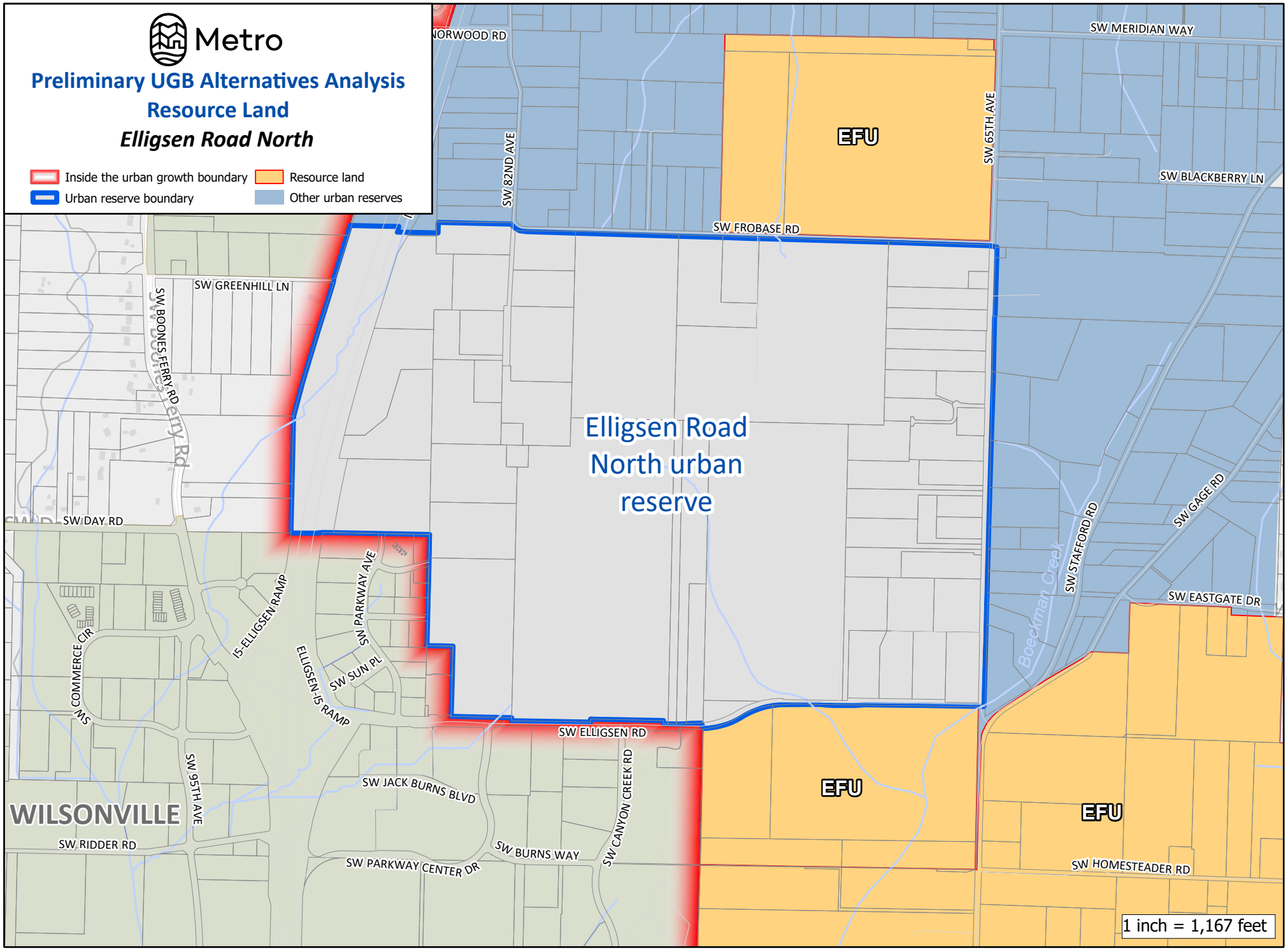
## *Elligsen Road North*

Inside the urban growth boundary
Urban reserve boundary
Stream routes
Arterial streets









## ELLIGSEN ROAD SOUTH URBAN RESERVE

| | |
|---|---|
| Total Reserve Area | 254 acres |
| Total Tax Lot Area in Reserve (without Right-of-Way) | 250 acres |
| Gross Vacant Buildable Area | 213 acres |
| **Net Vacant Buildable Area** | **158 acres** |

The Elligsen Road South Urban Reserve is a generally rectangular area south of SW Elligsen Road and west of SW Stafford Rd. The UGB and Wilsonville city limits are the reserve's western and southern boundaries. Boeckman Creek, which flows diagonally through the center of the urban reserve, splits the area into two roughly evenly sized sections. The land is mostly flat, except for some slopes greater than 10 percent along Boeckman Creek. Access to the area is provided by SW Elligsen Road, SW Elligsen Road, and SW Homesteader Road.

## GOAL 14 BOUNDARY LOCATION FACTORS

### Factor 1: Efficient accommodation of identified land needs

The Elligsen Road South Urban Reserve is comprised of 12 contiguous tax lots, all of which are entirely within the reserve. The combined area of the reserve's tax lots is approximately 250 acres. Half of the tax lots are each smaller than five acres, while the other half are each larger than 10 acres, with two that are larger than 50 acres. As noted above, the entire reserve contains 213 gross vacant buildable acres and 158 net vacant buildable acres.

According to aerial imagery, the reserve is predominantly comprised of agricultural uses and associated rural residences. Eight of the reserve's tax lots have assessed improvements, with a median assessed value of those tax lots' improvements exceeding $420,000. Powerline easements cross the northern and southern portions of the reserve.

In addition to fronting along SW Elligsen Road and SW Stafford Road, rights-of-way for new residential local streets already within the UGB stub to the south of the reserve and the reserve is less than a mile from an interchange with I-5. South Metro Area Regional Transit (SMART) operates a bus route along SW Elligsen Road and a medical shuttle route along SW Stafford Road.

The reserve is adjacent to Title 4 designated Employment Area lands, multifamily housing, and the new Frog Pond area residential development. It is approximately 1.5 miles away from a 2040 Growth Concept designated corridor along SW Parkway Avenue via SW Stafford Road and SW Boeckman Road, less than a mile from Meridian Creek Middle School and Frog Pond Primary School, and within a mile of several existing and planned parks.

This reserve is generally flat with some sloped land along Boeckman Creek that, in combination with the powerline easements mentioned above, divides the area into smaller potentially developable pockets. Some of the pockets are likely large and flat enough to accommodate employment uses and, given the powerlines that pass through the reserve, the proximity to I-5 and existing employment areas, employment uses here may be suitable as well. However, the proximity

of schools, parks, and existing residential development may support or be cohesive with residential development of the reserve. Therefore, this reserve is considered able to accommodate both a residential and employment land needs.

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

***Water Services***

With regard to water services, the Elligsen Road South Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Adjacent lands inside the UGB are served by the City of Wilsonville. The city's primary supply comes from the Willamette River. There is a single water treatment plant, the Willamette River Water Treatment Plant, that serves the city and is in shared ownership with Tualatin Valley Water District. The treatment plant is understood to be capable of processing 15 MGD, and a planned improvement will bring capacity to 20 MGD in order to serve development in the existing UGB through the year 2036. There are currently no significant known storage, pumping, or distribution system deficiencies.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

The city is believed to have ample water rights for the long term, so water supply to urban development of the reserve is likely not an issue. The planned expansion of the treatment plant should provide sufficient capacity for development of the reserve. Existing storage tanks, however, do not have capacity to serve development outside of the existing UGB. A pump station will also be required to serve urban development of the reserve. Future system infrastructure as shown in the City of Wilsonville Water System Master Plan is adequately sized for required fire flow and operating pressures.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Additional storage capacity, as well as a pump station, will be needed to avoid negative impacts to service in the UGB.

*d. Estimated water service-related costs for reserve development*

| Water piping, pumping, and storage costs | Cost |
|---|---|
| **10-inch pipe** | $0.47 million |
| **12-inch pipe** | $3.91 million |
| **16-inch pipe** | $0 |
| **Pumping** | $0 |
| **Storage** | $0.20 million |
| **Total:** | **$4.58 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$1,444** |

### *Sanitary Sewer Services*

With regard to sanitary sewer services, the Elligsen Road South Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Wastewater from adjacent lands in the City of Wilsonville is conveyed in a city-owned and operated collection system to the Wilsonville Wastewater Treatment Plant (WWTP), which was upgraded in 2014 to a capacity of 4.0 MGD, resulting in excess capacity. That excess capacity is believed to be able to accommodate growth in the Frog Pond areas recently added to the UGB. The city is planning to planning on necessary system upgrades to meet future needs. The existing system, including its piping and pump stations, is not known to have any hydraulic deficiencies.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Depending on the timing of additional development in the UGB, planned treatment plant upgrades may be needed sooner in order for the system to also serve new development in the Elligsen Road South Urban Reserve. Both the Canyon Creek and Memorial Park pump stations require capacity improvements to serve the reserve, and there are several trunk line extensions that would be needed as well.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

As noted above, pump station improvements, trunk line extensions, and, depending on timing of other growth, treatment plant facilities upgrades, are needed in order for Elligsen Road South Urban Reserve development to not negatively impact service to areas already inside the UGB.

*d. Estimated sanitary sewer service-related costs for reserve development*

| Sanitary sewer piping and pumping costs | Cost |
|---|---|
| **10-inch pipe** | $3.47 million |
| **12-inch pipe** | $0 |
| **15-inch pipe** | $0 |
| **Pump station** | $1.80 million |
| **Force mains** | $0 |
| **Total:** | **$5.27 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$1,662** |

### *Stormwater Management Services*

With regard to stormwater management services, the Elligsen Road South Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

The City of Wilsonville Stormwater Master Plan (2012) identified "problem areas" (areas with flooding and evidence of significant erosion) based on observation during a 25-year storm event in 2009. The identified problem areas were isolated and there were no serious flooding issues identified under existing conditions.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

The City of Wilsonville requires that stormwater management (water quality and flow control) be provided for all new impervious surfaces. Based on topography, it seems likely that stormwater management for the development of Elligsen Road South Urban Reserve would occur within the development area and outfall directly to Boeckman Creek, without connecting to an existing public stormwater system. The aforementioned master plan included several areas of observed erosion along Boeckman Creek, generally caused by incorrectly constructed or poorly maintained outfalls. While it would not necessarily be the responsibility of Elligsen Road South development to correct these outfalls, any new outfalls would need to be properly designed and constructed to avoid addition erosion.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

If stormwater outfalls directly to Boeckman Creek via private outfalls from development areas and public outfalls from roadways, and if such outfalls were properly designed

and constructed to avoid additional erosion, there would be no impacts to existing stormwater facilities.

*d. Estimated stormwater service-related costs for reserve development*

| Stormwater piping and water quality/detention | Cost |
|---|---|
| **18-inch pipe** | $1.84 million |
| **24-inch pipe** | $0 |
| **30-inch pipe** | $0 |
| **Water quality/dentition** | $4.53 million |
| **Total:** | **$6.37 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$2,011** |

### *Transportation Services*

With regard to transportation services, the Elligsen Road South Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(e) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Figure 4.36 in Chapter 4 of the 2023 Regional Transportation Plan (RTP) displays 2020 home-based vehicle miles traveled (VMT) per capita by Metro transportation analysis zone, with average VMT per capita considered 11.32. According to Figure 4.36, areas in the UGB adjacent to the Elligsen Road South Urban Reserve had an above average home-based VMT per capita in 2020.

Metro's adopted 2040 Growth Concept Map designates a town center in the adjoining City of Wilsonville. Town centers are meant to: serve populations of tens of thousands of people; offer more locally-focused retail uses and public amenities; and be well served by transit. The roughly 100-acre and centrally-located Wilsonville Town Center aligns with this 2040 Growth Concept Map area. The City of Wilsonville's Town Center Plan envisions it as vibrant, walkable destination that inspires people to come together and socialize, shop, live, and work. The town center, as well as nearby employment areas on the opposite (west) side of I-5, include grocery and drug stores, a library, medical and dental offices, banks, and restaurants. These areas also contain and are adjacent to residential uses, including higher-density residential uses. The town center is located a short distance from the terminus of the TriMet's Westside Express Service (WES) Commuter Rail line, which provides service up to Beaverton.

South Metro Area Regional Transit (SMART), the City of Wilsonville's bus service, provides transit services to the city through seven bus lines; Routes 2X, 4, and 6 provide service to the portions of Wilsonville east of I-5 and connect to the town center.

The town center's existing land uses and transit service, and some availability for new development in and near the town center, demonstrate that growth in the current UGB near the town center will not necessarily cause a significant increase in home-based VMT per capita in the future, as residents will be able to access some daily needs through modes other than private motor vehicle transport. Growth in other areas of the city where residential uses surround schools and parks are is also unlikely to significantly impact home-based VMT per capita in the future.

The town center is about two miles away from areas in the UGB adjacent to the reserve. There are other commercial/employment areas that include grocery stores, other retail commercial uses, and industrial uses and that are closer to the residential uses, including apartments, in the UGB adjacent to the reserve. Growth in areas in the UGB near the reserve may continue to rely on private motor vehicle transportation, though existing transit service and bike and pedestrian infrastructure can provide alternatives and the relatively close proximity of a mixture of uses could keep vehicle trips for daily needs and employment relatively short.

In addition to routes described above, SMART also provides Wilsonville with medical transport services, a Villebois shopping shuttle, and connections to Keizer and Woodburn. The vast majority of the city's developed areas are within a quarter of a mile of a transit stop. Figure 4.3 in Chapter 4 of the 2023 RTP does, nonetheless, identify a gap in planned frequent transit service along SW Canyon Creek Road and other locations in the north of the city.

Wilsonville has a well-defined bike network of at least 19 miles of dedicated bike lanes and at least eight miles established bikeways that connect neighborhoods, schools, parks, community centers, business districts, and natural resource areas. Figure 4.5 in Chapter 4 of the 2023 RTP shows several existing bike facilities in Wilsonville as a part of the planned regional bike network, including facilities on SW Canyon Creek Road. There is identified gap in planned regional bike facilities on SW Elligsen Road and SW Stafford Road.

The city also has a fairly well-defined pedestrian network in its town center and residential neighborhoods, though with less pedestrian amenities in some industrial and employment areas. I-5 generally provides a barrier for east-west pedestrian connections, but there are sidewalks along both sides of SW Wilsonville Road as it crosses under I-5; there are no sidewalks on SW Boeckman Road over I-5. Figure 4.4 in Chapter 4 of the 2023 RTP shows a number of existing streets in Wilsonville as in the regional pedestrian network, including SW Canyon Creek Road. The figure identifies gaps in the future regional pedestrian network along SW Boeckman Road east of I-5, SW Elligsen Road, and SW Stafford Road.

Figure 4.6 in Chapter 4 of the 2023 RTP identifies a number of trails in the south and west of Wilsonville as in the planned regional trail network. There is a gap in the planned trail network along SW Stafford Road.

There are no high injury corridors or high injury intersections in Wilsonville's portion of the UGB identified on Figure 4.14 in Chapter 4 of the 2023 RTP.

The portion of I-5 bisecting Wilsonville is identified as a throughway in Figure 4.7 in Chapter 4 of the 2023 RTP. Figure 4.8 in Chapter 4 of the RTP indicates that it currently meets RTP travel speed reliability performance thresholds, with no more than four hours per day when travel speeds fall below the identified minimum speed. RTP models indicate this reliability of this section of I-5 will continue at least to the year 2045.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

An interchange with the nearest RTP-designated throughway, I-5, is less than a mile from the reserve. As noted above, I-5 through Wilsonville currently meets travel speed reliability performance thresholds. Given the proximity of the town center and other commercial/employment areas to the reserve, and the reserve's size, urban development of the reserve is unlikely to generate sufficient traffic on the highway to cause it to no longer meet those performance thresholds.

Currently, there is no regular SMART service all the way to the reserve. The closest existing bus routes, Routes 2X and 6 and 2X, are on SW Canyon Creek Road, which is 800 feet from the reserve. Route 4 on SW Wilsonville Road and SW Advance Road is one-half mile from the reserve. The WES Wilsonville station is more than two miles from the reserve.

There are no bike facilities adjacent to the reserve. The closest complete facility are dedicated bike lanes that runs north-south on SW Canyon Creek Road, which is approximately one-third of a mile from the center of the reserve along SW Elligsen Road. There is a small segment of bike lane on the south side of SW Elligsen Road that stops about 225 feet from the northwest corner of the reserve. There are no existing bike facilities in the reserve itself.

There are no sidewalks or trails connected to the reserve. There are sidewalks on both sides of SW Canyon Creek Road, and a sidewalk on the south side of SW Elligsen Road that that stops about 225 feet from the northwest corner of the reserve. A portion of SW Elligsen Road near SW parkway Center Drive has sidewalks on both sides of the street. There are no existing sidewalks in the reserve itself.

The reserve is adjacent to Title 4 designated Employment Area lands and less than a mile from school uses, commercial retail uses, and industrial uses. Future residents of the reserve could access these existing uses without lengthy travel by private motor vehicle. Moreover, as noted in response to Factor 1, the reserve could potentially accommodate future employment uses, providing employment opportunities with a short commute for residents of adjacent multi-family housing and the developing Frog Pond area.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

SW Canyon Creek Road, SW Elligsen Road, and SW Stafford Road would see additional private motor vehicle traffic as a result of urbanization of the reserve. However, given the proximity of schools and commercial/employment uses, and the potential for the reserve to include a mixture of uses, additional traffic is not likely to be significant. Nearby bike and pedestrian facilities would see some amount of additional use.

Development of this reserve is unlikely to cause facilities in Wilsonville to become high injury corridors or intersections, jeopardize the throughway reliability of I-5, or cause significant increases in the area's home-based VMT per capita.

### *d. Need for major transportation facility improvements and associated costs*

The portions of SW Elligsen Road and SW Stafford Road that border the reserve and that have a combined length of approximately 1.31 miles will likely need to be improved to urban arterial standards. The SW Elligsen Road improvements are considered half-street improvements, as development of the separate Elligsen Road North Urban Reserve would include improvement of the roadway's northern half. Two new collectors with a combined length of approximately 1.33 miles are likely needed provide access to the middle of the reserve. Considering topography, normal per-mile costs are expected for most of these new and improved roadways, though there may be some higher per-mile costs in certain locations, including crossings of Boeckman Creek.

| Facilities | Cost |
|---|---|
| **Arterials, existing/improved full street** | $44.75 million |
| **Arterials, existing/improved half street** | $12.70 million |
| **Arterials, new** | $0 |
| **Collectors, existing/improved full street** | $0 |
| **Collectors, existing/improved half street** | $0 |
| **Collectors, new** | $58.80 million |
| **Total:** | **$116.25 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$36,707** |

### *e. Provision of public transit service*

The Elligsen Road South Urban Reserve is outside the TriMet Service District. SMART evaluated the reserve for providing transit service. SMART could potentially provide services to the reserve, although there is no guarantee of service. Actual service depends on the level of development in, and in the corridors leading to, the reserve. Service could be provided at 15-minute headways peak weekday and 30-minute headways off-peak weekday and Saturday, with one additional bus at a capital cost of $850,000 (recurs every 12-15 years). Bus capital costs reflect the purchase of a Category A/B electric vehicle as SMART plans to provide services with a zero-emission fleet. Annual service cost of adding fixed-route and complementary paratransit service

would be $330,000 in addition to services already being provided. This annual service cost would increase with the cost of inflation each year.

Prior to land being included in the UGB, a more detailed concept plan, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11, is required. This concept plan process will develop more refined public facility and service needs and cost estimates.

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

### *Environmental consequences*

Boeckman Creek flows diagonally through the Elligsen Road South Urban Reserve in a northeast-to-southwest direction for just over a mile. The northern portion flows mostly through agricultural fields while the southern portion flows within a forested riparian corridor with some slopes greater than 25 percent. Riparian habitat has been identified along the stream corridor and most of the forested section is identified as wetland (5.8 acres of a larger 22-acre wetland) on the Wilsonville local inventory. In addition, there is an additional 0.2-acre wetland identified on the National Wetland Inventory (NWI) along the stream corridor. Given the increased protection levels for streams, wetlands, habitat areas, and steep slopes for areas added to the UGB, urbanization could occur without significant impacts to Boeckman Creek. However, the creek and powerlines divide the reserve into pockets of land, which could require street connections that impact natural habitat/features. Internal street connections would be more necessary if the reserve were to be developed with residential uses. All to say, some impacts to Boeckman Creek and habitat areas may occur through urbanization of the reserve depending on the design and level of street connectivity needs.

A tributary of Boeckman Creek flows south through the northern portion of the reserve for approximately 1,490 feet between agricultural land and a farmstead before joining Boeckman Creek. This stream also appears to drain into a couple of ponds, one of which, approximately 0.1 acres in area, has been identified as a NWI wetland. This stream also has riparian habitat identified along its corridor. Given the increased protection levels for streams, wetlands, and habitat areas within the UGB, urbanization could occur without significant impacts to this stream corridor. Nevertheless, this small stream corridor, along with Boeckman Creek, isolates a small land area from the remainder of the reserve, which could require stream-impacting street connections, especially for residential development. Therefore, some impacts to the stream and habitat area may occur through urbanization of the reserve, depending on the type of urban development and needs for new street connectivity.

A tributary flows southwest through the southern portion of the reserve, mostly through agricultural land, and appears to flow into a pond. The small stream section, which is within a forested patch, also is identified as a 0.25-acre wetland and includes riparian habitat. Given the required protection levels for streams, wetlands, and habitat areas within the

UGB, urbanization could occur without significant impacts to this stream corridor. Consistent with the other streams in the area, impacts related to street connectivity needs, especially serving new residential uses, could occur. Therefore, some impacts to the stream and habitat area may occur through urbanization of the area, again depending on types of future development and level of street connectivity needs.

Boeckman Creek and the southern tributary also flow within powerline easements in the reserve. These easements provide a level of protection for the water bodies, due to the inability to urbanize at a high level within the easements. However, if employment uses occurred in this area, the stream corridors could be susceptible to impacts from allowable parking facilities within the easement. Overall, urbanization of the area could occur with comparatively moderate to high impacts to the natural resources, depending on street connectivity needs and other site needs, such as parking or storage for to non-residential uses. Additional environmental consideration, specifically regarding avoidance of conflict between urban development and regionally significant fish and wildlife habitat, is provided in the Metro Code Factors Analysis (Appendix 7A).

Considering the comparative environmental consequences of urbanization, the Elligsen Road South Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location sub-factor.

### *Social, energy, and economic consequences*

There are only a few rural residences in the Elligsen Road South Urban Reserve. The reserve is also already adjacent, or in relatively close proximity, to urban residential uses, employment uses, and major roadways. Therefore, urban development of the reserve is not expected to cause a significant change in sense of place or degradation of rural lifestyle for the existing residents of the reserve. The reserve's stream corridors and habitat areas that will require protection when added to the UGB can also help to reduce or at least slow the loss of sense of place and rural lifestyle. Urbanization of the reserve could also bring new social, educational, and recreational opportunities for existing residents.

As detailed more fully in response to Factor 2, and due in part to the reserve's proximity to a mix of existing urban uses and the opportunity to itself develop with a mix of new uses, urbanization of the reserve is not expected to cause significant increases in VMT. The energy impacts from urbanization of the reserve would also therefore be relatively minimal.

Aerial imagery suggests there may be more than 150 acres of commercial agriculture occurring in the reserve, but that appears to be largely pastureland and field crops and not row crops or nursery stock. While there would be economic consequences from urbanization in terms of a loss in farming activity in the reserve, that loss may be outweighed by the economic benefits of residential and/or employment development. Moreover, farmlands in the reserve are somewhat separated from each other by streams, natural areas, powerlines, and rural residential uses and urbanization of one area may not

necessarily impact agricultural activity that continues to occur on other farmlands until they too are ready to develop.

This analysis finds that there would be comparatively low social, energy, and economic consequences from urbanization of this reserve. The Elligsen Road South Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location sub-factor.

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

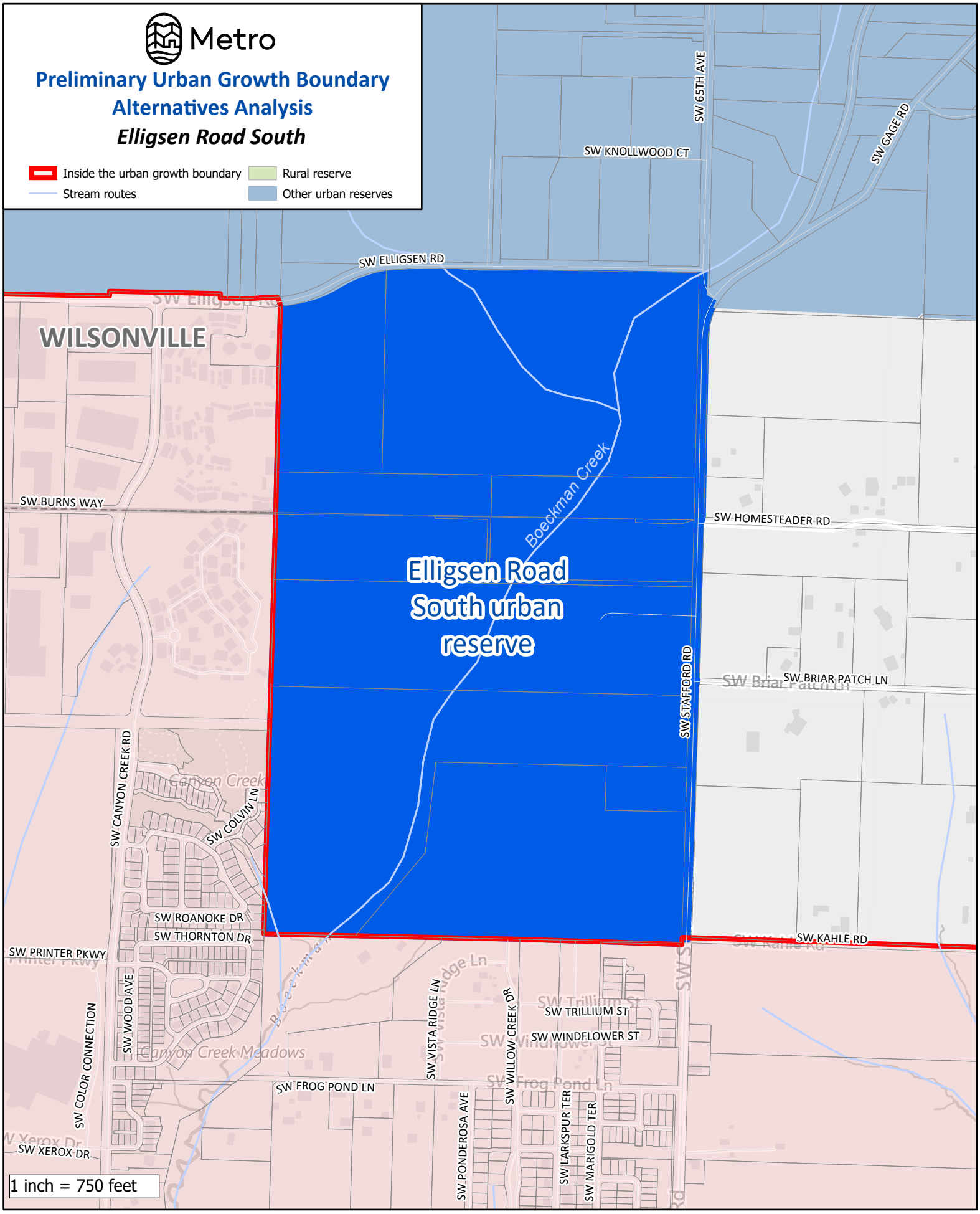
Goal 3 agricultural lands, specifically lands zoned Exclusive Farm Use (EFU) by Clackamas and Washington Counties, border the Elligsen Road South Urban Reserve in areas outside the UGB to the east and north, respectively.

Most of the EFU-zoned land to the east is in agricultural production and includes field crops and nursery and pastureland, with a few rural residences. SW Stafford Road separates the reserve from these EFU-zoned lands, but the road itself would not provide an adequate buffer between urban development and agricultural activity. Development of the reserve could lead to land use conflicts related to safety, liability, and vandalism and complaints due to noise, odor, dust, and the use of pesticides and fertilizer. The improvement of SW Stafford Road to urban standards, and associated street light illumination and bicycle and pedestrian movements, may further jeopardize the compatibility of the two uses, though the impacts of urban roadways on adjacent agricultural activity may be minimized through road design. Urbanization of the reserve would increase traffic on SW Stafford Road, which could impact the movement of both farm equipment and goods. Therefore, proposed urban uses are considered incompatible with the nearby agricultural activities occurring on the EFU-zoned land to the east.

The small section of EFU-zoned land adjacent to the north is being actively farmed with field crops and includes one residence. SW Elligsen Road separates the reserve from these farmlands, but the road itself would not provide an adequate buffer between urban development and agricultural activity. Conflicts related to safety, liability, and vandalism and complaints due to noise, odor, dust, and the use of pesticides and fertilizer could still occur. In addition, the improvement of SW Elligsen Road to urban standards, and associated street light illumination and bicycle and pedestrian movements, may further jeopardize the compatibility of the two uses, though the impacts of urban roadways on adjacent agricultural activity may be minimized through road design. The limited frontage between the reserve and the EFU-zoned lands to the north should help reduce potential conflicts. However, urbanization would increase traffic on SW Elligsen Road, which could impact the movement of both farm equipment and goods. The proposed urban uses are, therefore, considered generally incompatible with the nearby agricultural activities occurring on the small portion of farmland to the north.

Overall, the proposed urban uses would have low compatibility with nearby agricultural and forest activities occurring on farm and forest land outside the UGB to the east and to a lesser extent to the north. Land use conflict mitigation measures would be warranted on the urban side of the boundary.

The Elligsen Road South Urban Reserve is given a “low” score in Attachment 3 for this Goal 14 boundary location factor.

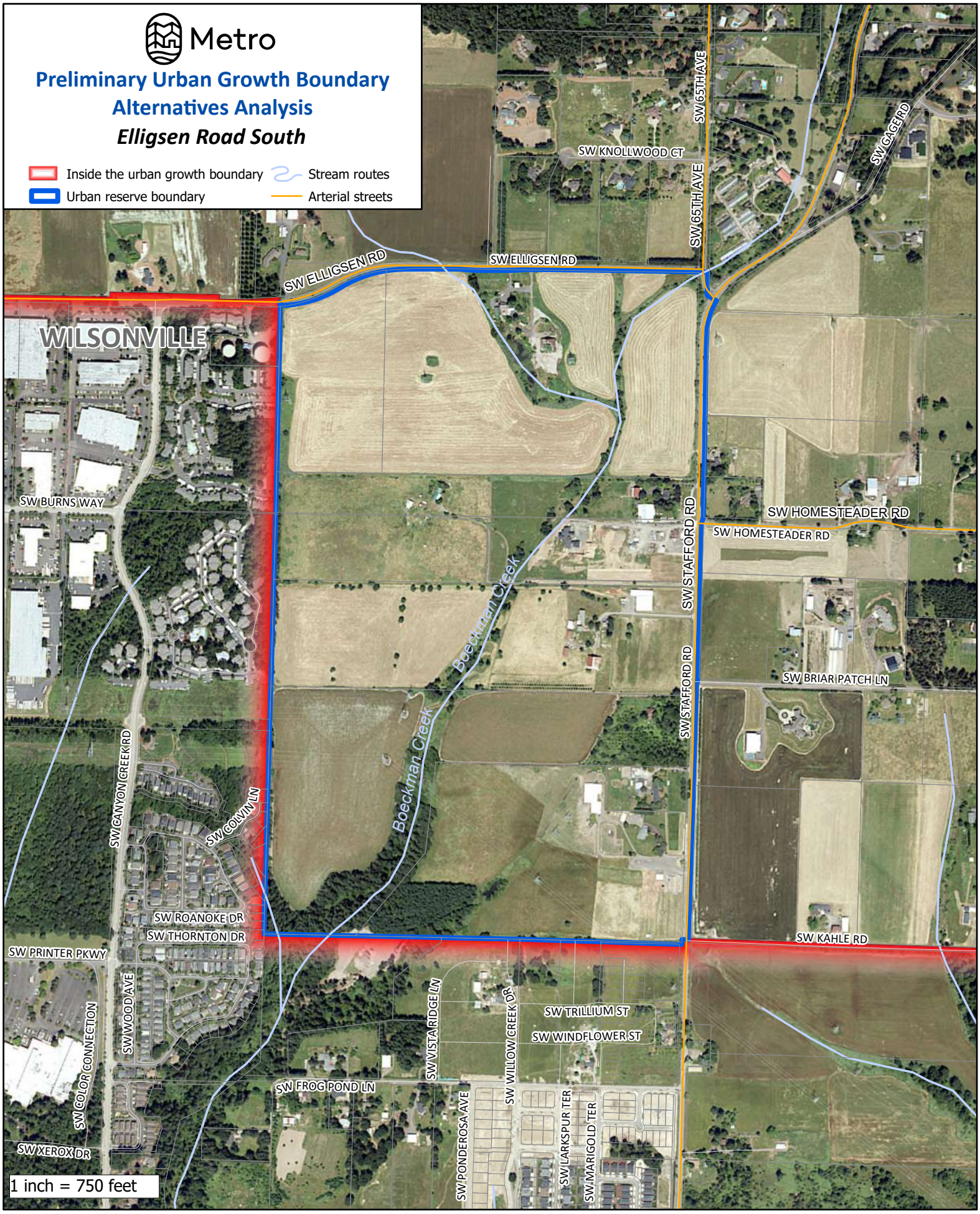


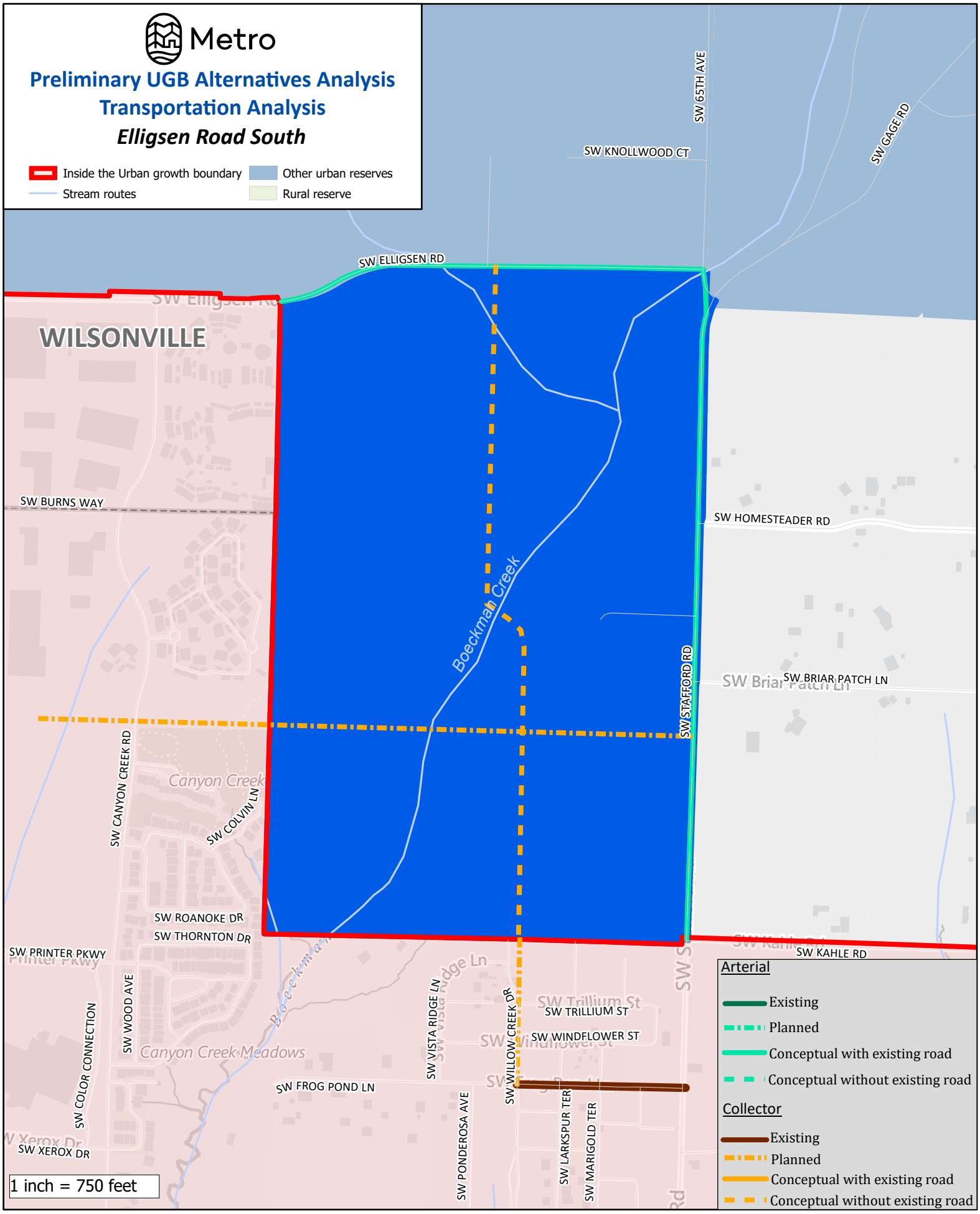
Metro

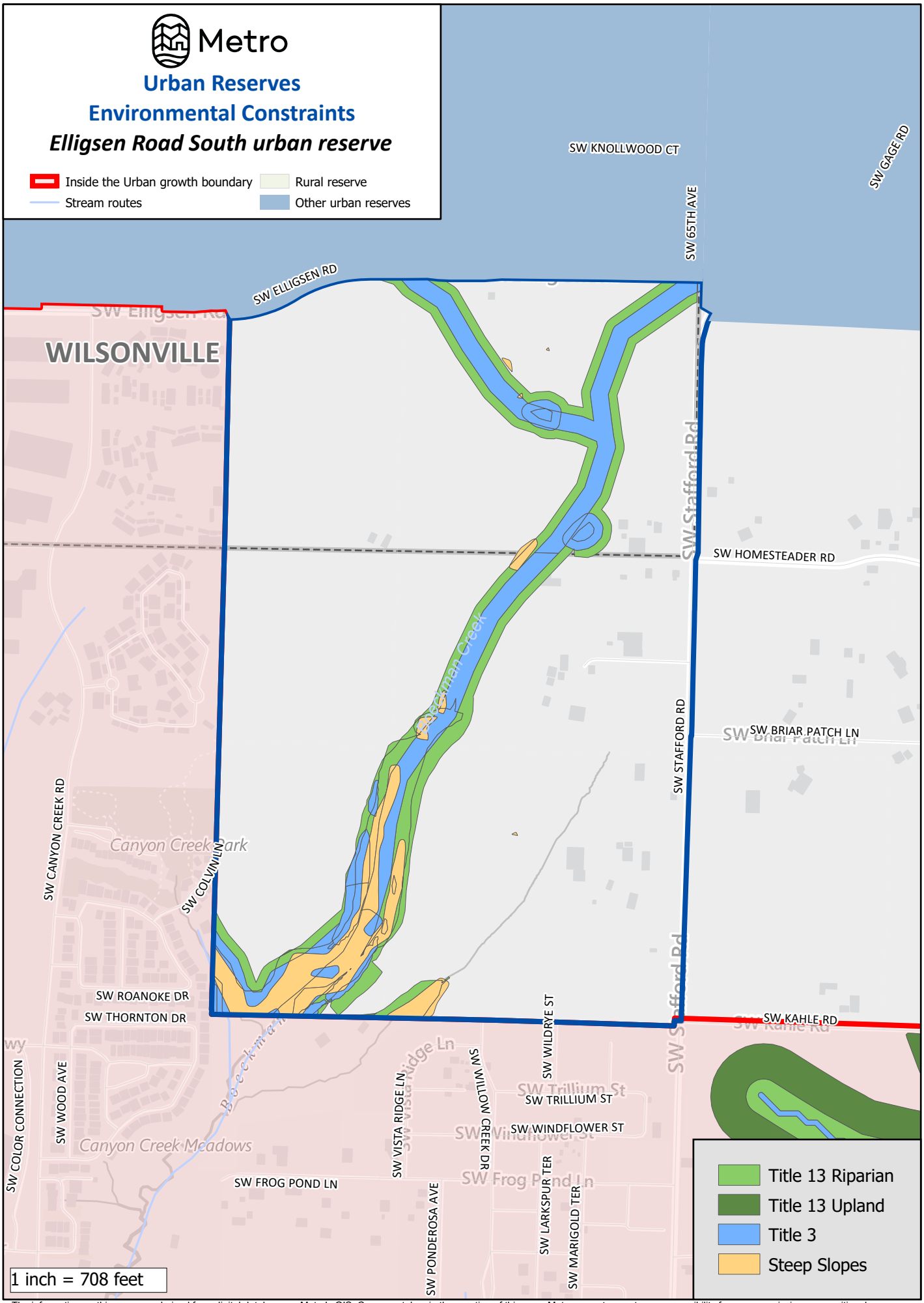
# Preliminary Urban Growth Boundary Alternatives Analysis

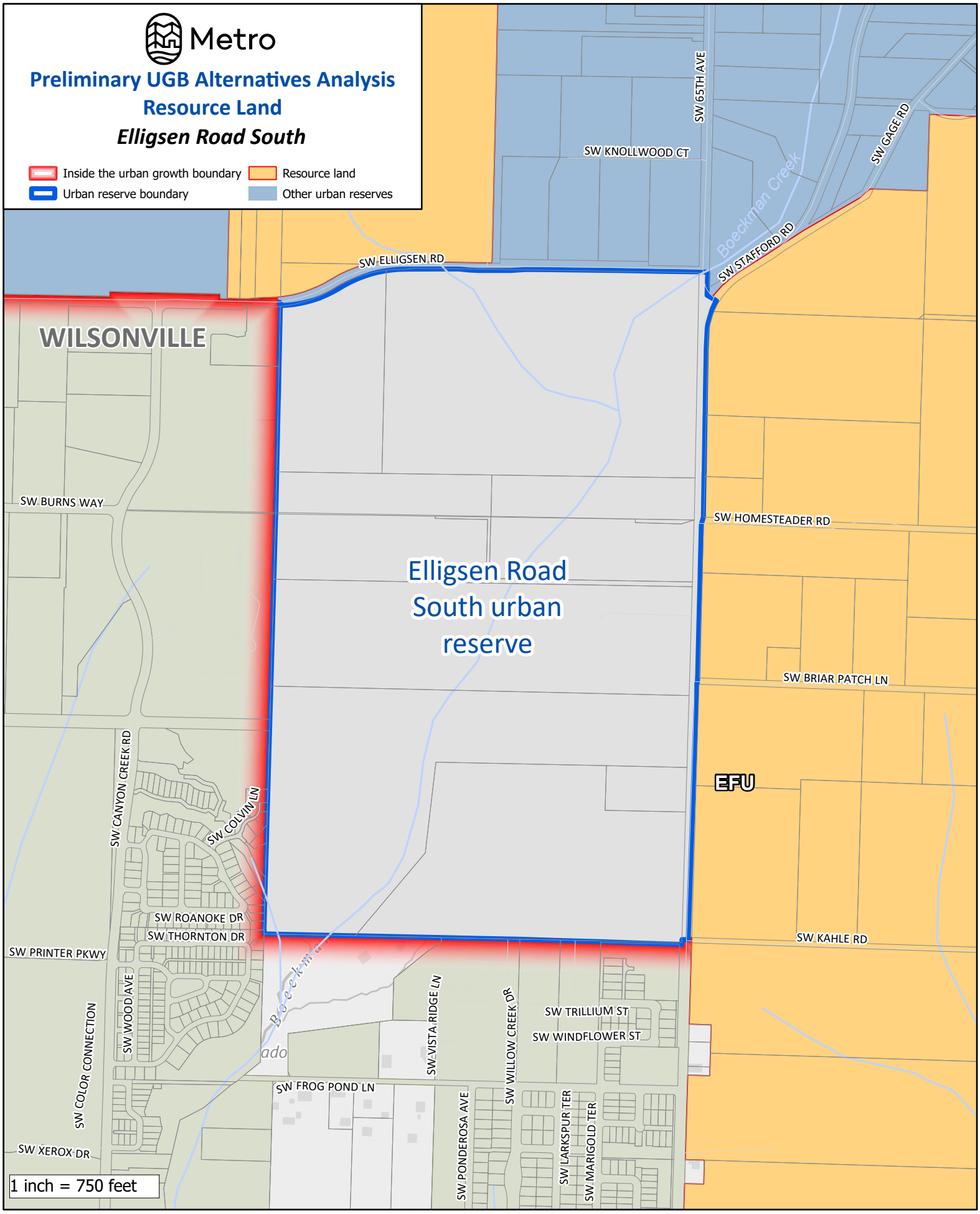
## *Elligsen Road South*

Inside the urban growth boundary
Urban reserve boundary
Stream routes
Arterial streets









# GRAHAMS FERRY URBAN RESERVE

| | |
|---|---|
| Total Reserve Area | 203 acres |
| Total Tax Lot Area in Reserve (without Right-of-Way) | 200 acres |
| Gross Vacant Buildable Area | 92 acres |
| **Net Vacant Buildable Area** | **68 acres** |

The Grahams Ferry Urban Reserve is a relatively compact area east of SW Grahams Ferry Road and north of SW Tooze Road. The UGB and Wilsonville city limits are the southern and eastern boundaries of the reserve, while rural reserve lands border to the north and northwest. The Metro-owned Coffee Lake Wetlands natural area is adjacent to the reserve's eastern side within the UGB.

## GOAL 14 BOUNDARY LOCATION FACTORS

### Factor 1: Efficient accommodation of identified land needs

The Grahams Ferry Urban Reserve is comprised of 24 contiguous tax lots, all of which are entirely within the reserve. The combined area of the reserve's tax lots is approximately 200 acres. More than 70 percent of the tax lots are smaller than five acres. Five tax lots are larger than 10 acres, with one being approximately 60 acres. As noted above, the entire reserve contains 92 gross vacant buildable acres and 68 net vacant buildable acres.

According to aerial imagery, the majority of the reserve is comprised of pastureland, groves of trees, small agricultural uses, some rural residential land uses. Twenty of the reserve's tax lots have improvements, with the median assessed value of those tax lots' improvements being more than $306,000; the aforementioned 60-acre tax lot has improvements assessed at more than $470,000 and a 2.7-acre tax lot has improvements assessed at more than $1.4 million.

The existing low density Villebois residential development is directly across SW Tooze Road from the reserve. Lowrie Primary School and Carinthia Park are approximately half a mile to the southeast, while Tracodero Park, Sparrow Creek Community Center, and a dog park are even closer. An interchange with I-5 is slightly more than two miles away via SW Grahams Ferry Road, SW Ridder Road, and SW Boones Ferry Road. A 2040 Growth Concept designated corridor along SW Parkway Avenue is approximately 1.5 miles via SW Tooze Road and Boeckman Road and on the opposite side of I-5. A Westisde Express (WES) rail stop is also about 1.5 miles away.

The reserve is relatively flat, but there are a couple of locations with slopes greater than 10 percent. The five largest tax lots are adjacent to each other and form a 155-acre contiguous area. However, there are some significant natural resources located on these tax lots that will direct development to the western portion of the reserve where tax lots are much smaller and where there is existing residential development, further away from the existing employment centers in Wilsonville. Moreover, Metro's ownership of the Coffee Lake Wetlands tract bordering the reserve to east effectively eliminates the opportunity for future new roadway connections between the reserve and industrial uses to the east within the UGB along SW 95th Avenue and SW Boones Ferry Road. With

these factors, and the proximity of parks, schools, and existing residential development, the area is considered suitable to accommodate a residential land need and not an employment land need.

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

***Water Services***

With regard to water services, the Grahams Ferry Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Adjacent lands inside the UGB are served by the City of Wilsonville. The City's primary supply comes from the Willamette River. There is a single water treatment plant, the Willamette River Water Treatment Plant, that serves the city and is in shared ownership with Tualatin Valley Water District. The treatment plant is understood to be capable of processing 15 MGD, and a planned improvement will bring capacity to 20 MGD in order to serve development in the existing UGB through the year 2036. There are currently no significant known storage, pumping, or distribution system deficiencies.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

The city is believed to have ample water rights for the long term, so water supply to urban development of the reserve is not a concern. The planned expansion of the treatment plant should provide sufficient capacity for development of the reserve. Existing storage tanks, however, do not have capacity to serve development outside of the existing UGB. Based on topography, the reserve could be served by gravity from the Elligsen Reservoirs (i.e., not require pumping). Future system infrastructure as shown in the City of Wilsonville Water System Master Plan is adequately sized for required fire flow and operating pressures.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Greater storage capacity may be needed to avoid negative impacts to service in the UGB.

*d. Estimated water service-related costs for reserve development*

| Water piping, pumping, and storage costs | Cost |
|---|---|
| **10-inch pipe** | $0.99 million |
| **12-inch pipe** | $1.6 million |
| **16-inch pipe** | $0 |
| **Pumping** | $0 |
| **Storage** | $0.10 million |
| **Total:** | **$2.69 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$1,964** |

### *Sanitary Sewer Services*

With regard to sanitary sewer services, the Grahams Ferry Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Wastewater from adjacent lands in the City of Wilsonville is conveyed in a city-owned and operated collection system to the Wilsonville Wastewater Treatment Plant (WWTP), which was upgraded in 2014 to a capacity of 4.0 MGD, resulting in excess capacity. That excess capacity is believed to be able to accommodate growth in the Frog Pond areas recently added to the UGB. The city is planning to planning on necessary system upgrades to meet future needs. The existing system, including its piping and pump stations, is not known to have any hydraulic deficiencies.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Depending on the timing of additional development in the UGB, planned treatment plant upgrades may be needed sooner in order for the system to also serve new development in the Grahams Ferry Urban Reserve. No pumps are likely needed to serve development of the reserve. However, there are trunk line extensions that will be needed to serve the reserve.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

The above-mentioned trunk line extensions will be needed to serve the reserve and avoid negative impacts to existing services in the Villebois basin.

*d. Estimated sanitary sewer service-related costs for reserve development*

| Sanitary sewer piping and pumping costs | Cost |
|---|---|
| **10-inch pipe** | $1.24 million |
| **12-inch pipe** | $0 |
| **15-inch pipe** | $0 |
| **Pump station** | $0 |
| **Force mains** | $0 |
| **Total:** | **$1.24 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$905** |

### *Stormwater Management Services*

With regard to stormwater management services, the Grahams Ferry Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

The City of Wilsonville Stormwater Master Plan (2012) identified "problem areas" (areas with flooding and evidence of significant erosion) based on observation during a 25-year storm event in 2009. The identified problem areas were isolated and there were no serious flooding issues identified under existing conditions.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

The City of Wilsonville requires that stormwater management (water quality and flow control) be provided for all new impervious surfaces. Based on topography, it seems likely that stormwater management for the development of Grahams Ferry Urban Reserve would occur within the development area and outfall directly to Coffee Creek, without connecting to an existing public stormwater system. The aforementioned master plan does not indicate issues in Coffee Creek downstream of the reserve.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

If stormwater outfalls directly to Coffee Creek via private outfalls from development areas and public outfalls from roadways, there would be no impacts to existing storm facilities.

*d. Estimated stormwater service-related costs for reserve development*

| Stormwater piping and water quality/detention | Cost |
|---|---|
| **18-inch pipe** | $0.32 million |
| **24-inch pipe** | $0 |
| **30-inch pipe** | $0 |
| **Water quality/dentition** | $2.76 million |
| **Total:** | **$3.08 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$2,251** |

### *Transportation Services*

With regard to transportation services, the Grahams Ferry Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(e) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Figure 4.36 in Chapter 4 of the 2023 Regional Transportation Plan (RTP) displays 2020 home-based vehicle miles traveled (VMT) per capita by Metro transportation analysis zone, with average VMT per capita considered 11.32. According to Figure 4.36, areas in the UGB adjacent to the Grahams Ferry Urban Reserve had an above average home-based VMT per capita in 2020.

Metro's adopted 2040 Growth Concept Map designates a town center in the adjoining City of Wilsonville. Town centers are meant to: serve populations of tens of thousands of people; offer more locally-focused retail uses and public amenities; and be well served by transit. The roughly 100-acre and centrally-located Wilsonville Town Center aligns with this 2040 Growth Concept Map area. The City of Wilsonville's Town Center Plan envisions it as vibrant, walkable destination that inspires people to come together and socialize, shop, live, and work. The town center, as well as nearby employment areas on the opposite (west) side of I-5, include grocery and drug stores, a library, medical and dental offices, banks, and restaurants. These areas also contain and are adjacent to residential uses, including higher-density residential uses. The town center is located a short distance from the terminus of the TriMet's Westside Express Service (WES) Commuter Rail line, which provides service up to Beaverton.

South Metro Area Regional Transit (SMART), the City of Wilsonville's bus service, provides transit services to the city through seven bus lines; Route 7 "Villebois Line" connects the town center to areas in the western portion of Wilsonville's UGB, including the Villebois neighborhood in the UGB adjacent to the reserve.

The town center's existing land uses and transit service, and some availability for new development in and near the town center, demonstrate that growth in the current UGB near the town center will not necessarily cause a significant increase in home-based VMT per capita in the future, as residents will be able to access some daily needs through modes other than private motor vehicle transport. Growth in other areas of the city where residential uses surround schools and parks are is also unlikely to significantly impact home-based VMT per capita in the future.

The town center is about a mile away from the areas in the UGB adjacent to the reserve, on the opposite side of I-5. There are closer employment areas, including industrial areas near the east of the reserve on the other side of the Coffee Lake Wetlands and commercial areas on the same side of I-5 as the reserve. The Villebois neighborhood, which includes medium-density residential uses, parks, and school uses, is across SW Tooze Road from the reserve. Growth in areas in the UGB near the reserve may continue to rely on private motor vehicle transportation, though existing transit service and bike and pedestrian infrastructure can provide alternatives and the relatively close proximity of a mixture of uses could keep vehicle trips relatively short.

Indeed, in addition to routes described above, SMART also provides medical transport services, a Villebois shopping shuttle, and connections to Keizer and Woodburn. The vast majority of the city's developed areas are within a quarter of a mile of a transit stop. Figure 4.3 in Chapter 4 of the 2023 RTP does, nonetheless, identify a gap in planned frequent transit service along SW Boones Ferry Road and other locations in the north of the city.

Wilsonville has a well-defined bike network of at least 19 miles of dedicated bike lanes and at least eight miles established bikeways that connect neighborhoods, schools, parks, community centers, business districts, and natural resource areas. Figure 4.5 in Chapter 4 of the 2023 RTP shows several existing bike facilities in Wilsonville as a part of the planned regional bike network, including facilities on SW Boekman Road and SW Wilsonville Road. There is identified gap in planned regional bike facilities on SW Stafford Road.

The city also has a fairly well-defined pedestrian network in its town center and residential neighborhoods, though with less pedestrian amenities in some industrial and employment areas. I-5 generally provides a barrier for east-west pedestrian connections, but there are sidewalks along both sides of SW Wilsonville Road as it crosses under I-5; there are no sidewalks on SW Boeckman Road over I-5. Figure 4.4 in Chapter 4 of the 2023 RTP shows a number of streets in Wilsonville as in the regional pedestrian network, including SW Wilsonville Road, SW Barber Street, and SW Boeckman Road west of I-5. The figure identifies gaps in the future regional pedestrian network along SW Boeckman Road east of I-5.

Figure 4.6 in Chapter 4 of the 2023 RTP identifies a number of trails in the south and west of Wilsonville as in the planned regional trail network.

There are no high injury corridors or high injury intersections in Wilsonville's portion of the UGB identified on Figure 4.14 in Chapter 4 of the 2023 RTP.

I-5, bisecting Wilsonville, is identified as a throughway in Figure 4.7 in Chapter 4 of the 2023 RTP. Figure 4.8 of the chapter indicates that it currently meets travel speed reliability performance thresholds, with no more than four hours per day when travel speeds fall below the identified minimum speed. RTP models indicate this reliability will continue at least to the year 2045.

### *b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

An interchange with the nearest RTP-designated throughway, I-5, is slightly more than two miles away from the reserve via SW Grahams Ferry Road, SW Ridder Road, and SW Boones Ferry Road. As noted above, I-5 currently meets travel speed reliability performance thresholds. Given its relatively small size, urban development of the reserve is unlikely to generate sufficient traffic on the highway to cause it to no longer meet those performance thresholds.

Currently, there is no regular SMART service all the way to the reserve. SMART's Route 7 has a stop about one-half mile from the reserve and provides limited connecting service to the SMART Central Station for WES trains. The Route 7 Villebois Shopper Shuttle provides connection the town center. The WES Wilsonville station is a little over one mile away from the reserve.

The majority of SW Tooze Road and SW Boeckman Road adjacent to the reserve have dedicated bike lanes. These facilities extend east across I-5, south to Villebois, and through employment areas around SW 95th Avenue. SW Grahams Ferry Road also has some dedicated bike lanes, but only a short 250-foot-long section of the road has bike facilities adjacent to the reserve. Significant natural areas border the east side of the reserve, which could limit more direct bike access from the reserve to SW Boeckman Road.

A majority of SW Tooze Road and SW Boeckman Road have a sidewalk on at least one side, and sidewalks are present in all of the developed portions of Villebois. There are no existing sidewalks within the reserve. The natural areas bordering the east side of the reserve could limit direct pedestrian access to SW Boeckman Road. Access to the nearby Ice Age Tonquin Trail is in Villebois, which extends south through Graham Oaks Nature Park to the Willamette River.

Lowrie Primary School and Carinthia Park are approximately half a mile to the southeast in Villebois, while Tracodero Park, Sparrow Creek Community Center, and a dog park are even closer. Future residents of the reserve could access these school and park uses in Villebois, as well as the SMART Route 7 stops, without travel by private motor vehicle. The bike and pedestrian facilities along SW Tooze Road and SW Boeckman Road could also help to support active transportation to nearby employment areas, the town center, and the WES station.

### c. *Impacts to existing facilities that serve nearby areas already inside the UGB*

SW Boones Ferry Road, SW Grahams Ferry Road, and SW Tooze Road would see additional private motor vehicle traffic as a result of urbanization of the reserve. However, given the small size of the reserve, the proximity of schools, parks, the town center, and employment uses, and the availability of bike and pedestrian facilities, additional traffic is not likely to be significant. The nearby bike and pedestrian facilities and the Ice Age Tonquin Trail would see some amount of additional use.

Development of this reserve is unlikely to cause facilities in Wilsonville to become high injury corridors or intersections, jeopardize the throughway reliability of I-5, or cause significant increases in the area's home-based VMT per capita.

### d. *Need for major transportation facility improvements and associated costs*

The roughly 0.61-mile-long portion of SW Grahams Ferry Road along the west of the reserve will likely need to be improved to urban arterial standards, including with acquisition of additional right-of-way. A slightly more than half-mile-long collector is also likely needed north of SW 110th Avenue through the middle of the reserve and connecting to SW Grahams Ferry Road. These facility improvements are assumed to have normal per-mile costs, given the relatively flat topography.

| Facilities | Cost |
|---|---|
| **Arterials, existing/improved full street** | $31.30 million |
| **Arterials, existing/improved half street** | $0 |
| **Arterials, new** | $0 |
| **Collectors, existing/improved full street** | $0 |
| **Collectors, existing/improved half street** | $0 |
| **Collectors, new** | $21.15 million |
| **Total:** | **$52.45 million** |
| **Per assumed unit:** | **$38,341** |

### e. *Provision of public transit service*

The Grahams Ferry Urban Reserve is outside the TriMet Service District. SMART evaluated the reserve for providing transit service. SMART could potentially provide services to the reserve, although there is no guarantee of service. Actual service depends on the level of development in, and in the corridors leading to, the reserve. Service could be provided at 60-minute headways weekday, with one additional bus at a capital cost of $450,000 (recurs every eight – 12 years). Bus capital costs reflect the purchase of a Category C electric vehicle as SMART plans to provide services with a zero-emission fleet. Annual service cost of adding fixed-route and complementary paratransit service would be $45,000 in addition to services already being provided. This annual service cost would increase with the cost of inflation each year.

Prior to land being included in the UGB, a more detailed concept plan, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11, is required. This concept plan process will develop more refined public facility and service needs and cost estimates.

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

### *Environmental consequences*

Coffee Lake Creek flows south along the northern edge of the Grahams Ferry Urban Reserve and then continues south through the eastern portion of the reserve for approximately 1,260 feet. A 44-acre portion of a much larger wetland system identified on the local Wilsonville inventory is located west of the portion of Coffee Lake Creek that flows through the area. The wetland appears to contain some irrigation ponds and an irrigation channel. This wetland extends south and east to connect with the wetland that is located on the Metro-owned open space within the UGB to the east, surrounding the very eastern portion of the reserve. A substantial amount of riparian habitat is identified along the wetland and stream, more or less encompassing the entire east side of the reserve. Given that all of the natural resources are located in the eastern portion of the reserve, urbanization of the western section could occur with no impacts to the stream and wetland areas.

Overall, urbanization of the area could occur with comparatively minimal impacts to the stream corridor and the wetland area, assuming future development is focused away from the wetland and stream complex. Additional environmental consideration, specifically regarding avoidance of conflict between urban development and regionally significant fish and wildlife habitat, is provided in the Metro Code Factors Analysis (Appendix 7A).

Considering the comparative environmental consequences of urbanization, Grahams Ferry Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location sub-factor.

### *Social, energy, and economic consequences*

Natural resources and public ownership of lands will limit the amount of urban development the Grahams Ferry Urban Reserve can accommodate and will focus that development in certain locations, generally in the southwest corner of the reserve nearer to existing urban development already inside the UGB. There are already a number of rural residences in this location of the reserve; because of that existing development and its proximity to urban areas, development is not expected to cause a significant change in sense of place or degradation of rural lifestyle for the area's existing residents. That existing development and parcelization can also slow the speed of development and therefore the pace of noticeable change.

As detailed more fully in response to Factor 2, there may be additional vehicle traffic generated from urbanization of the reserve, but increased VMT and related energy impacts would be relatively small.

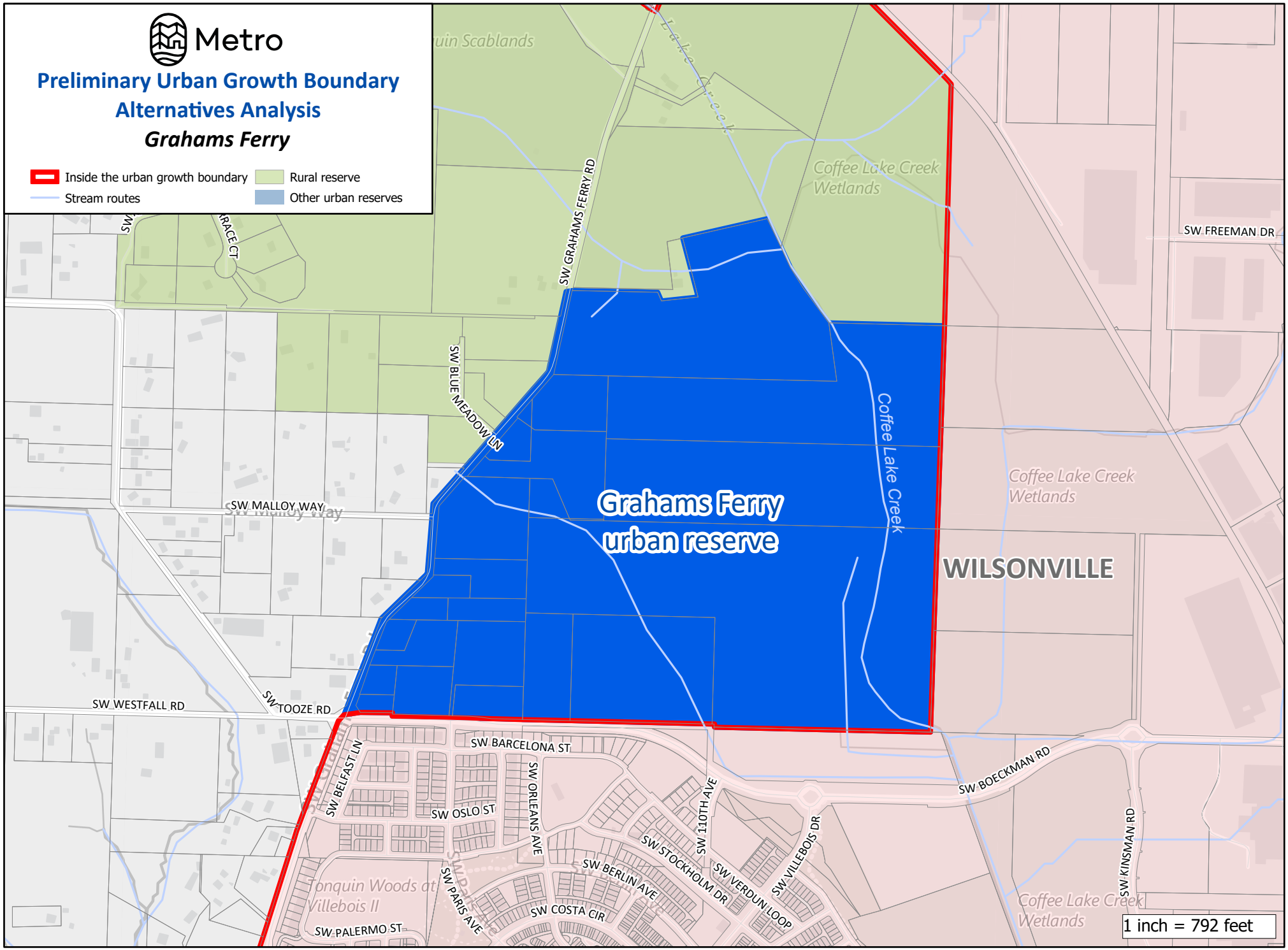
There are fewer than 30 acres of commercial agriculture occurring within the reserve and the economic consequences of a loss in farming activity in the reserve may be outweighed by the economic benefits of residential development.

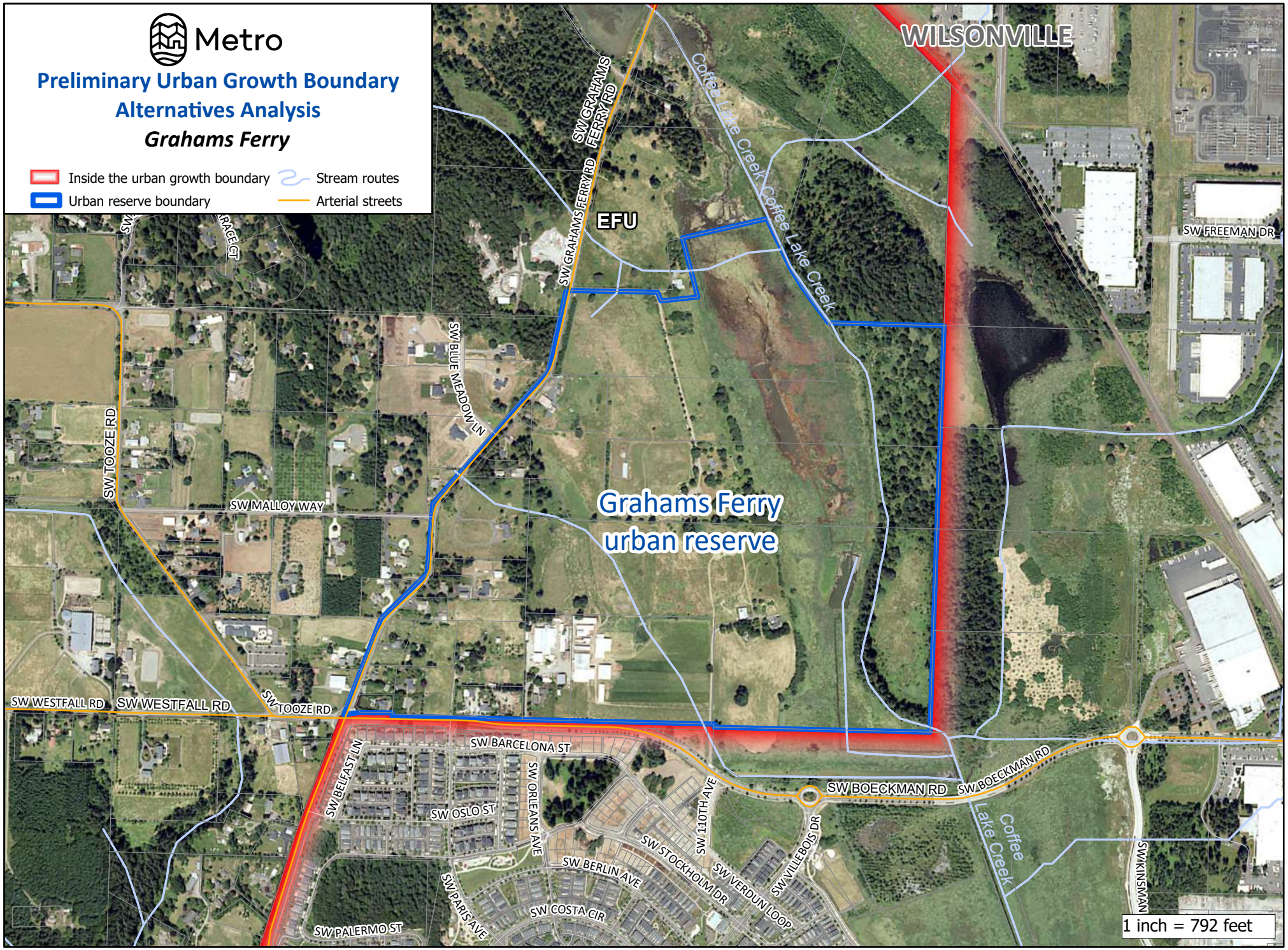
This analysis finds that there would be comparatively low social, energy, and economic consequences from urbanization of this reserve. The Grahams Ferry Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location sub-factor.

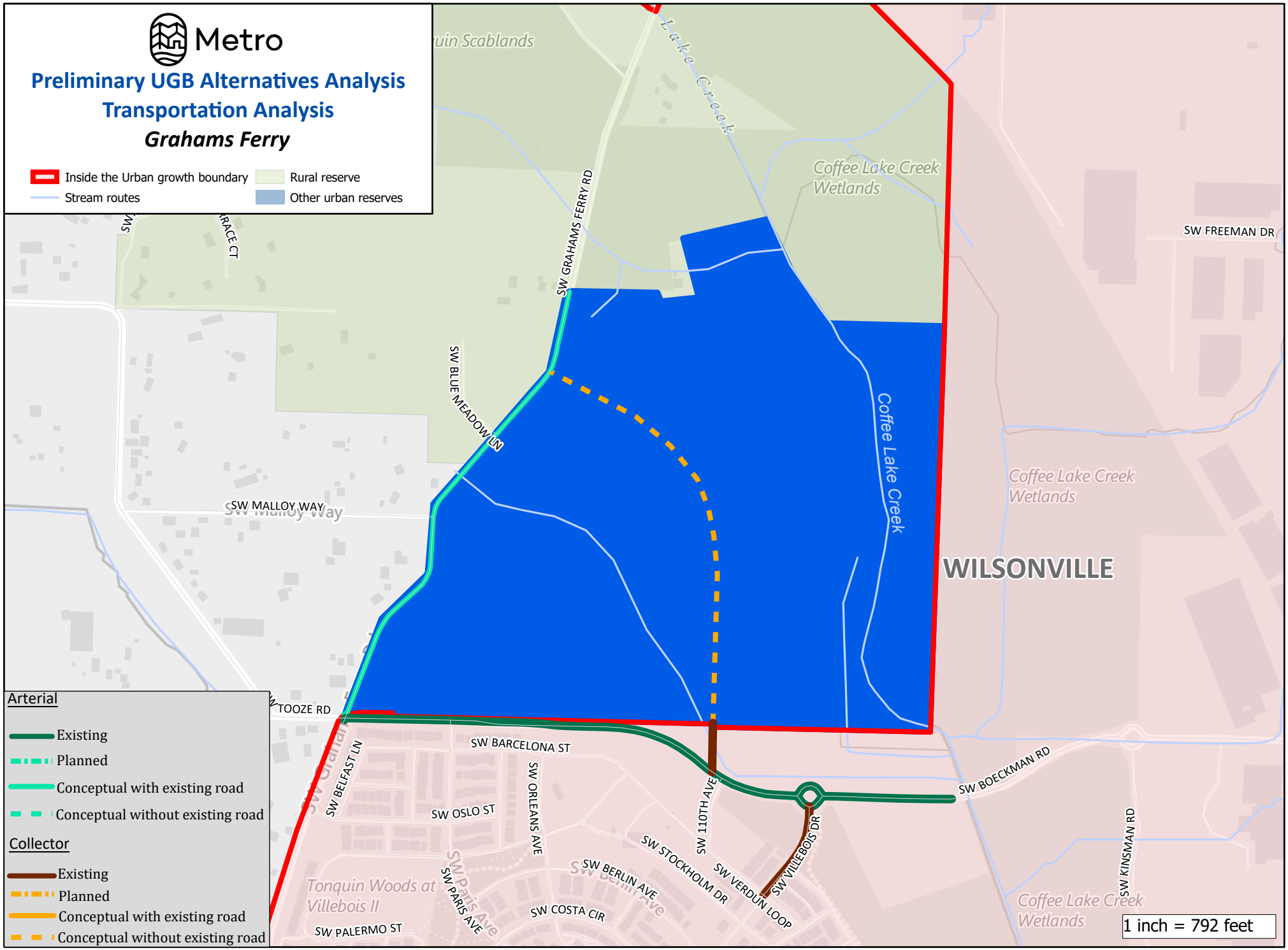
**Factor 4: Compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB**

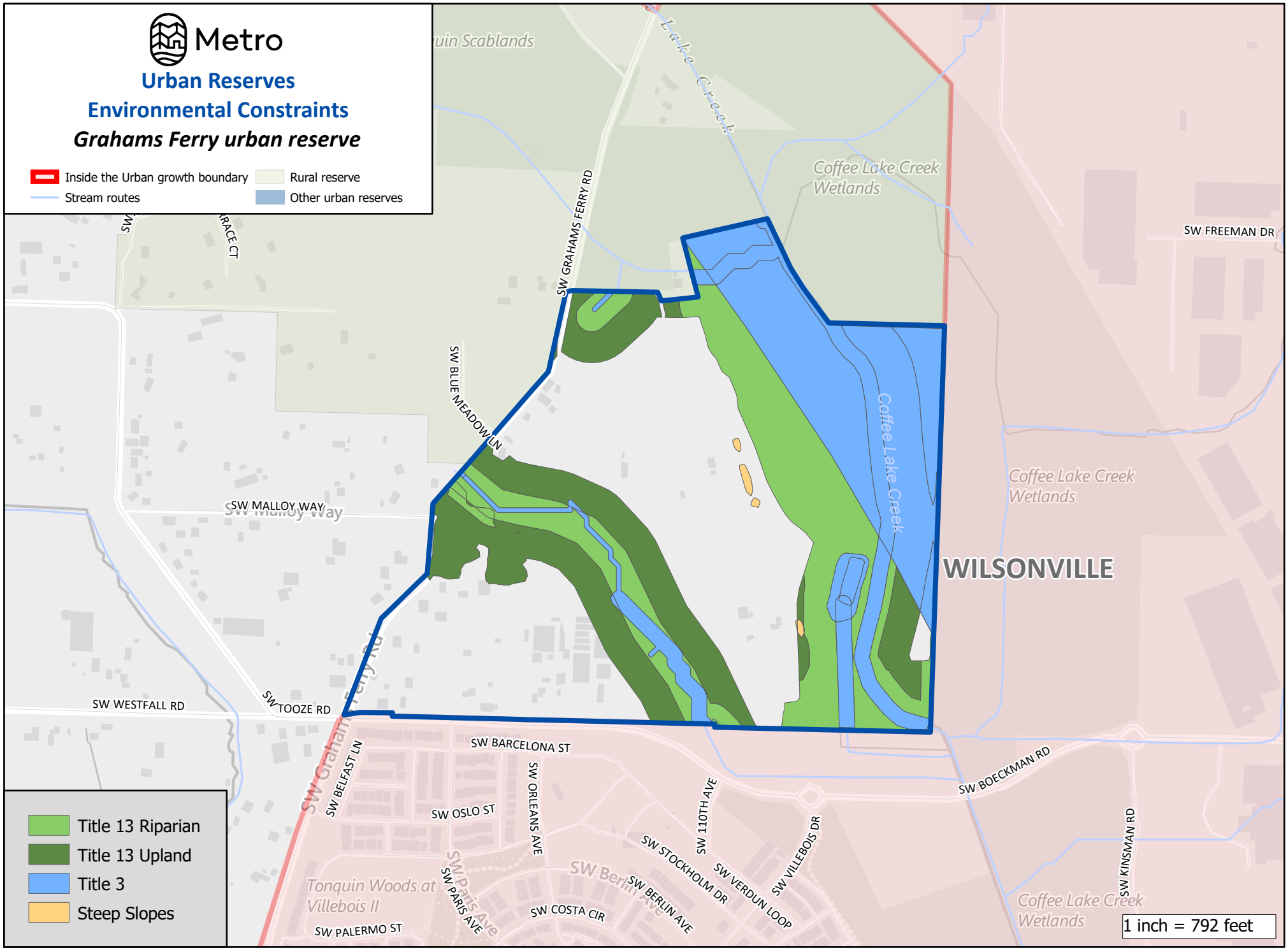
Lands outside the UGB bordering the north side of the Grahams Ferry Urban Reserve have Goal 3 zoning, specifically Exclusive Farm Use (EFU) zoning by Clackamas County. These lands do not have agricultural activities and, while there are some forested areas, the lands are owned by Metro and therefore unlikely to be used for commercial forestry. The EFU zoning extends west of SW Grahams Ferry Road, but these areas don't have agricultural activities either and some of these areas tax lots are also owned by Metro. A nearby forested tax lot is a privately-owned open space tract of a homeowners association. Considering the lack of the agricultural activities occurring on the adjacent EFU zoned land and Metro and homeowners association ownership, the proposed urban uses would be considered to have high compatibility with nearby agricultural and forest activities occurring on farm and forest land outside the UGB.

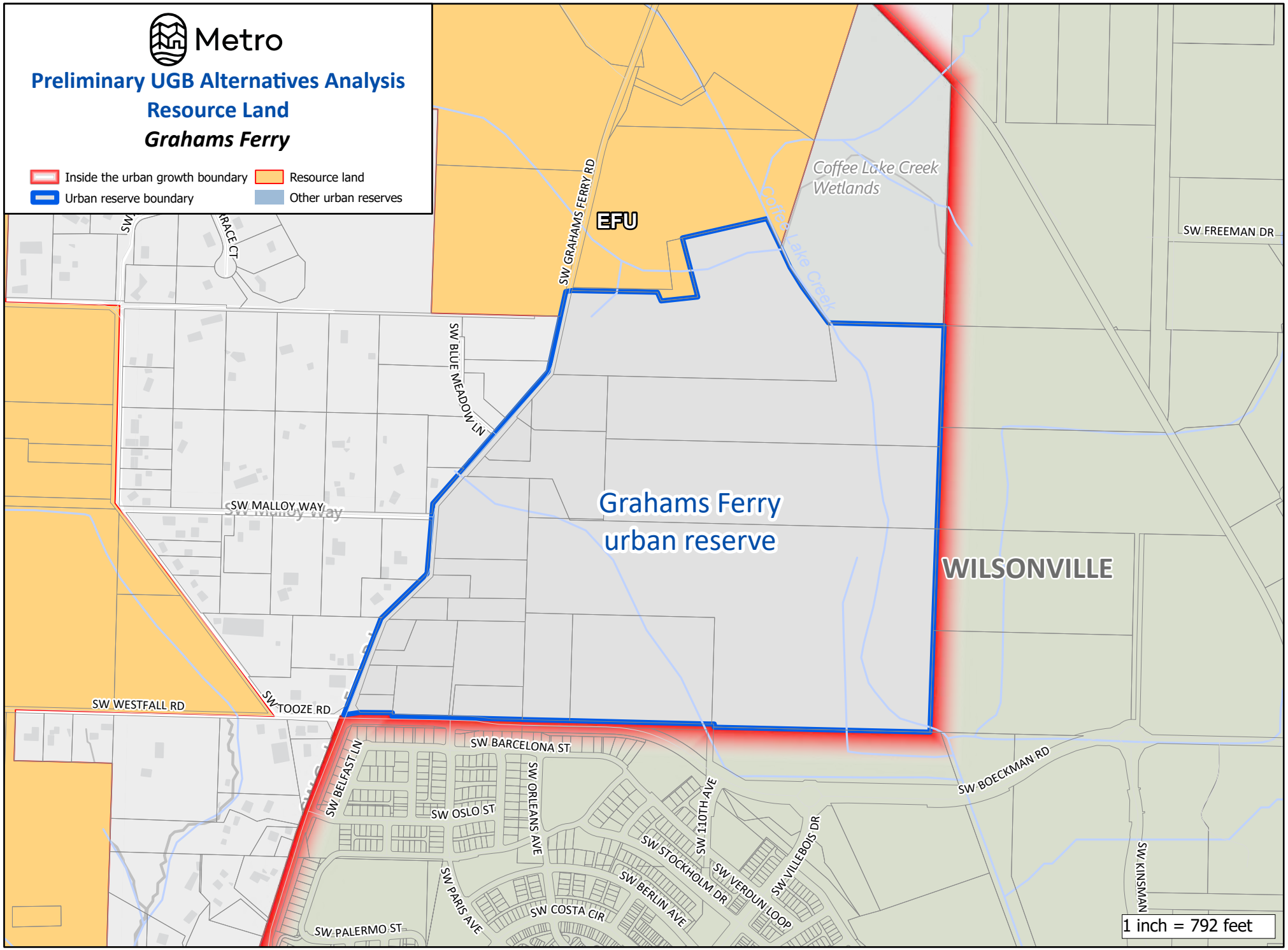
The Grahams Ferry Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location factor.











# GRESHAM EAST URBAN RESERVE

| | |
|---|---|
| Total Reserve Area | 857 acres |
| Total Tax Lot Area in Reserve (without Right-of-Way) | 799 acres |
| Gross Vacant Buildable Area | 630 acres |
| **Net Vacant Buildable Area** | **469 acres** |

The Gresham East Urban Reserve is a boot-shaped area adjacent to the east side of Gresham. The reserve is bounded by SE Lusted Road to the north, SE 302nd Avenue to the east, and the riparian areas of Johnson Creek to the south. The UGB is the reserve's western boundary, while the remainder of the reserve is bordered by rural reserves. Gresham East Urban Reserve is bisected by SE Orient Drive, SE Dodge Park Boulevard, SE Powell Valley Road, and SE Chase Road. The reserve is primarily flat, with all slopes over 25 percent only located along three of the four drainages that flow generally westward through the area.

## GOAL 14 BOUNDARY LOCATION FACTORS

### Factor 1: Efficient accommodation of identified land needs

The Gresham East Urban Reserve is comprised of 230 contiguous tax lots, all of which are practically entirely within the reserve and have a combined area of approximately 799 acres. More than 80 percent of the tax lots are five acres or less in size; more than 60 percent are smaller than two acres and only three tax lots, including one owned by a school district and another by the East Multnomah Soil and Water Conservation District, are greater than 20 acres. As noted above, the entire reserve contains 630 gross vacant buildable acres and 469 net vacant buildable acres.

According to aerial imagery, the area is predominantly in agriculture use, but intermixed with some rural residential uses as well as commercial land uses primarily along SE Dodge Park, SE Powell Valley Road, and SE Orient Drive. About 61 acres of the reserve are owned/occupied by the Gresham-Barlow School District facilities, including Sam Barlow High School, West Orient Middle School, East Orient Elementary School, and associated uses (e.g., sports fields). A 0.85-acre tax lot is owned by the City of Gresham and is used for a water service facility. Overall, 201 (87 percent) of the reserve's tax lots have improvements, with a median assessed value of those tax lots' improvements exceeding $316,000, even when excluding those tax lots that are publicly owned.

Highway 26 is less than a mile away from the south end of the reserve via SE 282nd Avenue and SE Stone Road. "As the crow flies," the nearest interstate, I-84, is nearly five miles away, Oxbow Regional Park is nearly three miles away, and Southeast Community Park is about a third of a mile away. TriMet Route 84 already has a stop adjacent to the west side of the reserve at the intersection of S Orient Drive and SE 282nd Avenue.

Limited commercial or employment development may be appropriate in some areas of the reserve, such as in the vicinity of SE Powell Valley Road, SE Dodge Park Boulevard, and SE Orient Drive, given these areas' relatively flat topography, existing commercial uses, and proximity to Highway 26 and existing transit. More significant residential development, however, could occur on the

reserve's agricultural lands in relatively close proximity to existing schools and other urban residential development. Some of the agricultural lands could also provide employment capacity, especially those that are closer to Gresham's Springwater Corridor Industrial area. Therefore, this area is considered capable of efficiently accommodating residential and employment land needs.

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

***Water Services***

With regard to water services, the Gresham East Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

The nearby lands in the UGB are also in the City of Gresham, which currently receives most of its water supply from Portland Water Bureau (PWB) Bull Run conduits. The remainder comes from groundwater through the Rockwood Water Public Utility District (RWPUD). The City of Gresham and RWPUD plan to transition away from purchasing water from PWB to local groundwater supply by the time their contract with the City of Portland expires in 2026. As a result, there are wells at various stages of planning and construction, with sufficient supply capacity to meet projected 2026 maximum daily demand (MDD) and two planned future wells to provide supply capacity to meet demands through 2050. Storage and pumping capacity are sufficient to meet current demands, but additional storage capacity will likely be needed to meet build-out to 2050 within the existing UGB. Pumping capacity and the piping network are considered adequate.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Lusted Water District currently services most of Gresham East Urban Reserve; however, the district does not have the capacity to serve the area at urban densities. Gresham also does not have existing supply and storage capacity to serve the reserve. Gresham's Powel and Barnes Pump Stations may have surplus capacity sufficient to serve urban development of the reserve. There are two planned mainline improvements in roadways near the reserve: a 16-inch diameter pipe in SE Orient Drive and a 12-inch diameter pipe in near the southern end of the URA boundary. Both of these service extensions are intended to serve the future Springwater service level, but it isn't clear whether they are sized adequately to provide service to the reserve as well; therefore, costs associated with upsizing this extension, if needed, are not included in the below figures.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

The supply and storage capacity improvements noted above would be needed to avoid negatively impacting services to areas already inside the UGB.

*d. Estimated water service-related costs for reserve development*

| Water piping, pumping, and storage costs | Cost |
|---|---|
| **10-inch pipe** | $7.40 million |
| **12-inch pipe** | $0 |
| **16-inch pipe** | $0 |
| **Pumping** | $0 |
| **Storage** | $0.62 million |
| **Total:** | **$8.02 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$854** |

### *Sanitary Sewer Services*

With regard to sanitary sewer services, the Gresham East Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Gresham's wastewater treatment facility, pipe network, and pump stations are generally considered appropriately sized to provide services to the area inside the UGB, including the Springwater area which is not yet annexed to the city. However, the City of Gresham 2019 Public Works Standards specify a rainfall derived infiltration and inflow (RDII) design rate of 1,000 gallons per net acre per day for new systems. The existing flow conditions for the five-year storm event is 4,070 gallons per net acre per day, indicating existing capacity deficiencies in the Upper Kelly Creek Basin Trunk.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Gresham's sanitary sewer master plan only covers full build-out within the current UGB and the wastewater treatment plant and pump stations have not been evaluated for their ability to serve areas outside the UGB. Nonetheless, if urban development of the Gresham East Urban Reserve were added to Kelly Creek Basin without appropriate improvements, there are presumed to be further capacity issues.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Full impacts to the existing facilities are unknown at this time. However, the capacity deficiencies in the Upper Kelly Creek Basin Trunk are not addressed, those deficiencies could be exacerbated by connecting urban development of the reserve and result in adverse impacts to existing facilities.

*d. Estimated sanitary sewer service-related costs for reserve development*

| Sanitary sewer piping and pumping costs | Cost |
|---|---|
| **10-inch pipe** | $7.98 million |
| **12-inch pipe** | $0 |
| **15-inch pipe** | $0 |
| **Pump station** | $5.58 million |
| **Force mains** | $0.71 million |
| **Total:** | **$14.27 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$905** |

### *Stormwater Management Services*

With regard to stormwater management services, the Gresham East Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

There is no indication of capacity issues with existing stormwater facilities that serve the land inside the UGB.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Development/redevelopment of impervious surfaces in the City of Gresham requires on-site stormwater management (i.e., water quality and flow control). Gresham East Urban Reserve contains portions of Johnson Creek, Kelly Creek, and Beaver Creek tributary. Based on topography, stormwater could likely be managed and discharge to these waterways without needing connection to public infrastructure. Because flow control would be required by future development, the capacity of the waterways themselves to receive stormwater from the urban development in the reserve should be adequate.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

As noted above, stormwater is expected to be conveyed, treated, and disposed of within the reserve; therefore, no impacts to existing facilities in the UGB are anticipated.

*d. Estimated stormwater service-related costs for reserve development*

| Stormwater piping and water quality/detention | Cost |
|---|---|
| **18-inch pipe** | $4.44 million |
| **24-inch pipe** | $2.47 million |
| **30-inch pipe** | $0 |
| **Water quality/dentition** | $7.70 million |
| **Total:** | **$14.61 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$1,555** |

### *Transportation Services*

With regard to transportation services, the Gresham East Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(e) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Figure 4.36 in Chapter 4 of the 2023 Regional Transportation Plan (RTP) displays 2020 home-based vehicle miles traveled (VMT) per capita by Metro transportation analysis zone, with average VMT per capita considered 11.32. According to Figure 4.36 in Chapter 4, areas in the City of Gresham's portion of the UGB adjacent to the Gresham East Urban Reserve had above average and significantly above average home-based VMT per capita in 2020. Other areas of Gresham had average, below average, and significantly below average VMT per capita in 2020.

Metro's adopted 2040 Growth Concept Map designates a regional center and a separate town center in Gresham. Regional centers are generally meant to: serve populations of hundreds of thousands of people; surround high-quality transit service and multi-modal street networks; and offer larger commercial uses, healthcare facilities, local government services, and public amenities. Town centers are meant to: serve populations of tens of thousands of people; offer more locally-focused retail uses and public amenities; and be well served by transit. The Gresham Regional Center, comprised of Gresham's Historic Downtown and its Civic Neighborhood, and the Rockwood Town Center align with these Growth Concept intentions.

The city's "One Gresham" initiative aims to have these centers serve as foci for commerce, public services/events, healthcare, placemaking, entertainment, and denser, mixed-use, vertical development. These centers are already largely built out and include grocery stores, other retail commercial uses, banks, large office tenants, healthcare facilities, mixed-use housing, and other residential uses. The regional center includes the Gresham Central Transit Center at the eastern terminus of the MAX Light Rail Blue

Line; the Blue Line has other stops in Gresham as well, including at the town center, and continues on to Portland. Numerous TriMet bus routes, including frequent bus routes, connect the regional center to other parts of Gresham and the region. Two largely-developed 2040 Growth Concept centers connected to other areas of Gresham and the region via light rail and bus service, the city's priorities in its "One Gresham" initiative, and the availability of bike lanes and sidewalks as detailed below demonstrate that growth in the Gresham portion of the current UGB will not necessarily cause a significant increase in home-based VMT per capita in the future.

As noted above, the MAX Blue Line has multiple stops in the adjoining Gresham portion of the UGB, with stops in the regional and town centers and in other neighborhoods. Gresham is also served by nearly a dozen TriMet bus routes, including several routes that are classified as having frequent or regular service. TriMet Route 84 connects the regional center to the edge of the UGB at the intersection of SE 282nd Ave and SE Orient Drive. Nonetheless, Figure 4.3 in Chapter of the 2023 RTP indicates that there are gaps in planned frequent transit service along certain north-south streets, such as 162nd and 181st Avenues.

Gresham has a well-defined bike network in the UGB that consists of a variety of bike facilities. There are approximately 48 miles of dedicated bike lanes and 16 miles of bikeways, such as the Springwater Corridor and the Gresham to Fairview Trail. Still, Figure 4.5 in Chapter 4 shows that there are gaps in the planned regional bike network along Burnside Street, Division Street, Orient Drive, and other areas.

Gresham also has a fairly well-defined pedestrian network in its regional and town centers and residential areas, although there a few neighborhoods of post-war housing where there are no sidewalks. Some employment and butte areas have less of an established pedestrian network as well. Figure 4.4 in Chapter 4 of the RTP indicates there are gaps in the planned regional pedestrian network along Division Street and Orient Drive.

The Springwater Trail is an existing regional trail that connects Gresham to other areas currently inside and outside the UGB. There are other regional trail sections in Gresham identified in Figure 4.6 in Chapter 4 of the RTP.

Figure 4.14 in Chapter of the 2023 RTP identifies several high injury corridors in the area already inside the UGB in Gresham, including Burnside Road, Division Street, Orient Drive, Powell Boulevard, and Stark Street. The figure also identifies the intersection of Stark Street and 275th Avenue, as well as intersections along Burnside Street and Highway 26, as high injury intersections within the UGB and within about five miles of the reserve.

Burnside Street/Highway 26 is also already inside the UGB, running through the City of Gresham. The route is identified as a throughway Chapter 4, Figure 4.7 of the 2023 RTP. Figure 4.8 of that chapter indicates that it currently meets travel speed reliability

performance thresholds, with no more than four hours per day when travel speeds fall below the identified minimum speed. RTP models indicate this reliability will continue at least to the year 2045.

### *b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Highway 26, an RTP-designated throughway, is less than a mile away from the south end of the reserve via SE 282nd Avenue and SE Stone Road. As noted above, the portion of the highway near the reserve currently meets travel speed reliability performance thresholds.

There is currently no transit service into the reserve itself, though TriMet Route 84 connects Gresham's regional center to the western edge of the reserve at the intersection of SE 282nd Ave and SE Orient Drive.

While the Springwater Corridor Trail is just under a mile away from the reserve, but on the opposite side of Highway 26. There are also no bike facilities adjacent to or within the reserve itself. SE Chase, SE 302nd Avenue, and SE Short Road have been considered "helpful connections" and SE Lusted Road, SE Dodge Park Boulevard, and SE Orient Drive have been considered "bike with caution" routes.

Some residential subdivisions adjacent to the northwest of the reserve have sidewalks along their roads, including one, SE Teal Drive, that stubs directly to the reserve. Otherwise, there are no other sidewalks connecting to the reserve.

If the reserve were to be developed with employment uses, as considered possible in response to Factor 1, existing urban residential uses adjacent to the reserve could provide close-proximity housing to those uses' employees, helping somewhat to limit home-based VMT per capita. Having existing school facilities in and near the reserve could help to limit future residents' VMT as well. However, without additional transit connections, and unless the reserve is developed with employment and other service uses, the reserve's future residents will likely have to rely on private motor vehicles to access employment opportunities and their daily needs.

### *c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Portions of SE Lusted Road, SE Chase Road, SE Orient Drive, and SE 282nd Avenue within the UGB would be expected to see additional private vehicle traffic from development of the reserve. Indeed, the reserve is moderately distant from the regional center and currently lacks frequent transit service, bike, and pedestrian facilities to it, suggesting the need for private motor vehicle use on these roadways. However, as noted in response to Factor 1, the reserve is considered able to accommodate both residential and employment uses. If the reserve itself were to be developed with a mixture of uses, future residents could get more of their daily needs met locally without having to drive as much on roads already in the UGB. The existing school uses in the reserve will also help to limit driving by new residents on roads already in the UGB. Moreover, nearby

residences in the current UGB could provide housing to employees of the reserve, and new employment uses in the reserve could provide jobs for nearby residents of the current UGB, further limiting traffic impacts on roads already in the UGB.

With these considerations, development of the reserve may result in only moderate impacts to home-based VMT per capita in nearby areas already inside the UGB and the performance of Highway 26 as a throughway. Any additional motor vehicle traffic on Burnside Road, Division Street, Orient Drive, Powell Boulevard, and Stark Street resulting from development of the reserve, however, may exacerbate these roadways' high-crash conditions.

The dedicated bike lane on SE Powell Valley Road may see additional use if the portion of SE Lusted Road within the reserve is upgraded to urban standards with connecting bike facilities; however, there still will be a half-mile-long gap between SE Powell Valley Road and the improved SE Lusted Road, potentially limiting the existing bike lane's use.

The sidewalks in neighboring low density residential subdivisions in the UGB may see additional use with development of the reserve.

### *d. Need for major transportation facility improvements and associated costs*

A roughly 0.88-mile-long portion of SE Lusted Road at the north of the reserve, as well as a 0.41-mile-long portion of and SE 282nd Avenue at the west of the reserve, will likely need to be improved to urban arterial standards, including with acquisition of some additional right-of-way. SE 282nd Avenue improvements are considered for the purposes of this preliminary analysis to be half-street improvements, as property on some of its west side is already within the UGB. A 1.04-mile-long portion of SE Orient Drive, which crosses through the southern half of the reserve, would also likely need to be improved to urban arterial standards. A 0.11-mile-long portion of SE Chase Road crossing through the northern half of the reserve, and a 1.4-mile-long portion of SE 302nd Avenue would be improved to urban collector standards. Because the terrain where much of these transportation facility improvements would be located is relatively flat, normal per-mile costs are mostly expected.

| Facilities | Cost |
|---|---|
| **Arterials, existing/improved full street** | $86.59 million |
| **Arterials, existing/improved half street** | $11.37 million |
| **Arterials, new** | $0 |
| **Collectors, existing/improved full street** | $60.05 million |
| **Collectors, existing/improved half street** | $0 |
| **Collectors, new** | $0 |
| **Total:** | **$158.02 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$16,829** |

*e. Provision of public transit service*

TriMet evaluated the reserve for providing transit service. TriMet could provide services to the reserve, although there is no guarantee of service. Actual service depends on the level of development in, and in the corridors leading to, the reserve. Service could be provided at 30-minute headways through a route change to a conceptual service in TriMet's 2045 Network Vision with three additional buses at a capital cost of $3,000,000 – $4,500,000 (recurs every 12 years). The additional annual service cost is $1,254,240 and grows with inflation each year.

Prior to land being included in the UGB, a more detailed concept plan, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11, will be required. This concept plan process will develop more refined public facility and service needs and cost estimates.

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

### *Environmental consequences*

There are four streams that flow west through the Gresham East Urban Reserve. In the north, two tributaries to Beaver Creek have forested riparian habitat along the majority of their stream corridors, as well as some upland habitat identified near the stream closest to Sam Barlow High School. Similarly, Kelley Creek, which flows through the middle of the reserve, is entirely within a forested riparian habitat corridor. The fourth small stream in the southern part of the reserve flows into Johnson Creek, which travels through Gresham and Portland to the Willamette River. This stream has less riparian habitat when compared to the other three streams. It also flows through some agricultural lands and appears to be piped in a few locations.

No "100-year" floodplains are identified within the reserve. There is one small National Wetland Inventory (NWI) wetland of approximately a quarter acre in size just south of SE Orient Drive along the Johnson Creek tributary.

The proximity of flat, developable land adjacent to all four streams within the reserve indicates meaningful potential impact from urbanization of reserve, especially if there are new north-south transportation connections. Addition to the UGB does bring enhanced protection for streams, wetlands, and habitat areas, and the presence of a significant existing vegetated riparian corridor along Kelley Creek and the northern tributaries may help reduce the potential impacts of urban development. Restoration of degraded stream edges could improve the environmental conditions for the portion of the southern stream that flows through active farmland.

This analysis finds, however, that urbanization of this reserve would have comparatively moderate to high impact on the stream corridors and habitat areas, depending on needed transportation connections. Additional environmental consideration, specifically regarding

avoidance of conflict between urban development and regionally significant fish and wildlife habitat, is provided in the Metro Code Factors Analysis (Appendix 7A).

Considering the comparative environmental consequences of urbanization, the Gresham East Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location sub-factor.

### *Social, energy, and economic consequences*

While there are a number of rural residences in the Gresham East Urban Reserve, including those in a few small platted rural residential subdivisions, they are generally clustered in certain areas, such as near school and rural commercial land uses. There is adjacent urban residential development to the west of the reserve, but there are few connections to that development from the reserve itself. Urbanization, particularly larger-scale developments on the flatter agricultural lands of the reserve, could cause some change in sense of place for the reserve's existing residents and some degradation of a more rural lifestyle. However, existing development and smaller parcel sizes in some areas may slow that development in certain locations. Moreover, urbanization of the reserve could bring new social, educational, and recreational opportunities for existing residents.

Of the three schools located in the urban reserve, the elementary and middle schools generally serve the surrounding 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 if they are not sized to serve an urban population. At the same time, urbanization may provide the opportunity for these two smaller school facilities to be enhanced.

As detailed more fully in response to Factor 2, urbanization of the reserve may not necessarily cause significant increases in VMT, particularly if the reserve were to be developed with a mixture of uses that allows existing and future residents to access daily needs closer to home. Limiting VMT will also help to limit adverse energy consequences.

There is a substantial amount of agricultural activity occurring in the reserve, including large commercial nursery operations and field and row crops. The economic consequences from urbanization in terms of a loss in farming activity in the reserve could be considerable; however, that loss may be outweighed by the economic benefits of residential and/or employment development, which could also be considerable given the amount relatively flat and easily developable land.

Overall, there would be comparatively moderate social, energy, and economic consequences from urbanization of this reserve. The Gresham East Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location sub-factor.

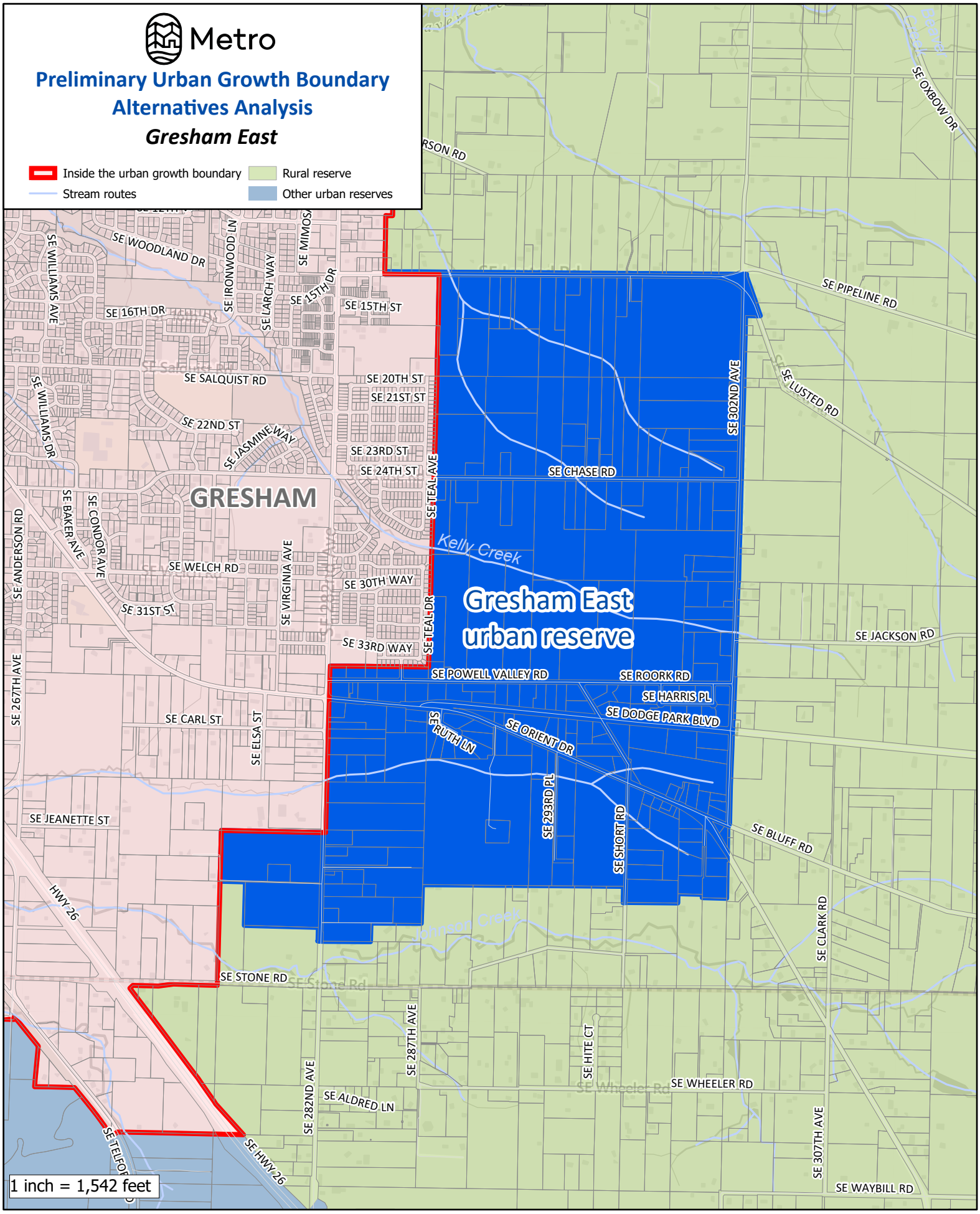
**Factor 4: Compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB**

Goal 3 agricultural lands, specifically lands zoned Exclusive Farm Use (EFU) by Multnomah County, border the Gresham East Urban Reserve in three locations outside the UGB.

The first location is to the east of the reserve on the opposite side of SE 302nd Avenue, where EFU-zoned lands border the reserve for approximately 2,500 feet near the intersection with SE Chase Road. These EFU-zoned lands are nearly entirely in agricultural production for field crops and nursery stock, though there are a couple of rural residences. There are no significant stands of trees in this location. The proposed urban uses would not be compatible with these agricultural activities, in part because 302nd Avenue does not provide an adequate buffer between the two uses and conflicts related to safety, liability and vandalism and complaints due to noise, odor, dust, and the use of pesticides and fertilizer could occur. The improvement of SE 302nd Avenue to urban standards, and associated street light illumination and bicycle and pedestrian movements, may further jeopardize the compatibility of the two uses, though the impacts of urban roadways on adjacent agricultural activity may be minimized through road design. Urbanization of the reserve would increase traffic on SE 302nd Avenue and SE Chase Road, which could impact the movement of both farm equipment and goods. Therefore, proposed urban uses are considered incompatible with the nearby agricultural activities occurring on the EFU-zoned land to the east.

The second and third locations are at the south of the reserve where there are EFU-zoned lands along Johnson Creek. Here, there are two pockets, each smaller than 10 acres, of agricultural activities occurring on the land north of Johnson Creek. A portion of the western pocket west of SE 282nd Avenue is in the same ownership as agricultural land inside the reserve. It may not be economically viable for this small pocket to continue in agricultural production if the land under the same ownership to the north and in the reserve is urbanized. The majority of the agricultural activity in this area occurs south of Johnson Creek and north of Highway 26 and will not be directly impacted by urbanization of the reserve. However, increased traffic along SE Stone Road will probably have some adverse effects, as SE Stone Road provides access to Highway 26. The proposed urban uses are mostly compatible with the agricultural activities occurring on this farmland, with the exception of the one small pocket north of Johnson Creek that would warrant buffering from the urban uses.

This analysis finds that the proposed urban uses are considered to have low compatibility with the nearby agricultural and forest activities occurring on farm and forest land outside the UGB. The Gresham East Urban Reserve is given a “low” score in Attachment 3 for this Goal 14 boundary location factor.

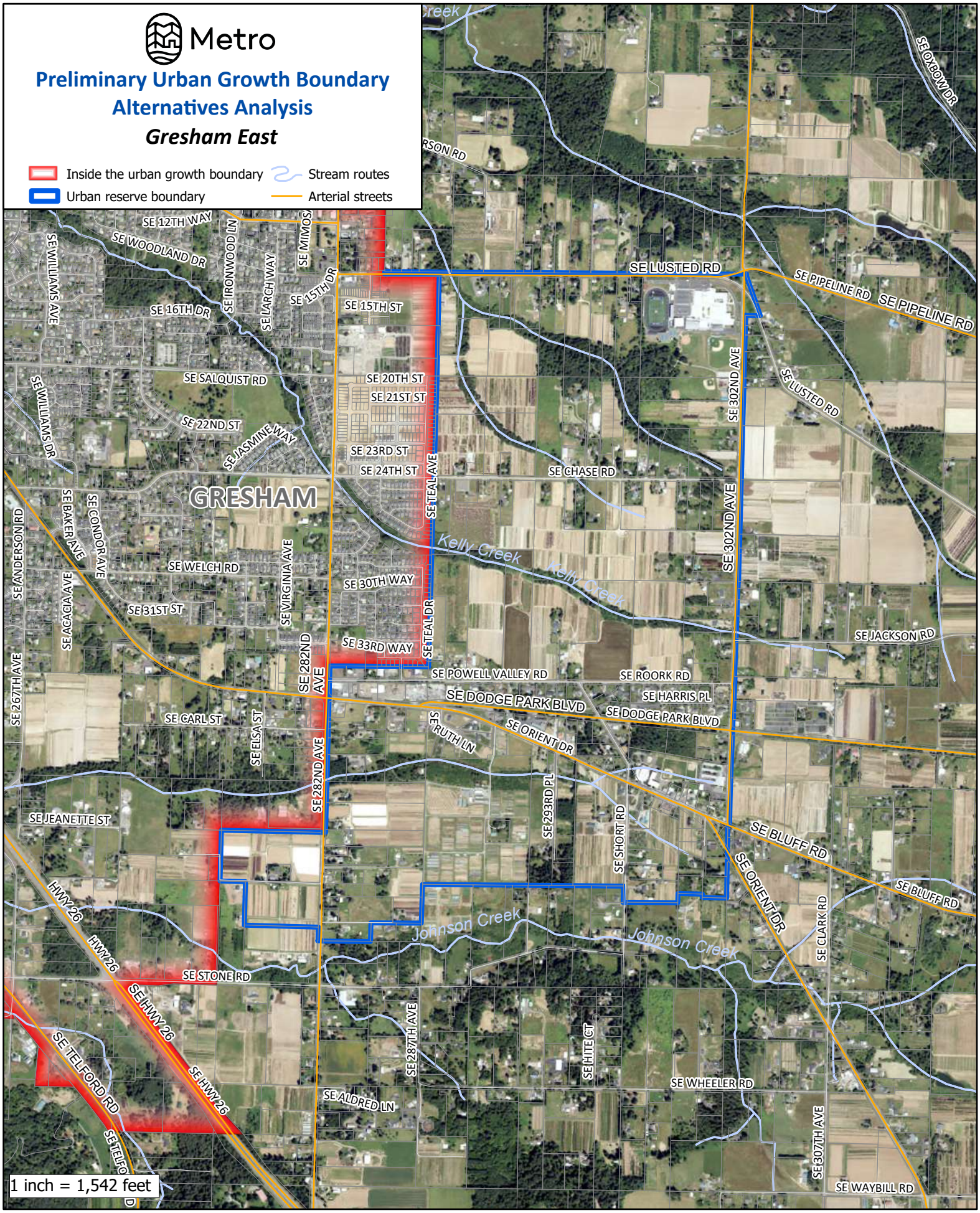


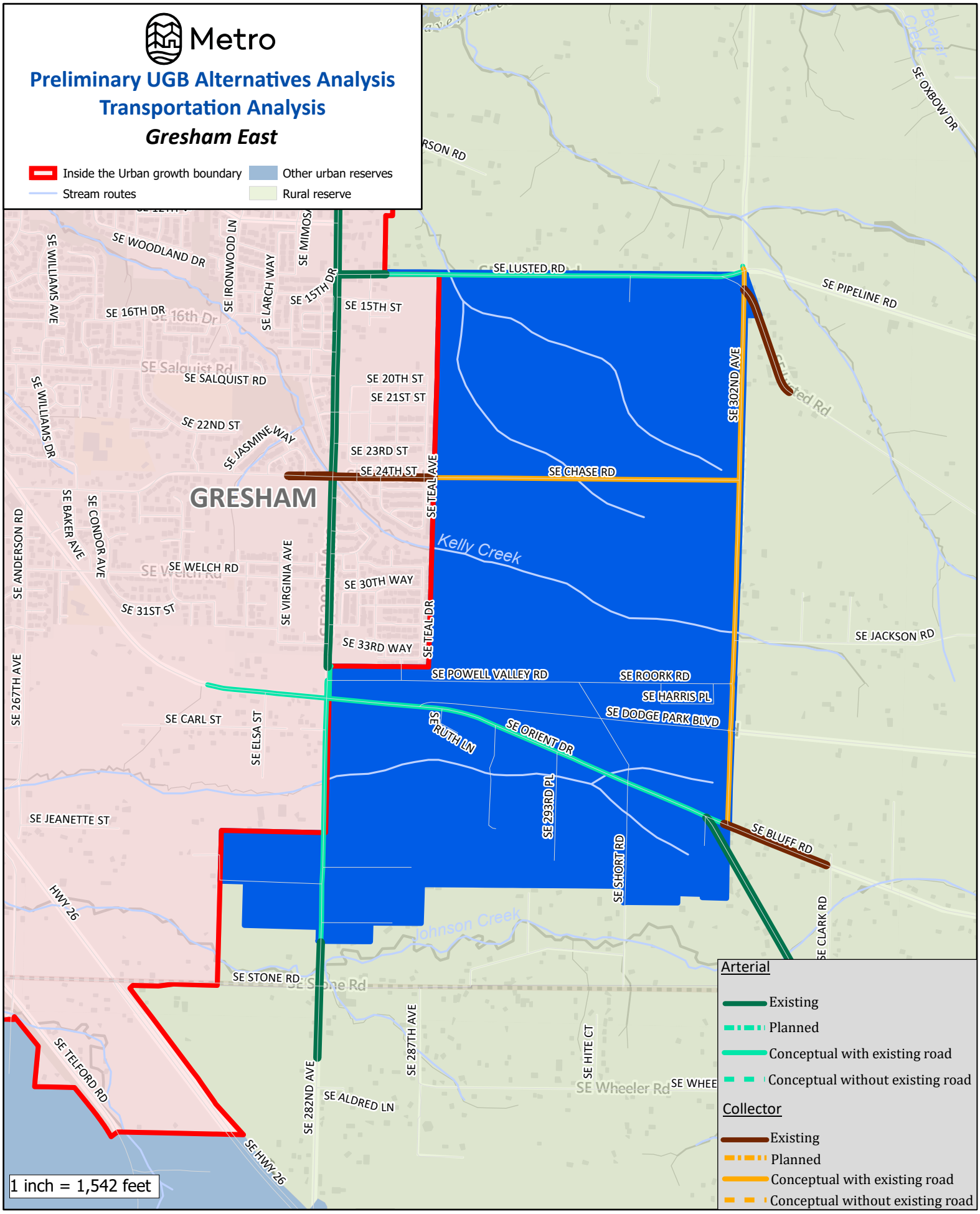
Metro

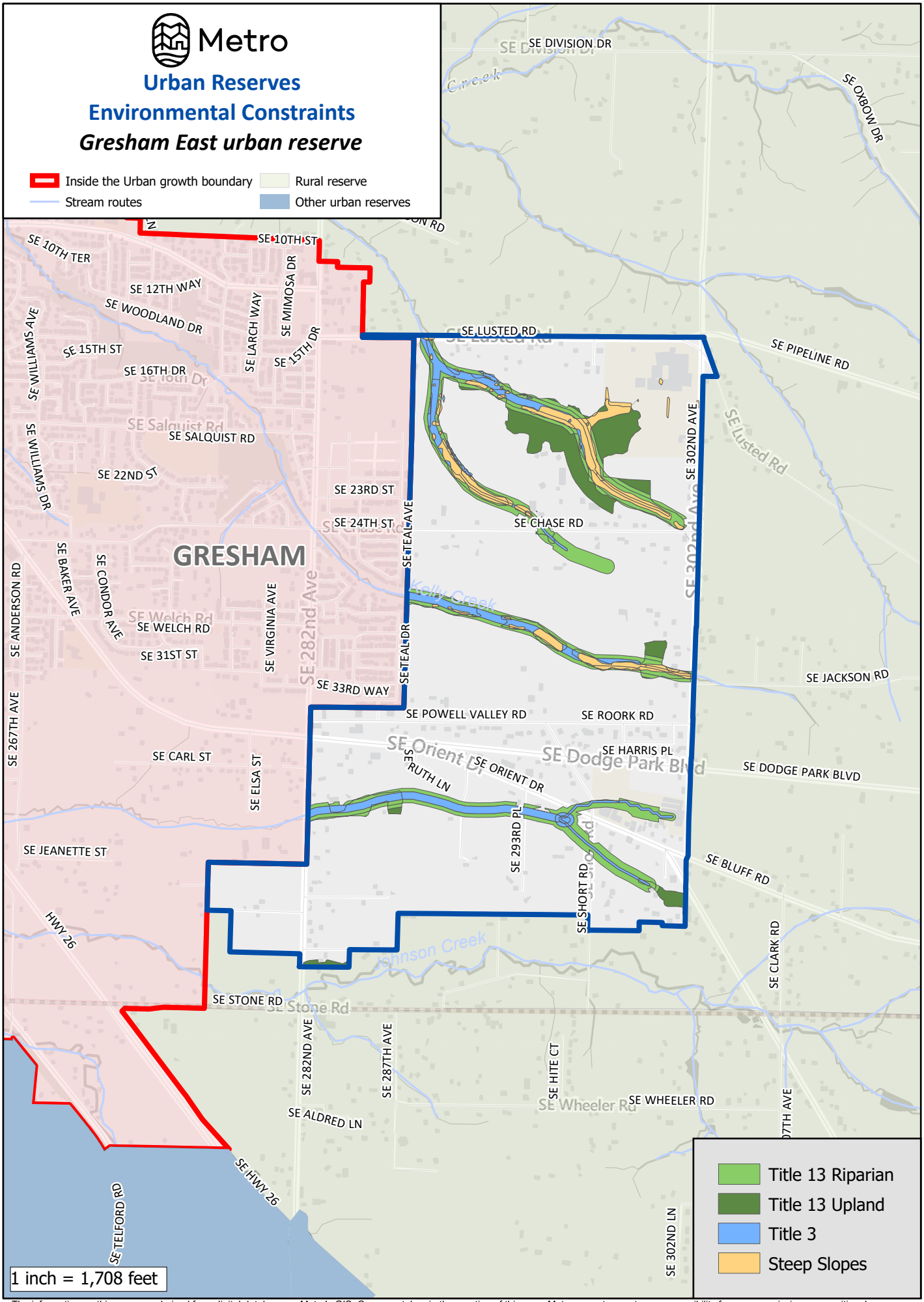
# Preliminary Urban Growth Boundary Alternatives Analysis

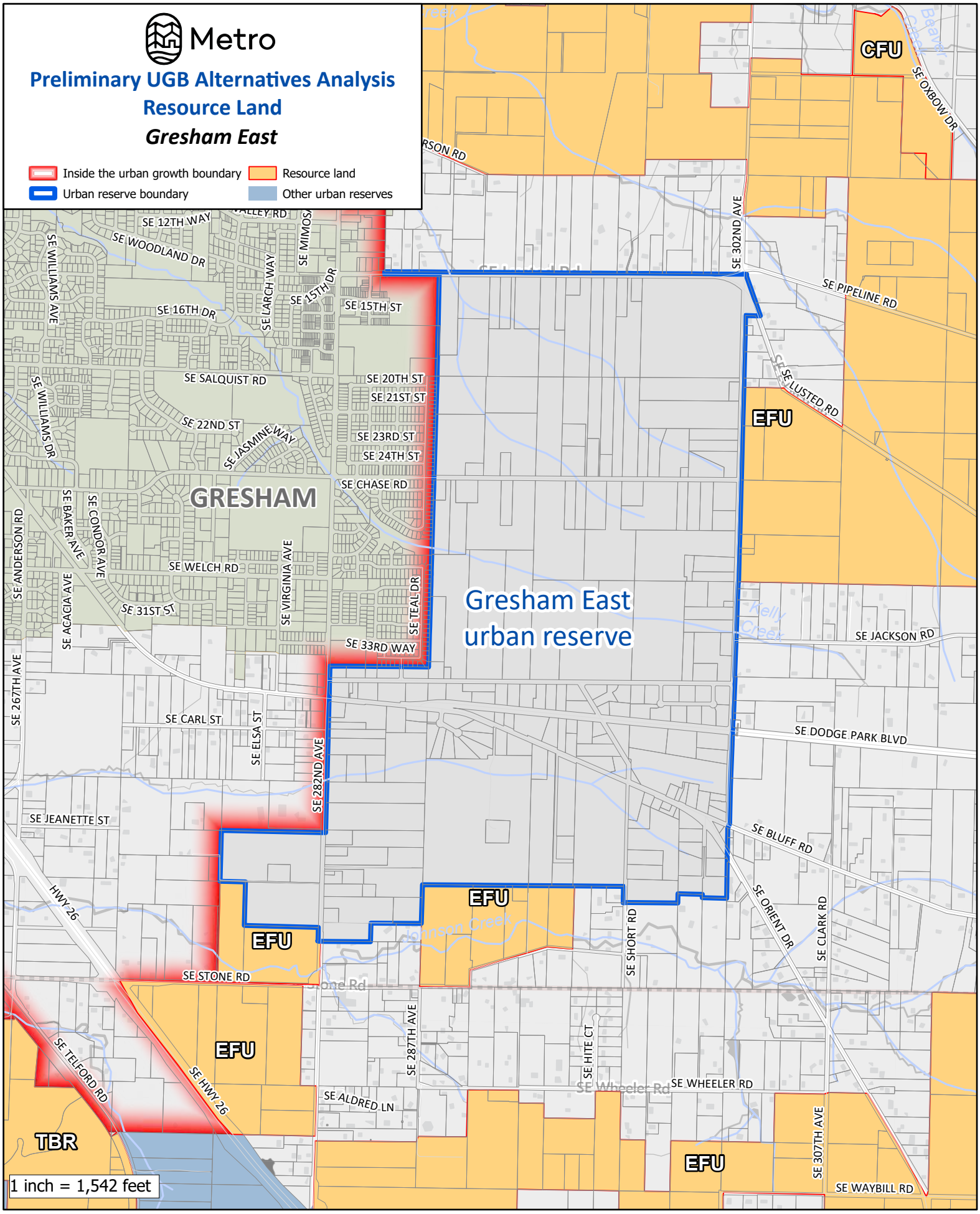
## *Gresham East*

Inside the urban growth boundary
Urban reserve boundary
Stream routes
Arterial streets









## HENRICI URBAN RESERVE

| | |
|---|---|
| Total Reserve Area | 422 acres |
| Total Tax Lot Area in Reserve (without Right-of-Way) | 395 acres |
| Gross Vacant Buildable Area | 301 acres |
| **Net Vacant Buildable Area** | **224 acres** |

The Henrici Urban Reserve is a somewhat rectangularly shaped area adjacent to the southeast end of Oregon City. The reserve is bisected by S Henrici Road, S Beavercreek Road, and Highway 213, and its northern boundary is the UGB. The reserve is primarily flat, with the exception of its very western edge and its the northeast corner, areas which contain forested steep slopes above Beaver Creek and Thimble Creek, respectively.

## GOAL 14 BOUNDARY LOCATION FACTORS

### Factor 1: Efficient accommodation of identified land needs

The Henrici Urban Reserve is comprised of 354 tax lots, all of which are practically entirely within the reserve and have a combined area of approximately 395 acres. Roughly 75 percent of the reserve's tax lots are less than one acre in size; 14 are greater than five acres, and three are greater than 10 acres. As noted above, the entire reserve contains 301 gross vacant buildable acres and 224 net vacant buildable acres. The reserve is entirely contiguous, except for one 1.13-acre tax lot that is disconnected from the rest of the reserve and located west of Highway 213 near its intersection with Edgemont Drive.

According to aerial imagery, most of the reserve's tax lots are developed with rural residential land uses, though a few appear to have minor agricultural activities. There are also a few places of worship on tax lots totaling more than 20 acres, as well as water storage facilities owned by the City of Oregon City and Clackamas River Water (CRW) and, at the corner of S Henrici Road and Highway 213, a 0.81-acre tax lot owned by the State of Oregon. The Oregon City School District owns three tax lots totaling more than 16 acres in the vicinity of S Meadow Avenue and S Old Acres Lane. The Beavercreek Cooperative Telephone Company offices are located on a 2.5-acre tax lot along S Henrici Road and the El Paso Natural Gas Company owns a half-acre tax lot for one of its facilities at the corner of Highway 213 and S Henrici Road. Overall, 308 of the tax lots in the reserve have assessed improvements, with a median assessed value of those tax lots' improvements exceeding $279,000.

The reserve is served by Highway 213, but is approximately five miles from the nearest interstate, I-205. Clackamas Community College and Oregon City High School are less than a mile away, and the reserve is adjacent to the Oregon City Golf Club. The reserve is generally flat with only two locations of slopes greater than 25 percent located at the reserve's edges. While this topography might provide the opportunity for employment land uses, the large number of small parcels and existing residential and institutional development, as well as the reserve's distance from I-205, reduce the attractiveness of the area for new employment uses. The existing rural residential

development pattern and nearby school and recreational uses could be consistent with and support future residential development, and the school district's property within the reserve could provide a focal point for the neighborhood whenever developed with a new school use. Therefore, this area is able to accommodate a residential land need.

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

### *Water Services*

With regard to water services, the Henrici Urban Reserve is given a "low" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

The City of Oregon City serves lands within their corporate boundary, while lands within the jurisdiction of Clackamas County are served by Clackamas River Water (CRW). Both Oregon City and the CRW South System receive water from the South Fork Water Board (SFWB). SFWB's water treatment process includes flocculation, sedimentation, filtration, and chlorination of raw water from the Clackamas River to remove harmful bacteria. There are currently no known major treatment system deficiencies.

The city has annexed the Beavercreek UGB expansion area to the southwest. While the City is adequately served elsewhere, they may lack water storage necessary to fully serve urban development of these annexed areas. CRW is considered to have adequate capacity to serve lands still within the jurisdiction of Clackamas County in this vicinity and other customers; though the Beavercreek service area showed a storage deficiency of 0.31 MG in 2019 in the interim of building the new Beavercreek reservoir, it is anticipated to bring on sufficient storage. Under current conditions, there is a segment of distribution line identified with high head loss, indicating deficient pipe capacity. There are no known pumping deficiencies in the area.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

CRW has done planning for service to the area of the urban reserve, and the Henrici Urban Reserve is in CRW's service area. However, CRW will not likely be the service provider once the reserve is annexed to a city (i.e., Oregon City) and urbanized. Rather, when Oregon City annexes the reserve, the city will likely take ownership of any water related infrastructure within the area, except potentially for facilities that are needed to go beyond the annexed area, such as large-scale transmission lines. Accordingly, CRW, like many water service providers, may be cautious about investing in improvements for currently rural areas that may one day be annexed to cities. CRW is expected to build a new storage reservoir in the near future, which result in a storage surplus. Oregon City has plans to build reservoirs that could serve urban reserves, but no timeline is available at this time. While there is some surplus pumping capacity that could be

available to serve urban development of the reserve, once annexed to the city, that surplus may be insufficient and additional pumping facilities may be necessary. The distribution system may also continue to experience head loss challenges if not addressed.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

As noted above, new facilities for storage and pumping facilities will likely be needed to avoid system capacity deficits.

*d. Estimated water service-related costs for reserve development*

| Water piping, pumping, and storage costs | Cost |
|---|---|
| **10-inch pipe** | $5.18 million |
| **12-inch pipe** | $0 |
| **16-inch pipe** | $0 |
| **Pumping** | $8.7 million |
| **Storage** | $0.3 million |
| **Total:** | **$14.18 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$3,162** |

### *Sanitary Sewer Services*

With regard to sanitary sewer services, the Henrici Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Oregon City provides sanitary sewer service to properties within its corporate limits, as well as to some properties that are already in the UGB but still in unincorporated Clackamas County. Wastewater flows to the Tri-City Sewer District (TCSD) trunks, interceptors, and, eventually, the Tri-City Water Resource Recovery Facility (WRRF), all of which are owned and operated by Water Environment Services (WES).

Some surcharging, ranging from minor to severe, exists throughout the existing City collection system. There are also known capacity deficiencies in several locations in the WES system. Two of the 12 existing pump stations (Settler's Point and Cook Street) have existing peak flows that exceed their firm capacity; however, there are no pump stations currently serving or needed to serve Pressure Zone B, which includes the area of the Henrici Urban Reserve.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Additional growth beyond the current UGB is going to challenge the existing sanitary sewer system due to the existing deficiencies and limited capacity of major treatment and conveyance facilities.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Development of the reserve is expected to contribute to further surcharging. Additional interceptor capacity could be required to serve urban development of the reserve in order to reduce potential adverse impacts to areas already inside the UGB.

*d. Estimated sanitary sewer service-related costs for reserve development*

| Sanitary sewer piping and pumping costs | Cost |
|---|---|
| **10-inch pipe** | $5.12 million |
| **12-inch pipe** | $0 |
| **15-inch pipe** | $0 |
| **Pump station** | $0.54 million |
| **Force mains** | $0.21 million |
| **Total:** | **$5.87 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$1,308** |

### *Stormwater Management Services*

With regard to stormwater management services, the Henrici Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(d) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

While the City of Oregon City's 2019 Stormwater Master Plan identifies certain system issues related to flooding, infrastructure, maintenance, or natural channels, the Beaver Basin, which includes the area around the Henrici Urban Reserve, does not contain any existing stormwater infrastructure, as the topography allows for flows to go south away from city limits toward Beaver Creek, which then flows west and outfalls to the Willamette River. There are no known capacity deficiencies with this area's stormwater management system.

*b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

The system issues noted above could be exacerbated if future Henrici Urban Reserve development is connected to that system. However, capital improvement projects are planned for that existing system and stormwater from Henrici Urban Reserve

development would likely outfall directly to Beaver Creek and thus not impact that existing system infrastructure.

*c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Stormwater will likely be detained and treated within the reserve and, based on topography, outfall directly to Beaver Creek; therefore, no impacts to the existing stormwater infrastructure in the UGB are anticipated.

*d. Estimated stormwater service-related costs for reserve development*

| Stormwater piping and water quality/detention | Cost |
|---|---|
| **18-inch pipe** | $0.56 million |
| **24-inch pipe** | $0 |
| **30-inch pipe** | $0 |
| **Water quality/dentition** | $5.96 million |
| **Total:** | **$6.52 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$1,453** |

### *Transportation Services*

With regard to transportation services, the Henrici Urban Reserve is given a "medium" score in Attachment 3 for this Goal 14 boundary location factor, for the reasons detailed in (a)-(e) below.

*a. Capacity of existing facilities to serve areas already inside the UGB*

Figure 4.36 in Chapter 4 of the 2023 Regional Transportation Plan (RTP) displays 2020 home-based vehicle miles traveled (VMT) per capita by Metro transportation analysis zone, with average VMT per capita considered 11.32. According to Figure 4.36 in Chapter 4, areas in the UGB adjacent to the Henrici Urban Reserve had above average and significantly above average home-based VMT per capita in 2020.

Metro's adopted 2040 Growth Concept Map designates a regional center in the adjacent City of Oregon City. Regional centers are generally meant to: serve populations of hundreds of thousands of people; surround high-quality transit service and multi-modal street networks; and offer larger commercial uses, healthcare facilities, local government services, and public amenities. The Oregon City Regional Center aligns with the 2040 Growth Concept Map designation.

The City of Oregon City's plans for the Oregon City Regional Center include mixed-use development, enhancements to the main street, and the creation of new open spaces that will provide direct connections to the river. The regional center is also home to

Willamette Falls and the Willamette Falls Legacy Project, a public/private partnership working to connect the Falls to Downtown Oregon City through the development of housing, public spaces, habitat restoration, education, and employment opportunities. The regional center currently has a drug store, restaurants, and other retail commercial uses, banks, medical/dental facilities, community centers, government offices, and auto-oriented uses. Metro's 2017 State of the Centers Atlas showed less than 400 people living in the regional center, as well as a low population density (5.2 people per acre), low total employees, and low dwelling unit density compared with other regional centers; in fact, the average population of all regional centers in 2017 was more than 6,000 people and the average population density was 22.8 people per acre. The city's vision to attract more housing and employees to the regional center will elevate it to the activity spectrum levels comparable to other regional centers in the region.

There are also employment uses, including industrial uses, grocery stores, and other commercial uses, as well as education and medical facilities, government offices, and parks, closer to the reserve in the Red Soils area near the intersection of Beavercreek Road and Molalla Avenue and between Highway 213 and Beavercreek Road.

Growth in and near the regional center and other employment areas will not necessarily cause a significant increase in home-based VMT per capita in the future, as area residents will be able to access some daily needs and find employment opportunities with relatively short trips. The transit service and bike and pedestrian facilities that serve these areas, described further below, can also help to ensure that additional growth nearby does not adversely impact home-based VMT per capita.

Four TriMet bus lines serve Oregon City, all of which generally focus on the regional center and the central portion of the city along Molalla Avenue. Service is provided to Clackamas Community College and the employment areas near the intersection of Beavercreek Road and Molalla Avenue and between Highway 213 and Beavercreek Road; however, large portions of the city lack TriMet service. Figure 4.3 in Chapter of the 2023 RTP indicates that there are gaps in planned frequent regional transit service network along certain routes in the UGB near the reserve, including Beavercreek Road south of Glen Oak Road and S Meyers Road.

Oregon City has at least 29 miles of dedicated bike lanes and 3.5 miles of established bikeways, with most of them located in the "up-top" section (southern end) of the city. The Park Place neighborhood is also fairly well served and Highway 213 has dedicated bike lanes. Most of the downtown streets are classified as "bike with caution" streets and the South End neighborhood has minimal bike facilities. There are dedicated bike facilities along most of Beavercreek Road and Molalla Avenue, as well as on much of Glen Oak Road. Those existing bike facilities on Beavercreek Road, Molalla Avenue, S Meyers Road, South End Road, and others in the city are identified as part of the regional bike network on Figure 4.5 in Chapter 4 of the 2023 RTP. However, the figure also identifies a gap in the planned network along Glen Oak Road nearer to the reserve and areas closer to the regional center.

The regional center is well served by sidewalks, as are employment areas near the intersection of Beavercreek Road and Molalla Avenue and between Highway 213 and Beavercreek Road. Much of the residential areas in the UGB near to the reserve also have sidewalks, though some small adjacent pockets of residential development, such as along S Timbersky Way, do not currently have sidewalks. There some sections of Beavercreek Road in the UGB south of Meyers Road and north of Timbersky Way lack sidewalks. The gaps on Beavercreek Road are identified in Chapter 4, Figure 4.4 of the 2023 RTP as a gap in the planned regional pedestrian network. There are also gaps in the planned regional trail network in the UGB near the reserve, as indicated in Chapter 4, Figure 4.6 of the 2023 RTP.

Figure 4.14 in Chapter of the 2023 RTP identifies Molalla Avenue inside the UGB as a high injury corridor.

The sections of Highway 99E, Highway 213, and I-5 in Oregon City are identified as a throughways Chapter 4, Figure 4.7 of the 2023 RTP. Figure 4.8 of that chapter indicates that these highway sections currently meet travel speed reliability performance thresholds, with no more than four hours per day when travel speeds fall below the identified minimum speed. RTP models indicate this reliability will continue at least to the year 2045.

### *b. Capacity of existing facilities to serve areas proposed for addition to the UGB*

Highway 213, an RTP-designated throughway, crosses through the west end of the reserve. As noted above, the section of the highway in the city currently meets travel speed reliability performance thresholds and RTP models, which include the reserve, indicate this reliability will continue at least to the year 2045.

There is currently no TriMet bus service to the reserve. The nearest stop is for Route 32 on Glen Oak Road, roughly three-quarters of a mile north via Beavercreek Road from the reserve by Oregon City High School. Route 32 provides service to Clackamas Community College, as well as to near the intersection of Beavercreek Road and Molalla Avenue and between Highway 213 and Beavercreek Road.

Beavercreek Road and Highway 213 have dedicated bike lanes that extend to the reserve and connect to bike facilities on Glen Oak Road and to other areas of the city. There are no bike facilities on S Henrici Road.

As noted above, the residential areas already in the UGB adjacent to the reserve mostly have sidewalks. The sidewalks of these neighborhoods' local streets, such as those along Coquille Drive, Homesteader Drive, and Woodglen Way, generally stop at the edge of the UGB and do no extend into the reserve, even if the streets themselves extend into the reserve. Therefore, urban development of the reserve may warrant sidewalk installations, even along existing roadways. Beavercreek Road does not have sidewalks where it connects to the reserve; however, there are painted pedestrian crossings at the intersection of Beavercreek Road and Henrici Road. The portion of Highway 213 that is

closest to the reserve does have sidewalks, but there is a significant gap between Conway Drive and Meyers Road, where the trails at Clackamas Community College connect to Highway 213.

It was noted in response to Factor 1 that the reserve is not likely to be able to efficiently accommodate an employment land need, but could support a residential land need. With the reserve being moderately close to Oregon City High School, Clackamas Community College, and employment areas where future residents of the reserve could meet some of their daily needs and find employment opportunities, future residents' private motor vehicle trips may not be significant. Existing bike facilities connected to the reserve could also provide transportation alternatives.

### *c. Impacts to existing facilities that serve nearby areas already inside the UGB*

Beavercreek Road, Henrici Road, Highway 213, and Homesteader Drive would be expected to see additional private vehicle traffic from development of the reserve. Existing bike and pedestrian facilities nearby would also be expected to see additional use.

With the lack of direct transit service and complete sidewalks connecting to the reserve, future residents will likely rely primarily on private motor vehicle transportation to access their daily needs and employment opportunities. However, the moderate proximity of educational and employment uses, including commercial uses, and the existing bike facilities connecting to the reserve could help to limit any major increase in home-based VMT per capita. Development of the reserve is also not expected to jeopardize this highway's throughway reliability. Any additional motor vehicle traffic on Molalla Avenue resulting from development of the reserve, however, may exacerbate its high-crash conditions.

### *d. Need for major transportation facility improvements and associated costs*

A roughly quarter-mile-long portion of Highway 213, a one-third-mile-long portion of S Beavercreek Road, and a 1.56-mile-long portion of S Henrici Road, all of which pass through the reserve, will likely need to be improved to urban arterial standards, including with acquisition of additional right-of-way. A 0.13-mile-long portion of S Meadow Avenue at the southeast of the reserve will likely need to be improved to urban collector standards, and four new collector road sections, with a combined length of just over one mile will also likely be needed to provide necessary street connectivity to urban development of the reserve.

| Facilities | Cost |
|---|---|
| **Arterials, existing/improved full street** | $113.45 million |
| **Arterials, existing/improved half street** | $0 |
| **Arterials, new** | $0 |
| **Collectors, existing/improved full street** | $3.78 million |
| **Collectors, existing/improved half street** | $0 |
| **Collectors, new** | $37.29 million |
| **Total:** | **$154.52 million** |
| **Per dwelling unit at 20 units per net vacant buildable acre:** | **$34,468** |

*e. Provision of public transit service*

TriMet evaluated the reserve for providing transit service. TriMet could provide services to the reserve, although there is no guarantee of service. Actual service depends on the level of development in the reserve and in the corridors leading to it. Service could be provided at 30-minute headways for all day service, seven days a week, by extending Route 31 with two additional zero-emission buses at a capital cost of $1,500,000 - $2,000,000 (recurs every 12 years). The additional annual service cost is $798,720 and grows with inflation each year.

Prior to land being included in the UGB, a more detailed concept plan, consistent with the requirements of Metro's Urban Growth Management Functional Plan Title 11, will be required. This concept plan process will develop more refined public facility and service needs and cost estimates.

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

### *Environmental consequences*

A 1,100-foot section of Thimble Creek flows north through the northeast corner of the Henrici Urban Reserve. This stream segment is located at the base of a forested slope, some 100 feet below the rural residential subdivision on S Danny Court. Due to development constraints related to steep slopes and the already developed nature of these narrow and deep subdivision lots, this section of Thimble Creek will not likely be impacted by new urban development of the reserve. Significant upland habitat has been identified on the forested hillsides that run down to Thimble Creek. The steep slopes in this area would limit the amount of the residential development that can occur, thereby providing some protections to the upland habitat.

A second stream flows west through some cleared land and the rural residential subdivision centered on S Wilshire Circle for approximately 2,600 feet, ultimately joining Beaver Creek outside of the reserve. The 750-foot section of the stream that meanders through the middle of cleared land west of the rural subdivision is susceptible to impacts from future development, depending on design and roadway connections. The stream segment that is

east of the rural subdivision is located on the Evangelical Lutheran Church property and is less susceptible to future impacts as the property is developed. The remaining portion of the stream flows through backyards of developed home sites and would most likely not be further impacted by urbanization of the reserve. In addition, portions of this segment have already been channelized or possibly piped. Riparian habitat is only identified along the western open land section and required restoration of the riparian corridor would occur as the result of urbanization.

A third stream segment is located in the western portion of the reserve, east and west of S Highway 213. The stream flows through a forested section of land on the north side of S Henrici Road for approximately 650 feet and appears to drain into the State-owned water retention facility that is located at the intersection of S Henrici Road and S Highway 213. The stream then resurfaces on the west side of S Highway 213 and flows 580 feet through cleared land to the end of the reserve boundary, ultimately joining Beaver Creek. Both of these stream segments have identified riparian and upland habitat and could be susceptible to limited impacts from urbanization, depending on the development pattern and new street connections. Increased natural resource protection that comes with inclusion in the UGB will help reduce the overall impacts, however. There are no inventoried wetlands within the reserve.

This analysis finds that urbanization of the reserve could occur with comparatively minimal impacts to the stream corridors and the riparian and upland habitat areas. Additional environmental consideration, specifically regarding avoidance of conflict between urban development and regionally significant fish and wildlife habitat, is provided in the Metro Code Factors Analysis (Appendix 7A).

Considering the comparative environmental consequences of urbanization, the Henrici Urban Reserve is given a “high” score in Attachment 3 for this Goal 14 boundary location sub-factor.

### *Social, energy, and economic consequences*

The Henrici Urban Reserve already has numerous rural residences on smaller tax lots, as well as platted subdivisions, some of which are extensions of subdivisions in adjacent areas of the UGB. There are also larger places of worship, utility facilities, and major roadways in and near the reserve. Furthermore, the reserve is in relatively close proximity to urban employment areas. Therefore, urbanization of the reserve is not expected to cause a significant change in sense of place or degradation of rural lifestyle for existing residents of the reserve. Existing levels of development and parcelization could also slow the process of urbanization and mean that change comes to the area more gradually over time.

As detailed more fully in response to Factor 2, future residents of the reserve may be fairly reliant on private motor vehicle transportation. However, the proximity of a variety or urban land uses and modes of transportation could help limit significant increases in VMT and, therefore, related energy impacts from urbanization of this reserve.

There is minimal commercial agriculture occurring within the reserve and the economic consequences of a loss in farming activity in the reserve may be outweighed by the economic benefits of residential development.

Overall, there would be comparatively low social, energy, and economic consequences from urbanization of this reserve. The Henrici Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location sub-factor.

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

There are two locations where lands outside the UGB but contiguous to the Henrici Urban Reserve have Goal 3 or 4 resource land zoning for agricultural and forest activities.

The first location consists of one tax lot at the northeast corner of the reserve, north of S Danny Court. This 27-acre tax lot, zoned Timber (TBR) by Clackamas County, is on the opposite side of Thimble Creek from the reserve. It is forested, but does not have agricultural activities and is accessed via S Thimble Creek Drive, rather than via the reserve lands. It is also under the same ownership as an adjacent tax lot with residential uses. Contiguous tax lots inside the reserve are already developed with little to no additional development expected due to the steep slope that runs down to Thimble Creek. Therefore, the proposed urban use (i.e., urban development of the reserve) are not expected impact agricultural or forest activities that occur on this adjacent forest land outside the UGB to the northeast of the reserve.

The second location is along the western edge of the reserve, west of S Highway 213, where the reserve is adjacent to two tax lots that are also zoned TBR. While both have forested portions, neither appears to have agricultural uses. Both tax lots have residential uses and one has powerlines. Neither of the two tax lots are currently accessed by roads going through the reserve itself. The land in these reserves slopes downward away from the reserve toward Beaver Creek, so any future development of the reserve would be at the top of a hill, away from agricultural and timber activities below. The likelihood of timber harvesting on these tax lots is small, given the residences, streamside protection requirements along Beaver Creek, and powerlines. Therefore, the proposed urban uses (i.e., urban development of the reserve) would be considered compatible with nearby agricultural and forest activities in this location.

This analysis finds that the proposed urban uses (i.e., urban development of the reserve) would have high compatibility with the nearby agricultural and forest activities occurring on farm and forest land. The Henrici Urban Reserve is given a "high" score in Attachment 3 for this Goal 14 boundary location factor.