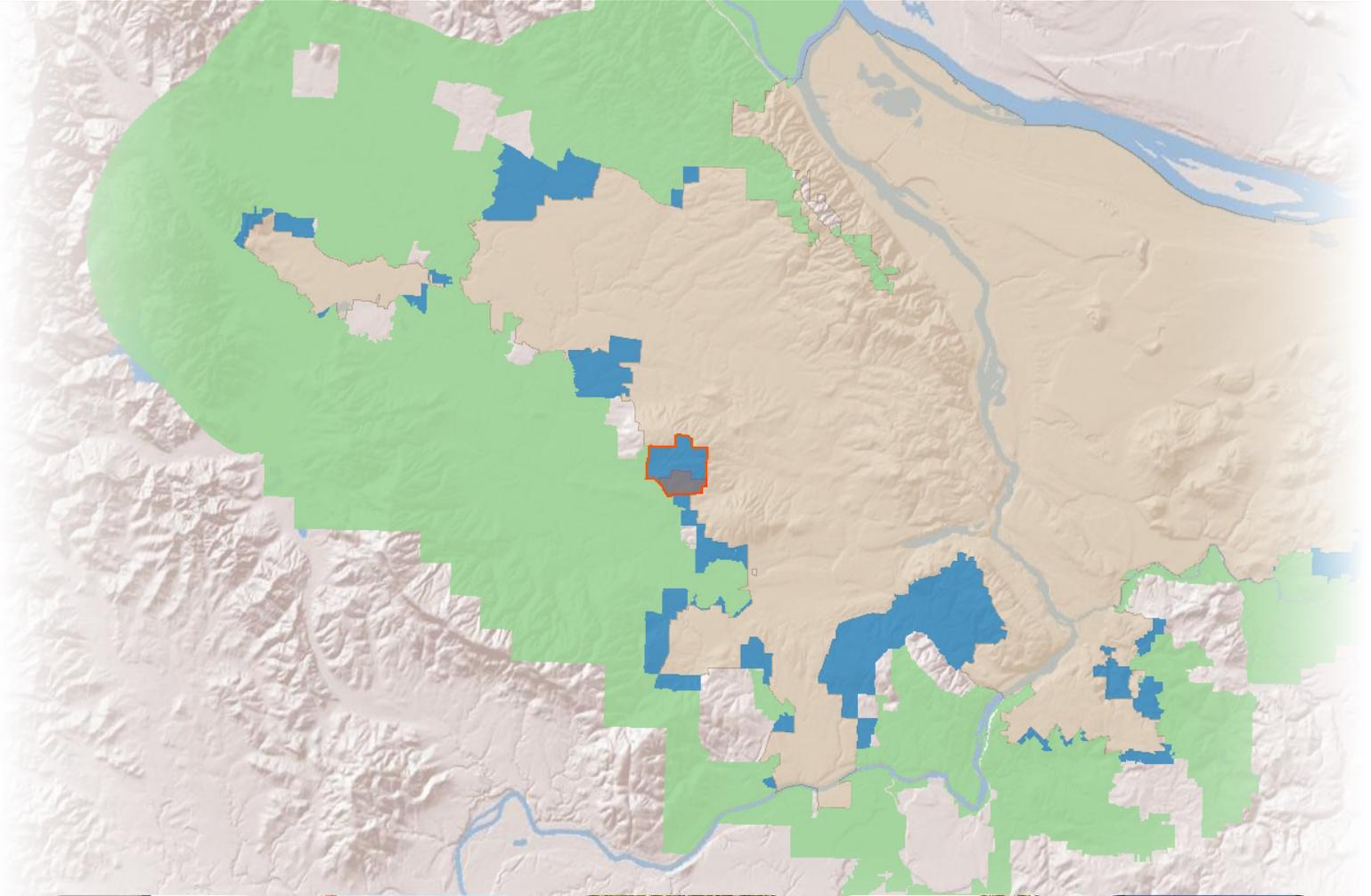


SOUTH COOPER MOUNTAIN PROSPECTUS

June 1, 2011



PROSPECTUS PROJECT TEAM

City of Beaverton

South Cooper Mountain Land Owners

Fregonese Associates

Lancaster Engineering

JPR Engineering



The Best of Oregon

SOUTH COOPER MOUNTAIN

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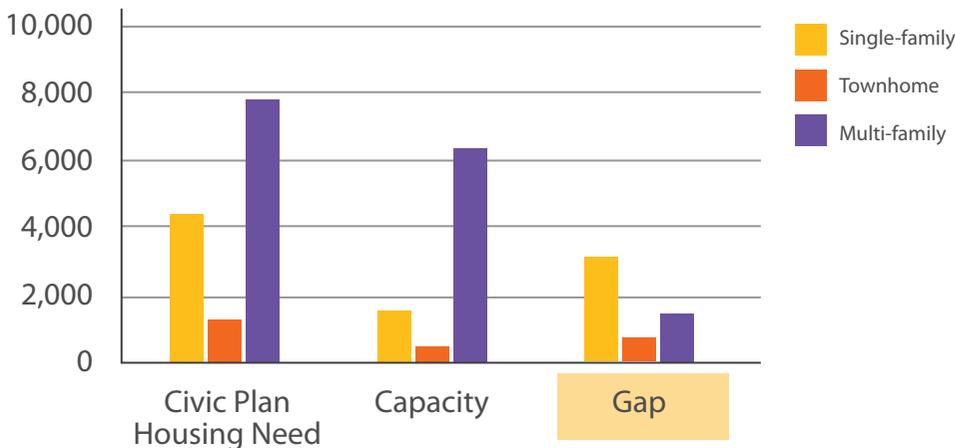
EXECUTIVE SUMMARY

This prospectus is a supplement to the City of Beaverton’s formal request to include a 536-acre portion of Urban Reserves Area 6B known as South Cooper Mountain (total acreage: 1,776) into the regional urban growth boundary (UGB). Following inclusion in the UGB, the City intends to conduct a publicly driven Concept Planning process for the entire South Cooper Mountain area, complete annexation of the 536-acre section (herein referred to as the 2011 Phase), and begin implementation of needed improvements to enable the creation of Metro’s next Greatest Place.

MEETING LOCAL AND REGIONAL NEEDS

South Cooper Mountain is a key component of the City of Beaverton’s recently adopted Civic Plan housing strategy, which identified a need for a total of 13,555 new housing units between now and 2035. From a regional perspective, Metro’s recently published Urban Growth Report indicates that between 224,000 and 301,500 new housing units will be needed between now and 2030. While much of Beaverton’s need will be for multi-family and townhome products, which can be largely accommodated in the Central City and through infill, there remains a sizeable deficit in land supply for single-family homes. The 2011 Phase of South Cooper Mountain is a critical piece of addressing several key city priorities.

Figure 1: Civic Plan Housing Need and Gap, New Housing Units Needed 2008-2035



Source: City of Beaverton Civic Plan, Housing Strategy, 2011

KEY PRIORITIES FOR THE CITY OF BEAVERTON

- Providing sufficient land supply to meet the city’s and Washington County’s identified future housing need
- Supporting the Murray Scholls Town Center and Progress Ridge TownSquare developments, which provide services for Beaverton, Tigard and nearby unincorporated communities
- Making full and efficient use of existing infrastructure and planning efforts, such as the West Bull Mountain urban growth area, Metro and THPRD investments in open space and parkland, Portland General Electric’s newly constructed substation and intersection improvements at SW Scholls Ferry and SW Roy Rogers Roads
- Supporting the Beaverton School District’s urgent need for an additional high school in the southwestern part of the district



MODELING A COMPLETE COMMUNITY

This prospectus demonstrates how the 2011 Phase of South Cooper Mountain can be the setting for a complete community by way of creating three land use scenarios. The scenario analyses accounted for parks and natural resource lands, such as the Cooper Mountain Nature Park and key watersheds serving the Tualatin River Valley. They illustrate how with sufficient investments in infrastructure, the 2011 Phase can help address the city's future housing need with a variety of housing types, and achieve sufficient net residential densities to meet Metro's goals for efficient urban expansion.

Of the three scenarios, Scenario B was used to create a rough estimate of needed infrastructure and transportation investments to support a new community, and to identify opportunities to leverage existing and planned investments in the area. There are several opportunities to coordinate the planning and implementation of transportation and sanitary sewer investments with the nearby West Bull Mountain community planning area. Added opportunities can be found in the expansion of existing water capacity already provided by the City of Beaverton.

This prospectus is not intended to be a Concept Plan, as per Metro's standards. Rather it is a proof of concept, it demonstrates how the 2011 Phase and South Cooper Mountain as a whole will play a key role in the future of Beaverton and Washington County. South Cooper Mountain presents an opportunity to ensure an adequate supply of balanced housing for the City of Beaverton, Washington County and the region within a complete community that supports existing urban areas.

SOUTH COOPER MOUNTAIN LOCAL AND REGIONAL CONTEXT

METRO'S NEXT GREATEST PLACE

South Cooper Mountain¹, positioned at the edge of the City of Beaverton and within 15 to 25 minutes of downtown Beaverton and Hillsboro, is ready to become Metro's next Greatest Place. Comprised mostly of undeveloped land, in close proximity to jobs, shopping and services it represents an opportunity to provide a complete community with a variety of housing options for Washington County's growing population.

This prospectus describes how the South Cooper Mountain area can play an important role in the futures of both the Metro region and the City of Beaverton. It provides a supply of urbanizable land that will allow the City of Beaverton to address a housing need identified within its Civic Plan; it supplies critical access to a high school site for the Beaverton School District, as well as new residents to support the continued growth of the Murray Scholls Town Center. As discussed in Metro's Urban Growth Report, the ability of the region to meet housing supply needs will depend on key decisions about how to invest in existing and newly urbanizing areas.² South Cooper Mountain provides for a new community that is well-located and can be served by existing infrastructure and urban services, given the needed investments. The following pages describe South Cooper Mountain in the context of Beaverton and the Region.

There are two aspects of this prospectus that should be kept in mind. One is that this document pertains to a formal request by the City of Beaverton to expand the Urban Growth boundary by 536 acres in the South Cooper Mountain area. Given that the entire Urban Reserve area may be brought into the UGB eventually, this prospectus considers the entire 1,776 acres. Second, this document is not intended to constitute a Concept Plan, as defined under Metro Title 14, which is a comprehensive planning effort with a crucial public involvement component. Rather, this prospectus demonstrates how South Cooper Mountain can provide for a complete and connected community that furthers Metro's urban growth goals. A full public planning process for the entire South Cooper Mountain area will be required to define in more precise terms the long-term vision and will be conducted once the 536 acre area is brought into the UGB and annexed by the City of Beaverton.

This prospectus provides a proof of concept or sketch for how Metro, the City of Beaverton and their regional partners can help create a vibrant community.

1 For the purposes of this prospectus, South Cooper Mountain refers to the Urban Reserve Area 6B, as defined by inter-governmental agreement between Metro and Washington County. Metro Ordinance No. 11-1255

2 Metro 2009-2030 Urban Growth Report, pg. 130.

Figure 2: Regional Context Map – South Cooper Mountain Hillsboro, Beaverton

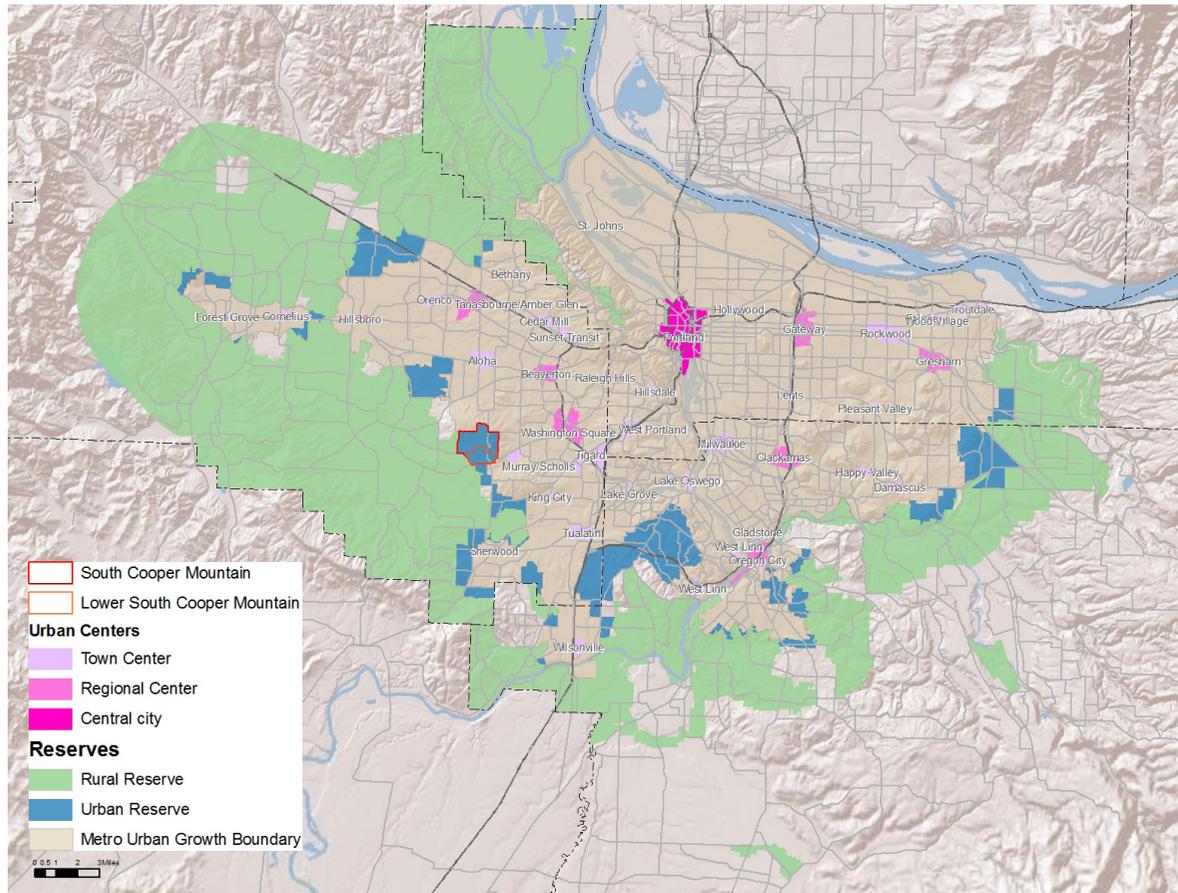
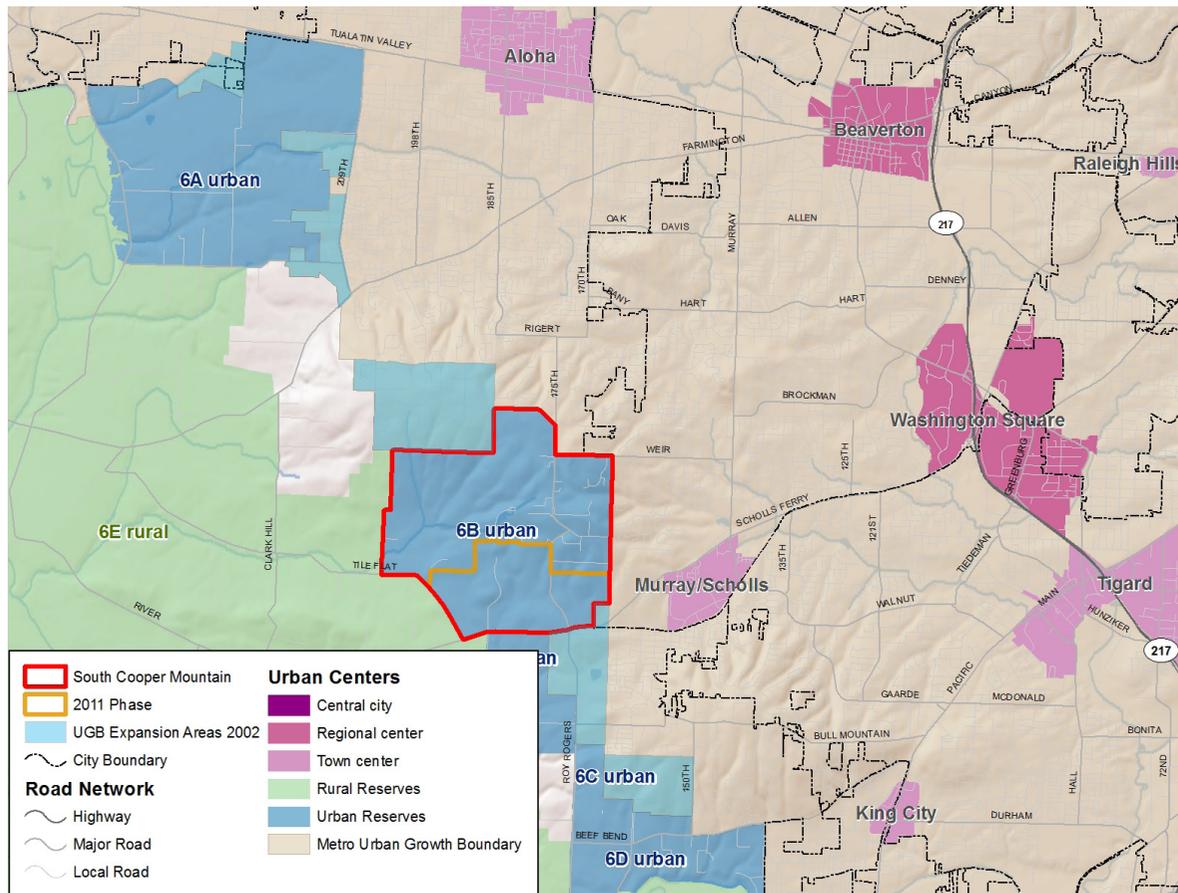


Figure 3: South Cooper Mountain Map



SOUTH COOPER MOUNTAIN LOCAL AND REGIONAL CONTEXT

THE BEAVERTON COMMUNITY VISION, CIVIC PLAN AND THE CITY'S HOUSING NEED

South Cooper Mountain's role in the region begins with the City of Beaverton's multi-year Community Vision. On the heels of that process, which benefitted from the participation of over 5,000 residents, the City developed the Civic Plan, a strategic plan that outlines early, medium, and long-term actions to realizing that vision. Many of the Civic Plan's recommendations were to reinvest in Beaverton's Central City: improve walkability, expand housing options, encourage the densification of employment, especially near transit stations, and better connect residents with Beaverton's creeks and natural spaces. These initiatives are also intended to help attain regional goals by creating vibrant Regional Centers and supporting transit investments.

The Civic Plan also examined citywide growth issues, including employment space and housing need. It should be emphasized that housing need and employment growth are two sides of the same coin; a healthy employment market depends on a responsive housing market, and vice a versa. The Civic Plan housing needs analysis was based on the city's Economic Opportunities Analysis forecast (which was based, in part, on Metro's medium growth scenario) and predicted a demand for approximately 13,500 new housing units between now and 2035.

Table 1: 2035 Projected Housing Demand by Age of Householder

Age of Householder	# of Units	Preferences
Under 25 years	640	Predominantly apartments
25-44 years	2,869	Mix of single-family, apartments/condos and townhomes
45-64 years	3,684	Mix of single-family, apartments/condos and townhomes
65 years or over	6,361	Mostly smaller units including apartments/condos and townhomes

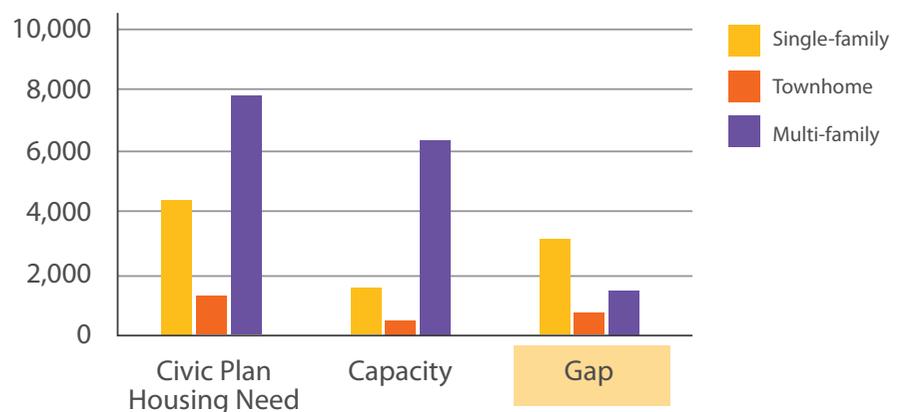
Source: Fregonese Associates analysis

SOUTH COOPER MOUNTAIN LOCAL AND REGIONAL CONTEXT

The projected demographic profile indicated that there is likely to be strong demand for apartments, condominiums, townhomes and similar products. Much of this need will be satisfied by infill, redevelopment, and investment in Beaverton's Central City. The city has already begun implementation efforts to reinvest in the Central City, including a forthcoming Urban Renewal Area plan for submission to the voters, coordination with the Oregon Department of Transportation to explore ways to calm Canyon Road and improve walkability, and working with Clean Water Services, Metro, and other agencies to improve Beaverton's creeks as critical urban amenities. Furthermore, the Civic Plan included a robust bicycle and pedestrian improvement program, which proposes bicycle boulevards and other improvements to encourage active transportation modes.

These efforts are meant to address Beaverton's substantial need for additional multi-family and townhome housing stock. A critical housing type that is also needed, but that Beaverton will have a difficult time addressing due to its limited supply of land, is the single-family dwelling. Only about a third of the projected single-family need can be supplied within the current city boundaries. The city's existing land capacity is primarily for multi-family and mixed-use housing types.

Figure 4: Civic Plan Housing Need and Gap, New Housing Units Needed 2008-2035



Source: City of Beaverton Civic Plan, Housing Strategy, 2011

SOUTH COOPER MOUNTAIN LOCAL AND REGIONAL CONTEXT

It is crucial to ensure that single-family homes, appropriate within the context of complete communities, can be built in the Metro region. The single-family neighborhood provides room for families and can be designed in a neighborhood context that maximizes connectivity and access to amenities. Some of the Metro region's most cherished neighborhoods are made up primarily of single-family homes, and they will continue to play a role in the future growth of the region.

South Cooper Mountain presents an opportunity to ensure an adequate supply of balanced housing for the City of Beaverton, Washington County and the region. As reported in the the City of Beaverton's Pre-Qualified Concept Plan analysis, the area is suitable almost exclusively for residential development, and not not employment uses. South Cooper Mountain's role in the region is to support regional employment by providing needed housing lands.

MEETING LOCAL AND REGIONAL NEEDS

In 2010, the South Cooper Mountain area was identified as an important component of future urban growth and development in the region, through the Urban and Rural Reserve process. This was a landmark collaborative effort between Metro and Washington, Clackamas, and Multnomah Counties to identify the most suitable lands for urban expansion (Urban Reserves) while preserving much larger areas as farming, habitat, and rural communities (Rural Reserves). The resulting agreement provides protection for over 267,000 acres of land as Rural Reserves, an area greater than that currently within the UGB.³ The Urban Reserves identified as part of this process comprise about 28,000 acres of land for the entire region. This is roughly equivalent to the amount of land added to the UGB since 1998, about 25,000⁴ acres – but is intended to serve as the supply of new urban growth land for the next 50 years.

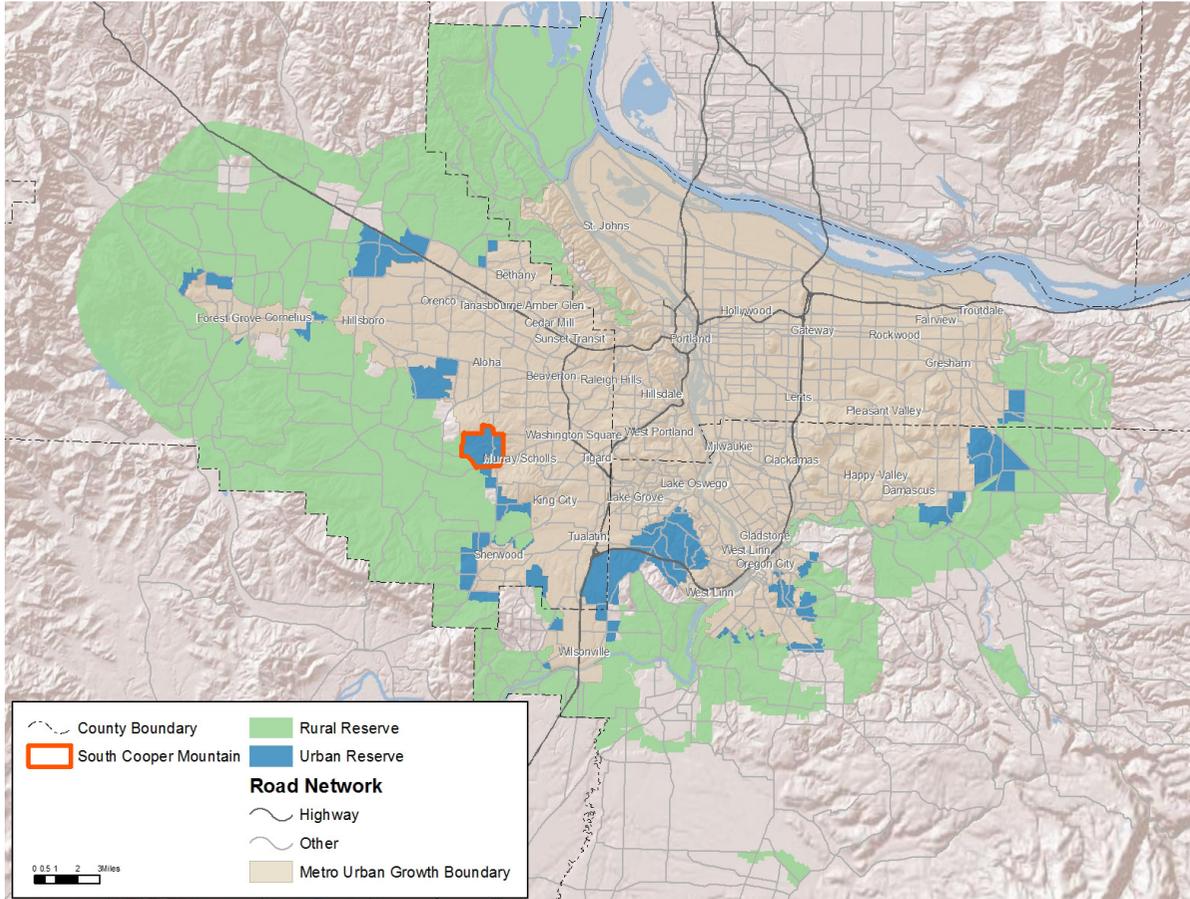
The Urban and Rural Reserves process was an important step to make planning for future urban growth more predictable and effective. It allows resources to be directed toward making complete communities that strengthen existing urban areas and provide equitable opportunities for housing, employment, and recreation. South Cooper Mountain represents a key opportunity to create that kind of place and support the region's diverse and growing economy.

³ Metro Ordinance No. 11-1255

⁴ Metro: <http://www.oregonmetro.gov/index.cfm/go/by.web/id=277>

SOUTH COOPER MOUNTAIN LOCAL AND REGIONAL CONTEXT

Figure 5: Urban and Rural Reserves Map



BEYOND THE UGB

Urban Reserves are lands outside the Urban Growth Boundary that are suitable for accommodating urban development that is sufficient in size to supply diverse housing types, that is supportive of local economies, that is located to provide ease of serviceability, and that can be designed to incorporate natural features and amenities.

Rural Reserves are lands outside the Urban Growth Boundary that protect the region's most valuable, productive and financially viable farms, commercial forests, and significant natural features such as wetlands, rivers, floodplains and savannas.

SOUTH COOPER MOUNTAIN LOCAL AND REGIONAL CONTEXT

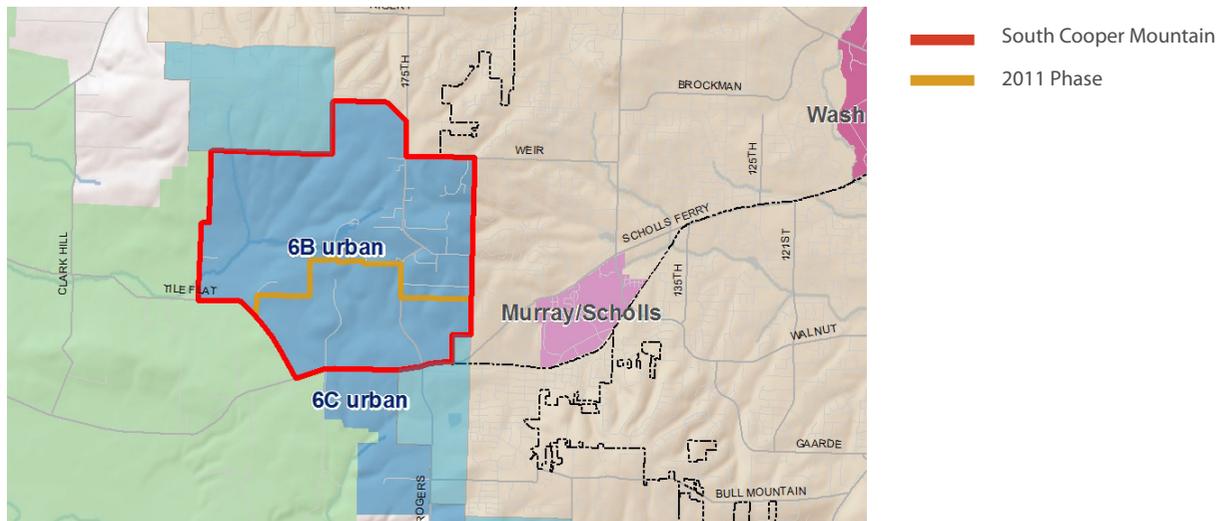
LAND SUPPLY FOR NEEDED HOUSING

While agricultural uses are in place today, South Cooper Mountain does not represent the valuable farming acreage found elsewhere in Washington County. In particular, the 536 acres consisting of Beaverton's 2011 Phase UGB expansion request was classified as Tier 3 due to its lower agricultural productivity, already existing development, and relatively small parcels.⁵ Furthermore, the 2011 Phase area is proximate to existing transportation infrastructure at SW Scholls Ferry Road. A full discussion of constrained and developable land can be found in the scenario discussion of this prospectus.

SUPPORTING METRO 2040 TOWN CENTERS

South Cooper Mountain is well suited for residential development, and the 2011 Phase has the potential to provide between 4,000 and 6,300 additional households to support the Murray Scholls Town Center, located about one mile to the east on SW Scholls Ferry Road. An existing commercial development north of the Town Center includes the Murrayhill branch of the Beaverton City Library, as well as a fitness center, personal services, grocery and retail shopping. Gramor Development Inc., which owns a majority of the commercial property in the vicinity of the Town Center is in support of the additional residential development.⁶

Figure 6: Relationship to Murray-Scholls Town Center Map



5 Washington County Reserves Coordinating Committee Recommendation, September 13, 2009 [excerpted]. By contrast, Tier 1 lands were considered most suitable for rural rather than Urban Reserves, due to their productivity.

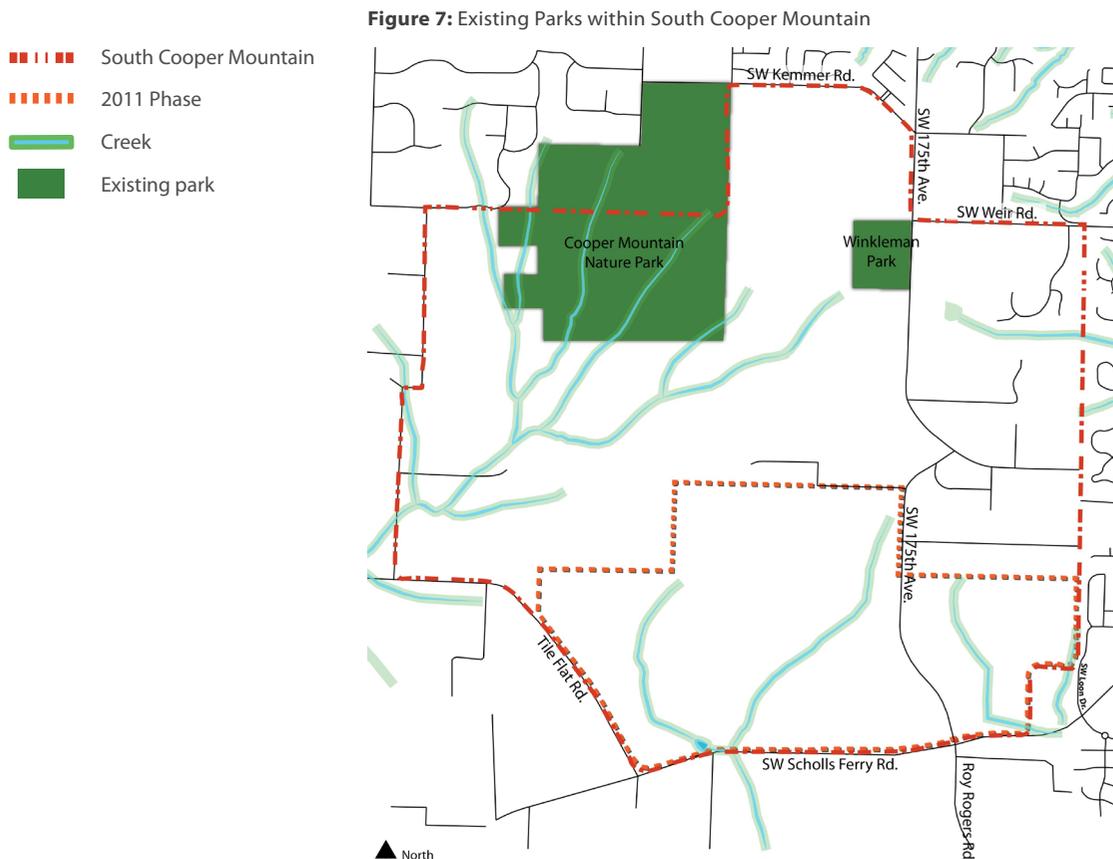
6 State of the Centers, Metro, 2011.

SOUTH COOPER MOUNTAIN LOCAL AND REGIONAL CONTEXT

PROTECTING AND ENHANCING NATURAL RESOURCE INVESTMENTS

South Cooper Mountain includes some important natural resources, which will be a core component of a complete community. The area is home to a portion of the 231-acre Cooper Mountain Nature Park, which is owned by Metro and operated in collaboration with the Tualatin Hills Park and Recreation District (THPRD). This nature park includes three miles of trails, beautiful views and a variety of distinct habitats. Furthermore, it helps to preserve important headwaters for the Lower Tualatin River watershed. The 17-acre Winkelman Park is also located within the area. Additional environmental and natural constraints exist; new development will have to be carefully planned in recognition of these protected areas. (Specific information about constrained lands is discussed on page 18.)

The City of Beaverton and landowners will work closely with Metro, THPRD and other agencies to ensure that the new community in South Cooper Mountain will appropriately protect and enhance sensitive areas while improving access to the region's investments in recreational opportunities.



SOUTH COOPER MOUNTAIN LOCAL AND REGIONAL CONTEXT

SUPPORTING BEAVERTON SCHOOL DISTRICT

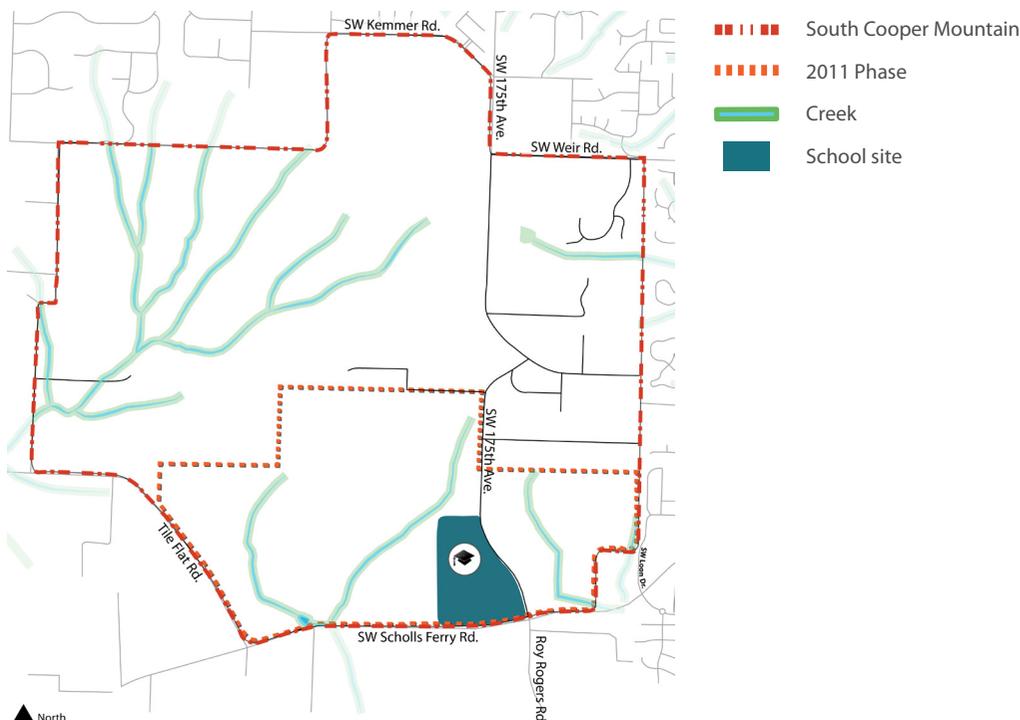
The City of Beaverton has few large developable parcels in its current boundaries and none are located in residential areas where school demands are highest. At the same time however, the District has identified an ideal campus size of 40 acres for the new high school, based on student enrollment, sports and activity space needs.⁷ The South Cooper Mountain area serves as an ideal location, and has been identified in the District's planning documents as a likely investment area.

Including a new school site within the South Cooper Mountain concept planning process represents an uncommon opportunity. Such a plan could incorporate family-friendly housing nearby, enable students to walk and bike to school by designing suitable transportation networks, and provide an opportunity to incorporate uses on the school site that enhance the neighborhood. Coordinated planning will identify and build upon the many benefits for neighbors and students.

At this time, the District has identified a target acquisition area at the northwest corner of SW 175th and Scholls Ferry Road. A 10-acre site for an elementary school will also need to be identified. The City, landowners and Beaverton School District are committed to working together during the Concept Planning process to create new educational opportunities to serve the southwest Beaverton communities and address a critical need identified within the District's facilities plan.

In its recently completed facilities plan, the Beaverton School District identified the urgent need for an additional high school and elementary school.

Figure 8: Potential School Site Map



7 Beaverton School District Facilities Plan, 2010.

SOUTH COOPER MOUNTAIN LOCAL AND REGIONAL CONTEXT



Credit: Beaverton Valley Times

PGE substation at Scholls Ferry Road and Roy Rogers under construction

LEVERAGING INFRASTRUCTURE AND PLANNING INVESTMENTS

A new community located in South Cooper Mountain will be positioned to benefit from proximity to existing and planned urban infrastructure, and provide benefit in return, reinforcing the investments that have already been made in the area.

The area is well served by the existing arterial road network, which has recently been improved with an expanded intersection at SW Scholls Ferry Road and Roy Rogers Road. A new PGE electrical substation is nearing completion adjacent to the South Cooper Mountain area, also near the intersection of SW Scholls Ferry Road and Roy Rogers Road. This \$10.3 million facility is intended to ease demand on the Murrayhill facility to the east, and it will provide for the power needs of South Cooper Mountain, West Bull Mountain, and parts of Beaverton and Aloha. In terms of potable water supply, the City of Beaverton owns a 5.5 million gallon water tank on Kemmer Road at the northern edge of the Urban Reserve. The site was prepared to accommodate an additional 5.5 million gallon facility, which will supply water to the new community. To the south and east of South Cooper Mountain just inside the UGB, West Bull Mountain is engaged in a community planning process that includes a range of housing and two neighborhood retail centers. Development at South Cooper Mountain will build upon the planning and infrastructure investment already established for that community and allow for a comprehensive solution to both areas' infrastructure needs.

Figure 9: West Bull Mountain Concept Plan Map

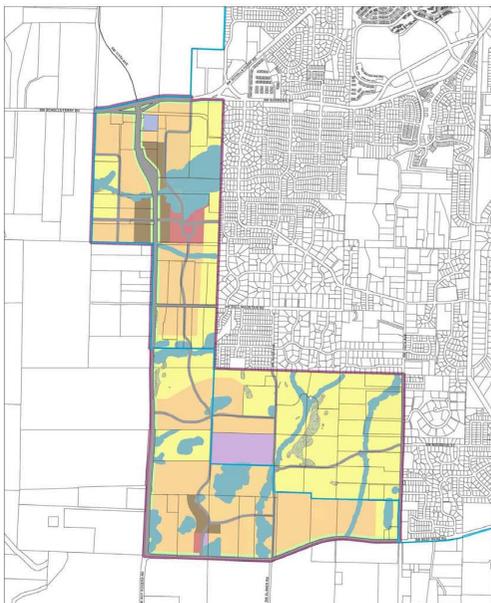
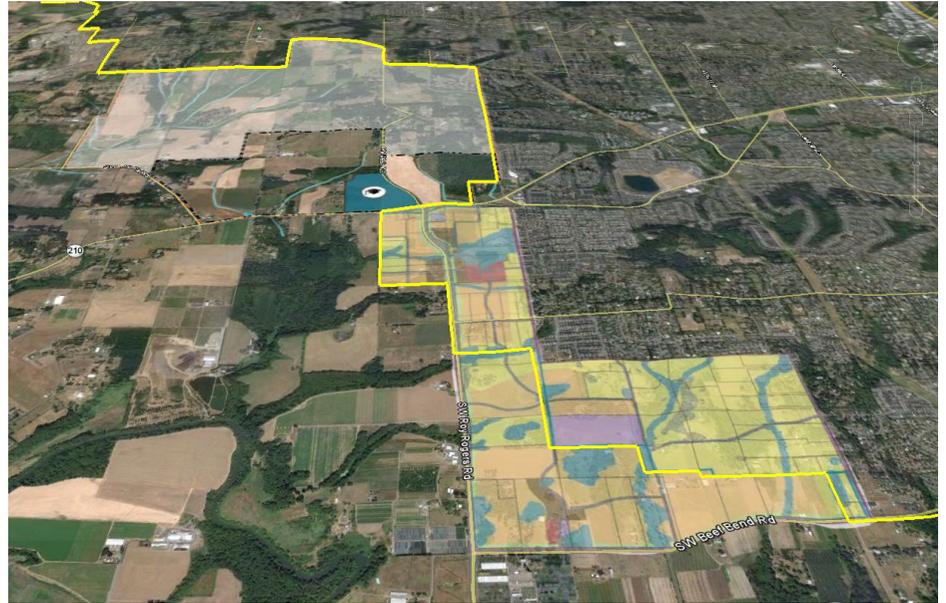


Figure 10: West Bull Mountain and South Cooper Mountain



SOUTH COOPER MOUNTAIN LOCAL AND REGIONAL CONTEXT

LOCAL AND REGIONAL SUPPORT FOR SOUTH COOPER MOUNTAIN

Bringing Urban Reserves into the UGB is just the beginning of a long and complex process to create a new and complete community in the region. It is important to ensure that landowners, cities, service districts and principal partners are committed to a Concept Planning process with robust public involvement and results in a plan and implementation program.

The proposed inclusion of South Cooper Mountain in the UGB and subsequent annexation by the City of Beaverton has received support from stakeholders both inside and outside the Urban Reserve area including:

- Beaverton School District
- Clean Water Services
- Gramor Development (owner of Murray Scholls Town Center and Progress Ridge TownSquare)
- City of Tigard (which will serve the adjacent West Bull Mountain Urban Growth Area)
- Tualatin Hills Park and Recreation District
- Tualatin Valley Fire and Rescue

In addition, ten landowners who together represent 448 acres of land in the South Cooper Mountain Urban Reserve area have expressed their consent and support for this effort and their willingness to undergo annexation. These property owners are located in the 2011 Phase area, and make up approximately 83% of the total 536 acres being sought for inclusion in the UGB. Service provider and landowner letters of support were included with the City of Beaverton's September 1, 2010 letter to Metro.

SOUTH COOPER MOUNTAIN COMPLETE COMMUNITY

PROOF OF CONCEPT

Just as land is limited, so are public planning resources. The proposed addition of South Cooper Mountain to the Urban Growth Boundary and its annexation into the City of Beaverton will require significant time and effort for public engagement, infrastructure planning and investment, and implementation. This section provides an overview of the suitability of South Cooper Mountain as a complete community, based on a scenario planning analysis. It does so by defining a set of characteristics that a complete community should have, and then tests how well South Cooper Mountain can provide the right land, landscape, and connection to existing urban areas.

The region's limited Urban Reserves are intended to provide all the land needed for urbanization for the next 50 years, which means they must perform well as complete communities and support existing urbanized areas. A high-level scenario process was conducted for this prospectus to illustrate the range of possibilities in creating a complete community. This work carries forward the City of Beaverton's analysis of the area during the Reserves process, which found that 98% of of the area's developable land would be suitable for residential, not remployment uses.



SOUTH COOPER MOUNTAIN COMPLETE COMMUNITY

SOUTH COOPER MOUNTAIN SCENARIOS

One of the principle challenges in South Cooper Mountain, or any Urban Reserve area at the edge of the Portland Metro region, is achieving multiple goals: maximizing development capacity, preserving and enhancing ecological function, and working in concert with the marketplace - all within the context of our region's values. For the purposes of this prospectus, a set of three potential development programs was developed to illustrate how both the 2011 Phase and the entire South Cooper Mountain area could be designed to meet the City of Beaverton's and the region's housing needs and create a complete community.

These three development programs are sketch level scenarios that match available lands with a variety of housing options. The ultimate plan and design will be determined through a publicly driven Concept Planning process. Regardless of the eventual housing mix and density, it must be stressed that to be a complete and functioning community, South Cooper Mountain must include a well connected street network, some retail and local services within easy walk or bike-ride of most homes, and good access to neighborhood and regional parks and open space. These are common ingredients of any great community. These scenarios are based on the assumption that such a connected network will be developed.

Constrained Land Assumptions

The first task was to identify areas that are unsuitable for development or where special care will need to be taken during the Concept Planning process to integrate the natural and built environments. Each scenario uses the same basic assumptions about land supply and constraints.

Lands not considered in the scenarios for development include existing parklands, open water and wetlands (including 50 foot buffers), land with steep slopes, Washington County's Goal 5 lands inventory, and Metro's Title 13 high value Habitat Conservation Areas (Table 2).⁸ It was also assumed that existing residential development in the South Cooper Mountain area (brought into the UGB in 2002) made up primarily of single-family homes on large lots, remains

⁸ It should be noted that Washington County's Goal 5 inventory may reflect several duplications of constrained land, particularly in the 2011 Phase area of South Cooper Mountain. It is anticipated that following UGB expansion and annexation that the City of Beaverton and property owners will engage in a process to refine this inventory and update any applicable Comprehensive Plan maps.

SOUTH COOPER MOUNTAIN COMPLETE COMMUNITY

in place.⁹ Finally, the City of Beaverton has evaluated portions of land in the northeast corner of the area which may have unstable soils. Additionally, there are development covenants in the area that limit the densities governments may designate. For the purposes of the scenario, these lands were not considered constrained per se, but were assumed to develop at lower densities on larger lots reflective of the covenant restrictions (roughly 15,000 sf).

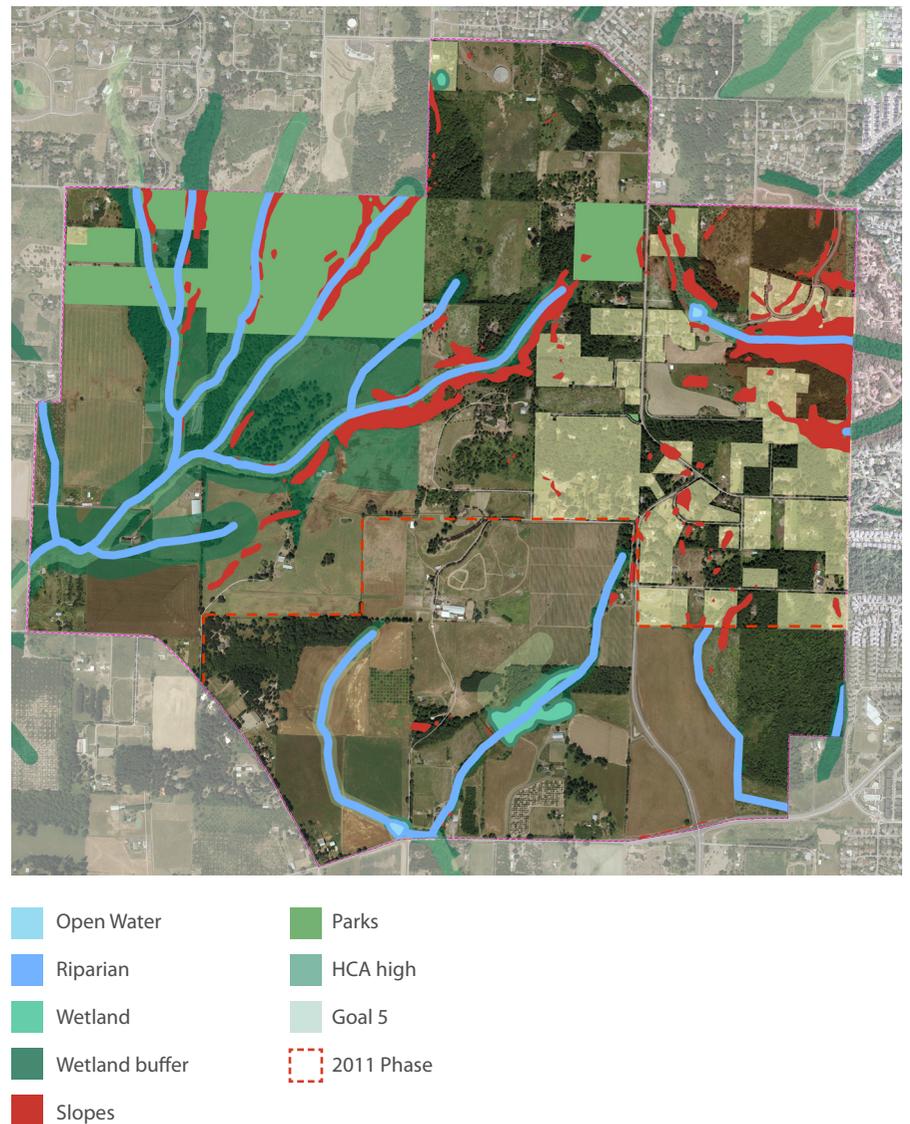
Table 2: Land Constraints

	Acres	
	Full Site	2011 Phase
Constraints*		
Infrastructure, public and existing development		
Existing Roads	43	10
Existing Development (< 5 acres, \$100K building value)	193	-
School Site	40	40
Subtotal	276	50
Natural Constraints		
Open Water	1	1
Riparian Buffer (50 Ft)	96	27
Wetland	6	6
Wetland Buffer (50ft)	6	4
Slopes > 25%	83	2
Parks	136	-
Goal 5 (Washington County)	51	19
Metro Title 13 Conservation Area: High	162	4.5
Subtotal	541	63.5
Constraints Total	817	113.5
Total Land	1,776	536
Gross Developable Land	959	422.5

* All constraints based on Metro data (RLIS May 2010) except Washington County Goal 5 Inventory

** Constraints do not include Title 13 Vegetative Cover delineated in Sept. 2010 COB letter to Metro

Figure 11: Constrained Lands



9 While it is possible that some lands with existing development will redevelop or subdivide, for the purposes of this high-level study it was assumed that properties of 5 or fewer acres with buildings valued at \$100,000 or more will remain. This methodology is consistent with Metro's assessment of land supply during the 2002 UGB expansion process.

SOUTH COOPER MOUNTAIN COMPLETE COMMUNITY

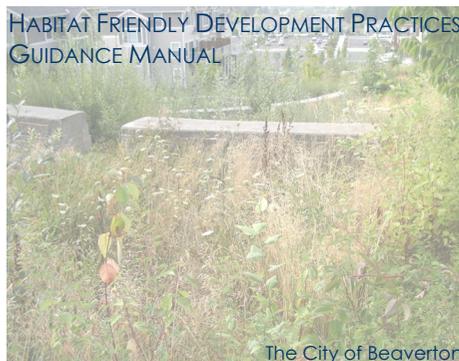
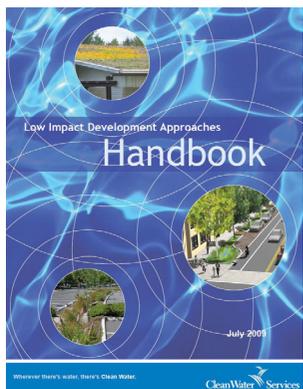
The 2011 Phase area features relatively less constrained land in terms of existing creeks and steep slopes. The 2011 Phase includes several parcels with commercial timber or heavily wooded lands. Some of these properties were identified as Habitat Conservation Areas (HCA) of moderate value. These areas were not classified as constrained for the purposes of the scenario-building process. It should be noted that this is a conservative treatment of the moderate HCA areas. If through the concept planning process it is determined that some moderate lands should be preserved, the net residential density of the area will be affected.

Neighborhood and building design practices can be employed to address habitat and water quality resources. Clean Water Services, in collaboration with Metro has published a Low Impact Development Approaches (LIDA) Handbook that can serve as a guide for how development in South Cooper Mountain eventually takes shape.

The LIDA approach, which is increasingly common in development throughout the region to preserve and protect watersheds and habitat, is intended to incorporate stormwater retention and treatment facilities into neighborhood and building design from the very beginning. Implementation measures such as bioswales and infiltration planters on streets, vegetated filter strips, the use of porous pavement, and other infrastructure elements provide both natural environmental benefits and more attractive and interesting landscapes. Buildings that include green roofs or incorporate rain gardens, swales, and other landscaping features to treat water on-site, also add to the value and attractiveness of neighborhoods.

The City of Beaverton and property owners are committed to incorporating LIDA practices into the Concept Planning and development process. The City of Beaverton has adopted a set of Habitat Friendly Development Practices, which address some of the same issues and provide guidance for community and site design.

Example of LIDA applications in a residential neighborhood, Clean Water Services LIDA Handbook



Credit: Clean Water Services, 2009

- Porous pavement in parking lanes
- Catch basin receives overflows
- Flow-through or infiltration planters at corners
- Street trees for shading and stormwater interception
- LIDA swales, flow-through planters or infiltration planters
- Pedestrian crossing over swale

SOUTH COOPER MOUNTAIN COMPLETE COMMUNITY

BUILDING AND NEIGHBORHOOD TYPES

Metro's Making the Greatest Place initiative strives to build vibrant, mixed-use communities. The realization of a vibrant community requires more than just a calculation of the average number of housing units per acre. The design, proximity and connectivity to other destinations, and mixture of uses contribute toward an overall intensity of development that leads to critical mass of people and ultimately a thriving and interesting place. As such, South Cooper Mountain is set in the context of an appealing balance of easy access to natural assets and jobs, services and retail centers. A diverse mix of development types is needed to make South Cooper Mountain fully capable of meeting the Civic Plan's stated housing needs while also implementing Metro's Making the Greatest Place goals. The following describes how the South Cooper Mountain scenarios were comprised of building and neighborhood types.

Building Types

Building types are theoretical buildings modeled in a spreadsheet. They represent buildings such as single-family homes, townhouses, apartment buildings, and neighborhood serving shops. The calculations account for lot size, unit size, density, and other factors of the built environment. Building types are then combined to create neighborhood types, which are used to build a scenario. For example, a single-family neighborhood type can be designed to include mostly single-family homes on 5,000 square foot lots, with a small portion of townhomes or smaller lot buildings.

SOUTH COOPER MOUNTAIN BUILDING TYPES

Thirteen building types were developed for the South Cooper Mountain scenario exercise.

Standard Residential

Single-family
2 Stories
Lot/ Unit: 5,000/ 2,500 square feet

Compact Single-family

Single-family
2 Stories
Lot/ Unit: 3,500/ 2,200 square feet

Clustered Housing

Single-Family attached (5 units)
3 Stories
Lot/Unit: 10,000/ 1,800 square feet

Townhome

5 Units
3 Stories
Lot/ Unit: 10,000/ 2,200 square feet

Executive Housing

Single-family
2 Stories
Lot/ Unit: 15,000/ 3,000 square feet

Large Lot Residential

Single-family
2 Stories
Lot/ Unit: 10,000/ 3,000 square feet

Apartment – 3 story

Multi-Family (13 units)
3 Stories
Lot/ Unit: 10,000/ 700 square feet

Apartment – 4 story

Multi-Family (23 units)
4 Stories
Lot/ Unit: 20,000/ 700 square feet

Mixed-use Residential – 2 story

Multi-Family (8 Units)
2 Stories
Lot/ Unit: 10,000/ 850 square feet

Mixed-use Residential – 3 story

Multi-Family (10 Units)
3 Stories
Lot/ Unit: 10,000/ 850 square feet

Mixed-use Residential – 4 story

Multi-Family (14 Units)
4 Stories
Lot/ Unit: 10,000/ 650 square feet

Main Street Retail

Retail
1 Story
Lot/ Unit: 5,000 square feet/ N/A

Neighborhood Shopping

Retail
1 Story
Lot/ Unit: 43,560 square feet/ N/A

SOUTH COOPER MOUNTAIN COMPLETE COMMUNITY

Neighborhood Types

Neighborhood types are collections of building types that form a particular kind of community, like a single-family neighborhood or a main street. The South Cooper Mountain neighborhood types are in two categories, residential and neighborhood shopping and services.

Residential neighborhoods describe a variety of housing types and neighborhood feel. They range from large-lot or executive style single-family housing to mixed-use residential. They can be separated into four types of neighborhoods; large lot single-family, standard residential, urban neighborhoods and mixed use neighborhoods.

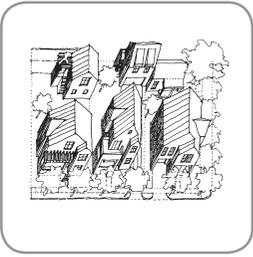
Neighborhood types also assume that a certain amount of land, approximately 25-29% is set aside for future streets, parks, and civic spaces (e.g. utilities). In particular, park and open spaces should be designed to complement the surrounding neighborhood and landscape. Neighborhood types with larger lots will likely be used along the edge of sensitive habitat or watershed areas; this provides opportunities to include paths, trails and native landscapes. Compact residential and more urban neighborhood types should include small parks for residents, their children and family pets.

Table 3: Neighborhood Type Densities and Housing Product Composition

Neighborhood Type	Units/Acre (Gross)	Units/Acre (Net)	Jobs/Acre	Product Mix		
				Single-family	Townhome	Multi-family
Residential Neighborhood Types						
Executive Housing	2.0	2.8		100%	0%	0%
Low Density Residential	3.2	4.3		100%	0%	0%
Standard Residential	8.1	11.2		100%	0%	0%
Compact Residential	10.4	14.6		74%	16%	9%
Urban Neighborhood	15.9	22.4		27%	46%	27%
High-Density Urban Neighborhood	31.3	44.7		0%	12%	88%
Neighborhood Shopping and Services Types						
Main Street	20.2	28.8	14.1	0%	0%	60%
Neighborhood Retail			20.4	0%	0%	0%

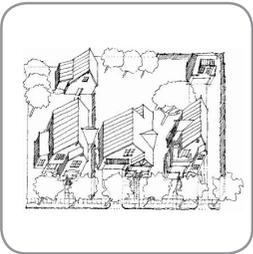
SOUTH COOPER MOUNTAIN COMPLETE COMMUNITY

Residential Neighborhood Types



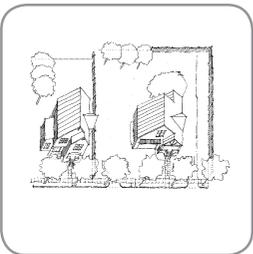
Compact Residential

Compact Residential is comprised primarily of single-family and compact single-family, with smaller portions of cluster housing, townhomes and garden apartments. Houses in these neighborhoods are close enough to the street to encourage interaction among neighbors. There are small neighborhood serving parks interspersed throughout, connections to trails and community gardens. Street connectivity is high, so there are many alternative routes for automobiles, pedestrians and bikers.



Standard Residential

Standard residential neighborhoods are comprised of a mix of single-family homes and compact or small lot, single-family homes. Parks and open space in standard residential neighborhoods can be small pocket parks and playgrounds or larger regional parks that serve a wider area. Street connectivity in these neighborhoods is high, so there are many alternative routes for automobiles, pedestrians and bikers.

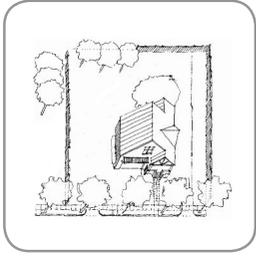


Low Density Residential*

Large lot single-family homes share similar characteristics as executive housing; the primary difference is smaller lot size. These neighborhoods are also likely to be found in the areas with more topographical constraints, where higher density development is less feasible. The type of parks and open space found can range from neighborhood pocket parks to regional parks and natural areas. These neighborhoods have good street connectivity with easy access to nearby destinations.

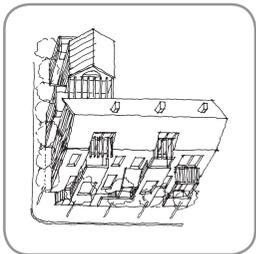


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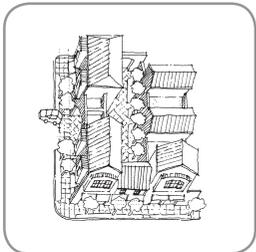
Executive Housing*

Executive style single-family homes describe the largest lot homes in South Cooper Mountain. These neighborhoods are likely to be found in the areas with more topographical constraints, where higher density development is less feasible. Of all the neighborhood types, this will likely be found the furthest from main streets, mixed use development or the highest density housing. The type of parks and open space found can range from neighborhood pocket parks to regional parks and natural areas. These neighborhoods are the most suitable to be located adjacent to natural areas and planning for that interface will be critical. These neighborhoods have good street connectivity with easy access to nearby destinations.



Urban Neighborhood

Urban neighborhoods have a small percentage of compact single-family and cluster housing with the majority being townhomes and garden apartments. Urban neighborhoods are predominately residential in nature, but are distinguished from other residential areas by the wide variety of housing options they offer. The size of parks in an urban neighborhood may be smaller and more developed than the larger regional parks or natural areas found in low-density residential neighborhoods. Urban neighborhoods have high street connectivity, providing walkable access to shopping, schools and other community services.

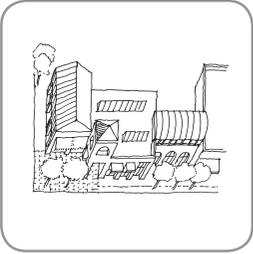


High Density Urban Neighborhood

High density urban neighborhoods are entirely comprised of townhomes and multi-family housing choices. The multi-family types include garden apartments and three and four story apartments. While these neighborhoods are the densest in South Cooper Mountain they still boast ample green space. Parks and open space will take the form of squares, plazas, pocket parks, and community gardens. High density urban neighborhoods have very high street connectivity, providing walkable access to shopping, schools and other community services.

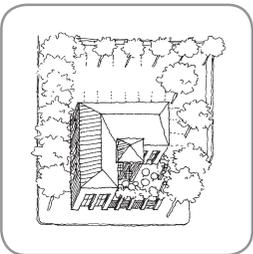
SOUTH COOPER MOUNTAIN COMPLETE COMMUNITY

Neighborhood Shopping and Services Types



Main Street

The main street neighborhood type is modeled after the American tradition of “Main Street” as a place for living, working and shopping. These are active areas with buildings usually set adjacent to deep sidewalks with on-street and shared parking. Large storefront windows will enliven the sidewalk and a portion of the housing can take the form of apartments above ground-floor businesses. Buildings include garden apartments, three and four story apartments, 2-4 story mixed use and one story retail and small offices. Parks in this development type can take the form of both central lawns and hardscaped plazas.



Neighborhood Retail

Neighborhood retail shares some of the feel of the main streets, but does not include housing. Businesses include small scale shopping and neighborhood services. Neighborhood retail is easily accessible from anywhere in South Cooper Mountain and likely provides a focal point of activity for the community. Streets are highly connected and attractive to several modes including automobiles, walk and bike. Parks in this development type can take the form of both green space and hardscaped plazas.



Both main street and neighborhood retail uses will be oriented toward serving the day-to-day needs of residents, but are not intended to compete with the Murray Scholls Town Center. Both are highly connected with extensive streetscaping, wide sidewalks, on-street parking, and should be served by a major collector street.

** Low Density Residential and Executive Housing types were used primarily for areas where soil conditions or environmental constraints required lower densities. The principal single-family types in South Cooper Mountain will be assumed to be standard and compact types.*

SOUTH COOPER MOUNTAIN COMPLETE COMMUNITY

HOW THE SCENARIOS PERFORM

The scenarios were primarily designed to focus on residential neighborhood make-up, design, and density. One of the key reasons for considering South Cooper Mountain as a UGB expansion area is the City of Beaverton's need for additional land to provide for a balanced housing supply. The city is facing a large gap in its ability to address an identified future need, particularly for single-family housing units, for which they have identified 3,000 units that cannot be built on existing land supplies in the city.

The following three scenarios illustrate how the neighborhood types could be applied to the South Cooper Mountain area. The intent of building several scenarios for South Cooper Mountain was to explore multiple alternatives for achieving the goal of creating a complete community. Scenario results were computed for both the 2011 Phase and for the entire Urban Reserve. This is in anticipation of a Concept Planning process that will encompass the full Urban Reserve, even though the City of Beaverton is seeking a portion of the area at present. The technical nature of infrastructure analysis required that one representative scenario be employed for modeling. Accordingly, the outputs of Scenario B, the middle intensity scenario, were used to estimate transportation, water, and sewer needs (discussed in the Infrastructure Assessment section).



SOUTH COOPER MOUNTAIN COMPLETE COMMUNITY

SCENARIO RESULTS

The 2011 Phase of South Cooper Mountain represents a crucial opportunity to close the City of Beaverton’s identified housing land supply gap between now and 2035. Tables 4 and 5 report the basic household and population figures for each of the three scenarios. The entire South Cooper Mountain area will be able to provide for the entire Civic Plan housing need gap (5,083 units), whereas the 2011 Phase will be able to provide between 80% and 125% of the gap, depending on density assumptions.

Because the 2011 Phase portion of the whole Urban Reserve area is made up of land suitable for more compact development, it has a somewhat higher density than the entire Urban Reserve. It should also be noted that the remaining land in Urban Reserve 6B can also be used for Beaverton’s future housing needs beyond the 2035 forecast year, as is consistent with the 50-year Reserves planning timeline.

Table 4: Scenario Indicators South Cooper Mountain (1,776 Acres)

	Scenario A	Scenario B	Scenario C
Population added*	21,590	25,392	29,620
Dwelling units added	8,996	10,580	12,342
% of Civic Plan housing gap through 2035	177%	208%	243%
Dwelling units per net residential acre	12.8	15.1	17.7

Table 5: Scenario Indicators 2011 Phase (536 Acres)

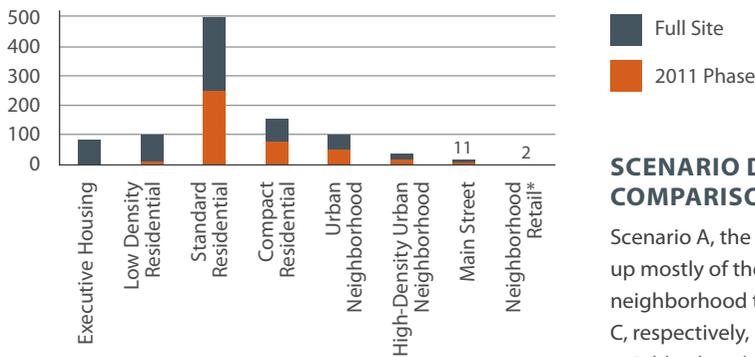
	Scenario A	Scenario B	Scenario C
Population added	9,734	13,420	15,208
Dwelling units added	4,056	5,592	6,337
% of Civic Plan housing gap through 2035	80%	110%	125%
Dwelling units per net residential acre	14.0	19.3	22.0

* Population is derived from housing units, upon which the scenarios are built. A factor of 2.4 persons per housing unit was used to estimate population.

SOUTH COOPER MOUNTAIN COMPLETE COMMUNITY

Each scenario used the same amount of developable land: 981 acres for the entire South Cooper Mountain area and 407 acres for the 2011 Phase.¹⁰ The following figures show the acres of neighborhood type applied by scenario, which produced the density and unit mix. Each chart shows how neighborhood types were split between the 2011 Phase and the full South Cooper Mountain Urban Reserve area. Executive Housing was assumed to be applied only in areas where soil stability issues may make the land unsuitable for higher density housing, which is located outside of the 2011 Phase.

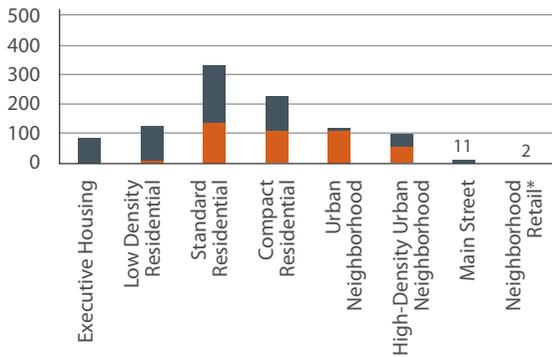
Figure 12: Scenario A Neighborhood Type Acreage



SCENARIO DENSITY COMPARISON

Scenario A, the least dense, is made up mostly of the Standard Residential neighborhood type. Scenarios B and C, respectively, use more intense neighborhood types, thus achieving greater densities.

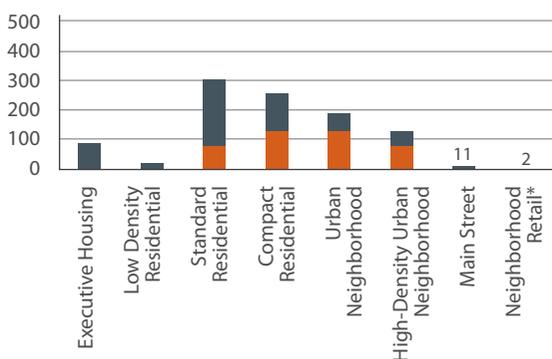
Figure 13: Scenario B Neighborhood Type Acreage



*RETAIL SERVICES

Each scenario was assumed to include a small amount of retail. Each scenario averaged two acres of Neighborhood Retail and eleven acres of Main Street.

Figure 14: Scenario C Neighborhood Type Acreage



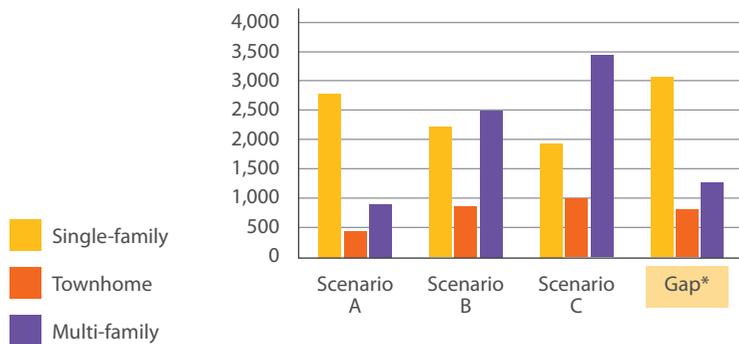
¹⁰ There is a small difference between the scenario acres applied and the calculated supply of developable land. This is usually because boundaries are hand-digitized and scenario neighborhood types are applied to parcels, which might have some overlap with or outside of digitized boundaries. In the case of the full area, there was a 2% difference, in the case of the 2011 phase a -4% difference in acreage.

SOUTH COOPER MOUNTAIN COMPLETE COMMUNITY

2011 PHASE HOUSING MATCH

Because each neighborhood type has at its core the set of building types, it is also possible to estimate the breakdown of unit types for each scenario. The largest proportion of housing units in Scenario A consist of single-family (5,000 square foot lots) and compact single-family (3,500 square foot lots), with about a third of units made up of townhomes (10%) and multi-family units. Scenario B provides a smaller proportion of single-family types and a broader mix and Scenario C relies heavily on multi-family units.

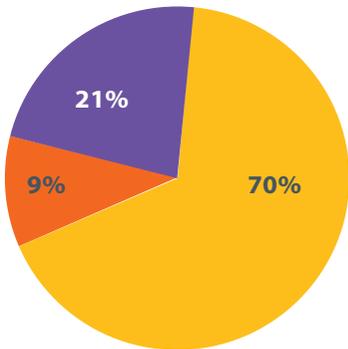
Figure 15: 2011 Phase Area Housing Match by Scenario



Scenario A produces the closest match, providing 90% of the single-family homes needed, whereas Scenarios B and C lean more heavily toward townhome and multi-family housing types.

* The gap represents the difference between the housing need identified in the Civic Plan and current capacity.

Figure 16: Scenario A Housing Mix Total and Breakdown of Building Types



SINGLE-FAMILY

Large Lot Single-Family	1%
Single-Family	42%
Compact Single-Family	22%
Clustered Housing	5%

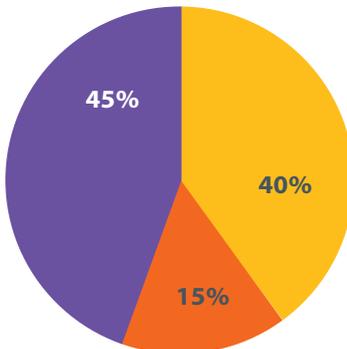
TOWNHOME

Townhome	9%
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MULTI-FAMILY

Garden Apartment	13%
Apartment 3 Story	5%
Apartment 4 Story	3%

Figure 17: Scenario B Housing Mix Total and Breakdown of Building Types



SINGLE-FAMILY

Large Lot Single-Family	0%
Single-Family	19%
Compact Single-Family	14%
Clustered Housing	7%

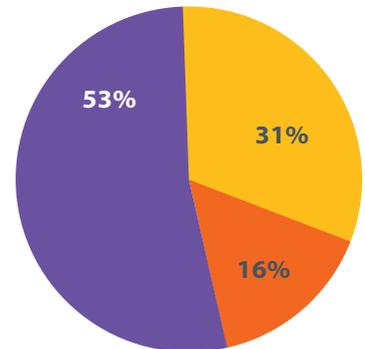
TOWNHOME

Townhome	15%
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MULTI-FAMILY

Garden Apartment	20%
Apartment 3 Story	15%
Apartment 4 Story	10%

Figure 18: Scenario C Housing Mix Total and Breakdown of Building Types



SINGLE-FAMILY

Large Lot Single-Family	0%
Single-Family	12%
Compact Single-Family	12%
Clustered Housing	7%

TOWNHOME

Townhome	16%
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MULTI-FAMILY

Garden Apartment	21%
Apartment 3 Story	19%
Apartment 4 Story	13%

SOUTH COOPER MOUNTAIN COMPLETE COMMUNITY

PARKS, NATURAL AREAS AND TRAILS

South Cooper Mountain is an Urban Reserve area, but it includes open spaces which should be integrated with the future community. The Tualatin Hills Park and Recreation District comprehensive plan recommends a standard of 1 acre of park for every 1,000 residents.¹¹ Virtually every portion of the entire area is within a mile or less of the Cooper Mountain Nature Park, and new residents will have easy access to parkland. In addition, the scenario neighborhood types were designed to set aside an addition of approximately 2% of the land area for park space.

Each scenario used the same quantity of land. Based on the 2% factor, 24 acres of park land are assumed for the South Cooper Mountain area, with about nine acres located in the 2011 Phase. The parks per 1,000 new residents performance by scenario depends on the population, but is close to THPRD's standard, except in Scenario C.

Existing parks are not included in the scenario calculations, therefore actual park acres per 1,000 residents will be higher (see Existing Parks Map, page 11). In addition, 163 acres of land classified as high value Habitat Conservation Area under Metro Title 13 was not included in the buildable land supply for these scenarios. The use of these lands will be discovered during the public planning process.

Finally, opportunities to connect the new community with trails and paths will be identified in the concept planning process. Care will be taken to ensure that open spaces, even when bordered by residential areas, will be well-connected to all neighborhoods.

Table 6: Park Acreage per 1,000 New Residents (not including existing parks and open space)

	Scenario A	Scenario B	Scenario C
2011 Phase	0.9	0.7	0.6
Full Site	1.1	0.9	0.8



¹¹ Tualatin Hills Park and Recreation District Comprehensive Plan, 2006, pg. 22.

SOUTH COOPER MOUNTAIN COMPLETE COMMUNITY

LOCAL SERVING RETAIL

In keeping with the need to provide some nearby retail services to residents (but not create a competing center for Murray Scholls) neighborhood and main street retail uses were limited to about 13 acres of land, representing approximately 1% of the land area used in each scenario. The total square footage of retail for each scenario was approximately 166,000 square feet of space (gross), with most in the form of small format Main Street mixed-use buildings.

SCENARIO LESSONS LEARNED

This exercise has clearly demonstrated that South Cooper Mountain and the 2011 Phase area have sufficient lands to provide needed housing for the City of Beaverton, Washington County and the region. The major trade-off appears to be between density and housing type match, based on forecasted need and preferences.

A development program that assumes a higher proportion of multi-family units may perform well in terms of achieving land conserving densities. However, higher density neighborhoods also need many amenities within walking distance and proximity to high frequency transit, in order for residents and employees to reduce their need to make trips by auto. Beaverton's Civic Plan is largely oriented around developing more housing in Beaverton's Central City, where these factors all come together. But the need for single-family homes is more appropriately addressed in South Cooper Mountain.

The demand for single-family homes is expected to continue in the future, though what we typically think of as a single-family home may be changing. The building types developed for this exercise include a wide variety of single-family product types, from the traditional home on a 5,000 square foot lot to smaller units on 3,500 square foot lots and clustered housing developments with common yards and open spaces. Careful attention to design can ensure that a smaller home on a smaller lot still provides space, outdoor gardening and sitting areas, and a sense of privacy. When built in the context of a well-connected transportation network with multiple routes, slow and low traffic streets that are easy to walk or bike on, these single-family neighborhoods will be desirable and enduring communities.

The following section outlines the results of an assessment of infrastructure needs and opportunities.

INFRASTRUCTURE ASSESSMENT

There are three major categories of infrastructure investments, transportation, potable water, and sewer (measures to address stormwater will be included in the design of buildings, streets, and public spaces). For the purposes of this prospectus, the needs and costs for major systemic improvements were estimated for the 2011 Phase, based on Scenario B population and household figures.

TRANSPORTATION INFRASTRUCTURE

Lancaster Engineering has conducted a transportation assessment for the South Cooper Mountain area to examine the transportation needs associated with urban development in the area. The entire 1,776-acre plan area is considered, but with a more detailed analysis of potential impacts associated with the 2011 Phase. The street system and impacts to existing and planned infrastructure are examined for the 2011 Phase, while anticipating increased demands of the remainder of the plan area in the future.¹²

Scenario B and Trip Generation Estimates

Using Scenario B as a basis, it was determined that the 2011 Phase can accommodate a total of approximately 5,600 households of various residential housing types. In addition to housing and some local-serving retail, the 2011 Phase also provides a site of approximately 40 acres for potential construction of a new high school within the Beaverton School District. This site is currently planned at the northwest corner of the intersection of SW Scholls Ferry Road and SW 175th Avenue.

Travel forecasts were developed by dividing the entire South Cooper Mountain plan area into smaller Transportation Analysis Zones (TAZs) and further into households and employment. These figures were then used to estimate trip generation from the plan area in a manner consistent with the regional travel demand model. Trip characteristics for the high school site were examined separately, making use of trip rates in the manual Trip Generation, published by the Institute of Transportation Engineers (ITE).¹³

¹² This analysis makes use of the significant amount of recent transportation planning and traffic engineering completed for the West Bull Mountain Concept Plan area as well as the Transportation Element of the City of Beaverton's Comprehensive Plan. The Washington County TSP was also considered.

¹³ This approach was used for the school since school traffic generally peaks in the morning and the afternoon. Trip characteristics for the evening peak hour, which is the subject of this analysis, are more accurately considered using ITE trip rates.

INFRASTRUCTURE ASSESSMENT

In total, the 2011 Phase is expected to generate approximately 3,600 trip ends during the evening peak hour under Scenario B. A breakdown of trips by TAZ and additional details on the land use and trip generation analysis is contained in the Transportation Assessment appendix.

Trip Distribution and Street Connectivity

Establishing strong connectivity to the existing and planned transportation system to the east of the plan area is critical to a successful system in the long term.¹⁴ These connections will disperse traffic impacts, reduce trip lengths, and avoid additional impacts to congested corridors such as SW Scholls Ferry Road. The following street connections were considered:

- The travel demand model shows approximately 50 percent of trips to and from the east on facilities north of SW Scholls Ferry Road.
- The majority of these trips will be via planned connections such as Weir Road (Collector) and Beard Road (three-lane Arterial). These connections and functional classifications are shown in the City of Beaverton Transportation Element of the Comprehensive Plan.
- Local street connections are planned via SW Snowy Owl Lane and via SW Black Bird Drive. These will provide local connectivity, but will not serve the larger plan area due to limited carrying capacity as local residential streets.
- The City's Transportation Element also identifies a new Neighborhood Route connecting the plan area to SW Scholls Ferry Road via a new intersection that will replace existing SW 155th Terrace.
- A new street connection was identified to SW Loon Drive near the southeast corner of the plan 2011 Phase plan area. This connection will require widening and street improvements to SW Loon Lane between the new street connection and SW Scholls Ferry Road as well as a change in functional classification to Neighborhood Route for that street segment.

¹⁴ The distribution of trips throughout South Cooper Mountain and the surrounding transportation system was examined using information from Washington County's regional travel demand model. There are two larger TAZs in the demand model that include the South Cooper Mountain planning area. These two zones were examined in detail to determine regional destinations as well as expected travel routes to and from the area.

INFRASTRUCTURE ASSESSMENT

Key Improvements

The following necessary improvements are currently identified in the Washington County TSP and/or the Transportation Element of the City of Beaverton's Comprehensive Plan:

1. Widen SW Scholls Ferry Road to a five-lane arterial east to SW Roy Rogers Road (SW 175th Avenue).
2. Widen SW Roy Rogers Road to five-lane arterial from SW Scholls Ferry Road to SW Beef Bend Road.

The following necessary improvements are identified in the West Bull Mountain Concept Plan:

3. SW Kemmer Road at SW 175th Avenue: Install traffic signal or roundabout, add westbound right-turn lane.
4. SW Scholls Ferry Road at SW Tile Flat Road: Install traffic signal or roundabout, add westbound right-turn lane.
5. SW Scholls Ferry Road at SW Roy Rogers Road: Add additional southbound through lane, northbound left-turn lane, and eastbound through lane.
6. SW Scholls Ferry Road at SW Barrows Road/SW Loon Drive: Assumes five-lane section on SW Scholls Ferry Road.

With development of South Cooper Mountain, the following additional improvements are identified:

7. The sharp horizontal and vertical curvature of SW 175th Avenue will need to be realigned. By 2030, traffic volumes on this segment of road will be such that the existing alignment will create a bottleneck, restricting the carrying capacity of the street. Realignment alternatives should be examined in a more detailed engineering study as the plan area moves through more detailed planning and engineering processes.
8. A Collector-level north/south street connection will be necessary connecting the 2011 Phase area north to SW Kemmer Road. This Collector will facilitate important east/west street connections to Weir Road and Beard Road as well as serve as a parallel route to SW 175th Avenue. Without this north/south Collector, SW 175th Avenue will likely need to be five lanes in width with development of the entire South Cooper Mountain plan area.
9. Widen SW Scholls Ferry Road to a five-lane arterial west to Tile Flat Road.

INFRASTRUCTURE ASSESSMENT

Transportation Cost Estimates

Preliminary cost estimates were prepared for the internal collector-level streets within the 2011 Phase area as well as off-site improvements that this analysis anticipates would be needed with the urban development of the 2011 Phase. Improvements mentioned above that have been previously identified in other planning documents such as the West Bull Mountain Concept Plan are not included in the cost estimates here.

- Costs for three-lane collector-level urban streets within the plan area will range from \$20 to \$25 million, including right-of-way acquisition and bridges.
- Off-site roadway costs will range from \$20 to \$30 million, which includes the realignment of the horizontal and vertical curves in SW 175th Avenue. Further investigation is needed to refine a cost estimate for this improvement.

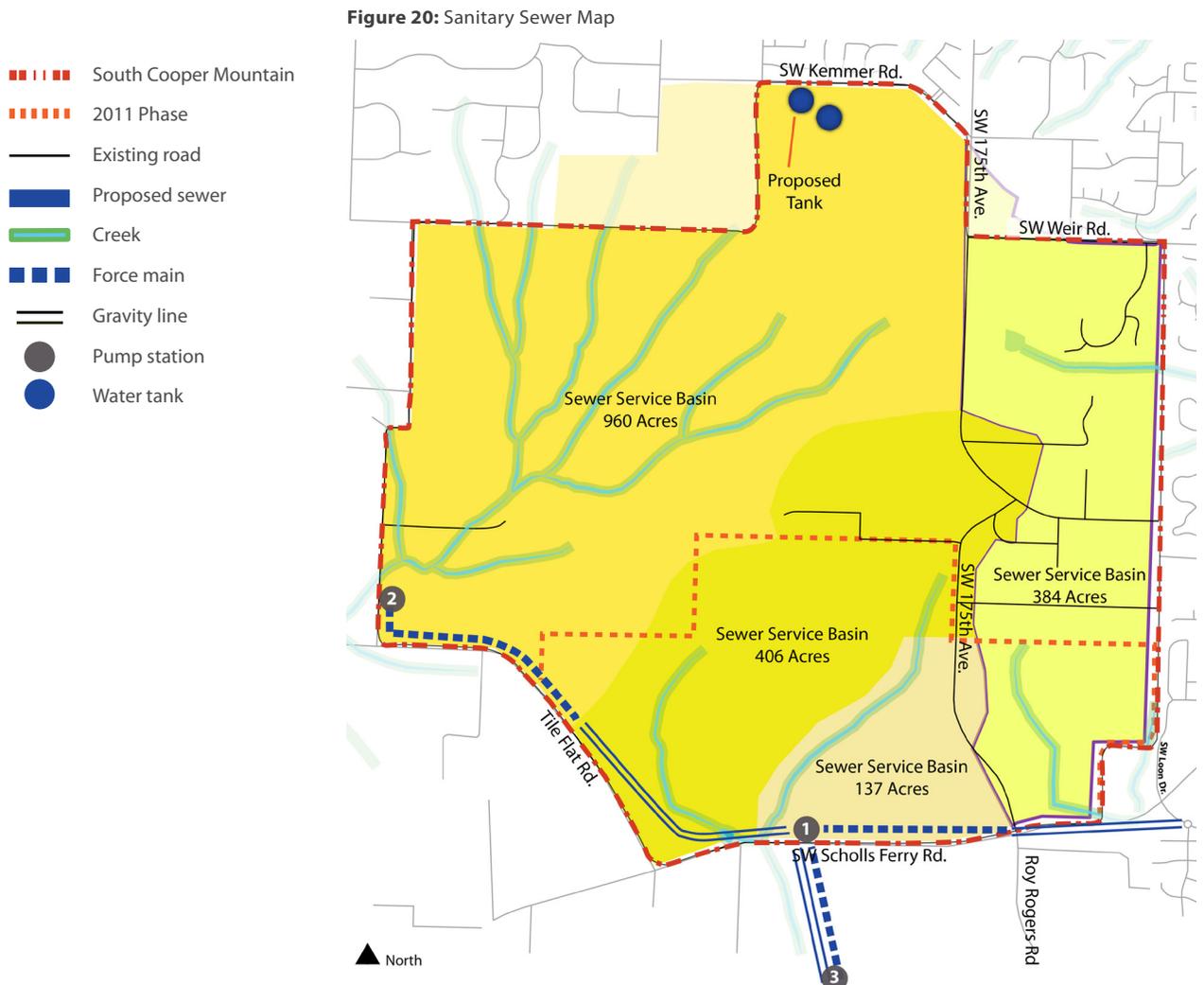
These estimates should be considered rough approximations, based on preliminary analysis. This does not constitute a financing plan for the area, and more detailed analysis will take place during the Concept Planning process. Due to the proximity of the West Bull Mountain Concept Plan area, there exists an excellent opportunity to plan the South Cooper Mountain and West Bull Mountain areas cooperatively. As discussed above, the two areas rely on common transportation infrastructure that can be planned, designed, and constructed to serve both areas.

INFRASTRUCTURE ASSESSMENT

SANITARY SEWER INFRASTRUCTURE

Four main service basins exist within South Cooper Mountain ranging in size from 137 acres to 960 acres (northwest portion) as shown on Figure 20. Within the 2011 Phase, a 384 acre service area located east of 175th Avenue will be served by connecting to existing gravity collection lines within the jurisdiction of the City of Beaverton. It is anticipated that all collection line extensions within this basin will be via a gravity line. Based on a preliminary review, the existing collections systems should have the capacity to serve this specific service area.

The remaining three basins drain south to southwest, falling within the Clean Water Services (CWS) service area. After review of several service options, it was determined that a combination of a gravity and force main collection systems will be the best service system. Figure 20 shows the major wastewater



INFRASTRUCTURE ASSESSMENT

improvements required to serve the 2011 Phase. Gravity collection systems will be installed as development occurs and will drain to Pump Station 1 (along Scholls Ferry Road) and Pump Station 2 (Corner of Grabhorn and Tile Flat Road). Pump Station 2 will lift flows from the 960 acre NW service area to a gravity system along Tile Flat and Scholls Ferry Road eventually draining into Pump Station 1.

Pump Station 1 will be an interim pump station that will be replaced by Pump Station 3 located to the south of Scholls Ferry Road. Pump Station 3 will serve both the South Cooper Mountain area as well as a portion of the West Bull Mountain Concept Plan Area¹⁵. Pump Station 3 is estimated to receive approximately 5 MGD (million gallons per day) from the West Bull Mountain Concept Plan (Alternative A – highest volume) at build-out. Based on preliminary estimated calculations by City of Beaverton Engineering Department Pump Station 3 will receive an additional six MGD, at build-out, from the entire South Cooper Mountain Area totaling 11 MGD from both areas (based on Scenario B). Force mains along Scholls Ferry Road will be sized to accommodate the future capacity requirements of Pump Station 3. It may be possible to forego the temporary pump station if West Bull Mountain development precedes enough to require Pump Station 3 prior to development of the 2011 Phase.

All sewer flows from South Cooper Mountain will be directed to the existing gravity collection system located in Scholls Ferry Road, which is currently an 8” collection line. As identified on Clean Water Services’ most current Sanitary Sewer Master Plan (2009), a capital improvement project has identified a required upgrade of this existing line along Scholls Ferry Road and Barrows Road in order to serve the additional flows from South Cooper Mountain and West Bull Mountain. The existing 8” line will be upsized to a 27” line between Roy Rogers Road and 154th Avenue (4,500’).

¹⁵ Washington County R&O 10-105 adopted November, 2010

INFRASTRUCTURE ASSESSMENT

WATER SYSTEM INFRASTRUCTURE

A 5.5 MGD Water Tank sits at the north end of South Cooper Mountain. The site was prepared with room for an additional 5.5 MGD tank by the City of Beaverton. Existing City of Beaverton water mains ranging in size from 12” to 16” are located in the area of Scholls Ferry Road at the southeast corner of the South Cooper Mountain area. These lines have the ability to convey up to 4 MGD during summer peak demand off of the 550’ pressure zone which encompasses the majority of the 2011 Phase (536 acres).

Peak Day Demand (PDD) (based on Scenario B) for the South Cooper Mountain areas are as follows:

2011 Phase (536 acres): 2.8 MGD

Entire South Cooper Mountain Area (1,776 acres): 5.3 MGD

As shown above, the existing and proposed City of Beaverton water system improvements will provide ample potable water service for the future demands of South Cooper Mountain. In addition potentially half of the 2011 Phase can be served by the existing distribution lines located in Scholls Ferry Road at the southeast corner of the site.

Preliminary Sanitary Sewer Costs (Major Facilities)

In general, the estimated major facilities costs for sanitary sewer are in the range of \$13 million to \$15 million. This range of costs includes all required infrastructure sizing to accommodate the extension of services to the remaining South Cooper Mountain area. There is an opportunity for a substantial reduction in cost if the permanent pump station (#3) is installed in lieu of the interim pump station (#1). This could be likely if development in West Bull Mountain proceeds ahead of the 2011 Phase.

Water Infrastructure Costs (Major Facilities)

In general, the estimated major facilities costs for potable water are in the range of \$8 million to \$10 million. This range of costs includes all required infrastructure sizing to accommodate the extension of services to the remaining South Cooper Mountain area. These figures are preliminary and conservative; half of the 2011 Phase could be served by existing lines, thus reducing overall up-front costs.

Based on the estimated number of dwelling units this range of costs for sewer and water would appear to be covered within a reasonable per dwelling unit system development charge.

INFRASTRUCTURE ASSESSMENT

STORMWATER MANAGEMENT

Stormwater infrastructure is needed to protect the existing natural resources, including wetland and riparian areas that are part of South Cooper Mountain. Stormwater Management for the South Cooper Mountain area will be planned and developed in a similar fashion to the North Bethany Subarea brought into the Urban Growth Boundary in 2002 and recently adopted into ordinance. Treatment of stormwater runoff may include three scales of infrastructure.

Site Treatment: Best Management Practices (BMPs) will be applied at the site level to reduce pollutant transport incorporating recently adopted Low Impact Development Approaches (LIDA) such as rain gardens, green roofs, thermal shading vegetation on buildings and site, on-site porous paving, native plantings instead of lawns, etc. LIDA's will be sized and designed per CWS Design and Construction Standards and create, in essence, a zero effective impervious area at discharge.

Street: The street systems will be the main conveyance systems collecting runoff from treated site stormwater and conveying all flows (quality and quantity) to a downstream destination. Street networks will incorporate similar BMP's consistent with CWS LIDA standards. Appropriate area within the street rights-of-way will be required to incorporate these standards to allow for street side planter boxes, curb extensions, and vegetated swales treating the impervious parts of the street section.

Regional: Regional stormwater facilities were utilized in the North Bethany Subarea to provide downstream treatment of areas that are not required to use a site LIDA and manage runoff from larger storms that overwhelm LIDAs used on the sites and in the streets. They can also be incorporated to provide stormwater detention but in all cases they will only provide backup water quality treatment of the site and street LIDA's as they will be the last line of defense before stormwater is discharged to a natural drainage system.

A complete Drainage Master Plan, incorporating the strategies mentioned above, will be developed through the publicly driven Concept Planning process for the area.

INFRASTRUCTURE ASSESSMENT

INFRASTRUCTURE AND CIVIC FACILITIES FUNDING

The infrastructure investments outlined above will serve as the backbone for a complete community in South Cooper Mountain. Systemic improvements for transportation include collector-level streets, any major crossings or bridges, and off-site improvements, such as intersection and major road improvements, and other needs identified by local long-term planning efforts. It is anticipated that these investments will be funded through a combination of individual joint city capital improvement allocations, public-private partnerships, or other arrangements. Neighborhood-level streets, such as those serving individual developments will likely be financed by development as it occurs, subject to the planning and design standards established in the Concept Plan.

Systemic improvements for potable water would include expansion of the City of Beaverton's storage capacity, most likely through the addition of a second storage tank to the facility on SW Kemmer Road.

As noted above, depending on the phasing of development in the 2011 Phase, new development could be served by existing lines near Scholls Ferry Road, but additional storage capacity will be needed to serve all of South Cooper Mountain. It is anticipated that a new storage facility and trunk lines will be financed through public capital improvement allocations and/or public-private partnerships. Local distribution and service lines to serve new homes will be financed by development as it occurs.

Finally, systemic sanitary sewer improvements will include pump stations to serve the area and new or expanded sewer mains to link South Cooper Mountain with existing Clean Water Services facilities. Several of these improvements are included in the City of Beaverton's Sanitary Sewer Master Plan, and will be subject to a public improvement allocation process in coordination with Clean Water Services. As noted, there is an opportunity for the City of Beaverton, Clean Water Services, and the City of Tigard to collaborate on a sewer pump station and mains to serve both South Cooper Mountain and West Bull Mountain. Local service lines, like streets and water will be provided through development as it occurs.

Parks, plazas, trails and recreation resources will also be needed in South Cooper Mountain. These specific needs and opportunities will be identified during the Concept Planning process, but it is anticipated that local parks and trail connections will be provided through development. The Cooper Mountain Nature Park represents a unique opportunity to tie the new community to a key regional open space facility.

Funding tools for infrastructure and civic facilities include:

- Major Streets Transportation Improvement Program
- Transportation Development Tax
- Local Improvement District (would need to be established)
- Public Bond Issue (likely as part of citywide package)
- Capital Improvement Plan allocations
- Existing system development charges and taxes for the following: parks, sanitary sewer, water, stormwater, schools



CONCLUSION AND NEXT STEPS

This prospectus has provided a high-level overview of the potential for creating a new complete community in South Cooper Mountain. The area benefits from proximity to a number of regional and local facilities, infrastructure and centers, and is made up of lands that are suitable for housing development that will help provide for additional employment growth in the City of Beaverton and Washington County.

The next step for the 2011 Phase of South Cooper Mountain, following its inclusion in the UGB and annexation by the city of Beaverton will be the commission of a public Concept Planning process, in accordance with Title 11 of Metro's Urban Growth Management Functional Plan. This process is designed to ensure that the planning, regulatory, and infrastructure framework that will lead to a complete community is in place before development begins.

At present there are a number of such plans in various stages of completion around the region. Each of these efforts is a collaborative effort between local governments, service providers, Metro, landowners and the public. There is no pre-set formula for financing Concept Plans, and it is anticipated funds will likely come from a variety of regional, local and private sector sources for South Cooper Mountain.

The City of Beaverton is currently seeking inclusion of 536 acres of South Cooper Mountain. Additionally, the city and stakeholders are committed to conduct a Concept Plan for the entire 1,776-acre Urban Reserve. Meaningful public involvement is at the heart of any plan, and the city and its partners are committed to an open and engaging process that will create a compelling and enduring vision and implementation program for all of South Cooper Mountain.

SOUTH COOPER MOUNTAIN

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