

Memorandum

Date: December 19, 2013
To: South Cooper Mountain Project Management Team
From: Becky Hewitt and Joe Dills, APG
cc: South Cooper Mountain Technical Advisory Committee
Re: South Cooper Mountain Scenario Evaluation: Land Use and Energy

INTRODUCTION

About the Scenarios

The three scenarios evaluated in this memorandum are described and illustrated in the memorandum titled “Scenarios for Future Growth”, dated September 12, 2013. Background information on the South Cooper Mountain Concept and Community Plan project, including reports documenting existing conditions and planning work to date, can be found on the project’s website:

www.beavertonoregon.gov/southcooperplan.

Purpose

The purpose of this memorandum is to provide a summary of findings related to land use, energy, and other non-infrastructure elements from the evaluation of the three scenarios developed for the South Cooper Mountain concept plan area

The applicable Guiding Principles are listed below (please see the project website for the full text of the Guiding Principles):

- Create Beaverton’s next great community.
- Create a sustainable community.
- Provide housing choices
- Provide transportation options.
- Provide appropriate protection, enhancement and access to Cooper Mountain’s natural resources and public lands.
- Implement regional requirements and plans.
- Coordinate with other planning in the area.
- Ensure that the plan complements existing neighborhoods and commercial areas so South Cooper Mountain is part of greater Beaverton.
- Plan new civic uses so they are focal points for the community.

- Promote compatibility with adjacent rural areas.

The three scenarios have been evaluated per the above-cited Guiding Principles, utilizing the following performance indicators:

- Livability and Community Focal Points
- Plan/Policy Consistency & Coordination with Other Planning Efforts
- Housing Choice (discussed under Plan/Policy consistency)
- Compatibility with Adjacent Urban & Rural Areas (discussed under Plan/Policy consistency)
- Sustainability & Natural Resource Protection

Evaluations of the scenarios related to other topics, such as transportation and infrastructure needs, are provided in separate memoranda.

LIVABILITY & COMMUNITY FOCAL POINTS

Community Focal Points and Activity Nodes

CLUSTERING OF CIVIC USES TO CREATE ACTIVITY NODES

Co-locating parks and schools both creates efficiencies from the ability to share facilities, including parking, and creates activity nodes that are focal points for the community.

Scenarios 2 and 3 include one neighborhood park co-located with a potential future elementary school site. Each scenario also has at least one elementary school where a park is not co-located. Scenario 1 includes a neighborhood park adjacent to the planned high school site.

PEDESTRIAN-ORIENTED NEIGHBORHOOD COMMERCIAL AREAS

The commercial area in all three scenarios is intended to be community-serving and walkable from the new neighborhoods and potentially from adjacent existing neighborhoods; however, there are some differences in the level of pedestrian-orientation for each location:

- In Scenario 1, the location on Scholls Ferry Road makes it more likely that businesses locating there would be focused on passing drivers as customers, in addition to those living within walking distance. This location has the smallest “walkshed” of residents nearby.
- In Scenario 2, the neighborhood commercial center is assumed to function more like a small shopping center along an arterial street, but with buildings oriented to the street. This configuration will be difficult to brand as a “Main Street” because of the speed and design characteristics of an arterial street.

- In Scenario 3, the neighborhood commercial center in the South Cooper Mountain Annexation Area (SCMAA) is envisioned as a double-sided “Main Street” with shops on both sides of a new collector road. With a location on a collector rather than an arterial road, the visibility from Scholls Ferry Road will be an important design element. The two-sided configuration should help slow traffic and enhance the pedestrian connections to adjacent neighborhoods.

Walkability

ACCESS TO ELEMENTARY SCHOOLS

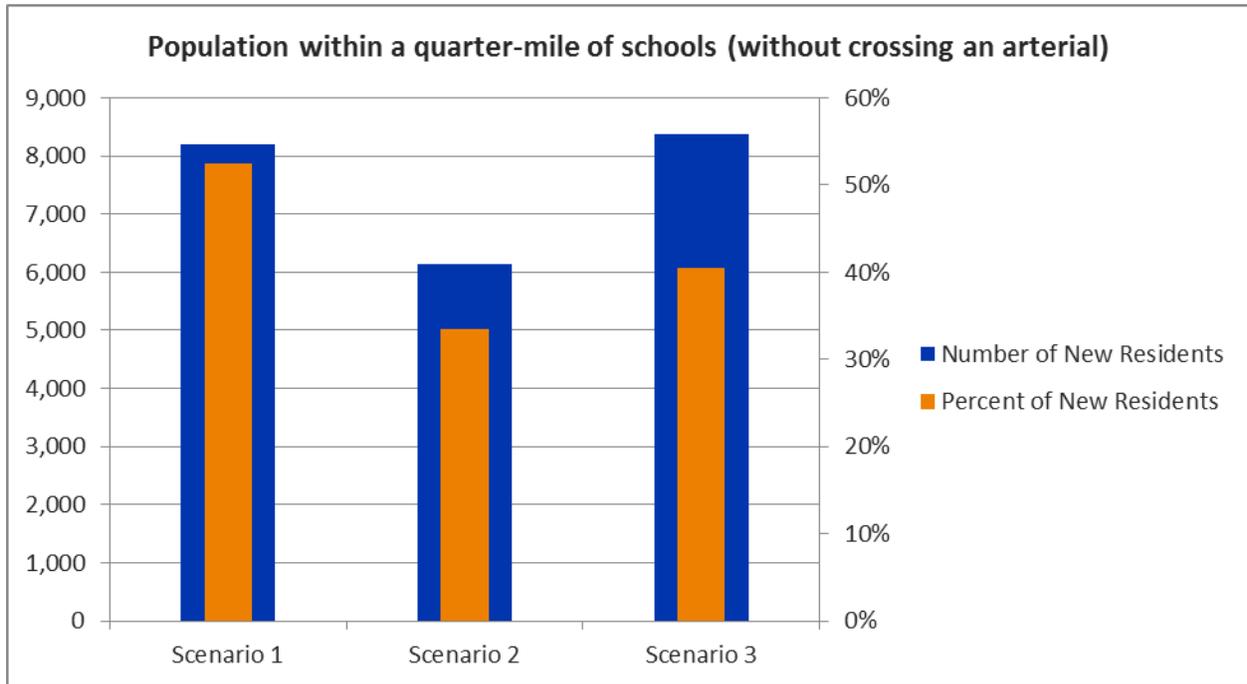
School and neighborhood development should be integrated to create safe access for students whether by walking, biking, driving or riding a bus. Shorter distances and ped/bike access via low volume routes is desired when possible to facilitate active transportation choices. One measure of this accessibility is done through calculating the number of families likely to be located within one quarter of a mile from their nearest school without having to cross an arterial roadway.

In Scenario 2, the elementary school in the Beaverton School District (BSD) portion of the SCMAA is separated from future neighborhoods to the west by the realigned 175th. An additional location for an elementary school in the Urban Reserve Area (URA) was not identified in Scenario 2. In this scenario, the fewest new residents in the planning area would be within a quarter-mile of the school without crossing an arterial (about 42% of the total new residents projected for the planning area).

In scenarios 1 and 3, future neighborhoods east of 175th would be separated from the new BSD elementary school by the existing alignment of 175th. Both scenarios 1 and 3 identify potential locations for elementary schools in both Grabhorn Meadow and the Hilltop. The number and percentage of new residents within a quarter mile of an elementary school without crossing an arterial is illustrated in Figure 1.¹ Scenario 1 has the highest percentage of new residents with easy access to an elementary school; Scenario 3 has the highest number of new residents near an elementary school but it is a lower percentage of the total new population than in Scenario 1.

¹ Proximity to elementary schools does not include existing residents but does include Scholls Heights Elementary School.

Figure 1: Population within a quarter mile of elementary schools



ACCESS TO NEIGHBORHOOD COMMERCIAL AREAS

All three scenarios include a neighborhood commercial center located adjacent to higher density housing. Differences in neighborhood layout, and where density is focused among the three scenarios, result in differences in the number of future residents located within a one-quarter of a mile walk distance of the commercial area.

In Scenario 1, the natural area located to the north and west of the identified neighborhood commercial center and the high school site located to the east may limit local street connections from the commercial area to the remainder of the SCMAA, providing fewer direct connections to adjacent neighborhoods. On the other hand, the surrounding Urban Neighborhood will bring many people within easy walking distance.

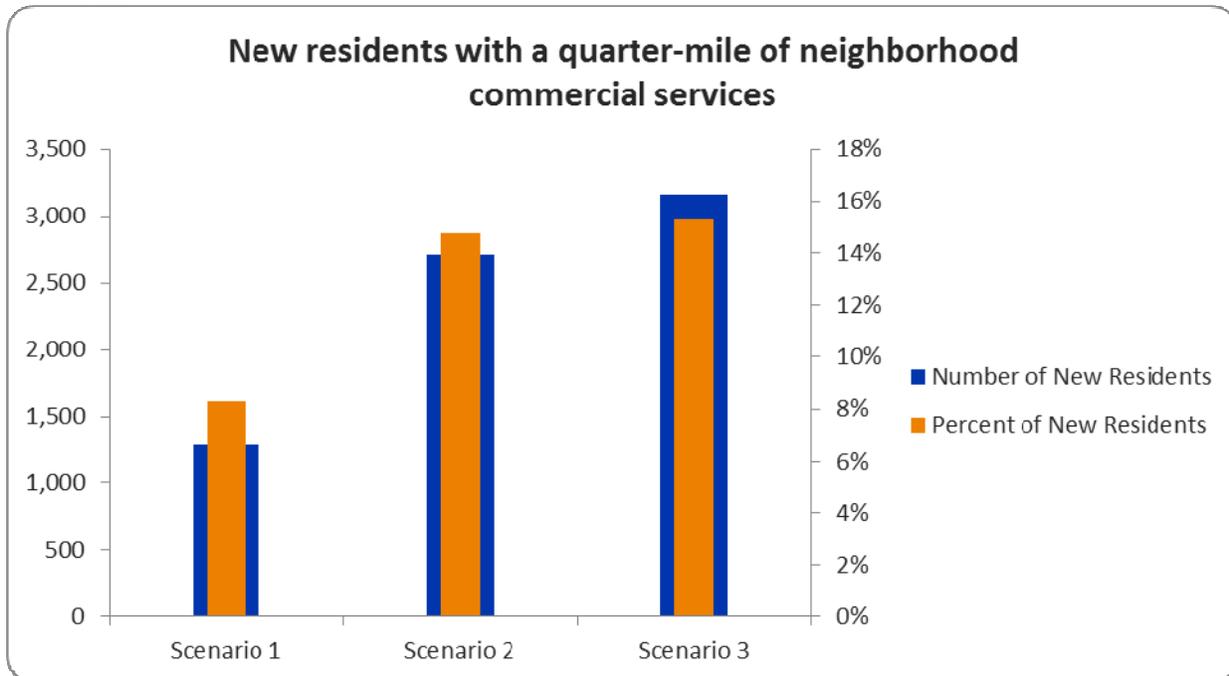
In Scenario 2, the location of the commercial area is more central to the SCMAA, but it is surrounded by a new arterial road, a natural area, and a small knoll that may not be suitable for high density housing due to topography. This limits the number of households that can reach the commercial area easily on foot, although it would have good accessibility by car.

In Scenario 3, the commercial center’s proximity to the natural area would still create an obstacle for some new residents to reach it, but homes between the “Main Street” and Tile Flat Road would have easier access to the shops than in Scenario 2 since the commercial area would straddle a collector road rather than being on one side of an arterial road. Scenario 3 also includes a second, smaller

neighborhood commercial center on the Hilltop, which would provide walkable access to shops and services for future residents in the Hilltop as well as residents of existing surrounding neighborhoods.

The number and percentage of new residents within a one-quarter mile of neighborhood commercial areas is shown in Figure 2.

Figure 2: New residents within a quarter mile of commercial



ARTERIALS AND PEDESTRIAN CROSSINGS

All three scenarios necessarily include an arterial through the planning area – either 175th Avenue in more or less its current alignment or a realignment of 175th with a connection to 185th Avenue. In all scenarios, this arterial is assumed to be designed with three lanes (two travel lanes and a center turn lane), limited intersections and a design speed of 45 mph, making pedestrian and bicycle crossing somewhat challenging. The road will have pedestrian and bicycle facilities – either sidewalks and bike lanes or a separated multi-use path – that will facilitate travel along, not across, the road.

In Scenario 3, the area between the 175th to 185th arterial road connection and the creeks would be relatively isolated from other parts of the planning area, since it would be hemmed in by the Nature Park, McKernan Creek, and the arterial road. However, this area could be linked to the SCMAA by trail connections and local street connections.

Scenario 2 includes a new western arterial running north from Scholls Ferry Road, rather than using Tile Flat Road, and staying closer to the existing Grabhorn Road alignment. This would create an additional

barrier within the SCMAA, the URA Lowlands, and Grabhorn Meadow. While Scenario 3 identifies a collector road with a similar alignment, it would have more potential intersections, greater connectivity to the local road network, and potentially lower motor vehicle speeds, making it less of a crossing barrier than the arterial in Scenario 2.

SAFE, WALKABLE, CONNECTED LOCAL STREETS

All three scenarios face similar challenges to creating a connected, safe, and walkable network of local streets, including:

- an extensive and centrally-located natural area in the SCMAA;
- the presence of arterial roads within or bordering the planning area where local street connections are not desired;
- the presence of the high school site in the SCMAA (the high school is a community focal point and has a high level of pedestrian activity, but it may be difficult to locate a local street or neighborhood route at the north end of the site²);
- topographic challenges; and
- stream corridors where crossings should be minimized to the extent possible.

The same issues identified as increasing barrier effects, above, would also make it more challenging to provide a connected network of local streets, which would tend to increase traffic on collectors and neighborhood routes. Scenario 2 has the least potential for an extensive local street network because the two north-south arterials are closer together as compared to Scenarios 1 and 3.

PLAN / POLICY CONSISTENCY & COORDINATION WITH OTHER PLANS

This section provides a brief assessment of how the scenarios comply with regional and local policies and planning requirements. These policies and requirements have been distilled down to the criteria that are most relevant to this stage of scenario evaluation. The assessment is organized by subarea.

² *This street connection and intersection should be considered during scenario refinement.*

Land Use Policies

SCM ANNEXATION AREA

COMPLIANCE WITH REGIONAL AND STATE PLANNING REQUIREMENTS FOR NEW URBAN AREAS: SCMAA

HOUSING CAPACITY (SCMAA)

Provide capacity for a number of housing units equal to an average residential density of 15 housing units per net buildable residential acre.³

All three scenarios provide for an average residential density of 15 units per net buildable residential acre within the SCMAA. Because of minor differences in the amount of land dedicated to civic uses (schools and parks) in each scenario, the capacity ranges from 3,330 to 3,520 units within this area;⁴ however, the densities are essentially the same in all scenarios.

AFFORDABLE HOUSING OPPORTUNITIES (SCMAA)

Provide opportunities for affordable housing.⁵

³ *Metro Urban Growth Management Functional Plan, Title 11, Planning for Areas Added to the UGB (Metro code 3.07.1120.C.3): "Comprehensive plan provisions for the area shall include... Provisions that ensure zoned capacity for the number and types of housing units, if any, specified by the Metro Council..."*

Metro ordinance no. 11-1264B for expansion of the UGB, Exhibit B, Conditions on Land Added to UGB: "Land use regulations adopted pursuant to Metro Code section 3.07.1120 shall provide zoned capacity for a minimum of 4,651 dwelling units in Area 3 [South Cooper Mountain UGB expansion area]."

Intergovernmental Agreement Between Metro and Washington County To Adopt Urban and Rural Reserves, Exhibit A, Principles for Concept Planning of Urban Reserves: "Residential density targets will be an important consideration in future planning for the area and may need to be adjusted in order to protect and enhance the integrity of existing Title 13 and Goal 5 lands."

Metro staff interpretation of these policies and conditions is that the adopted number of dwelling units is meant to reflect an average residential density of 15 units per net buildable acre, and that changes in the amount of buildable residential land (e.g. due to refinements to estimates of land need for civic uses and improved mapping of natural resources) may result in corresponding adjustments to the target number of units.

⁴ *The residential capacity of new development in the annexation area is down somewhat from previous estimates due to refinement of assumptions of land for civic uses and commercial development, among other things.*

⁵ *Per Metro Urban Growth Management Functional Plan, Title 11, Planning for Areas Added to the UGB (Metro code 3.07.1120.C.4): "Comprehensive plan provisions for the area shall include: ... 4. Provision for affordable housing consistent with Title 7 of this chapter if the comprehensive plan authorizes housing in any part of the area." Title 7 requires that cities and counties ensure that their comprehensive plans and implementing*

Both the City of Beaverton and Washington County have programs in place to provide, encourage, or both, development of subsidized housing for households with low incomes. As discussed on page 18, all three scenarios provide a range of housing types that are likely to have different rent or price points, and will provide opportunities for various income levels to live in the SCMAA. With roughly 60% of the total housing capacity in the SCMAA allocated to attached housing types (apartments/condos and townhomes) and an emphasis on small lots among the detached single family homes, all three scenarios provide a good opportunity for relatively affordable market-rate housing.

Other factors that will affect affordability include design requirements that increase design and construction costs, and development costs such as: System Development Charges (SDCs), on-site improvement costs for local roads and infrastructure, and requirements to provide amenities such as parks and trails. While infrastructure, amenities and quality design all unquestionably add value to development, they do come at a cost, and make it more difficult to provide affordable housing. The infrastructure costs for each scenario are discussed in the Early Funding Analysis memo; the amount of these costs that would be the responsibility of developers will be evaluated through discussions with the Finance Task Force. Design standards and required amenities for the SCMAA will be evaluated as part of development of the Community Plan for this area, and are assumed to be the same across all scenarios.

ADDRESS SCHOOL NEEDS (SCMAA) ⁶

Provide for parks and schools to meet the needs of the new growth. ⁷

The SCMAA is split between the Beaverton School District (BSD) and the Hillsboro School District (HSD). Enrollment estimates for each district for the SCMAA are shown below for Kindergarten through 8th grade. Increases in high school enrollment for BSD are assumed to be addressed by the planned high school site within the SCMAA. Increases in high school enrollment for HSD are assumed to be met through increases in capacity elsewhere in the district.

ordinances "Include strategies to ensure a diverse range of housing types within their jurisdictional boundaries" and "Include plan policies, actions, and implementation measures aimed at increasing opportunities for households of all income levels to live within their individual jurisdictions in affordable housing."

⁶ *Parks are addressed in the Parks Memo.*

⁷ *Per Metro Urban Growth Management Functional Plan, Title 11, Planning for Areas Added to the UGB (Metro code 3.07.1120.C.5 and 6): "Comprehensive plan provisions for the area shall include: ... 5. Provision for the amount of land and improvements needed, if any, for public school facilities sufficient to serve the area added to the UGB in coordination with affected school districts. This requirement includes consideration of any school facility plan prepared in accordance with ORS 195.110; 6. Provision for the amount of land and improvements needed, if any, for public park facilities sufficient to serve the area added to the UGB in coordination with affected park providers."*



Table 1: Estimated Increase in K-8 Enrollment in SCM Annexation Area by Scenario

School District	Scenario 1	Scenario 2	Scenario 3
Beaverton School District	400	350	340
Hillsboro School District	510	540	550

Based on these enrollment projections, approximately one new elementary or Kindergarten through 8th grade school is needed in each district in the SCMAA. All three scenarios identify possible sites for two elementary schools in the SCMAA– to accommodate one school in each school district. School sites are roughly eight to 10 acres, based on the school districts’ facility plans. From discussions with BSD and HSD staff, criteria for locating schools require generally flat sites, good vehicular access that are ideally not next to an arterial road, and opportunity to coordinate with other public uses such as parks and trails. There are a limited number of sites within the BSD boundary which meet these criteria – the elementary school site shown preliminarily on Scenarios 1-3 does not work well because of topographic constraints. The sites shown further west within the HSD are flatter and appear to meet preliminary criteria.

COMPLIANCE WITH CITY OF BEAVERTON POLICIES: SCMAA

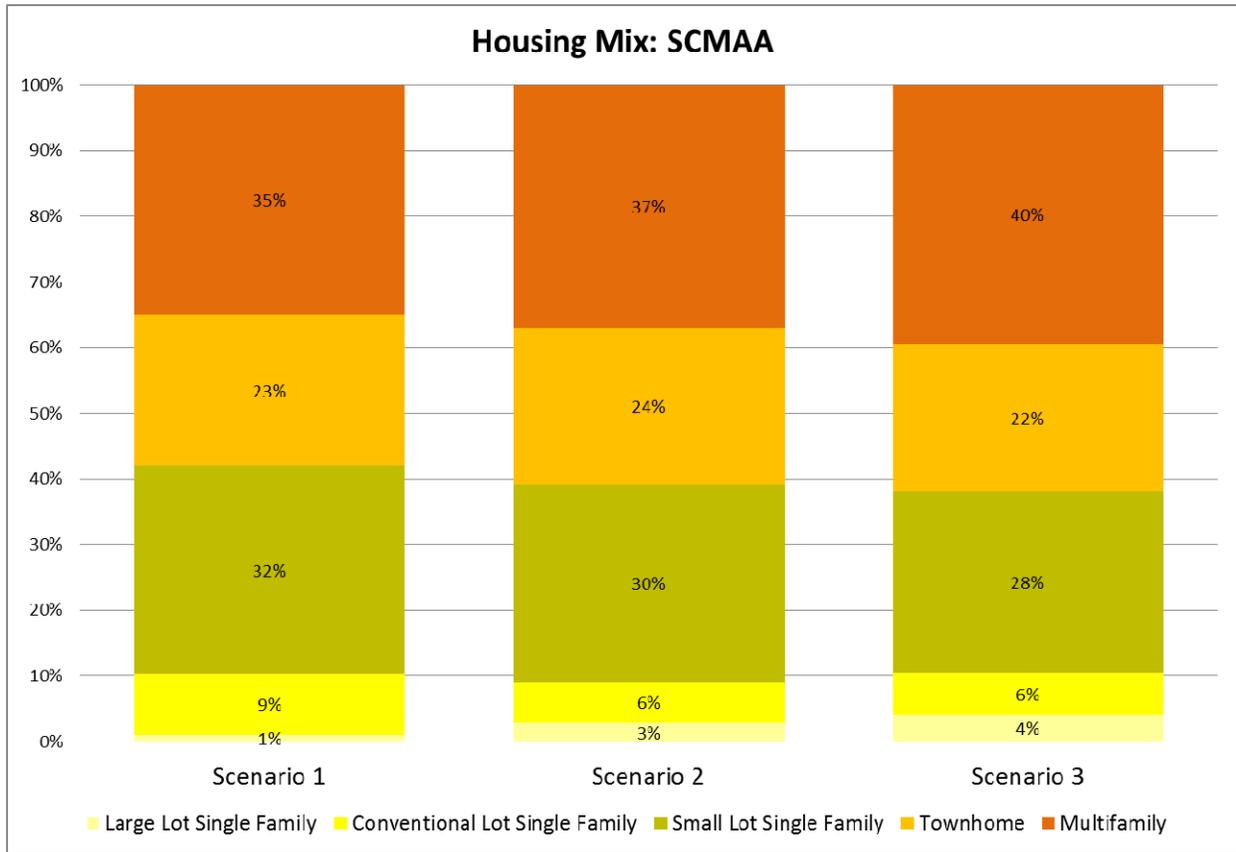
HOUSING MIX (SCMAA)

Include a mix of housing types.⁸

The SCMAA provides for a similar mix of housing types in each scenario: roughly 35% multi-family, roughly 25% townhome, and about 40% single family detached homes with various lot sizes.

⁸ *Per Beaverton Comprehensive Plan Goal 3.13.1 and related policies: “Goal: Provide for the establishment and maintenance of safe, convenient, attractive and healthful places to live. Policies: Regulate residential development to provide for diverse housing needs by creating opportunities for single and multi-family development of various sizes, types and configurations. “*

Figure 3: Housing Mix in SCMAA by Scenario



HOUSING NEED (SCMAA)

*Help meet the city of Beaverton’s housing needs, especially the need for single family detached housing.*⁹

The city of Beaverton’s Civic Plan identified a need for both additional single family and multi-family housing beyond the capacity available within the city limits prior to the annexation of the SCMAA (see Table 2).¹⁰

⁹ Per Beaverton Civic Plan.

¹⁰ Beaverton’s Civic Plan: Housing and Neighborhoods Strategy, adopted by City Council April 12, 2011.

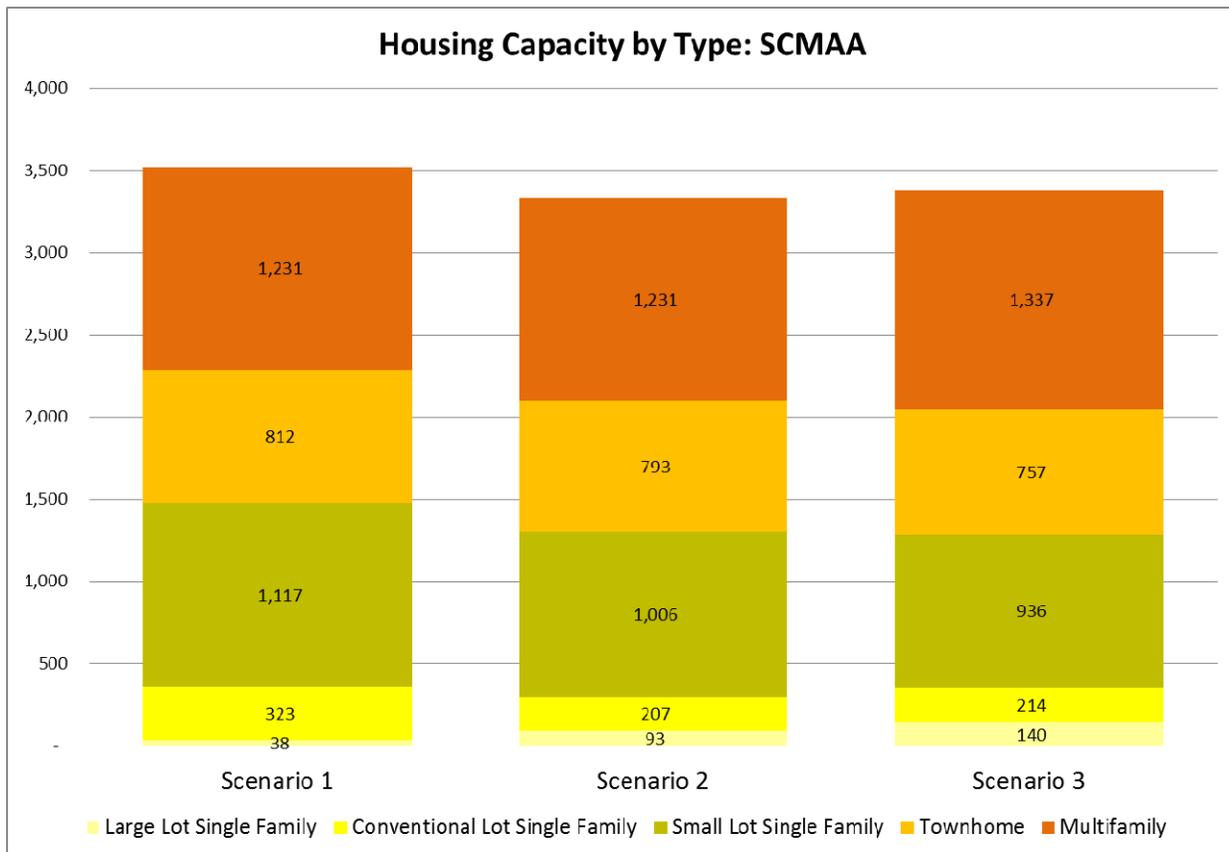
Table 2: Projected 2035 Housing Demand Compared with Capacity within 2011 City limits (Beaverton Civic Plan)

Housing Type	Capacity (Units)	Demand (Units)	Gap (Units)
Single family	1,567	4,593	-3,026
Multi-family (apartments and condos)	6,389	7,651	-1,262
Townhomes	516	1,311	-795
Total	8,472	13,555	-5,083

Source: Fregonese Associates analysis

The SCMAA will help to meet this need by providing capacity for approximately 1,300 to 1,400 single family units, 1,200 to 1,300 multi-family units and 700 to 800 townhomes under all scenarios, as shown in Figure 5. This closely matches the identified gap for multi-family and townhome units, and meets slightly less than half the identified need for single family units.

Figure 4: Housing Capacity by Housing Type in the SCMAA



LOW DENSITY AND EXECUTIVE HOUSING (SCMAA)

Do not plan for application of the City’s “Low Density Residential Neighborhood” Comprehensive Plan designation.¹¹

Provide opportunities for executive housing.¹²

The City’s existing Comprehensive Plan policies discourage designation of new areas for low density residential development; however, the City Council and Planning Commission have expressed an interest in providing opportunities for “executive housing”. In the SCMAA, the lowest density allowed under the current Beaverton code would be 8,750 square foot lots¹³ – relatively large for new greenfield development, but below what is commonly thought of as lots for executive homes. In North Cooper Mountain (NCM), Scenarios 1 and 2 help fulfill this need, although not within the City limits of Beaverton. In the URA and small portions of the SCMAA, all three scenarios provide opportunities for hillside residential development where slopes are challenging for higher density housing types. The hillside residential development is assumed to provide view lots that are somewhat larger than the city’s R-7 zoning district would allow, and to provide opportunities for executive-style housing. This does not necessarily require application of the Low Density Neighborhood designation. Rather, it is assumed that the code could be modified as needed to relax minimum density standards somewhat in areas with topographic constraints or potential landslide hazards.

¹¹ *Per Beaverton Comprehensive Plan Goal 3.13.2: policies state that “Due to regional planning efforts to maintain minimal expansion of the regional Urban Growth Boundary, opportunities to increase land designated low density residential shall be limited.” and that “Existing pockets of low density residential may continue, but expansion of low density residential areas shall not occur.”*

¹² *Per direction from Beaverton City Council and Planning Commission, July 9th, 2013.*

¹³ *Through the Planned Unit Development (PUD) process, lot size can be varied within a development, but the overall average lot size cannot be above 8,750 square feet in the R-7 zone.*

 NORTH COOPER MOUNTAIN

 COMPLIANCE WITH REGIONAL AND STATE PLANNING REQUIREMENTS FOR NEW URBAN AREAS:
 NCM

HOUSING CAPACITY (NCM)

Plan for a housing density that meets Metro expectations.¹⁴

Further guidance is needed from Metro to determine what housing density the agency considers appropriate to contribute to meeting regional housing needs. The Scenario analysis indicates significant differences among the scenarios in terms of how much growth is projected for North Cooper Mountain (NCM). Scenario 1 which assumes density of roughly 1 unit per acre, similar to the existing pattern of development in the area today, is the least consistent with Metro expectations for other new urban areas. Scenario 3, which assumes that the whole of NCM could be zoned for standard suburban residential densities of roughly 6 to 7 units per net acre, is closest to the requirements that have been set for other new urban areas. Scenario 2, which assumes standard suburban density in the part of NCM closest to existing development where sewer might be feasible to connect to existing lines north of Gassner Road and very low density in the remainder of NCM, is a compromise option. Scenario 2 performs the best in linking density to the current availability of sanitary and storm sewer services.

¹⁴ *North Cooper Mountain was brought into the UGB in 2002. The conditions for ordinance 02-969B that brought the land into the UGB do not include a specific number of dwelling units for each expansion area. The ordinance did reference Metro functional plan section 3.07.1120, which at that time included the following: provision for average residential densities of at least 10 dwelling units per net developable residential acre or such other densities that the Council specifies pursuant to section 3.01.040 of the functional plan. Changes have occurred to Metro's Functional Plan that will be required after December 21, 2013. Since this work will be completed after that date, the plan will need to address the revised section 3.07.1120 for compliance, which states: provisions that ensure zoned capacity for the number and types of housing units, if any, specified by the Metro Council pursuant to section 3.07.1455B(2) of this chapter. This means that Metro's expectations for this area, which is largely developed, have not been codified at this time.*

AFFORDABLE HOUSING OPPORTUNITIES (NCM)

Provide opportunities for affordable housing.¹⁵

All of the scenarios provide for a limited range of housing types in NCM. However, Scenario 1 is notable in that it does not provide opportunities for development of single family homes on standard size lots (5,000 to 7,000 square foot lots), and likely precludes development of affordable housing in this area. Although, other parts of the Concept Plan area would be able to provide affordable housing opportunities. Scenarios 2 and 3 both provide some land for standard suburban density housing, which would still likely not be affordable to low-income households, but would likely be affordable to a wider range of income levels than the very low density housing existing in the area today.

ADDRESS SCHOOL NEEDS (NCM)¹⁶

Provide for parks and schools to meet the needs of the new growth.¹⁷

NCM is within the Beaverton School District. Based on the growth projections for NCM, the number of new Kindergarten through 8th grade students is shown in the table below.

Table 3: Estimated Increase in K-8 Enrollment in North Cooper Mountain by Scenario

School District	Scenario 1	Scenario 2	Scenario 3
Beaverton School District	30	190*	330*

* The growth projections for NCM in Scenario 3 and, to a lesser extent, Scenario 2, likely overestimate the growth potential due to the presence of private development restrictions (contracts, covenants and restrictions or CC&Rs) on some of the land in NCM. These private restrictions may prevent subdivision of the land to the densities assumed in the scenarios.

¹⁵ Per Metro Urban Growth Management Functional Plan, Title 11, Planning for Areas Added to the UGB (Metro code 3.07.1120.C.4): “Comprehensive plan provisions for the area shall include: ... 4. Provision for affordable housing consistent with Title 7 of this chapter if the comprehensive plan authorizes housing in any part of the area.” Title 7 requires that cities and counties ensure that their comprehensive plans and implementing ordinances “Include strategies to ensure a diverse range of housing types within their jurisdictional boundaries” and “Include plan policies, actions, and implementation measures aimed at increasing opportunities for households of all income levels to live within their individual jurisdictions in affordable housing.”

¹⁶ See parks memo for park needs.

¹⁷ Per Metro Urban Growth Management Functional Plan, Title 11, Planning for Areas Added to the UGB (Metro code 3.07.1120.C.5 and 6): “Comprehensive plan provisions for the area shall include: ... 5. Provision for the amount of land and improvements needed, if any, for public school facilities sufficient to serve the area added to the UGB in coordination with affected school districts. This requirement includes consideration of any school facility plan prepared in accordance with ORS 195.110; 6. Provision for the amount of land and improvements needed, if any, for public park facilities sufficient to serve the area added to the UGB in coordination with affected park providers.”

Because there are no sites in NCM large enough to accommodate an elementary or Kindergarten through 8th grade school, it is assumed that the increase in student enrollment will be accommodated through a combination of improvements to or expansions of existing schools, new schools within the URA, or a combination of the two.

COMPLIANCE WITH WASHINGTON COUNTY POLICIES: NCM

NCM is currently unincorporated and under Washington County jurisdiction; therefore, consistency with relevant Washington County policies is addressed below. City of Beaverton policies are not considered applicable because further development in NCM does not require annexation to the City of Beaverton at present.

EFFICIENCY OF SERVICES (NCM)

Encourage the efficient provision of public facilities and services, with additional partitioning subject to the availability of critical urban services, including water and sanitary sewers.¹⁸

NCM is currently served by individual septic systems. Because one-acre lots can typically be served by septic without threat to water quality, it would be hypothetically possible for additional partitioning to proceed with minimum one-acre lot zoning as envisioned in Scenario 1 prior to the extension of public sewer service. However, this may not be allowed by current county regulations. The very low density envisioned in Scenario 1 would also make it less cost-effective to provide sewer service to the area.

Scenario 2 would potentially allow partitioning of the one or two parcels in the southern portion of NCM that are over two (2) acres in size prior to the extension of public sewer lines to that area; however, the number of lots that could be created in that area with 1-acre lot zoning is very small. In the northern area, partitioning or subdivision to the standard suburban densities envisioned would be contingent on the availability of public sewer service. Extending sanitary sewer service to this area would be more efficient if infill to standard suburban densities was possible.

The standard suburban densities envisioned throughout NCM in Scenario 3 would require the extension of public sewer service to all of NCM. Sewer service is not likely to be available to the southern part of NCM until development in the western portion of the URA necessitates construction of a pump station near Tile Flat Road. In the very long term, extending sewer lines to the southern part of NCM would be more cost effective if there were greater development potential allowed in the NCM.

¹⁸ Per Washington County Comprehensive Framework Plan Policy 13 and implementing strategy (a).

COMPATIBILITY AND TRANSITIONS (NCM)

*Promote development that is compatible with existing land uses and encourage compatible infill development.*¹⁹

*Include a variety of residential densities with higher densities adjacent to commercial centers and parks and lower densities adjacent to the UGB and areas with natural constraints, and with gradual transitions between areas of differing density.*²⁰

*Integrate with existing neighborhoods through street and trail connections and appropriate density transitions.*²¹

Scenario 1 is the most compatible with existing development in NCM and provides for the most compatible future development in that area. It provides for low density in an area that is adjacent to the UGB and to areas with natural resource constraints, such as the Cooper Mountain Nature Park.

Scenario 2 extends the standard suburban densities found north of Gassner Road south into adjacent parts of north NCM. It encourages infill development, but special design standards, site development standards, or both might be required to ensure that the infill development would be as compatible as possible with existing homes. Scenario 2 still provides for lower densities immediately adjacent to the UGB and adjacent to some of the edges of the Nature Park.

Scenario 3 creates the greatest challenges for infill compatibility because it envisions standard suburban densities throughout NCM, including adjacent to the UGB and the Nature Park. It would allow infill in areas where the vast majority of the land is already developed at lower densities and most of the undeveloped land is already platted.

DENSITY (NCM)

*Do not reduce the average overall density of New Urban Areas²² in Washington County below 10 units per net buildable acre.*²³

The average net density of new development in NCM would be 1 unit per net acre in Scenario 1, 5 units per net acre in Scenario 2, and close to 7 units per net acre in Scenario 3. Therefore, from a purely

¹⁹ Per Washington County Comprehensive Framework Plan Policy 13 and implementing strategy (b), Policy 19.

²⁰ Per Washington County Comprehensive Framework Plan Policy 43 and implementing strategy (d)(3)(A).

²¹ Per Washington County Comprehensive Framework Plan Policy 43 and implementing strategy (d)(8).

²² New Urban Areas are lands in unincorporated Washington County added to the UGB in 2002 or later.

²³ Per Washington County Comprehensive Framework Plan Policy 21 and implementing strategy (a).

mathematical point of view, Scenario 1 is least consistent and Scenario 3 is the most consistent with Washington County’s density policy, above policy. The current average overall density of all other “New Urban Areas” under Washington County jurisdiction ,such as North Bethany, is not known.

VIEWS

*Preserve or enhance public access to scenic views wherever possible.*²⁴

A scenic viewpoint is identified at the corner of 185th Avenue and Gassner Road in the Aloha-Reedville-Cooper Mountain Community Plan. Scenarios 2 and 3 include new road connections through this area that could provide an opportunity to build a public viewing area.

URBAN RESERVE AREA (URA)

Future urbanization in the URA would follow future expansion of the UGB, which is subject to compliance with Metro regulations for UGB expansion areas and requires annexation to the City of Beaverton. The requirements discussed below are relevant to the Concept Plan stage, prior to UGB expansion. Subsequent to future UGB expansions, detailed community plans will be developed to implement the South Cooper Mountain Concept Plan.

COMPLIANCE WITH REGIONAL AND STATE PLANNING REQUIREMENTS FOR URBAN RESERVES

LAND USE MIX AND INTENSITY (URA)

*Plan for a mix and intensity of uses that will make efficient use of public facilities and infrastructure.*²⁵

The cost of infrastructure per household in the URA will be addressed following completion of the infrastructure memos. Within the URA, the Hilltop, East Hills, and Lowlands areas are closer in proximity to current or future infrastructure locations, , and therefore it is more efficient to serve these areas. Grabhorn Meadow is most isolated area and must rely on water and sewer infrastructure being routed through NCM and south along Grabhorn Road to reach the area.

Scenario 1 provides for less residential intensity in Grabhorn Meadow and the Hilltop than scenarios 2 and 3 (10 units per net acre compared to 15 units per net acre in scenarios 2 and 3). According to Metro

²⁴ Per Washington County Comprehensive Framework Plan Policy 12 and Aloha-Reedville-Cooper Mountain Community Plan.

²⁵ Per Metro Urban Growth Management Functional Plan, Title 11, Planning for Areas Designated Urban Reserve (Metro code 3.07.1110.B.1.a).

staff, Metro’s expectation for UGB expansion areas has generally been about 15 units per net acre for the most recent UGB expansions; however, Metro’s inter-governmental agreement with Washington County related to reserves planning specifically notes that “Residential density targets will be an important consideration in future planning for the area and may need to be adjusted in order to protect and enhance the integrity of existing Title 13 and Goal 5 lands [significant natural resource areas and environmentally sensitive lands].”²⁶ The Scenarios prepared to date indicate that Scenario 2 performs best at meeting objectives to focus density in the most buildable areas and protect resources in the vicinity of the Creeks area and Cooper Mountain Nature Park.

MEET LOCAL & REGIONAL HOUSING NEEDS (URA)

*Provide for a range of housing types, tenures and prices to meet local and regional housing needs.*²⁷

Neither Washington County nor Metro has forecast the housing types, tenures, and prices that will be needed to meet local and regional housing needs, particularly those that will not be met by development within the existing UGB, over the next 50 years.

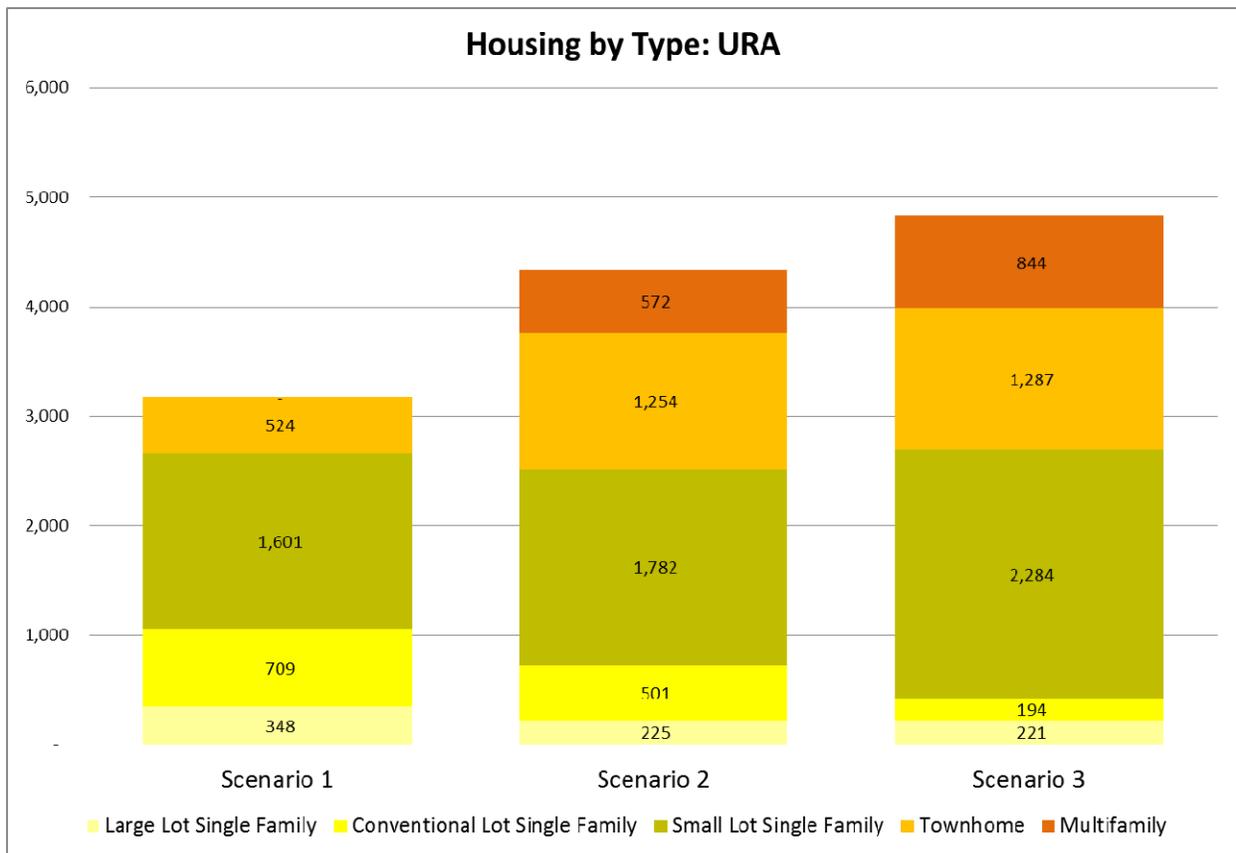
As discussed above, the housing capacity gap identified in the Beaverton Civic Plan exceeds the current estimates of capacity within the SCMAA. Given this, the URA can be seen as an area with potential to meet additional future housing needs for the City of Beaverton, in particular single family housing, the need for which may not be fully met in the SCMAA.

All three scenarios provide for a variety of housing types in the URA, which are assumed to allow for a variety of tenures and price-points as a result; however, Scenario 1 does not include provision for multi-family housing in the URA. All three scenarios provide capacity for roughly 2,500 to 2,700 single family homes in the URA, well above the approximately 1,600 unit gap anticipated to remain given the projected housing mix in the SCMAA. Figure 5 shows the housing capacity by housing type in the URA for each scenario.

²⁶ *Intergovernmental Agreement Between Metro and Washington County To Adopt Urban and Rural Reserves, Exhibit A, Principles for Concept Planning of Urban Reserves.*

²⁷ *Per Metro Urban Growth Management Functional Plan, Title 11, Planning for Areas Designated Urban Reserve (Metro code 3.07.1110.B.1.c): “A local government, in creating a concept plan to comply with this section, shall consider actions necessary to achieve the following outcomes: ... A range of housing of different types, tenure and prices addressing the housing needs in the prospective UGB expansion area in the context of the housing needs of the governing city, the county, and the region if data on regional housing needs are available, in order to help create economically and socially vital and complete neighborhoods and cities and avoiding the concentration of poverty and the isolation of families and people of modest means;”*

Figure 5: Housing Capacity by Housing Type in the Urban Reserve Area by Scenario



ABILITY TO WALK AND BIKE TO LOCAL SERVICES (URA)

Plan for a development pattern that supports walking and biking to nearby services.²⁸

Walkability is addressed in detail on pages 3 to 6. The ability to bike to nearby services will be enhanced in all scenarios by a trail network and provision of bike facilities on all new and upgraded roads within the planning area, as well as by plans to provide bike lanes on Scholls Ferry Road, which links the planning area to Progress Ridge, the Murray Scholls Town Center, and other services. Within the URA, the only viable opportunity for local commercial services is in the Hilltop area. Scenario 3 provides a small neighborhood center in the Hilltop. This small center would serve both the Hilltop and the

²⁸ Per Metro Urban Growth Management Functional Plan, Title 11, Planning for Areas Designated Urban Reserve (Metro code 3.07.1110.B.1.b).

surrounding area. Committee feedback to date has noted that to encourage its success, the neighborhood center should be in a highly visible location, not internal.

NATURAL AREA PROTECTION (URA)

*Protect or enhance important natural features and public lands.*²⁹

Protection of natural resources and public lands in the URA is addressed in the parks memo.

PROTECTION OF ADJACENT RURAL AREAS (URA)

*Avoid or minimize negative impacts on farm and forest practices and important natural landscape features on nearby rural lands.*³⁰

Grabhorn Meadow is adjacent to a designated Rural Reserve, which makes rural compatibility particularly important for that landscape area. Density transitions and public lands and buffers may help minimize the potential for negative impacts on adjacent agricultural activities.

Scenario 1 provides for the lowest density and least amount of residential development in Grabhorn Meadow, which could reduce the potential for conflicts with farming practices in adjacent rural areas.

Scenario 2 envisions somewhat higher density in Grabhorn Meadow (15 units per net residential acre), with some multi-family development included. While the development type does not specify where the higher density should be located, it would be logical to focus it just northeast of where the proposed new western arterial crosses McKernan Creek. This would provide some transition to the rural areas to the west and would separate the highest density from the nearby farms by an arterial road.

²⁹ *Metro Urban Growth Management Functional Plan, Title 11, Planning for Areas Designated Urban Reserve (Metro code 3.07.1110.B.1.f and g): "A local government, in creating a concept plan to comply with this section, shall consider actions necessary to achieve the following outcomes: ... A well-connected system of parks, natural areas and other public open spaces; ... Protection of natural ecological systems and important natural landscape features;"*

Metro-Washington County IGA on planning for "Area 6B": "concept planning should be undertaken as a whole in order to offer appropriate protection and enhancement to the public lands and natural features that are located throughout the area. Residential density targets will be an important consideration in future planning for the area and may need to be adjusted in order to protect and enhance the integrity of existing Title 13 and Goal 5 lands."

³⁰ *Metro Urban Growth Management Functional Plan, Title 11, Planning for Areas Designated Urban Reserve (Metro code 3.07.1110.B.1.h): "A local government, in creating a concept plan to comply with this section, shall consider actions necessary to achieve the following outcomes: ... Avoidance or minimization of adverse effects on farm and forest practices and important natural landscape features on nearby rural lands."*

Scenario 3 also envisions a higher density (15 units per net residential acre) in Grabhorn Meadow with some multi-family housing. In Scenario 3, a logical place to focus the highest densities would be near the intersection of the new north-south collector road with the realigned Grabhorn Road. As in Scenario 2, this would separate the highest density from the rural land by an arterial road. It would place higher density closer to the Rural Reserve, but the relatively small strip of land between the existing Grabhorn Road alignment and the proposed realignment could potentially be used for stormwater management and/or stream restoration, thus providing a natural buffer to the farm land.

COMPLIANCE WITH LOCAL POLICIES (URA)

The URA is currently in Washington County jurisdiction, but Metro policy requires annexation to a city prior to application of urban zoning for areas that are brought into the UGB in the future. The City of Beaverton has been identified as the city with authority to annex the area following addition to the UGB. However, because the timing of UGB expansion is unknown, current City of Beaverton policies are not considered applicable at this time; rather, when more detailed planning is done for those portions of the URA that are brought into the UGB, the policies in place at that time will shape the refinement of the Concept Plan.

Transportation Policies and Regulations

The transportation frameworks for SCM concept plan area must meet state, regional, and local requirements. Among the most important standards are:

- Washington County policies and regulations related to roadway design, intersection spacing, and functional classification (the intended purpose of the road) for existing and new county arterial and collector roads;
- City of Beaverton policies and regulations related to road connections, roadway design, and intersection spacing for new collector and local roads within the SCMAA;
- Metro's requirements contained within the Regional Transportation Plan and Regional Transportation Functional Plan, including street types and spacing, active transportation, and integration of land use and transportation;
- State laws and rules governing new and upgraded transportation facilities outside an urban growth boundary for transportation improvements within the URA and other areas outside the UGB; and
- State regulations related to access to state highways for connections to Scholls Ferry Road.

Where these regulations and policies may pose challenges for one or more of the scenarios, they are discussed in greater detail below.

COMPLIANCE WITH THE STATE TRANSPORTATION PLANNING RULE

The state Transportation Planning Rule (TPR) includes rules for when it is permissible to build new roads outside a UGB. The purpose of the regulations is to limit impacts to farm and forest land from transportation facilities that are intended to serve urban development. State rules are also reflected in Washington County's permitting regulations for transportation facilities (Article VII of Washington County's development code). All three scenarios include new, realigned, or upgraded roadways outside the UGB, mostly through the URA. Because planning for urban reserves is a relatively new issue (the urban and rural reserve program was created in 2011), there are still some questions as to how planning for new roadways within urban reserves fits within the TPR framework. Based on input received from the SCM Technical Advisory Committee, simply identifying potential new roads conceptually within an urban reserve in a concept plan may not require compliance with the TPR. If the new roads are not needed until the urban reserve is brought into the UGB, then the TPR may not apply; however, if they are needed prior to that time, then the TPR may apply. The legal threshold is whether the City or County comprehensive plan is amended to include the new roads. The practical challenge is that if the new roads are indeed needed, even in the future, the transportation system plans (which are part of the city and county comprehensive plans) should be amended to include them. This is an area that would benefit from new rule-making. The analysis below identifies the criteria, under current regulations, that would likely need to be met in order for any of roadway improvements within the URA to be done before the UGB is expanded to include those areas. Under certain circumstances, a road that is needed to serve areas within the UGB may be improved in the rural area.

COMMON ELEMENTS

All scenarios include a realignment of Grabhorn Road that would traverse land outside the UGB that is designated Rural Reserve for a distance of roughly 1,500 to 2,000 feet in order to eliminate one of the 90-degree corners in the current alignment. Realignment through farm land of an existing road is allowed but requires an analysis of other conceptual alternatives and demonstration that the project will not cause undue impacts to farm practices on adjacent land.³¹ Given the known safety issues with the current alignment and the fact that realigning this same corner on land within the URA or within the UGB would cause substantial impacts to homes in North Cooper Mountain, the realignment appears to be a reasonable proposal. On-going coordination with Washington County and the state Department of Land Conservation and Development (DLCD) is recommended on this issue.

³¹ *Washington County Community Development Code Section 713.*

SCENARIO 1

In Scenario 1, the comparatively minor realignment of 175th Avenue to avoid the hairpin turn at High Hill Road, and the widening of 175th Avenue to full arterial standards, would be allowed with relatively minimal permitting challenges because the zoning districts that the road would run through are not specially-protected farm zones.³² The minor realignment of Grabhorn Road to address the southern 90-degree corner would require a Goal 3 exception including conceptual analysis of alternatives and demonstration that the realignment will not be detrimental to nearby farm practices if undertaken while the land is still outside the UGB. It is likely that the proposed realignment would meet these tests.

SCENARIO 2

In Scenario 2, some sections of Grabhorn Road that run along the edge of the URA would be upgraded to an arterial designation rather than a collector as it is currently designated. Adding lanes and acquiring additional right-of-way for this stretch of road before it is brought into the UGB would require analysis of conceptual alternatives and impacts to farm practices.

Scenario 2 also includes an entirely new arterial road through the URA. Building this road before the land is brought into the UGB is not currently allowed under state laws and rules unless a Goal 3 exception can be obtained, demonstrating that the project is necessary and cannot be accommodated on land inside the UGB. This is a key issue that requires collaboration with Washington County and DLCDC. The transportation analysis memo will provide additional information on the need for and benefits of this roadway.

SCENARIO 3

As in Scenario 2, the roadway network for Scenario 3 assumes that Grabhorn Road would be redesignated as an arterial road and widened. The permitting requirements would be the same as described above for this issue under Scenario 2.

Although the realignment of Grabhorn Road in Scenario 3 would be much more significant than the realignment in Scenario 1, this segment would likely be subject to the same regulatory tests as described under Scenario 1 for the Grabhorn Road realignment through Urban Reserve. The main distinction is that the alignment in Scenario 1 would have to be evaluated as an alternative; if the Scenario 1 option

³² *The section of 175th Ave that lies outside the UGB in this scenario, including the realignment, runs through the AF-5 zoning district.*

turns out to adequately meet the transportation need, then it will be difficult to justify building the Scenario 3 realignment before the land is brought into the UGB.

The new arterial roadways proposed in Scenario 3 to connect from 175th Avenue just south of the hairpin turn to 185th Avenue and the link back to 175th Avenue would have essentially the same set of regulatory issues as described above for the new western arterial under Scenario 2. One distinction, though, is that in Scenario 3, neither of the new roadway connections functions as a true realignment of 175th Avenue. This means that the safety issue at the hairpin turn could not be addressed unless the new connections could be justified as described above or the land was brought into the UGB.

COMPLIANCE WITH WASHINGTON COUNTY TRANSPORTATION POLICIES

PROTECTION OF RURAL AREAS

*Encourage rural economic vitality in Washington County by considering the transportation and land use needs of agricultural and forest industries when designing roadway improvements in the rural area.*³³

*During the concept planning of newly-designated urban areas, strive to design the transportation system so that the traffic associated with these areas may travel primarily through the existing urban area.*³⁴

The Concept Plan is intended to provide a framework for the ultimate urbanization of the entire planning area, including the land that is designated urban reserve and currently outside the UGB. The roadway improvements identified for all scenarios are focused on serving the needs of future urban development in this area. However, the needs of agricultural and forest industries should be considered both in the design of roadways that border the rural reserve and in the phasing of roadway improvements that cross through the URA, in order to ensure that agriculture and forestry enterprises within the URA remain viable until the land is needed for urban development.

Due to the shape and location of the SCMAA and the existing commute patterns and roadway network through the area, traffic will continue to flow through the URA in all three scenarios. Each scenario seeks to improve the safety and efficiency of north-south travel through the URA. This area is intended for future urban growth, but the timing of the improvements to roads that cross through the URA may affect the amount of urban traffic traveling outside of the existing urban area.

³³ Per Washington County Transportation System Plan policy framework (A-Engrossed Ordinance No. 768 – effective December 1, 2014) Strategy 2.4.3

³⁴ Per Washington County Transportation System Plan policy framework (A-Engrossed Ordinance No. 768 – effective December 1, 2014) Strategy 3.4.3

SAFE AND EFFICIENT TRANSPORTATION OPTIONS

Provide a transportation network that is efficient, cost-effective, interconnected, safe, comfortable, and convenient for all modes and that accommodates road users of all ages and abilities.³⁵ Provide improved and new transportation connections within and between developed and developing areas.³⁶

All three scenarios improve connectivity within the planning area and from the planning area to other developed and developing areas, and provide for a transportation network that is safe and convenient for all modes. Scenarios 2 and 3 each provide an additional north-south roadway through the planning area. The performance of the various transportation networks is discussed in the transportation analysis memo.

FINANCIAL FEASIBILITY

Prior to allowing urban development within urban growth boundary expansion areas, develop and implement financing strategies that provide adequate funding for the transportation systems and services necessary for the anticipated urban development as appropriate.³⁷

The financial feasibility of each of the scenarios will be discussed in the early funding analysis memo.

Coordination with Other Planning Efforts

The Concept Plan should fit with on-going planning work for South Hillsboro and West Bull Mountain / River Terrace. All three scenarios have the same uses bordering Scholls Ferry Road near the intersection of 175th Avenue, the area that connects most directly to River Terrace – the planned Beaverton School District high school at the northwest corner of the intersection and Urban Neighborhood (higher density residential development) at the northeast corner. This aligns well with the medium density residential

³⁵ Per Washington County Transportation System Plan policy framework (A-Engrossed Ordinance No. 768 – effective December 1, 2014)

³⁶ Washington County Transportation System Plan policy framework (A-Engrossed Ordinance No. 768 – effective December 1, 2014) -- Goal 7: Connectivity: “Promote the efficient and cost-effective movement of people, goods and services by all modes.” Goal 5: Mobility: “Provide an interconnected transportation network that offers multi-modal travel choices and minimizes out-of-direction travel for all modes.” “Create a built environment that encourages safe, comfortable and convenient active transportation options that are viable for all users.” Goal 8: Active Transportation: “Provide a network of “complete streets” that safely and comfortably accommodate road users of all ages and abilities, including walking, cycling, using mobility devices, taking transit and driving.”

³⁷ Per Washington County Transportation System Plan policy framework (A-Engrossed Ordinance No. 768 – effective December 1, 2014) Strategy 10.2.4

development currently planned for the southwest corner of the intersection and the high density residential development planned for the southeast corner in River Terrace.

The relationship to the South Hillsboro planning work is less direct – the main issue for coordination is the transportation network. The South Hillsboro Community Plan identifies Cornelius Pass Road as an arterial, and 209th Avenue as a collector road. This suggests that Scenario 1, which identifies Tile Flat/Grabhorn Road as a collector road, may be more compatible with the South Hillsboro plan than scenarios 2 and 3 that provide for arterial connections that would link up to 209th Avenue.

SUSTAINABILITY

Solar Orientation Potential

Opportunities for use of passive solar energy for light and heating, as well as the viability of rooftop photovoltaic or solar thermal systems are dependent upon topography, the orientation of the street network, the site-level orientation of structures, nearby tree canopy, setbacks, and proximity to other structures. The scenarios being evaluated have some differences in these variables that may affect the solar orientation of new development, particularly the location and density of new housing.

Generally, aligning residential streets to maximize access to solar resources means orienting streets (and hence front lot lines) within 30 degrees of an east-west access. Much of the study area slopes to the southwest, which increases solar exposure. Areas with steeper slopes have an even greater access to sunlight, particularly in the afternoon. Locating more development on these south-facing slopes could potentially increase overall solar access.

NORTH COOPER MOUNTAIN

North Cooper Mountain (NCM) is largely developed, with many east-west oriented streets.

- Scenario 1 leaves NCM essentially as it is currently, at a “Very Low Density SFR” level. Large lot sizes give new homes more flexibility in their orientation, potentially allowing for a large amount of solar orientation per home, but with fewer homes overall.
- Scenario 2 adds new arterials on the east and west side of NCM and intensifies development somewhat, potentially allowing more residential units to take advantage of existing east-west local streets.
- Scenario 3 has somewhat higher density than Scenario 2, potentially allowing even more single family homes to locate along these east-west streets.

URBAN RESERVE AREA

Much of the URA is taken up by the Cooper Mountain Nature Park. Scenarios 1 and 3 include some residential development near the park. Protection of trees in this area is a concern, and tree canopy could be a limiting factor for solar access for homes in this area.

The eastern portion of the URA is partially developed and has existing streets. All scenarios include a new arterial road to the west of this area, and have no clear difference in how they would affect the future east-west orientation of the local street network.

SOUTH COOPER MOUNTAIN ANNEXATION AREA.

The number of housing units estimated for the SCMAA is the same in each scenario. Scenario 1 has the highest density of development on slope in the western side of the SCMAA, which could potentially offer higher levels of solar access to more homes. It is unclear how the proposed new arterial and collector streets will affect the overall orientation of the final local street network, but all scenarios have a high potential for good solar access due to the area's topography.

Energy Consumption & CO₂ emissions

Energy consumption and CO₂ emissions per household are generally lower for multi-family housing than for single family housing due to efficiencies in heating and cooling larger buildings with fewer exterior walls. In addition, homes on larger lots tend to be larger in size, which generally increases demand for energy. As a result, the housing mix discussed previously has an effect on energy consumption and CO₂ emissions. Scenario 1, which has more detached housing and more homes on larger lots within the planning area as a whole, has the highest energy consumption and CO₂ emissions per household; Scenario 3, which has the largest proportion of attached housing and more homes on smaller lots, has the lowest energy consumption and CO₂ emissions per household.