EXHIBIT 1

Comprehensive Plan Volume V

COOPER MOUNTAIN COMMUNITY PLAN

Beaverton
OREGON

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INTRODUCTION

PURPOSE

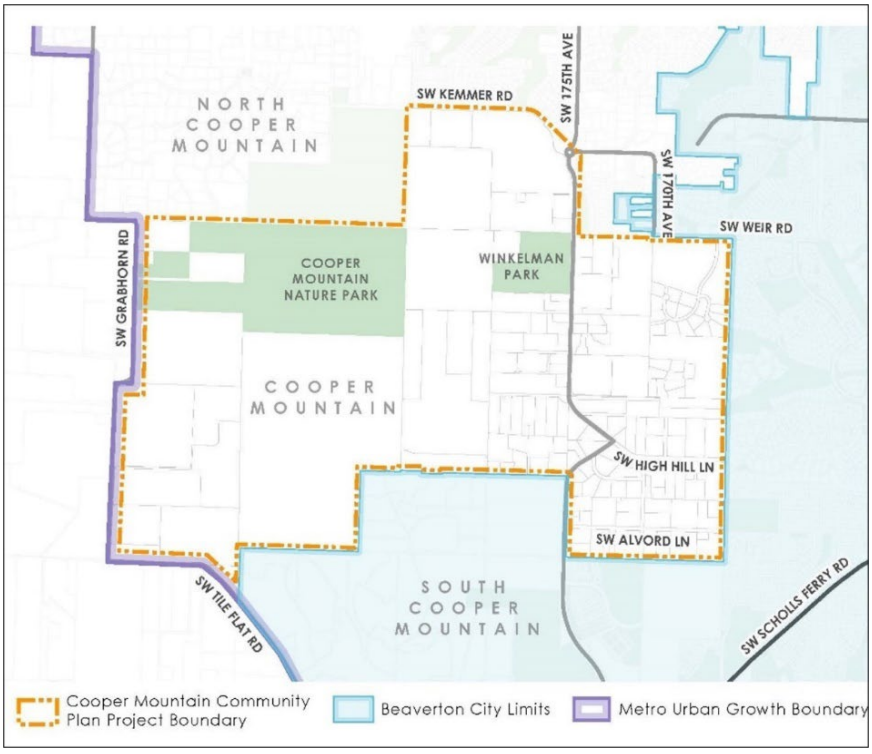
The Cooper Mountain Community Plan describes the vision and intended outcomes for the next 20 or more years of growth in Cooper Mountain. The Community Plan's vision is to create a community of walkable neighborhoods that honor the unique landscape and ensure a legacy of natural resource protection and connection.

The Community Plan is intended to create an equitable and inclusive community. It was prepared with the involvement of a wide variety of community members, including those from traditionally underserved and underrepresented groups. The outcomes described in this plan reflect the ideas and feedback of those participants.

As a part of Beaverton's Comprehensive Plan, the Community Plan is a guiding blueprint for:

- Where and how housing, commercial, parks and other land uses will be developed
- A connected transportation network for walking, biking, driving and future transit
- Natural resource protection and integration into the neighborhoods
- Proactive planning and funding for utilities

Figure 1: Cooper Mountain Community Plan project boundary



The Community Plan describes how Beaverton will promote the addition of new neighborhoods and housing across 1,232 acres that were added to the Metro Urban Growth Boundary (UGB) in 2018. The planning area is in southwest Beaverton generally east of Grabhorn Road and south of Kemmer Road.

2018 URBAN GROWTH BOUNDARY EXPANSION

Beaverton applied for an expansion of the Metro region's urban growth boundary to meet significant housing needs for the city and region. The city in 2015 completed a Housing Needs Analysis that identified the need for additional housing in the city and determined that Cooper Mountain could play an important role in meeting future housing needs. In addition, the city sought to welcome new community members and provide a wide variety of housing choices. The Metro regional government approved the expansion in 2018, and the Cooper Mountain Community Plan was developed to meet regional and state requirements for planning new urban areas.

COMMUNITY PLAN'S ROLE

The Community Plan built on the 2015 South Cooper Mountain Concept Plan, which established a vision for future growth; natural resource preservation and enhancement; and development across a 2,300-acre planning area. Initial development has been occurring in South Cooper Mountain, which is north Scholls Ferry Road and east of Tile Flat Road. The Cooper Mountain Community Plan covers the 1,232 acres north of South Cooper Mountain and was described in the Concept Plan as "Urban Reserve."

The Cooper Mountain Community Plan includes policies and regulatory approaches that are tailored to the unique qualities and opportunities for Cooper Mountain. It reflects community preferences identified during the planning process, as well as direction from the City Council.

As with other goals and policies in the Comprehensive Plan, the goals and policies in this plan report are regulatory. All other aspects of this Community Plan are for reference only and do not take precedence over the above-listed policy documents.The City's Land Use Map is the official land use designation map for zoning and development review. Beaverton's Transportation System Plan will serve as the legal guidance for transportation facilities and improvements.

EXISTING CONDITIONS

This document's goals and policies were informed by research and analysis completed during the project. The project team reviewed existing plans and gathered data to better understand the built and natural systems. Existing conditions documents:

- Examined the developability of land within the project boundary considering existing development patterns, land value, ownership, and physical constraints;
- Explored the ecological context of the project area; and
- Described slope and potential hazard conditions in the plan area, including landslide and earthquake susceptibility.

GOALS AND DESIRED OUTCOMES

COMMUNITY PLAN GOALS

The Community Plan includes eight goals. Each goal is listed in the beginning of the Land Use, Housing, Natural Resources, Climate Resilience, Public Facilities and Infrastructure, Transportation, and Commercial Areas sections. The Cooper Mountain Community Plan policies are the strategies to implement and achieve the goals in each area.

The Community Plan goals include:

1. Create equitable outcomes for residents, including underserved and underrepresented communities.
2. Provide new housing in a variety of housing types and for all income levels.
3. Preserve, incorporate, connect, and enhance natural resources.
4. Improve community resilience to climate change and hazards.
5. Provide public facilities and infrastructure needed for safe, healthy communities.
6. Provide safe, convenient access to important destinations while supporting transportation options, including walking and biking.
7. Provide opportunities for viable commercial uses, including places to work and places to buy goods and services.
8. Identify feasible, responsible funding strategies to turn the vision into a reality.

Walkable Neighborhoods

Nature Trails

Neighborhood Parks

Mixed-use Apartment Buildings

COMMUNITY PLAN CONCEPT MAP

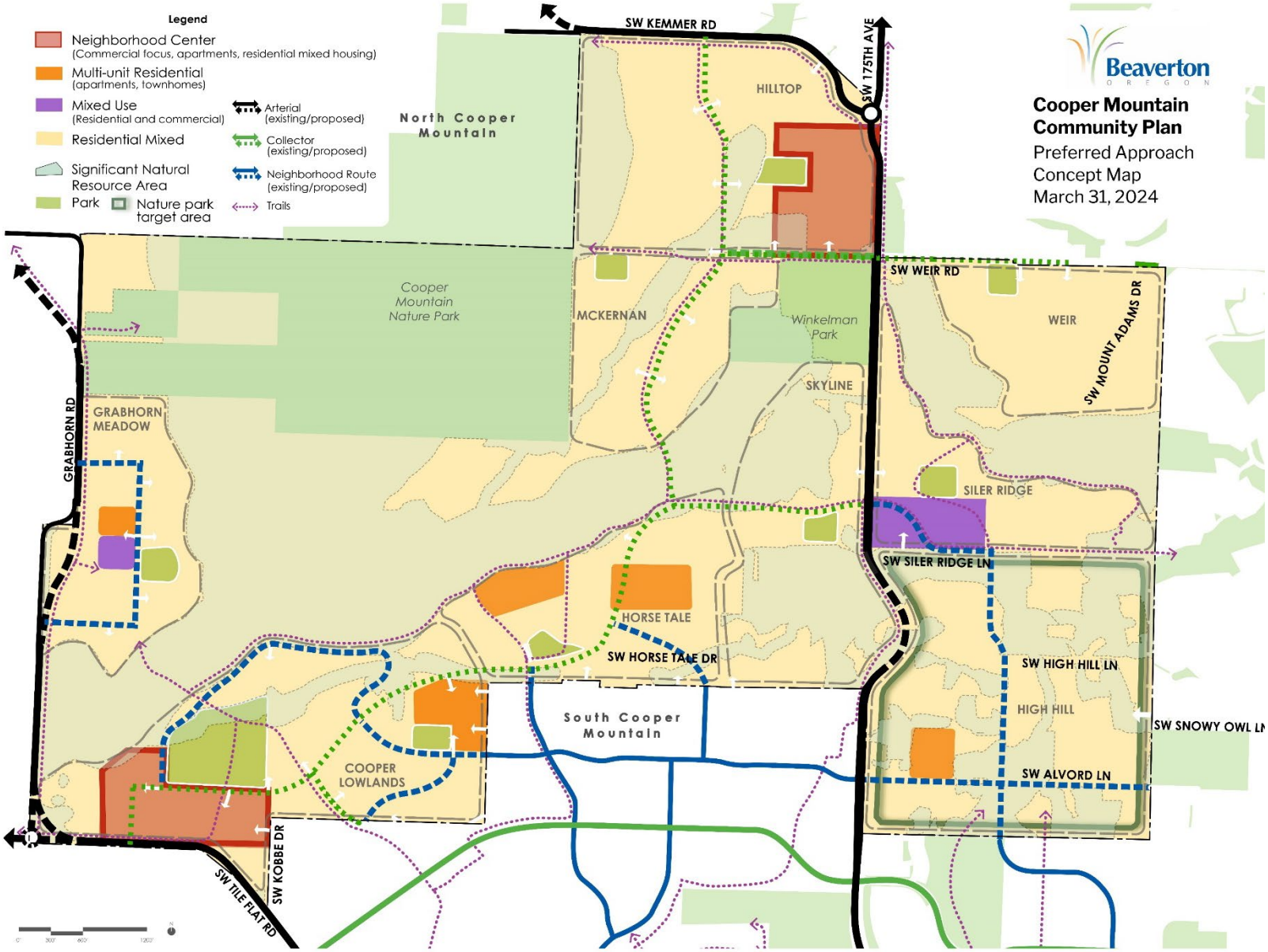
The Community Plan Concept Map in Figure 2 illustrates general patterns of land use, transportation connections, and open space. Key features include:

- A green framework of natural resource areas, wildlife corridors, and parks
- Nine walkable neighborhoods, each with a variety of residential choices
- Two mixed-use neighborhood centers – at SW Tile Flat Road and SW 175th/Weir Road
- Small-scale commercial opportunities close to where people live
- Trails and pedestrian and bicycle connections
- A network of streets – arterials, collectors, neighborhood routes, and potential local street connections

The Concept Map was informed by the project goals, community member engagement, equity considerations, and City Council direction. Cooper Mountain desired outcomes are shown on the map, including:

- **Significant Natural Resource Area:** Areas with the most significant resources (including streams, riparian areas, upland habitat), keeping in mind connected habitat, wildlife corridors, and areas with steep slopes. The amount of development in those areas would be more limited.
- **Neighborhood Centers:** Two areas are shown so people can walk, bike, roll, take transit, or drive a short distance to access goods and services or meet friends and family at gathering places. Each neighborhood center is intended to have:
    - Commercial-focused zoning where some commercial uses would be required. This will provide shops, services, restaurants, and other businesses for nearby residents and passers-by as well as entrepreneurial opportunities. Locations were chosen to provide access to the most people and to provide visibility from major streets to attract customers from outside Cooper Mountain.
    - Opportunities for significant residential development, with focus on multi-unit residential. These opportunities should, where possible, provide at least 6 to 8 acres for multi-dwellings and similar higher-density residential opportunities. In addition, some limited Residential Mixed opportunities can be included to provide a wider range of housing variety.
- **Mixed Use** is shown near commercial centers and parks to provides an opportunity for residential and commercial uses on the same land without requiring commercial. This provides residents of the housing in mixed-use areas with access to nearby commercial, provides more customers for those commercial businesses, and allows flexibility for the real estate market to provide more housing or more commercial depending on demand and financial feasibility.

Figure 2: Cooper Mountain Preferred Approach Concept Map



Note: On this map, most land under the SNRA is designated Residential Mixed.

- **Multi-Unit Residential** areas would allow multi-dwellings (apartments and other housing types that have a higher number of homes per acre) and are shown dispersed across most Cooper Mountain neighborhoods. Multi-Unit Residential is shown in locations where people who live in apartments and similar housing can:
    - Live in neighborhoods with a variety of housing types with households experiencing different levels of income
    - Access, in many cases, nearby shops, services, and gathering places.
    - Easily access nature, trails, and parks
    - Live near collector and arterials streets that are most likely to have transit in the future.

  Apartments and similar housing types often provide housing for people who cannot access homeownership or who need regulated affordable housing because their household is experiencing lower incomes. Ensuring these housing types are near nature, parks, jobs, and transit provides a more equitable housing situation than if only people who own their own home have easy access to those destinations.
- **Residential Mixed areas** would allow single-detached homes, middle housing (duplexes, triplexes, quadplexes, townhomes, and cottage clusters), and small multi-dwellings (five or six units) to provide housing for a variety of household sizes and incomes with a variety of housing needs. The Residential Mixed areas are intended to provide opportunities for many different people and households to live in the same neighborhoods. Although not shown on the map, small-scale commercial uses will be allowed in Residential Mixed areas near parks, neighborhood routes that connect homes to busier collector streets, and some higher-density housing locations. Small-scale commercial uses allow some restaurants, shops, service businesses, and childcare facilities nearer to people's homes.
- **Parks and trails:** Parks are shown in Residential Mixed areas throughout Cooper Mountain to promote access to recreation, nature, healthy activities, and community gathering places. The Nature Park Target Area indicates that the High Hill area could host a small nature park given that the steep slopes and natural resources mean it is less suitable for a neighborhood park. The target area does not specify a specific site for that nature park.
- **Major roads:** The arterials roads, which are SW 175th Avenue, SW Tile Flat Road, and SW Grabhorn Road, are existing roads that will require upgrades to improve safety (turn lanes and controlled intersections, for example) and accommodate more ways to travel (walking, bicycling, using a mobility device, using an electric scooter, etc.). The collector streets, in green, are shown in locations that would link different parts of Cooper Mountain while limiting impacts on natural resource areas.

EQUITY

GOAL 1: Create equitable outcomes for residents, including underserved and underrepresented communities

As established in Beaverton's Diversity, Equity and Inclusion Plan (2019), the city uses race as a primary lens for diversity, equity and inclusion work, which includes guiding policy decisions.

To understand what this means for Cooper Mountain, it helps to have a shared understanding of what these key terms, as defined in the plan:

- **Diversity** includes all the ways that people differ, which encompasses the variation of social and cultural identities among people existing together.
- **Equity** is when structural barriers that have historically disadvantaged certain groups are removed and everyone has access to the opportunities and tools they need to thrive. Equity is measured in outcomes and is achieved when one's identity can no longer predict their success.
- **Inclusion** means that everyone feels welcomed, valued, and encouraged to fully participate and belong.

Why was race used as a primary lens in the Community Plan? In Beaverton, one in three people identify as a person of color and one in five were born outside of the country. The city is becoming increasingly diverse, and yet most communities of color still experience disparities in housing, income, health, education, and more. Using race as a primary lens to draft the Community Plan, especially goals and policies, was an actionable strategy that can help improve outcomes for communities of color in Beaverton and Washington County.

What was the equity and inclusion process? To provide a roadmap for this work, the project team worked through the following steps:

Establishing desired results and outcomes. The Cooper Mountain Community Plan provided the direction for Comprehensive Plan updates, Development Code updates and a Funding Plan that provide the framework to build new neighborhoods in Cooper Mountain. The Community Plan goals include "creating equitable outcomes for residents, including underserved and underrepresented communities," and "providing new housing in a variety of housing types and for all income levels." For the outcomes to be truly inclusive, new neighborhoods should feel welcoming for all types of people, especially people who have not traditionally had access to newer, tree-lined neighborhoods near parks and schools.

- **Collecting and reviewing data to examine existing racial inequities**. Staff analysis of population-level data in Beaverton showed that exclusive single-family neighborhoods are significantly whiter and less racially diverse than multifamily neighborhoods. Historically, the people that lived in single-family neighborhoods have been more likely to own their homes, which provided long-term financial security through the ability to build equity in their homes and share this wealth with future generations.

For the past several decades in the United States, areas with mostly single-family zoning have had higher percentages of residents who were white, higher income and higher wealth. Census-based research has demonstrated that there is a correlation between growing up in single-family neighborhoods and improved outcomes in adulthood, compared to other neighborhood types (this has been confirmed for Beaverton neighborhoods, which mirrors a national pattern of generally improved outcomes in adulthood for children that grew up in mostly single-family areas).

While researchers know that there is a relationship these two factors, they do not know the nature of the relationship between them since there could be many explanations for the correlation. Nevertheless, the pattern encourages the city to think of local solutions to help improve outcomes for children that grow up in different types of neighborhoods.

Staff research also confirmed that renters and communities of color are the groups that are most likely to benefit from more diverse housing options for many reasons, including but not limited to, a history of racial segregation and racist housing practices, the fact that they are more likely to be cost-burdened, and the need to accommodate larger families and/or multigenerational living.

- **Conducting multicultural engagement**. Understanding the documented racial inequities and the desire to improve outcomes for a wider variety of families, the project team prioritized multicultural engagement for the Cooper Mountain Community Plan.

  Over four years, multicultural engagement took many forms, including listening sessions with community organizations; coordination with Beaverton's Inclusive Housing Cohort (a partnership with Unite Oregon); discussions with city advisory committees; a diverse Community Advisory Committee (CAC) with Spanish interpretation provided at every meeting; and Spanish translation provided throughout engagement.

  Community engagement helped define the goals of the Community Plan and establish desired outcomes. In addition, the CAC provided input on alternatives and policies to help shape the community plan. As a result, the Community Plan goals are centered on creating equitable outcomes through implementing safe, accessible communities that are fully connected to natural resources, public facilities, and commercial areas. Each Community Plan goal presented throughout this document was reviewed using a racial equity lens.

- **Evaluating strategies that advance racial equity**. Leading up to this Community Plan, the project team created three alternatives that represented different strategies for growth and development across Cooper Mountain.

  Each alternative addressed the amount, type, and location of housing; the amount, scale, and location of commercial uses; facilities for bicycles and pedestrians; trail and road networks; parks and viewpoints; and natural resource protection and habitat connectivity.

  Three alternative strategies were developed to provide community members with choices and inform community dialogue about the future of the area. Staff provided

the City Council and the community, including multicultural engagement partners, with the affordability and equity considerations for each alternative. Staff then received direction to create a draft preferred approach based on strategies that would result in at least 1,000 additional homes beyond what was originally planned.

Furthermore, another goal of this plan is to support more mixed-income, mixed-race neighborhoods. The Cooper Mountain Community Plan is expected to result in about 5,000 new homes. The policies in this document require that all new neighborhoods include a variety of single-detached dwellings; middle housing, such as duplexes, triplexes, quadplexes, townhouses and cottage clusters; and multi-dwellings to provide increased opportunities for different types and sizes of families to live in Cooper Mountain.

- **Implementing the plan**. To make these new neighborhoods a reality, the Community Plan has an associated funding plan that provides options for how to fund infrastructure and share the cost of new roads, parks, and utilities. In addition, the Beaverton Equity Procurement Program would apply to city contracting opportunities in Cooper Mountain. That procurement program advances equity by encouraging minority-owned, women-owned, and emerging small businesses (MWESB) to do business with the city and establishing minimum participation of MWESB firms in the city's overall dollar amount of contracting and purchasing activities, which helps achieves greater racial and gender equity in city contracting.
- **Ensuring accountability**. Over the long term, the city will measure progress toward the intended outcomes to evaluate whether the Community Plan is meeting diversity and equity goals.

Equity is a part of all eight Cooper Mountain goals. For some examples, the racial equity approach and the goal of inclusive communities informed some of the regulatory approaches in Cooper:

- Aiming for more homes (about 5,000) than required by Metro (3,760) to help address the region's housing shortage.
- Requiring a variety of housing types in larger developments to meet different community members' needs.
- Requiring some integration of housing types so people with different housing needs have opportunities to live in many areas and people with different housing needs can live near each other.
- Setting a target of 450 regulated affordable housing units.
- Providing access to nature for a variety of housing types, including apartments.
- Allowing or requiring commercial development to provide community members access to goods and services as well as entrepreneurship opportunities. Commercial opportunities are provided in two mixed-use zones and through allowing small-scale commercial uses in some locations in the Cooper Mountain – Residential Mixed zone.
- Ensuring access to parks was widely distributed in Cooper Mountain.
- Ensuring land uses and transportation corridors can support transit in the future.

- Protecting and connecting the area's most important natural resources while providing a variety of housing types near those natural elements.

HOUSING

GOAL 2: Provide new housing in a variety of housing types and for all income levels

The Community Plan's housing goal aims to:

- Create a community of inclusive and walkable neighborhoods
- Provide diverse housing choices
- Require housing variety in every neighborhood
- Integrate housing types in every neighborhood
- Provide 450 regulated affordable housing units
- Plan housing as a good neighbor to green spaces and so all housing types have access to nature and parks

CREATE A COMMUNITY OF INCLUSIVE AND WALKABLE NEIGHBORHOODS

A community plan that focuses on land use, development, and infrastructure provision can play its part in promoting an inclusive and walkable community.

Inclusion means everyone feels welcomed, valued, and encouraged to fully participate and belong. An inclusive neighborhood includes people of all races and ethnicities, LGBTQ+ people, people of varied physical abilities; households experiencing a variety of income levels, neurodiverse people, people living in a variety of housing types, and people with other identities, body types, or living situations.

A walkable community of people who live or work in Cooper Mountain or visit Cooper Mountain have non-automobile options to access destinations, such as shops, restaurants, recreation, nature, and their neighbors, friends, and families.

PROVIDE DIVERSE HOUSING CHOICES IN EVERY NEIGHBORHOOD

All housing types — multi-dwellings, middle housing, and single-detached dwellings — are allowed in all Cooper Mountain neighborhoods.

The Community Plan anticipates at least 4,500 homes, with about 5,000 likely because of flexible rules that allow middle housing throughout the Residential Mixed areas shown on the Concept Map. This will help address the shortage of housing in the region, make efficient use of Cooper Mountain's limited developable land supply, and help spread the infrastructure costs for development of this area among more households.

Single-detached dwelling

Duplex

Sixplex

Townhouses

Cottage Clusters

Multi-dwellings

Of these 5,000 dwellings, the housing mix is estimated to be:

- 43 percent single-detached dwellings
- 24 percent middle housing and small multi-dwellings (with 5 or 6 units)
- 33 percent multi-dwellings with at least 7 units.

These values are based on the Cooper Mountain Community Plan Concept Map, draft zoning approaches, and anticipated development outcomes in those areas. The actual outcomes could be different based decisions property owners make about what housing types to build on their properties consistent with development rules.

REQUIRE HOUSING VARIETY IN EVERY NEIGHBORHOOD

In all neighborhoods, the city will require a minimum amount of middle housing and/or five- or six-plexes to ensure a variety of housing types are available for households with different needs. A greater mix of housing provides more options for a wider variety of people and contributes to the creation of inclusive neighborhoods.

INTEGRATE HOUSING TYPES IN EVERY NEIGHBORHOOD

Integrating different housing types within neighborhoods was identified by community members as an equitable outcome that would enable people of varied incomes and housing needs to live near each other. Although new housing tends to be more expensive, housing variety can mean rental units for people who do not have the resources for home ownership, smaller units for people who cannot afford large homes, and plexes that might allow a family to pool its resources to own several units on one lot. Housing variety provides more opportunities for income diversity than zoning that allows all single-detached homes

Villebois, Wilsonville, Oregon, a neighborhood with integrated housing types

BUILD REGULATED AFFORDABLE HOUSING

The Community Plan's goal is to provide at least 450 regulated affordable housing units, including a mix of homes for rent and homes to own. Affordable housing, where feasible, should be dispersed across all neighborhoods. Provision of affordable housing development is dependent on future funding and will likely require the city to partner with private and non-profit developers.

Nesika Illahe, an affordable housing development that prioritizes the needs of Native Americans that belong to federally recognized tribes

PLAN HOUSING AS A GOOD NEIGHBOR TO GREEN SPACES AND SO ALL HOUSING TYPES HAVE ACCESS TO NATURE AND PARKS

The Cooper Mountain Community Plan Concept Map shows housing focused in the most buildable areas of Cooper Mountain, generally away from the highest quality habitat areas and steepest slopes. To minimize impacts on resource areas, the implementation of a Significant Natural Resource Area development rules as well as tree preservation, tree protection, and tree planting rules will be designed to achieve an overall outcome of planning housing as a "good neighbor" to adjacent green spaces. In addition, the plan provides a variety of housing types near natural areas, so people with different housing needs experiencing different household income levels can have access to and enjoy nature and parks.

NATURAL RESOURCES

Goal 3: Preserve, incorporate, connect, and enhance natural resources

The Community Plan's key outcomes for natural resources are to:

- Implement a green framework
- Preserve and protect significant natural resource areas
- Protect Cooper Mountain Nature Park
- Preserve trees and expand tree canopy
- Protect and enhance wildlife corridors
- Integrate best practice stormwater management
- Establish the McKernan Creek Greenway

IMPLEMENT A GREEN FRAMEWORK

The Community Plan calls for a green framework anchored by Cooper Mountain Nature Park, McKernan Creek, and its tributary areas. Natural resources include streams, wetlands, riparian areas, upland habitat areas, and wildlife corridors.

Cooper Mountain Nature Park covers 230 acres of high-quality habitat (120 acres within the Plan area). Approximately 8 miles of mapped streams include tributaries to McKernan Creek and Summer Creek. Wetlands and probable wetlands cover an estimated 23 acres. Riparian habitat areas adjacent to streams and wetlands provide important habitat and water quality functions. Upland habitat areas extend outside of the riparian area, including much of Cooper Mountain Nature Park. Wildlife corridors support movement of large mammals and other species.

Together, these areas are Cooper Mountain's natural area heritage that the Community Plan seeks to preserve, connect, and enhance as the community develops.

The Community Plan aims to focus development outside of the green framework. The resultant buildable areas comprise the neighborhoods where residential, commercial, and public land uses will be located. The transportation connections of the plan are designed to connect neighborhoods, while minimizing impacts and providing access to natural resources.

Cooper Mountain Nature Park

Upland Habitat

Wildlife

Scenic Views

PRESERVE AND PROTECT SIGNIFICANT NATURAL RESOURCES

The Natural Resources Report identifies the significant natural resources within the planning area. The Resource Overlay implements protections for those resources, while allowing limited development. The intent is to balance environmental protections with the reasonable economic use of a property.

For the Community Plan, the significant natural resources include Riparian Habitat (Class 1 and 2), Upland Habitat (Class A and B), and the Cooper Mountain Nature Park. The procedures and criteria for inventorying and evaluating natural resources in Cooper Mountain comply with Oregon Statewide Planning Goal 5 and associated Metro Titles 3 and 13 and are documented in the Natural Resource Report.

Generally, Statewide Planning Goal 5 requires local governments to adopt programs that will protect natural resources for present and future generations. Establishing these programs is also known as the Goal 5 process. This process includes three main steps:

1. Evaluate and determine the significance of natural resources in a planning area.
2. Identify and analyze conflicting uses that exist, or could occur, in significant Goal 5 resource sites and surrounding impact areas.
3. Develop a program to determine whether to allow, limit, or prohibit identified conflicting uses in significant natural resource areas.

Beaverton's Goal 5 program includes updates to Comprehensive Plan policies and Development Code rules that establish and implement the intent of the Significant Natural

Resource Area designation, which includes identifying the areas and activities subject to regulations; establishing rules that limit disturbance areas; providing exemptions/exceptions for some uses, such as nature trails and utility crossings; providing flexibility to avoid or reduce development impacts; and requiring mitigation, such as new tree plantings, in response to development impacts.

PROTECT COOPER MOUNTAIN NATURE PARK

Cooper Mountain Nature Park is a regional park with significant habitat at the north end of the planning area. The nature park provides more than 200 acres of contiguous natural habitat, including headwater streams for McKernan Creek. The Natural Resources Report identifies an impact area around the nature park where increased habitat protections should be applied.

PRESERVE TREES AND EXPAND TREE CANOPY

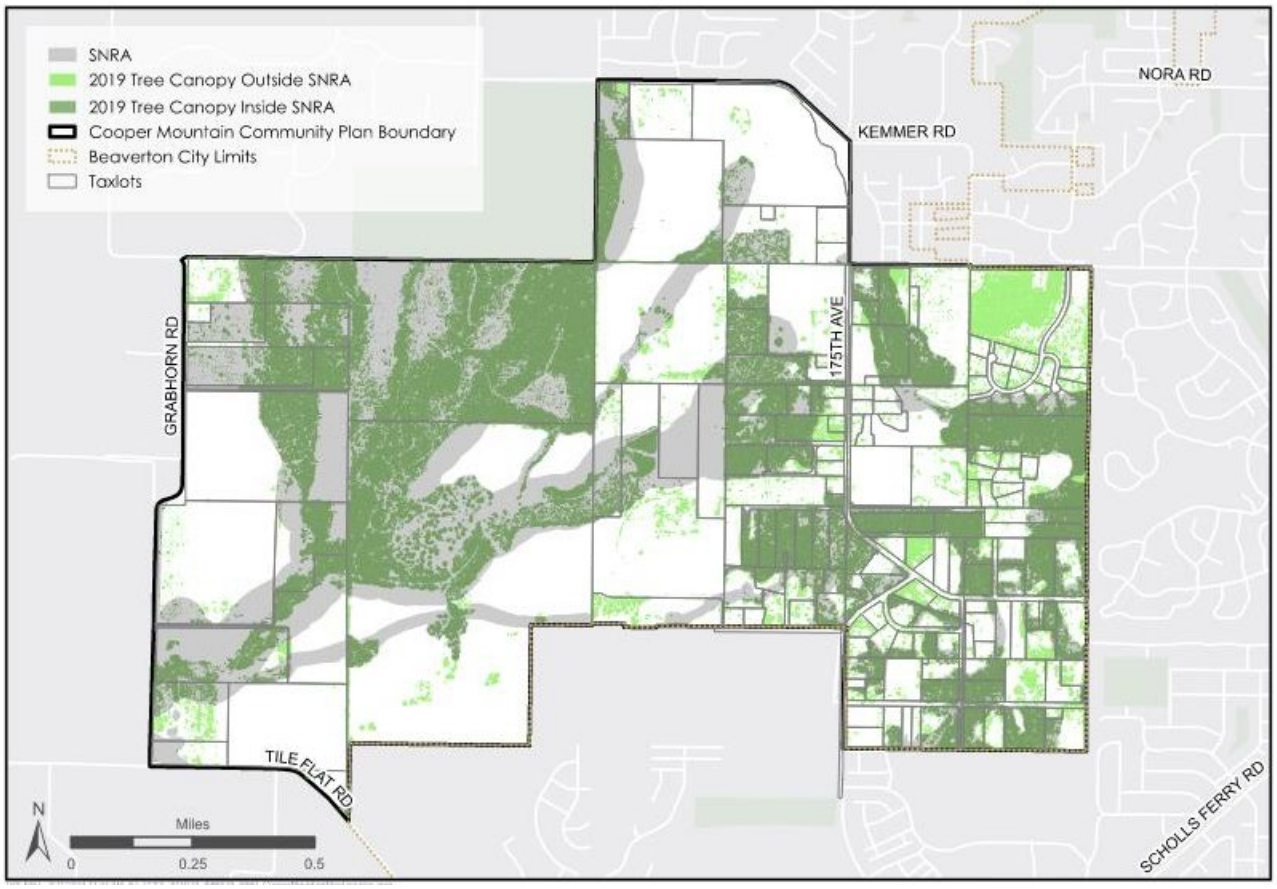
Trees and tree canopy are important parts of Cooper Mountain's natural resources that provide many benefits, such as shade, wildlife habitat, stormwater management, pollutant removal, and carbon absorption.

Although riparian corridors and upland habitat areas are subject to the Goal 5 process, trees are not considered Goal 5 resources subject to inventory and analysis. However, cities and counties may still choose to implement tree protections that advance community goals.

For Cooper Mountain, the Community Plan includes goals and policies that aim to protect Cooper Mountain's existing trees and expand the tree canopy, where possible. For example, the tree policies promote preserving existing trees on site, set minimum tree canopy goals, require mitigation in some situations when trees are removed from a site, and promote new plantings of native and drought-tolerant trees. The policies also support flexibility on sites encumbered by trees so some housing development can occur on those sites.

Figure 3 shows the tree canopy in 2019, at the time the area was added to the UGB. The plan calls for higher tree protections inside significant natural resource areas.

Figure 3: Tree canopy with resource area comparison

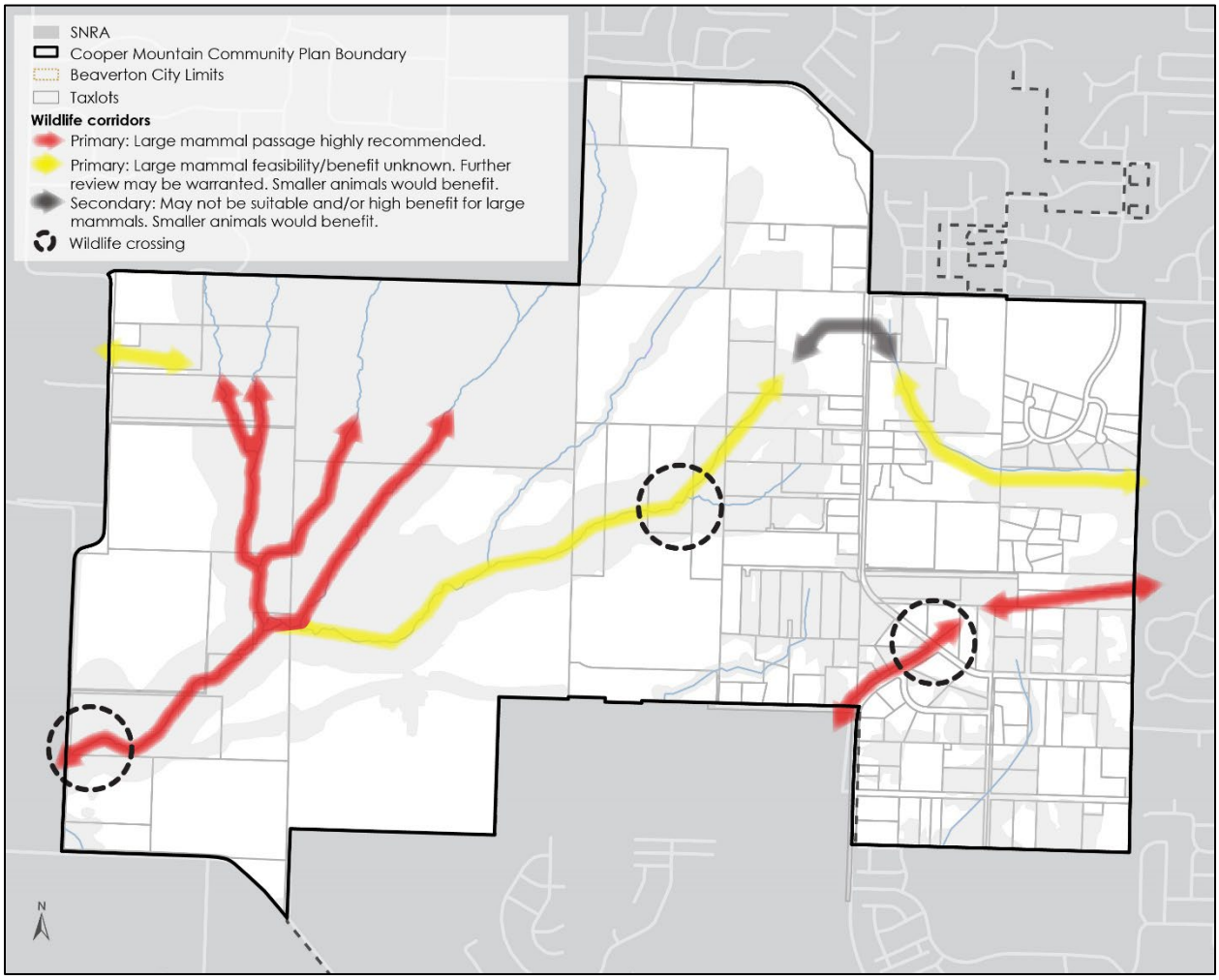


PROTECT AND ENHANCE WILDLIFE CORRIDORS

The wildlife corridors of Cooper Mountain follow the tributaries of McKernan Creek and Summer Creek. The corridors connect areas of high-quality habitat, linking the diverse habitats in Cooper Mountain Nature Park to the lower wetland areas of McKernan Creek.

Figure 4 shows Cooper Mountain's wildlife corridors. Primary wildlife corridors are routes that would benefit from corridor protections to provide safe passage for birds, large mammals, and amphibians. Secondary wildlife corridors may not be suitable for large mammal protections but would still provide benefit from corridor protections for smaller mammals.

Figure 4: Wildlife corridors



The Community Plan aims to protect the highest quality corridors, and where possible, enhance other corridors for continued wildlife use as development occurs over time. Protecting significant natural resources and expanding tree protections collectively protect and enhance wildlife corridors. Other tools and strategies include integrating stormwater management with natural systems, such as planting stormwater facilities with wildlife-friendly landscaping to provide additional habitat; promoting restoration of streams and tributary areas; limiting infrastructure crossings of primary corridors; installing wildlife-friendly culverts or bridges where stream crossings are required; and requiring wildlife-friendly fencing and lighting adjacent to corridors, where possible.

INTEGRATE BEST PRACTICES FOR STORMWATER MANAGEMENT

The Community Plan incorporates stormwater management recommendations from the Cooper Mountain Utility Plan. This includes providing stormwater management facilities for all developing areas to improve water quality and protect downstream areas from negative impacts due to upstream development. Stormwater management facilities may be located within significant resource areas, particularly when those facilities do not require extensive tree removal and are planted with native vegetation to enhance upland habitat areas.

Throughout the planning area, the existing creeks and tributaries provide natural stormwater conveyance channels. The utility plan recommends areas for stream enhancement to dissipate energy from high streamflow events and preserve or restore natural floodplain, stream, and riparian functions. An enhanced stream corridor may ultimately provide numerous social and ecosystem benefits, such as reduced stream incision and erosion, improved flood storage, improved water quality, and accessible natural streams for residents to enjoy.

MCKERNAN CREEK GREENWAY

The McKernan Creek Greenway will be a central and defining feature of the Cooper Mountain area. It is planned as a 2-mile-long regional trail and greenway, open to all. The greenway follows the alignment of the McKernan Creek Regional Trail from the top of Cooper Mountain to the lower floodplain area near the proposed community park. It will integrate public access, trails, natural resources, and stormwater management to support both the ecological and community health of the area.

The greenway will be an active transportation corridor within a short distance of six Cooper Mountain neighborhoods. It will connect visitors and the local community to Cooper Mountain's natural heritage, with opportunities for environmental education and stewardship.

COMMUNITY RESILIENCE

Goal 4: Improve community resilience to climate change and hazards

Climate resilience is the ability of a community to mitigate and adapt to climate change and hazards, both natural and manmade. Mitigation involves taking actions to reduce or slow down the effects of climate change, such as providing active transportation options that reduce greenhouse gas emissions associated with car travel. Adaptation refers to changing rules or behaviors to survive in a new or different environment. This might include requiring a variety of different tree species to be planted for larger sites to ensure all trees on a site are not threatened by a disease, pests, or climate change.

Tool and strategies that aim to improve community resilience include, but are not limited to:

- Opportunities for small and attached dwellings, which promotes energy efficiency in residential development.
- Policies, plans, and code standards that will reduce transportation-related greenhouse gas emissions through walkable neighborhoods and bicycle and pedestrian facilities that connect neighborhoods and key destinations.
- Protection of the Cooper Mountain's natural systems and integration of them into future neighborhoods.
- Tree canopy goals and requirements that will help reduce heat island effects from urban development.
- Stormwater approaches to minimize and mitigate flooding and erosion, enhance water quality, and provide flexibility to manage increasing rainfall and larger storm events.
- Opportunities to provide purple pipe water infrastructure (a system that collects and treats stormwater to be reused for non-potable uses, such as irrigation for lawns and landscaping) where feasible to reduce the use of treated drinking water and recharge groundwater.
- A transportation network with pedestrian and vehicular connectivity that allows first responders to provide emergency response to the Community Plan area.

PUBLIC FACILITIES & INFRASTRUCTURE

Goal 5: Provide public facilities and infrastructure needed for safe, healthy communities

The Community Plan's public facilities goal will be implemented through the following strategies:

- Provide a range of parks and community gathering spaces
- Support expansion of Cooper Mountain Nature Park
- Coordinate and implement utility plans
- Establish McKernan Creek Regional Trail

PROVIDE A RANGE OF PARKS AND COMMUNITY GATHERING SPACES

The Cooper Mountain Community Plan identifies a range of park types and uses that will be incorporated across the Community Plan area. Conceptual park locations were identified in close coordination with the Tualatin Hills Park & Recreation District and other stakeholders where parks would be easily accessible to the largest number of future residents and visitors. In addition to the Cooper Mountain Nature Park, a special use regional park, the Community Plan area is expected to have community parks and neighborhood parks.

Community parks

The Community Plan area includes one community park, Winkelman Park. A new community park is proposed in the Cooper Lowlands neighborhood, adjacent to McKernan Creek and the neighborhood center along Tile Flat. This location provides a larger park amenity near the intersection of important green spaces, higher density residential development, and good transportation access for a variety of travel modes.

As a larger park, the new community park could serve the entire Cooper Mountain area and beyond and provide sports fields and active recreation, activities which typically require more space.

Neighborhood parks

Neighborhood parks are proposed in eight neighborhoods where a neighborhood park is feasible given the terrain. (High Hill is less suitable because it has steep slopes, natural resources, and smaller lots.) The goal is that all homes are served by parks within a half-mile walkable area and the park network is connected by trails to natural resource areas and the regional trail system.

THPRD neighborhood parks standards indicate the size and amenities that will meet the needs of surrounding neighborhoods.

Table 2 lists the eight new neighborhood parks planned for Cooper Mountain and opportunities for siting the parks to serve the needs of each neighborhood. Some sites could serve nearby high-density housing, and others could provide public access to high-quality viewpoints and/or views of natural resource areas.

Table 1: Neighborhood parks planned for Cooper Mountain

Neighborhood	Park Acreage	Opportunities
Cooper Lowlands	2 acres	Adjacent to a multi-dwelling areas and along a Neighborhood Route for easy accessibility
Horse Tale	2 acres	Adjacent to multi-dwelling area and a trail;
Skyline	2 acres	Adjacent to multi-dwelling area; adjacent to trail; accessible from Collector road
McKernan	2 acres	Good viewpoints; adjacent to trail and natural resources; site serves both McKernan and Hilltop neighborhoods
Hilltop	3 acres	Good viewpoints; near areas that allow commercial and multi-dwellings
Weir	2 acres	Serves neighborhoods north and south of Weir Road
Siler Ridge	3 acres	Adjacent to multi-dwelling and mixed-use area; adjacent to trail
Grabhorn Meadow	3 acres	Good viewpoints; adjacent to mixed use and multi-dwelling areas
TOTAL	**19 acres**	

Urban plazas

The Community Plan indicates the benefits of urban plazas in each neighborhood center to support community gatherings. Per THPRD standards, such plazas are intended for urban settings with higher density development and would ideally be incorporated into commercial/mixed use areas. The plazas should be designed as public gathering spaces that foster community interaction and civic pride. Urban plazas would be incorporated into the development of the commercial areas in the Cooper Lowlands and Hilltop neighborhoods.

Trailhead parks

Small trailhead parks should be located at key entry points to the trail network, such as at an entrance to the Cooper Mountain Nature Park and at access points to the McKernan Creek Regional Trail. Trailhead parks are not shown on the Concept Plan Map because the locations will be identified as neighborhoods and trails are designed. Trailhead parks may include amenities such as wayfinding, restrooms, play equipment, and seating for trail users.

SUPPORT EXPANSION OF COOPER MOUNTAIN NATURE PARK

Cooper Mountain Nature Park is the crown jewel park and greenspace on Cooper Mountain. It is 230 acres in total, and the southern portion (140 acres) is within the Community Plan

area. The Community Plan identifies the park as a significant natural resource and calls for the park to be protected from development through a natural resource overlay and landscape buffers.

The expansion of Cooper Mountain Nature Park, likely to the south, has been explored for many years. Such expansion was strongly supported by the community during the Community Plan process. The City of Beaverton supports the expansion of the Nature Park and coordination related to that effort with Metro, Tualatin Hills Park & Recreation District, property owners, and others as expansion possibilities are discussed.

COORDINATE AND IMPLEMENT UTILITY PLANS

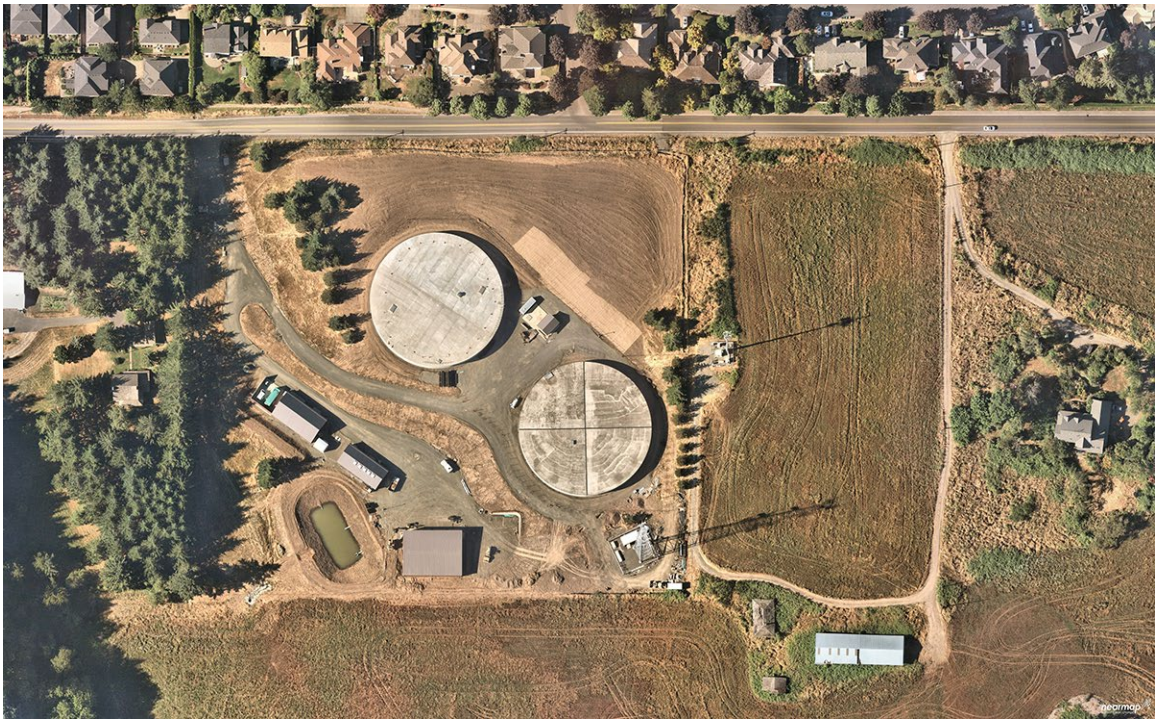
The city intends for utility infrastructure — water (potable and non-potable), sewer, and stormwater management — to be implemented in the plan area in conjunction with development. The Cooper Mountain Utility Plan was prepared in conjunction with this Community Plan. The housing goals and planned commercial areas will require significant expansion of the public facilities. The utility plan outlined a framework of required public utility services that are needed to support growth of Cooper Mountain.

The utility plan includes locations of existing and potential water reservoirs, pump stations and transmission lines to increase service capacity and improve resiliency across the city's water system. The plan also recommends where non-potable (purple pipe) water reuse systems could be extended from South Cooper Mountain into the Cooper Mountain area.

Where feasible, water service and sewer trunklines will be co-located with transportation corridors (roads or trails) to provide better maintenance access. Clean Water Services will construct a new sanitary sewer pump station to provide service across many planned neighborhoods.

Stormwater management will be integrated with other public uses. Examples include locating low impact development approaches for water quality treatment within right-of-way, landscaped stormwater treatment facilities in parks and urban plazas, or larger facilities planted with native vegetation incorporated into natural areas. The Utility Plan outlines a regional stormwater strategy for the McKernan Creek subbasin that considers opportunities to restore degraded natural resources and convey stormwater through enhanced and restored stream corridors.

The city's intended outcome is to work with development and public agency partners to deliver the utility systems needed to support the growth of Cooper Mountain.



An existing water reservoir on SW Kemmer Road

ESTABLISH MCKERNAN CREEK REGIONAL TRAIL

The Community Plan includes strategies to protect natural resources across Cooper Mountain, including the greenway along McKernan Creek. This plan places a high value on connecting neighborhoods to natural areas. The concept map shows the preferred location of a new regional trail along McKernan Creek, with connections to the existing THPRD trail network. The alignment follows the Route 1 corridor (see Figure 5) across the upper portion of Cooper Mountain. Starting at the corner of SW 175th and Weir Road, the alignment extends west to upper McKernan Creek, then follows the creek to its lower floodplain area at the future Community Park and SW Grabhorn Road undercrossing. It is planned as a two-mile long regional trail, open to all.

The regional trail provides access and viewpoints to natural areas, while protecting the natural resources that are a defining feature of Cooper Mountain. Connecting trails will provide walkable access between the regional trail and most Cooper Mountain neighborhoods, Winkelman Park, and Cooper Mountain Nature Park.

SCHOOLS

The Beaverton School District and Hillsboro School district each has about half of Cooper Mountain, with Hillsboro on the west side and Beaverton on the east side. Both schools have long-term school plans that would accommodate serving students within the Cooper Mountain area.

The border between the districts runs north-south parallel to the eastern boundary of the Cooper Mountain Nature Park. Beaverton School District has 55 percent of the area within its boundary, and Hillsboro has the remainder.

Goal 6: Provide safe, convenient access to important destinations while supporting transportation options, including walking and biking.

Beaverton is committed to building a complete, well-maintained, accessible, and connected system of public streets that provides a way for people of all ages and abilities to travel safely, comfortably, and reliably to where they want to go.

The Community Plan's transportation goal will be implemented through the outcomes listed below and described in this section. The planned outcomes are to:

- Create complete streets
- Provide many active transportation choices and connections
- Plan and design for transit readiness
- Create a connected network

The transportation maps below illustrate a connected network of pedestrian routes, bike paths, trails, and a hierarchy of streets: arterials, collectors, and neighborhood routes (Figure 5 and Figure 6).

Figure 5: Transportation corridors

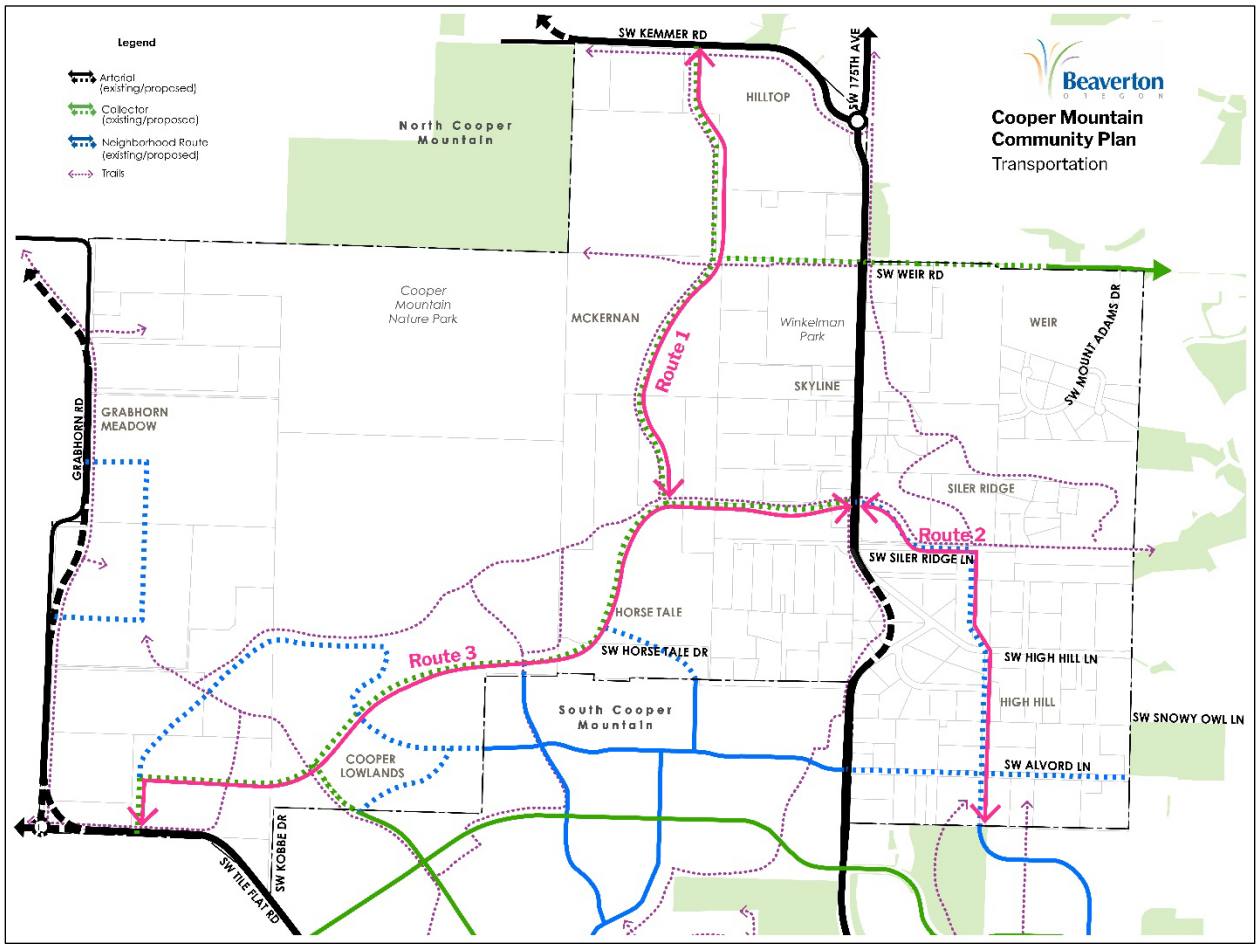
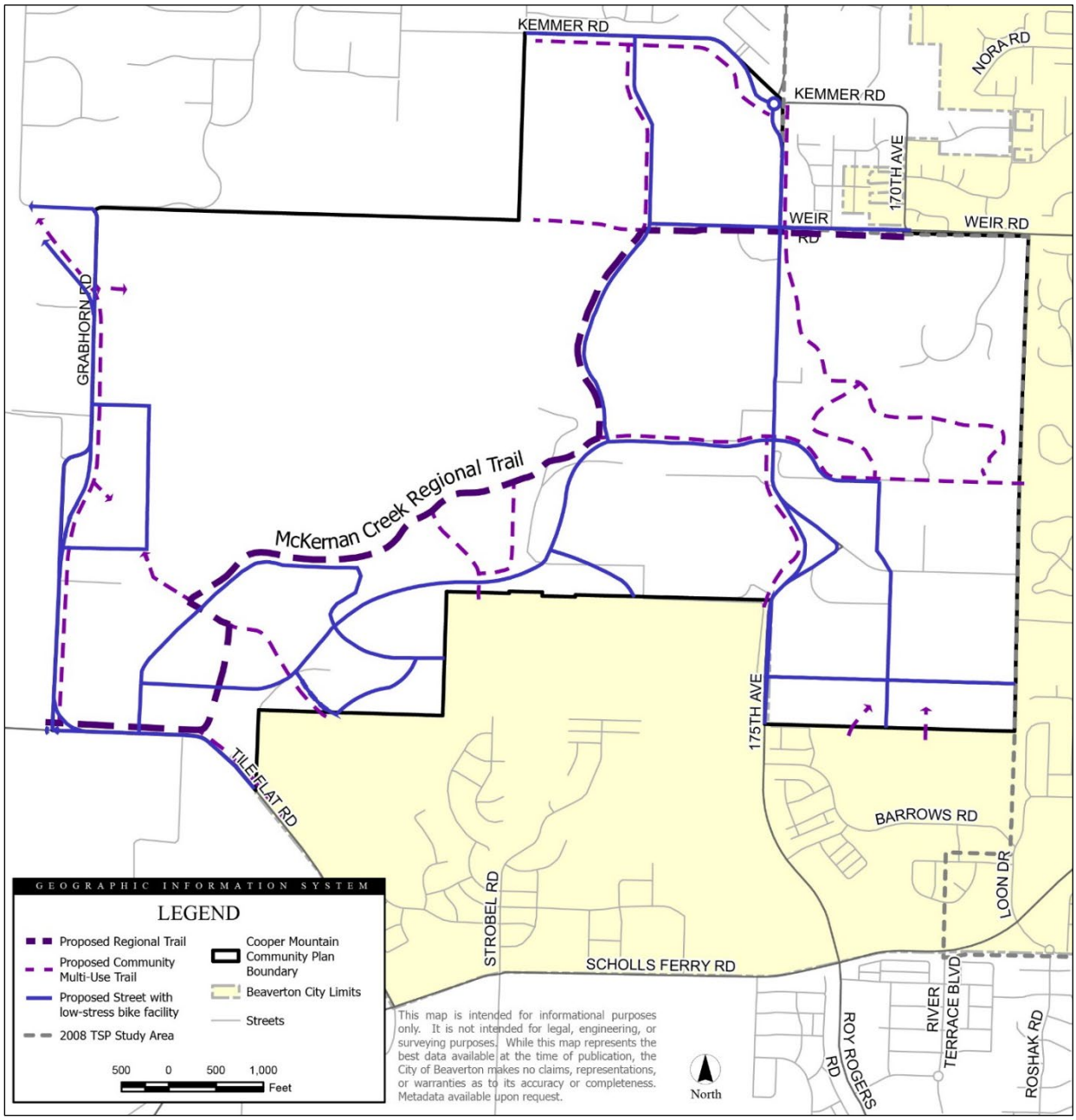


Figure 6: Planned Bicycle and Pedestrian Network



COMPLETE STREETS

Beaverton's Complete Streets Policy says Beaverton's streets should be designed to be safe and feel safe for everyone. They are designed for speeds that reduce the chance of death or serious injury and give priority to the needs of those who are most vulnerable.

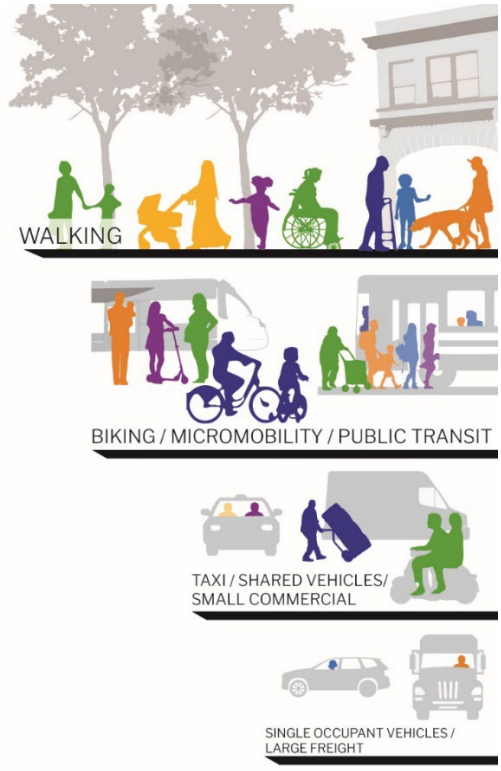
Complete streets make it easier and safer for people to move along and across the street. They are designed for people moving in many ways: walking[1], biking, using micromobility[2] devices, taking public transit, driving a car, transporting goods, or delivering services.

Complete streets connect communities and get people, goods, and services to the places they need to go. They clean the water and air and advance the city toward its greenhouse gas emission reduction goals.

The Complete Streets policy prioritizes public use of the street in the following order, as shown in Figure 7:

1. Walking
2. Biking / Micromobility /Public Transit
3. Taxi / Shared Vehicles / Small Commercial Service and Delivery Vehicles
4. Single Occupant Vehicles and Large Freight Vehicles

Figure 7: A multi-modal hierarchy for complete streets design



Cooper Mountain design and transportation investment decisions will be consistent with the Complete Streets policy and its guiding principles.

- Design for safer, slower speeds with the goal of eliminating fatalities and severe injury crashes on streets in Beaverton.

[1] Walking is an inclusive physical activity term that includes people using assistive mobility devices.
[2] Small, low-speed, human- or electric-powered transportation device, including bicycles, scooters, electric-assist bicycles, electric scooters (e-scooters), and other small, lightweight, wheeled conveyances.

- Give priority and protection to street users who face the most risk of death or serious injury – those outside of a vehicle and moving at the slowest speed – through the design and operation of intersections.
- Create pedestrian-scaled places and streetscapes that are interesting, enjoyable, and engaging for people, no matter which mode of travel they choose.
- Use design elements like lighting, culturally relevant public art, and other elements to create an environment where people of all races, ethnicities, genders, ages, and abilities feel welcome and safe from crime and harassment while using the street.
- Design streets to be responsive to current and planned neighborhood context by addressing the scale and type of activities in the area such as retail and entertainment, employment, residential, parks, and industrial uses.
- Design streets to function as enjoyable public spaces that foster social connection and enhance the health and well-being of the community.
- Design streets to work for all people and center people who have been most impacted by past policy choices or are most vulnerable in our current system, including Black, Indigenous and communities of color, children and their caregivers, seniors, and people with disabilities.
- Design streets to provide equitable access to housing, jobs, recreation, services, retail, and other opportunities, regardless of race, income, English language proficiency, or vehicular access.
- Use trees, plants, rain gardens, green infrastructure, and other design features that define the character of the street to shade and cool people walking, reduce energy consumption, and absorb and clean stormwater runoff.
- Use interim, quick-build techniques and materials when resources are scarce and/or where a street may benefit from a faster or more iterative process and solution to reach desired community outcomes.
- Use data, analysis, and performance monitoring to support decision-making, and learn from peer cities applying a Complete Streets approach.
- Encourage the provision of street designs that quickens the community's transition to e-bikes, other forms of electric micromobility, and electric vehicles, while adhering to the modal hierarchy.

ACTIVE TRANSPORTATION

Consistent with the Complete Streets Policy, the active transportation network in Cooper Mountain will serve all ages and abilities with the streets, sidewalks, trails, bike facilities and other infrastructure they need to safely walk, bike, and roll to their destinations. The layout and design of transportation corridors connect neighborhoods and key destinations.

Cooper Mountain's pedestrian facilities, bikeways, and trails will serve many users: pedestrians moving through neighborhoods; students traveling to schools; people biking from one neighborhood to another; people traveling to parks and commercial areas; and more.

Safety will be prioritized through multiple strategies. The planned multi-use paths, McKernan Creek Regional Trail, collector routes, and neighborhood routes will have low-stress, comfortable bike and pedestrian facilities. Slower speeds will be an important safety measure for all new streets and major improvements.

Cooper Mountain's trail system includes the McKernan Creek Regional Trail, community trails, and nature trails. The city will work with THPRD and Metro to implement this planned system of trails.

A protected bike lane in a mixed-use neighborhood

TRANSIT READINESS

The Community Plan's land use and transportation network are planned to support future transit. The two neighborhood centers, mixed use areas, multi-dwelling housing locations, and complete street network provide walkable access to transit along key streets. The primary transit destinations in the area include:

- Hilltop Neighborhood Center with a commercial area and housing
- Siler Ridge mixed-use area
- Mountainside High School
- South Cooper Mountain Main Street
- Tile Flat Neighborhood Center with a commercial area and housing
- Winkelman Park and a planned Cooper Mountain community park
- Multi-dwelling areas along the collector road planned between Tile Flat and 175th.

Many of these destinations are along 175th Avenue or the planned collectors that connect Tile Flat and Kemmer and Tile Flat and 175th. These corridors are most likely to support transit because of the mix of uses and number of households along those corridors.

CONNECTED NETWORK

The following sections summarize the functions and intended outcomes for each street type in the Community Plan. All roads and streets will be designed as complete streets.

Arterial Streets

The arterials that serve Cooper Mountain — SW 175th, SW Tile Flat, and SW Grabhorn Road (and, in the future, SW Kemmer Road) — will be complete streets. Arterials will be regional routes for trips going through the Cooper Mountain area to other destinations.

Collector Streets

The collector streets — SW Weir, Route 1, and Route 3 — are the connecting routes between Cooper Mountain's future neighborhoods.

- SW Weir Road connects Beaverton to Cooper Mountain, provides access to the Hilltop neighborhood center and areas west of SW 175th, and includes a portion of the McKernan Creek Regional Trail.
- Route 1: Provides a parallel alternative to SW 175th between SW Kemmer Road and Route 3 that also will be a safe and comfortable route for local trips. Includes a portion of the McKernan Creek Regional Trail and will feature a wildlife-friendly crossing of McKernan Creek.
- Route 3: East-west corridor connecting SW 175th and adjacent neighborhoods to central and western Cooper Mountain and SW Tile Flat Road; the Tile Flat commercial center; several multi-dwelling sites, and a proposed Community Park.

Neighborhood Routes

The Community Plan's neighborhood routes provide connectivity within neighborhoods.

- Grabhorn Meadow: The neighborhood route provides two access points to SW Grabhorn Road.
- Cooper Lowlands: A neighborhood route is planned as the access to lands north of the Community Park. This neighborhood route would include the McKernan Creek Regional Trail and directly abut the natural resource area for the northern portion of its route so community members have at least visual access to natural spaces along the road and trail.
- High Hill: A future neighborhood route will be needed through the High Hill and Siler Ridge neighborhoods to connect Siler Ridge Road and South Cooper Mountain. This will provide an option besides 175th for short, local trips east of 175th.

Local streets

Potential locations for local street intersections with the above-described streets are shown on Figure 2. The actual local street network will be determined when development

occurs in compliance with the Development Code and Engineering Design Manual. The plan's goals for local streets are to:

- Create walkable blocks and neighborhoods;
- Extend the street pattern from South Cooper Mountain; and
- Provide direct and convenient routes to parks, trails, and other community destinations.

Wildlife crossings

New bridges (vehicular and pedestrian-bike) should be designed for safe passage of wildlife at four key locations:

- Where Route 1 crosses McKernan Creek
- The SW 175th "kink" realignment
- The pedestrian-bike bridge between Cooper Lowlands and Grabhorn Meadow
- The SW Grabhorn Road crossing of McKernan Creek

The City will work with agency partners and natural resource stakeholders to design these crossings and ensure wildlife connectivity is maintained.

Transfers between different travel methods

A connected system also benefits from the ability to transfer between different ways of moving around. These mobility hubs could be locations to transfer between transit, bicycle rentals, micromobility rentals, and commuter/rideshare drop-off locations. Potential locations for this could include commercial areas, schools, and areas with significant numbers of homes.

COMMERCIAL AREAS

Goal 7: Provide opportunities for viable commercial uses, including places to work and places to buy goods and services

The Community Plan's key outcomes for commercial areas are:

- Promote commercial and entrepreneurial opportunities by creating two commercial centers
- Expand opportunities for commercial uses by incorporating mixed-use areas in Cooper Mountain
- Provide for small-scale commercial opportunities near where people live, such as in limited locations in Residential Mixed areas to provide better access to goods and services and more entrepreneurial opportunities,

TWO NEIGHBORHOOD COMMERCIAL CENTERS

The Community Plan identifies two new Neighborhood Center areas with commercial — in Hilltop and Cooper Lowlands. The neighborhood commercial areas will be pedestrian-oriented, mixed-use areas that are focal points for the community. They are planned for a mix of commercial and residential (largely middle housing and apartments) uses to create vibrant, walkable areas. They also would be good locations for civic uses, such as a library branch, and other community destinations.

The neighborhood centers should feature pedestrian-oriented design, including:

- Buildings next to or near the sidewalk with windows, interesting building faces, pedestrian-scale lighting, awnings, and signage
- Parking behind the buildings (rather than between the building and the street), under buildings, or in structures.
- Residential buildings with windows and doors facing the street
- Complete streets that provide high-quality space for people walking, using bicycles, using mobility devices, waiting for transit, or using other methods to move around or through Cooper Mountain
- An urban plaza and spaces for people to gather

MIXED USE SITES

Mixed Use areas are shown in Siler Ridge and Grabhorn Meadow to increase the opportunity for commercial uses outside the Neighborhood Center areas but near the north-south arterials. Commercial uses are allowed but not required in these areas. These designations are shown near parks and multi-family areas to provide commercial opportunities near recreational destinations and homes.

Mixed-Use Area

Small Grocery Store

SMALL-SCALE COMMERCIAL

Small-scale commercial uses will be allowed in the Residential Mixed areas to provide opportunities for residents to have walkable access to goods and services. Smaller commercial uses also provide entrepreneurship opportunities and places for people to gather with their neighbors. Examples include a coffee shop, a small grocery store, a hair salon, or a childcare facility. These areas would mostly likely be allowed near parks, Multi-unit Residential areas, and along neighborhood routes that connect homes to busier collector or arterial streets.

The design of these businesses should be small in scale, so the buildings and commercial operations are more consistent with the building sizes and activity levels of the residential areas.

FUNDING STRATEGIES

Goal 8. Identify feasible, responsible funding strategies to turn the vision into a reality.

Development of new homes and businesses is dependent on the extension of public infrastructure across the planning area. The Cooper Mountain Infrastructure Funding Plan provides recommendations for funding the projects needed to serve new neighborhoods in Cooper Mountain and estimates how development in Cooper Mountain is expected to contribute toward projects that offer broader benefits.

The Community Plan's infrastructure funding goal will be implemented through the following strategies:

- Identify appropriate infrastructure funding to facilitate development
- Identify supplemental funding to close funding gaps for transportation and community parks
- Consider Impacts to housing affordability

INFRASTRUCTURE FUNDING TO FACILITATE DEVELOPMENT

As in most greenfield development, Cooper Mountain development will likely build and pay for much of the public infrastructure in the planning area. This includes local streets; local utility collection and distribution networks; and stormwater management systems for each development. Larger roads and pipes might also be built by development. The city or other public service providers may offer System Development Charge (SDC) credits for some road or utility construction costs, consistent with agencies' credit policies.

Cooper Mountain development will also contribute to funding projects that provide broader system capacity. Regional and sub-regional infrastructure projects that impact larger areas or support multiple neighborhoods generally have a shared funding aspect, with funding coming from multiple sources. Shared funding sources could also contribute to investments needed to address safety and resilience on existing roads and utility corridors.

The Cooper Mountain Infrastructure Funding Plan identifies that existing funding mechanisms are likely sufficient for public utility infrastructure. Water, sanitary sewer, and stormwater systems investments are expected to be funded through a mix of development contributions, SDCs (for capacity-related costs), and utility rates (for non-capacity costs). The city may consider adding a local or citywide SDC to support capital project funding in the planning area or across the wider area. The funding plan identifies infrastructure projects that could impact the timing of development in different neighborhoods and identifies potential funding sources for those projects.

SUPPLEMENTAL FUNDING FOR TRANSPORATION AND COMMUNITY PARKS

Existing transportation funding sources are likely inadequate to deliver key projects — a new funding source from Cooper Mountain is likely needed to close the gap. Without a new funding source, the funding plan estimates that there would be little or no revenue to pay for important public capital projects, including a roadway/utility crossing of McKernan

Creek and upgrades to 175th Avenue. The approach recommends new funding source(s) applicable to development in Cooper Mountain to pay for much of the cost of these projects. The extent of the supplemental transportation funding source will be determined through a separate study and would need to be adopted by City Council. Even with this new source, the city and County will need to identify funding to cover the costs of realigning the "kink" in 175th Avenue, which is primarily a safety project.

Implementing the number of parks and trails shown in the community plan will require tapping additional revenue sources. The preferred approach for the Community Plan includes more parks acreage than originally estimated for the area when Tualatin Hills Parks & Recreation District (THPRD) prepared the project list for their recently updated SDC. The existing SDC is more than sufficient to cover the cost of land for parks within Cooper Mountain. THPRD likely will need to identify funding sources besides SDCs generated within Cooper Mountain to support the build-out of the Community Park and trail amenities that serve the broader community.

HOUSING AFFORDABILITY

The strategies proposed in the Infrastructure Funding Plan will have limited impact on the ability to deliver a range of housing types and price points. The city has few opportunities to impact the market forces that drive the cost of housing. Both infrastructure and development costs in this area may be higher than in other areas due to topography, but the rates and charges proposed for development are consistent with other growth areas in Washington County. Where the city has control of development charges, it could consider how the charges are structured relative to unit size, density, and housing type.

To successfully achieve the city's affordable housing goals in Cooper Mountain, the city should continue to explore the options and strategies that increase affordable housing production on a citywide basis. The city will implement strategies identified in the city's Housing Production Strategy and support regional and state programs that could provide larger scale funding for affordable housing. The city will continue city investment (primarily staff resources) to identify and coordinate affordable housing partnerships and consider strategic property purchase, if funds are available, to acquire land early for affordable housing projects.

POLICIES

The Comprehensive Plan is a document that guides Beaverton's future growth and development over the next 20 years. It has 10 chapters (or "elements") to guide this work. Each chapter has goals and policies that provide more direction. Chapter 3 (Land Use) includes the land use map with land use designations organized in four categories: Mixed Use, Commercial, Residential Neighborhoods, and Employment/Industrial.

What is land use? Land use designations indicate what the land can be used for, such as housing, shops, restaurants, offices, schools, parks or industry. Regulating land use allows cities to combine activities that complement each other, such as housing and schools, and separate others that may be harmful, such as housing and heavy manufacturing.

Land use designations in the Comprehensive Plan have implementing zoning districts that provide rules for neighborhood development. The Land Use Policies related to the Cooper Mountain Community Plan are in Comprehensive Plan Chapter 3, the Land Use Element.

What is zoning? Zoning is the practice of establishing the appropriate mix of uses in different areas and setting site and building design expectations. Each zone may have different allowed land uses as well as minimum or maximum building height, setbacks and density.

EQUITY

GOAL 1: Create equitable outcomes for residents, including underserved and underrepresented communities

Policy a) Use a framework of equity to guide policy decisions and resource allocation.

Policy b) Create plans and policies to create a livable community for all.

Policy c) Support affordable housing and expand access for marginalized populations.

Policy d) Increase access to homeownership with a focus on eliminating disparities.

Policy e) Provide business development resources for underserved communities.

GOAL 2: Provide new housing in a variety of housing types and for all income levels

HOUSING POLICIES

Policy a) The city will promote housing consistent with the Housing Element, which is Volume 1 Chapter 4 of the Comprehensive Plan.

Policy b) The city will increase housing supply by establishing minimum densities as a tool to ensure the planned number of homes in the Community Plan is implemented.

Policy c) The city will promote affordable rental and home ownership housing choices in every neighborhood in a variety of housing types consistent with the city's identified housing needs. The city should consider a target of at least 450 regulated affordable homes in Cooper Mountain.

Policy d) Include housing variety in neighborhoods and developments to provide choices that can accommodate a range of ages, incomes, abilities, and household sizes.

Policy e) Integrate housing types in neighborhoods and developments so many housing needs can be met throughout Cooper Mountain.

Policy f) Design housing development to enhance or reduce negative effects on natural resource areas and wildlife habitat while providing community access to views or access to nature.

Goal 3: Preserve, incorporate, connect, and enhance natural resources

GENERAL NATURAL RESOURCE POLICIES:

Policy a) Protect Cooper Mountain natural resources, including but not limited to stream corridors, riparian areas, upland habitat, and wetlands, and integrate natural features into neighborhoods and the community. Tools and strategies to accomplish this policy include:

i. Protecting Significant Natural Resources
ii. Protecting Cooper Mountain Nature Park
iii. Tree protection and mitigation
iv. Wildlife corridor identification
v. Steep slope protections
vi. Integrated stormwater management approaches
vii. Encouraging development in areas that do not have significant natural resources.

Policy b) Encourage equitable community member access, both visual and physical, to natural areas through methods that balance natural resource and habitat preservation with the need for people to connect with nature. Tools include but are not limited to:

i. Designing neighborhoods with direct public access to natural areas, such as with viewpoints, trails along natural areas, or entries to public natural areas when possible.
ii. Providing trails adjacent to natural areas and, where impacts can be mitigated, alongside or into the Cooper Mountain Nature Park; and
iii. Providing public open spaces and viewpoints in each neighborhood, where street rights of way or trail rights of way abut natural areas and parks.
iv. The city will create Development Code provisions that promote equitable community member public access consistent with this policy.

SIGNIFICANT NATURAL RESOURCE AREA POLICIES:

Policy c) The city will encourage preservation of significant natural resources through development regulations. Significant natural resources include riparian habitat (Class 1 and 2), upland habitat (Class A and B), and the Cooper Mountain Nature Park. The purpose of development rules would be to:

i. Provide protection and conservation of significant natural resources.
ii. Balance conservation with economic use.
iii. Guide development review.
iv. Promote intergovernmental cooperation in natural resource management.
v. Complement the city's tree protection regulations.

Policy d) The city will develop regulations to:

i. Identify the area of significant natural resources and activities that are subject to the regulations.
ii. Provide development standards and guidelines as needed to preserve significant natural resources areas, protect wildlife habitat and mobility, and regulate tree canopy while:
    1. Allowing uses that the city determines will have minimum or positive impacts on natural resources, such as invasive tree removal, resource enhancement, or a wildlife observation area; and
    2. Allowing uses that are necessary for a public purpose, such as trails or utilities, with appropriate mitigation; and
    3. Allowing development to occur in limited disturbance areas with appropriate mitigation to provide reasonable use of a property; and
iii. Promote mitigation for impacts to resources; and
iv. Provide a method for reviewing and modifying natural resource designations and to respond to new information, such as a study or a technical report; and
v. Establish design standards for features such as lighting, fencing, bridges, and utility corridors in the resource areas to reduce impacts on wildlife. For trails, the city will work with THPRD to implement design standards consistent with THPRD standards.

PROTECT COOPER MOUNTAIN NATURE PARK

Policy e) The city will include limit adverse impacts of development in the areas directly adjacent to Cooper Mountain Nature Park.

Policy f) The city will develop regulations to:

i. Provide development standards and guidelines (such as limiting structures near the park border) as needed to protect adjacent significant natural resources areas and wildlife habitat and mobility while allowing uses that the city determines will have minimum or positive impacts on the habitat and natural resource areas within the nature park, such as invasive tree removal, resource enhancement, or a wildlife observation area. .Establish design standards for features such as lighting, fencing, trails, bridges and other utility features in to reduce impacts on wildlife.

TREE CANOPY POLICIES

Policy g) Encourage equitable access to the environmental and social benefits of trees by establish minimum tree canopy requirements that consider:

i. Higher preservation standards inside significant natural resource areas and moderate preservation standards in other areas.
ii. Innovative approaches to meeting tree canopy requirements in developments of different sizes and configurations.

iii. Effective ways to reduce the urban heat island effect.
iv. The benefits of diverse, mixed-age forests.

Policy h) Provide incentives that encourage the retention of native trees, such as white oak; drought-tolerant trees; mature trees; and groves; which collectively provide higher quality habitat and support diverse, mixed-age forests.

Policy i) Provide options that allow the removal of hazardous trees or nuisance trees to minimize risks and support urban forest adaptation.

Policy j) Provide options that allow the removal of agricultural trees, without reforestation, to facilitate the transition from rural to urban land uses.

Policy k) Require mitigation for tree loss or removal in many cases, such as a requirement for the on-site replacement of trees, off-site plantings, or fee-in-lieu payments.

Policy l) Improve city standards that provide guidance on which trees are appropriate to plant in certain locations, such as riparian or upland habitat areas, parks, road rights of way, parking lots, and near sidewalks.

Policy m) Improve city standards that promote the longevity of newly planted and existing trees in a variety of locations, such as street trees and trees on private lots.

WILDLIFE CORRIDORS POLICIES

Policy n) Encourage the preservation and enhancement of primary wildlife corridors identified on the Wildlife Corridor Map (Figure 4) to support use by wildlife, limit impacts from development, and preserve the connectivity of the corridors within and outside the Cooper Mountain planning area.

Policy o) Design stream crossings of primary wildlife corridors, such as for roads and trails, so that they allow wildlife passage by large mammals. Other stream crossings should facilitate the crossing of smaller mammals.

Policy p) Prioritize protection of interior habitat, which exists beyond the habitat edge and inside a natural resource area, over edge habitat, which refers to the boundary between two landscape elements, such as when a tree grove abuts a residential development, since interior habitat provides a more stable environment for birds, mammals, and amphibians.

COMMUNITY RESILIENCE

Goal 4: Improve community resilience to climate change and hazards

COMMUNITY RESILIENCE POLICIES:

Policy a) Reduce greenhouse gas emissions through compact development and by providing and promoting, including through partnerships, walking, biking, transit, and other active transportation options.

Policy b) Incorporate neighborhood design that reduces people's risk of hazards and provides safe access if evacuation is required.

Policy c) The city will develop code standards and guidelines that reduce risks to life and property in steeply sloped areas and in areas with identified geologic hazards, such as through identifying those areas, reducing density of homes in those areas, requiring necessary geotechnical studies; and providing additional requirements for developments that are affected by steeply sloped areas or areas with geologic hazards.

Policy d) Implement, where feasible, the city's purple pipe water program that routes cleaned stormwater to irrigate green spaces like parks, school grounds, and yards and to provide additional water flows to streams in the drier months.

Policy e) Evaluate and monitor potential wildfire risk identified by the Department of Forestry, and if risk is moderate or higher, update Development Code regulations that prioritize safety and reduce potential damage from wildfires.

Policy f) Provide pedestrian and vehicular connectivity that will create access and egress consistent with city and Tualatin Valley Fire & Rescue (TVF&R) standards, which will allow TVF&R, Beaverton Police Department, and other first responders to provide emergency response to the Community Plan area.

Policy g) Design infrastructure and stormwater management systems to accommodate forecasted changes in rainfall patterns and stream flows associated with climate change.

Policy h) Apply actions and policies from the city's Climate Action Plan and Emergency Management Program to Cooper Mountain, considering Cooper Mountain's unique landscape, steep slopes, slide hazard areas, forests, and other features.

Goal 5: Provide public facilities and infrastructure needed for safe, healthy communities

PARKS POLICIES

Policy a) The City supports the expansion of the Cooper Mountain Nature Park and will coordinate with Metro, THPRD, property owners, and others as expansion plans are evaluated and proposed.

Policy b) The city will work with THPRD and property owners to implement a Community Park, applying the following principles:

i. The preferred location is in the Cooper Lowlands neighborhood.
ii. The park will provide active and passive recreation as well as related amenities to accommodate a variety of visitors/users, including people living with disabilities, according to THPRD's most recently approved Parks Functional Plan.
iii. The park design will follow THPRD's most recently approved Parks Functional Plan and will seek to balance community recreation need with the ecological health of sensitive natural resources on site, while also considering compatibility and integration with adjacent land uses.
iv. The park will be accessible by the active transportation network.

Policy c) Provide Neighborhood Parks in each Community Plan neighborhood that contain sufficient developable acreage and meet minimum acreages in the following table:

Table 2: Neighborhood Parks

Neighborhood	Park Acreage
Cooper Lowlands	2 acres
Horse Tale	2 acres
Skyline	2 acres
McKernan	2 acres
Hilltop	3 acres
Weir	2 acres
Siler Ridge	3 acres
Grabhorn Meadow	3 acres
TOTAL	**19 acres**

Policy d) Establish Neighborhood Parks to be key features of neighborhood design by applying the following principles:

i. Accessible by walking and biking without significant barriers such as arterial streets and steep slopes.
ii. Geographically locate parks to serve the greatest anticipated population within a 15 minute walk to promote community gathering through proximity to trails, neighborhood or community

transportation networks, and land uses such as commercial, mixed use, and multi-dwelling residential.

iii. Prioritize sites with greater developable acreages, with a target of at least 75 percent developable acreage, to allow for active recreation on sites greater than one acre. Consider providing a nature park in the area east of 175th and south of Siler Ridge to accommodate park needs because the area has less flat, unconstrained land in which to build a neighborhood park.

iv. Co-locate with other public uses.

v. Provide visibility for the surrounding neighborhood and scenic viewpoints.

Policy e) Promote a plaza or plazas in each commercial area where commercial is required to provide community members gathering places.

Policy f) Provide Trailhead Parks consistent with THPRD standards at key entry points to the trail network

PUBLIC FACILITIES AND INFRASTRUCTURE POLICIES

Policy g) Locate land uses that promote social interaction and/or provide services to the community in or near commercial centers and/or regulated affordable housing sites

Policy h) Implement Active Transportation Policies – See Transportation section.

Policy i) Implement, where feasible, the city's purple pipe water program

Policy j) Co-locate water service and sewer trunklines with transportation corridors (roads or trails) to provide maintenance access and long-term asset management.

Policy k) Plan, design, and implement utility corridors to protect natural resources, applying the following principles:

i. Minimize impact to McKernan Creek, Summer Creek, and riparian habitat.

ii. Provide passage for deer and other large mammals, such as by elevating bridges or designing culverts to allow animals to pass underneath or by burying utilities.

iii. Work with natural resource stakeholders during the public facility design process.

Policy l) Coordinate with Clean Water Services to implement a regional stormwater strategy for the McKernan Creek subbasin and look for opportunities to restore degraded natural resources, especially creek channels and riparian areas.

Policy m) Promote low impact development approaches for stormwater management and other approaches to integrate stormwater facilities with parks, trails, and natural resource areas.

MCKERNAN CREEK REGIONAL TRAIL POLICIES

Policy n) Coordinate with THPRD to define and develop the McKernan Creek Regional Trail, in accordance with THPRD regional trail standards.

Policy o) Protect natural resources along the McKernan Creek Regional Trail in accordance with the policies listed in the Natural Resources section of this plan

Policy p) Evaluate and determine a trail alignment that generally follows the corridor along McKernan Creek identified in the Cooper Mountain Community Plan Concept Map, making a connection between the southwest and northeast parts of Cooper Mountain.

Policy q) Provide road or trail connections that allow people multiple opportunities to access the McKernan Creek Regional Trail from adjacent neighborhoods.

Policy r) Provide scenic viewpoints where people using the McKernan Creek Regional Trail can stop to enjoy scenic views, such as those of the Tualatin River Valley and the Chehalem Mountains.

Policy s) Coordinate with THPRD to provide equitable access to the McKernan Creek Regional Trail and amenities, where applicable, for different cultural, ethnic, and socioeconomic groups that historically have not benefited from access to natural areas due to physical, geographic, or transportation-related barriers.

Goal 6: Provide safe, convenient access to important destinations while supporting transportation options, including walking and biking.

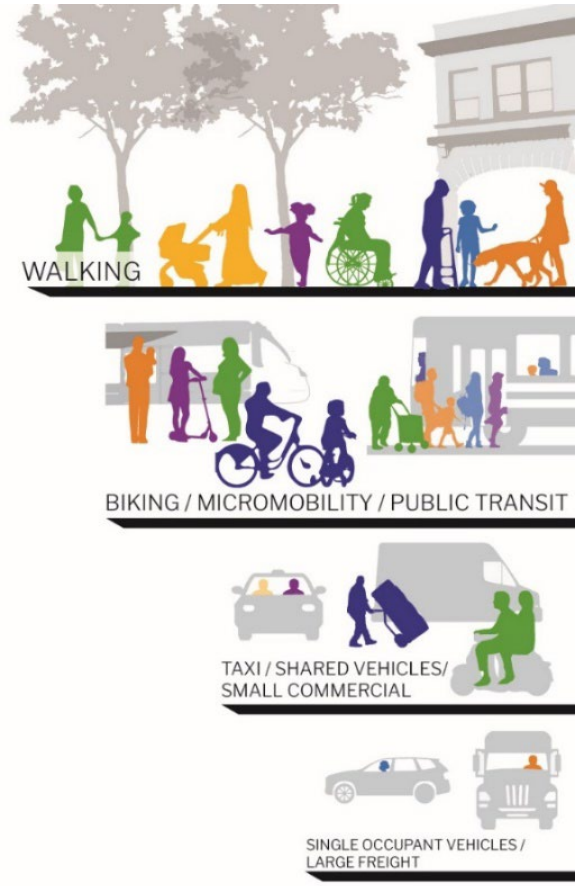
ACTIVE TRANSPORTATION POLICIES

Policy a) Extend Beaverton's bicycle network by connecting bicycle facilities in Cooper Mountain to existing adjacent facilities and planned facilities Beaverton's Active Transportation Plan. Classify new bike facilities consistent with Beaverton's Active Transportation Plan and in coordination with Tualatin Hills Park & Recreation District for facilities that covered in its Trails Functional Plan.

Policy b) The city shall plan for and make transportation policy, design, and investment decisions consistent with its Complete Streets policy. Streets in the Cooper Mountain Community Plan area shall:

i. Be designed with the goal of preventing all death and serious injuries.
ii. Center people who have been negatively impacted by policy choices or those who are most vulnerable in our current system, including communities of color; children and their caregivers; seniors; and people with disabilities.
iii. Provide easy, dignified, and affordable access to places for people who cannot drive, or choose not to drive, for the trip they need to make.
iv. Reflect the fact that everyone is a pedestrian and benefits from generous, attractive, and socially activated walking environments.
v. Make walking, biking, and transit a viable and desirable transportation option for people of all ages and abilities.
vi. Be designed to advance the city toward its goal of 100 percent greenhouse gas emissions reduction by 2050.
vii. Facilitate an equitable, communitywide transition from gas-powered vehicles to electric vehicles.
viii. Accommodate the movement of goods and services to sustain a vibrant local, regional, and state economy.
ix. Comply with federal, state, and regional regulations.
x. Be planned, designed, built, and maintained in accordance with the design principles and modal hierarchy in Beaverton's complete street policy below.

Complete street policy modal hierarchy



Policy c) Design the pedestrian and bike network so it is the most direct, enjoyable, and easiest way for people to access key destinations in the neighborhood.

Policy d) Provide low-stress, comfortable bike and pedestrian facilities for all ages and abilities, including along arterials, collectors, and neighborhood routes, and support people walking, bicycling, and using other modes of active transportation in Cooper Mountain.

Policy e) Coordinate with THPRD to implement Cooper Mountain's trails, and with Metro for trails connecting to the Nature Park, as follows:

i. Integrate the multi-use paths/trails planned for SW Kemmer, SW 175th, SW Tile Flat, and SW Grabhorn as part of street improvements.

ii. Illuminate paved multi-use trails, where feasible, to provide safer nighttime travel routes for people walking and biking. Consider the use of "dark sky" lighting techniques or other strategies to reduce disturbance to wildlife.

iii. Coordinate with THPRD on planning for the McKernan Creek Regional Trail.

iv. Provide opportunities for scenic viewpoints and environmental education along the McKernan Creek Regional Trail.

v. Coordinate the McKernan Creek Regional Trail with the Utility Plan when possible.

vi. Extend community trails from South Cooper Mountain, consistent with the Active Transportation Concept Map and THPRD Trails Functional Plan.

vii. Coordinate with THPRD and Metro on connecting active transportation facilities to the Nature Park's nature trails, where feasible, consistent with the Active Transportation Map and THPRD's Trails Functional Plan.

Policy f) In collaboration with THPRD, plan, design, and implement a pedestrian-bike bridge to connect the Cooper Lowlands and Grabhorn Meadow neighborhoods, applying the following principles:

i. Minimize impact to McKernan Creek and riparian habitat.

ii. Provide passage for deer and other large mammals, such as by elevating the bridge to allow animals to pass underneath.

iii. Work with natural resource stakeholders during the design process.

iv. Coordinate bridge design and construction with THPRD's Trails Functional Plan, and where feasible, with the Cooper Mountain Utility Plan.

Policy g) Integrate Americans with Disabilities Act standards and guidelines into the design and implementation of active transportation facilities, and for trails, meet THPRD standards established in THPRD's Trails Functional Plan that balance accessibility with prohibitive impacts that include harm to significant cultural or natural resources; requirements of construction methods that are against federal, state, or local regulations; or terrain characteristics that prevent compliance.

TRANSIT POLICIES

Policy h) Ensure the mix and intensity of uses, community destinations, street design, and other characteristics of the Community Plan area support the future provision of transit service to the area.

Policy i) Coordinate with TriMet regarding future fixed route transit service.

Policy j) Coordinate with Washington County regarding future on-demand, microtransit service.

Policy k) Coordinate with TriMet and other mobility providers to promote access to public transportation and private mobility services and the ability to transfer between those services easily and efficiently.

COMPLETE AND CONNECTED STREETS POLICIESI

Policy l) Implement the city's Complete Streets Policy and tailor street designs to their land use context. Center people who have been negatively impacted by policy choices or those who are most vulnerable in our current system, including communities of color; children and their caregivers; seniors; and people with disabilities.

Policy m) Coordinate with Washington County on arterial planning, funding, improvements, and jurisdictional responsibilities.

Policy n) Design arterial streets consistent with the city's Complete Streets Policy, Transportation System Plan (TSP), and the elements listed below.

i. Realign the "kink" on SW 175th.

ii. The cross-sections for Cooper Mountain arterials should include:

1. Two general purpose travel lanes, one in each direction;
2. Center turn lanes between the general purpose lanes as needed. When turn lanes are not required, median islands or similar treatments should be incorporated to promote speed management.
3. Additional vehicle turn lanes at intersections to address safety needs of all users of the shared right of way that are designed to provide protection and priority to people of all ages and abilities walking, cycling, and taking transit.
4. Arterials on the edge of the urban growth boundary shall have rural edges on the rural side and a separated multi-use path on the urban side.
5. Safe, protected, and comfortable crossings that minimize crossing distances and give priority at intersections for people walking and using bicycles, mobility devices for people with disabilities, or other small mobility devices.
6. Facilities designed to make the biking experience enjoyable and comfortable for people using bicycles or other small devices with wheels, including people in the "interested but concerned[3]" user category.
7. Wildlife-friendly crossing at the SW 175th "kink" realignment area and SW Grabhorn Road crossing of McKernan Creek.
8. Planter/furnishing zone widths of 8 feet with sufficient soil volume or equivalent configurations to ensure larger trees can thrive and contribute to Cooper Mountain's tree canopy goals.

Policy o) Design and build collector streets consistent with the city's Complete Streets Policy, TSP, and the following:

i. The cross-sections for Cooper Mountain collectors should include:

1. Two general purpose travel lanes, one in each direction.
2. Center turn lanes between the general purpose lanes as needed. When turn lanes are not required, median islands or

[3] Interested but Concerned Bicyclists are the largest group identified by the research and have the lowest tolerance for traffic stress. Those who fit into this group tend to avoid bicycling except where they have access to networks of separated bikeways or very low-volume streets with safe roadway crossings. Source: U.S. Department of Transportation Federal Highway Administration Bikeway Selection Guide (2019)

similar treatments should be incorporated to promote speed management.

3. Additional vehicle turn lanes at intersections to address safety needs of all users of the shared right of way that are designed to provide protection and priority to people of all ages and abilities walking, cycling, and taking transit.
4. Safe, protected, and comfortable crossings that minimize crossing distances and give priority at intersections for people walking and using bicycles, mobility devices for people with disabilities, or other small mobility devices.
5. Facilities designed to make the biking experience enjoyable and comfortable for people using bicycles or other small devices with wheels, including people in the "interested but concerned[4]" user category.
6. A wildlife-friendly crossing where Route 1 crosses McKernan Creek and where the pedestrian-bike bridge crosses McKernan Creek between Cooper Lowlands and Grabhorn Meadow.
7. Planter/furnishing zone widths of 8 feet with sufficient soil volume or equivalent configurations to ensure larger trees can thrive and contribute to Cooper Mountain's tree canopy goals.
8. The McKernan Creek Trail continued on the south side of Weir Road.
9. The McKernan Creek Trail along portions of the "Route 1" north-south collector in a way that minimizes impacts to slopes and natural resources.

Policy p) Design and build neighborhood routes consistent with the city's Complete Streets Policy, TSP, and the following:

i. The cross-sections for Cooper Mountain neighborhood routes should include:

1. Two general purpose travel lanes, one in each direction.
2. Ten-foot general purpose travel lanes unless a transit route or truck route necessitates additional width along the neighborhood route.
3. Safe, protected, and comfortable crossings that minimize crossing distances and give priority at intersections for people walking and using bicycles, mobility devices for people with disabilities, or other small mobility devices.

[4] Interested but Concerned Bicyclists are the largest group identified by the research and have the lowest tolerance for traffic stress. Those who fit into this group tend to avoid bicycling except where they have access to networks of separated bikeways or very low-volume streets with safe roadway crossings. Source: U.S. Department of Transportation Federal Highway Administration Bikeway Selection Guide (2019)

4. Facilities designed to make the biking experience enjoyable and comfortable for people using bicycles or other small devices with wheels, including people in the "interested but concerned " user category.
5. Planter/furnishing zone widths of 8 feet with sufficient soil volume or equivalent configurations to ensure larger trees can thrive and contribute to Cooper Mountain's tree canopy goals.

ii. The Cooper Lowlands Neighborhood Route south of and adjacent to McKernan Creek is planned as the access to lands north of the Community Park. The neighborhood route shall include the McKernan Creek Regional Trail where it is adjacent to natural resources area along McKernan Creek.

iii. The High Hill Neighborhood Route will connect Siler Ridge Road to South Cooper Mountain. As the road is designed, it should take into account topography, tree preservation, and existing homes.

iv. Incorporate street design elements that support vehicle speed and volume management such as roundabouts, curb extensions, and traffic diverters.

Policy q) Cooper Mountain streets shall connect to South Cooper Mountain streets and other abutting existing streets or streets planned for in the TSP except where the city concludes the connections are not feasible or desirable because of significant natural resources.

Policy r) Design bridges/culverts (vehicular and pedestrian-bike) for safe passage of deer and other large mammal in the following locations:

i. Where Route 1 crosses McKernan Creek.

ii. The realignment of SW 175th Avenue.

iii. The pedestrian/bike bridge between the Cooper Lowlands and Grabhorn Meadow neighborhoods.

iv. The SW Grabhorn Road crossing of McKernan Creek.

COMMERCIAL AREAS

Goal 7: Provide opportunities for viable commercial uses, including places to work and places to buy goods and services.

COMMERCIAL AREAS POLICIES

Policy a) Ensure Cooper Mountain's commercial areas are pedestrian-oriented, mixed-use areas that are focal points for the community. The centers will:

i. Implement pedestrian-oriented design, consistent with, Goal 3.6.1, Policy d, of the Land Use Element:

1. Commercial and mixed-use buildings placed next to the sidewalk with windows, interesting facades, and pedestrian-scale design features (e.g., lighting, awnings, and signage) along with the majority of parking behind, above, or beneath development.
2. Residential buildings with windows and doors facing the street and privacy provided through landscaping, grade changes, and modest setbacks.
3. Complete streets and sidewalks that provide high-quality space for pedestrians and protect pedestrians from traffic (by using physical barriers or buffers such as curbside parking, landscaping, trees, and street furniture).

ii. Include areas for community gathering, including urban plazas consistent with THPRD standards.

iii. Provide direct, convenient access to nearby housing and parks and trail connections to the McKernan Creek Regional Trail, a Metro-designated regional trail, and other nearby trails and bicycle facilities.

Policy b) Allow small-scale commercial activity within the Cooper Mountain Residential land use designation to provide opportunities for residents to have access to goods and services, provide entrepreneurship opportunities, support at-home work options that reduce automobile usage, and create potential places for people to see and meet with fellow neighbors.

Policy c) Regulate small-scale commercial uses in residential zones through zoning provisions that:

i. Define allowed and conditional uses as well as prohibited uses

ii. Limit the scale and configuration of commercial structures to be compatible with the scale of their residential context

FUNDING STRATEGIES

Goal 8: Identify feasible, responsible funding strategies to turn the vision into a reality.

FUNDING STRATEGIES POLICIES

Policy a) The Cooper Mountain Infrastructure Funding Plan shall inform the city's funding strategies for funding public infrastructure and affordable housing.

Policy b) The city will work with other service providers, including but not limited to Clean Water Services, Washington County, Metro, and Tualatin Hills Park & Recreation District, to implement and fund public infrastructure in Cooper Mountain.

APPENDIX A - Acknowledgements

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Beaverton Committee for Community Involvement

Climate Action Task Force

Community Participation Organization 6

Diversity Advisory Board

Housing Technical Advisory Board

Mayor's Youth Advisory Board

Neighbors Southwest Neighborhood Association

HBA Government Affairs Committee

Friends of Cooper Mountain Nature Park

Treekeepers of Washington County

Beaverton Student Advisory Council

American with Disabilities Technical Advisory Committee

Beaverton Committee on Aging

Washington County Board of Commissioners

Metro Policy Advisory Committee

Metro Technical Advisory Committee

Appendix B: Cooper Mountain Natural Resources Report

NATURAL RESOURCES REPORT

Final, August 2024

Prepared by:

David Evans and Associates, Inc.

MIG, Inc.

Executive Summary

This report provides a planning-level review of natural resources within the Cooper Mountain Community Plan (Community Plan) area. Specifically, this report covers wetlands and waterways, riparian areas, and upland wildlife habitats. The goal of this report is to provide project planners with the ecological context to support community plan development for the Community Plan area. A Local Wetland Inventory (LWI) has also been conducted for the Community Plan area. The detailed LWI documentation has been prepared as a separate report; however, the mapping results and general findings are included in this report.

The Community Plan area (see Figure 1) primarily consists of rural lands that are bordered to the east, north, and south by suburban development. The area to the west of the overall Community Plan area consists of rural landscape. The northern edge of the Community Plan area is situated along the top of Cooper Mountain, where topography is typically gently rolling, with slopes gradually steepening to the north and south to each side of the ridge top. In this area, vegetation consists of lawns, suburban landscaping, and remnant tree groves.

Slopes steepen to the south of the Community Plan area, with several drainages flowing generally from northeast to southwest. These drainages typically occur in steep, forested V-shaped ravines, including McKernan Creek, which is the principal drainage. The headwater of Summer Creek is located east of 175th Avenue and drains the easternmost portion of the Community Plan area. Moderately sloping terraces occur between the ravines. These land surfaces typically consist of pasture and more intensive agricultural production including annual crops, vineyards, and orchards. Some wood lots and native forest also occur on the terraced surfaces. The majority of the Cooper Mountain Nature Park (Nature Park) is located within the Community Plan area; however, a portion occurs just outside the area to the northwest. The park contains a host of native plant communities, including Douglas-fir (*Pseudotsuga* menziesii) forest, Oregon oak (*Arbutus menziesii*) and madrone woodlands, and prairie.

The Nature Park is a key natural resource feature within the Community Plan area. As noted above, the park contains a diverse mix of native habitats and considerable restoration work has been—and continues to be—carried out in the park. The park contains the regionally rare upland prairie and oak and madrone woodland habitat, which supports what may be the largest remaining population of the state endangered pale larkspur (*Delphinium leucophaeum*). Park habitats also support populations of sensitive species including meadow checkermallow (*Sidalcea campestris*), breeding populations of Northern red-legged frog (*Rana aurora aurora*), and Western gray squirrel (*Sciurus griseus*). Restoring and enhancing oak and prairie habitat is one of the primary management goals for the park. Additional management goals include improving riparian corridors, enhancing park access through land acquisition and securing trail connections between major publicly owned properties, and keeping important wildlife corridors and buffers intact.

Slopes in the southern third of the Community Plan area, particularly the southwest corner, tend to be gentler than elsewhere. In this portion of the Community Plan area, generally west of SW 175th Avenue, land use is predominantly agricultural and features a mix of annual crop production, pasture, orchards, and viticulture. However, an important partially forested riparian corridor along McKernan Creek extends through this area, with the creek eventually flowing under SW Grabhorn Road and outside the Community Plan area. As development occurs within the Community Plan and adjacent South Cooper Mountain Plan areas, this riparian corridor will be critical to fish and wildlife that may travel between the Nature Park and rural areas west of SW Grabhorn Road.

The Community Plan area east of SW 175th Avenue is associated with the headwaters of the Summer Creek watershed. This area consists of relatively steep terrain with a relatively high percent cover by native trees including Douglas-fir. In comparison to much of the area west of SW 175th Avenue, the area east of the roadway tends to have smaller lot sizes consisting of single-family residences and much less land devoted to agricultural uses.

Summary of Results

Waterways, Wetlands, and Riparian Areas

Roughly 7.83 miles of streams occur within the Community Plan area. All mapped drainages are assumed to be subject to state and federal regulations.

Based on a review of Oregon Department of Fish and Wildlife (ODFW) fish distribution maps, Community Plan area streams do not support populations of anadromous fish, such as salmon and steelhead trout. Likewise, there is limited habitat opportunity for native fish. Streams are fairly small (2 to 3 feet wide by 4 to 12 inches deep) and of relatively high gradient, and their upper reaches likely only flow seasonally. Portions of streams have also been rerouted, piped, and/or ditched. The lower reaches of McKernan Creek, within the Community Plan area, are likely to provide the greatest opportunity for native fish as a result of channel size and consistency of flows.

Although the Community Plan area streams may not provide much on-site habitat opportunity for native fish populations, they do likely provide other important functions. These include habitat for native amphibians, export of coarse organic matter to downstream fish-bearing waters, water source for native wildlife, and macroinvertebrate habitat.

The Community Plan area contains an estimated 23.18 acres of wetlands and probable wetlands. Wetland plant communities typically consist of the forested, scrub-shrub, or emergent classes according to the U.S. Fish and Wildlife Service (USFWS) wetland classification system (Cowardin 1979). Emergent wet prairie wetland is found within the Nature Park, but some portions of this wetland have been planted to create a scrub-shrub community. Agricultural wetlands are also present in areas of annual crop production. Some agricultural fields may use tile drains to reduce saturated soil conditions; use of tile drains results in either a reduction of wetland acreage or the complete removal of wetland conditions relative to historical conditions.

The steeper, forested riparian areas within the Community Plan area generally appear to have good vegetative cover, whereas riparian areas in flatter areas tend to have had greater disturbance to the natural vegetation. Development activities in riparian areas up to a certain distance from the water body are typically regulated and protected for water quality and/or habitat protection purposes by local codes.

Upland Habitats

Much of the high quality upland habitat in the Community Plan area occurs within the Nature Park; however, there is considerable coverage of high quality habitat in private ownership as well. Upland habitat on private land within the Community Plan area is not currently protected by local Washington County and Clean Water Services regulations. The Community Plan project will determine how to protect high quality upland habitat areas, such as through application of a new Natural Resource Overlay designation.

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Acronyms and Abbreviations

Corps	U.S. Army Corps of Engineers
CWS	Clean Water Services
DEA	David Evans and Associates, Inc.
DSL	Oregon Department of State Lands
ESRI	Environmental Systems Research Institute
GIS	Geographic Information System
GPS	Global Positioning System
HBA	Habitat Benefit Area
HGM	Hydrogeomorphic
LIDAR	Light Detection and Ranging
LWI	Local Wetland Inventory
NHD	National Hydrographic Database
NRCS	Natural Resources Conservation Service
OAR	Oregon Administrative Rule
ODFW	Oregon Department of Fish and Wildlife
OFWAM	Oregon Freshwater Assessment Method
RLIS	Regional Land Information System
SNR	Significant Natural Resource
SNRA	Significant Natural Resource Area
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

Project Overview

The Cooper Mountain Community Plan (Community Plan), which covers an approximately 1,240-acre area, will establish a long-term vision for the area's growth and development to support livable, walkable neighborhoods that honor the unique landscape and ensure a legacy of natural resource protection and connection. The area is anticipated to provide at least 3,760 homes, including a mix of single-family and multifamily homes. Annexation and development are not expected to occur until after the planning process is complete.

The plan will be created with the community. Public engagement will intentionally include historically underserved and underrepresented communities to ensure that the plan incorporates a broad array of ideas and feedback.

Report Purpose

This report is intended to provide a planning-level review of natural resources within the Community Plan area. Specifically, this report covers wetlands and waterways, riparian areas, and upland wildlife habitats. The goal of this report is to provide project planners with the ecological context to support concept and community plan development for the Community Plan area. A Local Wetland Inventory (LWI) has also been conducted for the Community Plan. The detailed LWI documentation has been prepared as a separate report; however, the LWI mapping results and general findings are included in this report.

Documentation of natural resources is intended to support compliance with Oregon State Goal 5 and associated Metro Titles 3 and 13. Washington County (County) and City of Beaverton (City) planning codes have also been taken into consideration. The Regulatory Context section of this report discusses the regulatory considerations for the various habitat types that are part of this planning-level review.

Landscape Setting and Land Use

The Community Plan area, shown in Figure 1, primarily consists of rural lands that are bordered to the east, north, and south by suburban development. The area to the west of the Community Plan area consists of rural landscape. The northern edge of the Community Plan area is situated along the top of Cooper Mountain, where topography is typically gently rolling, with slopes gradually steepening to the north and south to each side of the ridge top. In this area, vegetation consists of lawns and suburban landscaping, and remnant tree groves.

Slopes steepen quickly to the south of the Community Plan area, with several drainages flowing generally from northeast to southwest. These drainages typically occur in steep, forested V-shaped ravines, including McKernan Creek, which is the principal drainage. The headwater of Summer Creek is located east of SW 175th Avenue and drains the easternmost portion of the Community Plan area. Moderately sloping terraces occur

between the ravines. These land surfaces typically consist of pasture and more intensive agricultural production including annual crops, vineyards, and orchards. Some wood lots and native forest also occur on the terraced surfaces. The majority of the Cooper Mountain Nature Park (Nature Park) is located within the Community Plan area; however, a portion occurs just outside the area to the northwest. The Nature Park contains a host of native plant communities, including Douglas-fir (*Pseudotsuga menziesii*) forest, Oregon oak (*Quercus garryana*) and madrone (*Arbutus menziesii*) woodlands, and prairie.

The Nature Park is a key natural resource feature within the Community Plan area. As noted above, the Nature Park contains a diverse mix of native habitats, and considerable restoration work has been—and continues to be—carried out. The Nature Park contains the regionally rare upland prairie and oak and madrone woodland habitat, which supports what may be the largest remaining population of the state endangered pale larkspur (*Delphinium leucophaeum*). Park habitats also support populations of sensitive species including meadow checkermallow (*Sidalcea campestris*), breeding populations of Northern red-legged frog (Rana aurora aurora), and Western gray squirrel (*Sciurus griseus*). Restoring and enhancing oak and prairie habitat is one of the primary management goals for the Nature Park. Additional management goals include improving riparian corridors, enhancing park access through land acquisition, securing trail connections between major publicly owned properties, and keeping important wildlife corridors and buffers intact.

Slopes in the southern third of the Community Plan area, particularly the southwest corner, tend to be gentler than elsewhere. In this portion of the Community Plan area, generally west of SW 175th Avenue, land use is predominantly agricultural, and includes a mix of annual crop production, pasture, orchards, and viticulture. However, an important partially forested riparian corridor along McKernan Creek extends through this area, and the creek eventually flows under SW Grabhorn Road and outside the Community Plan area. As development occurs within the Community Plan area and adjacent South Cooper Mountain Plan area, this corridor will be critical to fish and wildlife that may travel between the Nature Park and rural areas west of SW Grabhorn Road.

The Community Plan area east of SW 175th Avenue is associated with the headwaters of the Summer Creek watershed. This area consists of relatively steep terrain with a relatively high percentage of cover by native trees including Douglas-fir. In comparison to much of the area west of SW 175th Avenue, the area east of the roadway tends to have smaller lot sizes consisting of single-family residences and much less land devoted to agricultural uses.

Methods

Resource review included a review of Community Plan area background materials, and drive-by and on-site field reconnaissance visits. Field work was conducted during the week of April 20, 2020.

Preliminary Resource Review

Reference materials were reviewed prior to the field investigation to provide information regarding the possible presence of wetlands, water features, hydric soils, wetland hydrology, site topography, and habitat conditions. The materials reviewed included:

- Environmental Systems Research Institute (ESRI) National Geographic World Map for ArcGIS (2020a)
- ESRI ArcGIS OnlineWorld Imagery aerial photo imagery for ArcGIS (2020b)
- Metro Regional Land Information System (RLIS) Geographic Information System (GIS) wetlands layer, hydric soils layer, and GIS streams layer (2020)
- Metro RLIS Natural color orthorectified digital imagery for the Portland Metropolitan area (2019), captured in summer leaf-on conditions on June 29, July 20, 22, 25, 29 and August 5, 2019.
- Metro Technical Report for Fish and Wildlife Habitat (2005a)
- Metro Cooper Mountain Natural Resource Management Plan (2005b)
- NRCS Soil Survey Geographic Database for Washington County, Oregon (2020)
- Oregon Department of Fish and Wildlife (ODFW) Fish distribution GIS layers (2020)
- Shapiro & Associates, Inc. City of Beaverton Local Wetland Inventory and GIS data (2000)
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory Wetland Mapper (2020)
- U.S. Geological Survey (USGS) National Hydrographic Database (NHD) GIS high resolution streams layer (2020)
- City of Beaverton, January 2013, LIDAR (LIDAR stands for Light Detection and Ranging, a laser-based contour mapping technology) derived contours (2013)
- David Evans and Associates, Inc. (DEA) South Cooper Mountain Concept and Community Plans Natural Resources Memorandum (2013)
- DEA South Cooper Mountain Annexation Area Local Wetland Inventory (2016)

Resource-specific Methods

The methods used for mapping and evaluating waterways, wetlands, riparian and upland habitats, and wildlife habitat corridors are provided below.

Wetlands and Streams

A local wetland inventory, or LWI, was conducted for the Community Plan area in accordance with Oregon Department of State Lands (DSL) rules, specifically Oregon Administrative Rule (OAR) 141-086. Site access was requested for properties in the Community Plan area to support this inventory. A map of accessed properties can be found in the detailed LWI document. Where access was not granted, assessment from publicly accessible viewing areas and other data sources (e.g., hydric soils per County

soil survey maps) described below was used to evaluate the presence of wetlands. All wetlands 0.5 acre or larger were mapped as wetlands, while wetlands smaller than that were mapped as "probable wetlands." Although DSL only requires that probable wetlands be mapped as point features (meaning that a single point would represent the wetland), for the Community Plan, these wetlands were mapped as polygons in locations where site access or clear indicators on aerial photographs allowed for a reasonably accurate level of mapping. This polygon mapping was conducted to aid the planning efforts, because these wetland features will likely need to be avoided or encroachment on them will likely need to be minimized. Mapping these features as polygons also enables the creation of buffers (such as Clean Water Services [CWS] "vegetated corridors"), which will also need to be avoided.

Where site access was available within the Community Plan area, sample plots documenting typical conditions for the respective wetlands were completed, and boundaries were mapped using Global Positioning System (GPS). Data collection and wetland boundary delineation followed the Level 2 Routine Delineation Method described in the U.S. Army Corps of Engineers (Corps) Wetlands Delineation Manual (Environmental Laboratory 1987) and further supported by the Western Mountains, Valleys, and Coast Region regional supplement (Supplement) (Corps 2010). This method requires the simultaneous presence of hydrophytic vegetation, hydric soils, and positive wetland hydrology to determine wetland delineations.

Mapping of LWI features was supported through use of high-resolution color aerial photography (ESRI 2020), the USGS NHD high resolution streams layer (USGS 2020), and LIDAR contour data provided by the City of Beaverton (2013). In-office review using aerial and LIDAR contours was conducted using GIS technology, which allowed for viewing information at various scales. Ground truthing occurred on tax lots where access was available and from publicly accessible viewing areas (i.e., roadway right of way).

Mapping of streams started with use of the USGS NHD high-resolution streams GIS layer, which matched very closely with LIDAR contours (City of Beaverton 2013). Stream lines were modified based on field observations where access was available. In other areas, were adjusted to better match topographic contours and aerial photo interpretation.

Wetland functions were evaluated for wetlands greater than 0.5 acre using the Oregon Freshwater Wetland Assessment Method (OFWAM). OFWAM results were used to determine whether any of the wetlands in the Community Plan area qualify as "locally significant wetlands" in accordance with criteria set forth in OAR 141-086-0350. Following DSL guidance, probable wetlands were not included in the evaluation of locally significant wetlands.

Riparian Habitats

In the context of this review, the term "riparian area" refers to the land surrounding wetlands, streams, and other water bodies. Typically, a buffer area of a certain distance from the water body is regulated and protected for water quality and/or habitat protection purposes. These buffer areas are typically determined through various land use codes, and the width of the buffer is determined by a mathematical formula that takes into account measures such as wetland size, stream type, drainage

basin area, and slopes. Beaverton, CWS (the water resources management utility in the area), and Metro all have regulations defining these areas. Generally speaking, the typical buffer width defined by these regulations is 50 feet, and this buffer width can extend to a maximum of 200 feet in areas of steep slopes (i.e., slopes of 25 percent or greater).

Riparian resources throughout the Community Plan area were mapped following CWS standards for determining buffer widths for vegetated corridors, as described in Design and Construction Standards for Sanitary Sewer and Surface Water Management (CWS 2007). However, CWS guidance requires that the determination of whether streams are perennial or intermittent occur during the summer dry season and that two site visits, one month apart, are required to confirm that a stream flows intermittently. Because site visits were conducted in April (i.e., still within the typical wet season rather than the dry season), a determination of perennial or intermittent for streams in the Community Plan area could not be accurately performed. As a result, all Community Plan area streams were assumed to be perennial for the purposes of determining the vegetated corridor. CWS currently does not have jurisdiction in the Community Plan area; however, CWS will have jurisdiction in the future if the Urban Growth Boundary is extended to include this area. Currently adopted Washington County Significant Natural Resource Areas (SNRAs) apply to these areas. CWS vegetated corridors are presumed to cover an equal or greater area than the County SNRAs.

An assessment of the quality of riparian corridors in the Community Plan area was based on Metro Title 13 habitat mapping, which was revised using a combination of site reconnaissance and aerial photo review. Metro's 2005 inventory of regionally significant riparian corridors and wildlife habitat provided the technical basis and starting point for this assessment. Starting with Metro's inventory allowed for the Community Plan natural resources review to incorporate and build on the extensive research, technical analysis, and public review that shaped Metro's regional inventory. DEA, the Community Plan project natural resource consultant, updated the riparian habitat boundaries as a result of changes to the underlying stream and wetland boundary mapping results from the LWI.

Metro classifies riparian habitats into Classes I, II, or III. Class I habitats are the highest quality habitats, and progressively lower quality habitat is provided by Classes II and III. According to the Metro method, these classifications are based on the ability of the riparian habitat to provide the following important ecological functions:

- Microclimate and shade
- Bank function and control of sediments, nutrients, and pollutants
- Streamflow moderation and flood storage
- Organic inputs and food web
- Large wood and channel dynamics
- Wildlife habitat/corridors

The following summarizes the mapping protocols/assumptions used for riparian habitat areas:

- **Riparian Corridor Width.** CWS rules used to determine riparian corridor widths, as follows:
  - 50 ft minimum along perennial flowing streams (all streams presumed perennial for this analysis)
  - 25 ft minimum adjacent to isolated wetlands less than 0.5 acres, 50 ft minimum adjacent to all other wetlands
  - Extension of minimum riparian width where slopes are greater than or equal to 25 percent slope, to a maximum of 200ft

- **Riparian Habitat Quality.** Riparian habitat quality classification within CWS buffers is determined as follows:
  - Forested and shrub habitats rated as Class I
  - More highly disturbed/developed areas (e.g. row crops, roads, residential landscaping, houses) typically rated as Class II.

Upland Habitats

DEA and MIG mapped upland wildlife habitat using Metro Title 13 habitat mapping. As with Metro's inventory, this mapping effort focused on forest vegetation, which provides critical functions for native wildlife in the Willamette Valley, including breeding, foraging, dispersal, and wintering habitat. Grassland and pasture habitats were included only if they were found to contain remnant native grassland or prairie (no such habitats were found outside the Nature Park). Orchards, hedgerows, and small patches of forested habitat were not included unless they were found to contain native oak habitat or to be especially valuable for wildlife migration (primarily due to location). Similar to the mapping for riparian habitats, upland habitat mapping was revised based on site reconnaissance and aerial photo review. Forested areas that had been harvested as of December 13, 2018, which is the date of the area's inclusion in the Metro UGB, were removed from mapping, as were areas where recent residential development had occurred. Evaluating whether areas were forested prior to the area's inclusion in the Metro UGB was determined by analyzing aerial photography captured in summer leaf-on conditions between June 29, 2019, and August 5, 2019. Aerial photography is available through Metro's Regional Land Inventory System (RLIS).

Title 13 upland habitat mapping was based on the following assumptions:

- Large habitat patches are more valuable than small patches.
- Interior habitat is more important to at-risk wildlife species than edge habitat.
- Connectivity and proximity to other habitat patches are important.
- Connectivity and proximity to water are important.
- Unique or at-risk habitats deserve special consideration.

Based on these assumptions, Metro classifies upland habitats into Classes A, B, or C. Class A habitats are the highest quality habitats (those that best meet the above assumptions), and progressively lower quality habitat is provided by Classes B and C (as measured against other habitat patches region-wide).

The following methodology was used to update Title 13 mapping for the Cooper Mountain area:

- **Upland Habitat Locations.** 300' buffers along stream corridors (outside of the stream, wetland, and riparian habitats described above) are included as upland habitat, along with Metro property associated with the Nature Park. Upland habitat outside this buffer that was identified in Title 13 mapping was refined to remove areas no longer forested as of 2019 using aerial photograph review.
- **Upland Habitat Classification.** Areas identified as Upland Habitat were classified as follows for the Cooper Mountain area:
    - All Metro properties were rated as Class A due to their management as protected natural area.
    - Lands within a 300' buffer of a stream or LWI feature was rated as Class A where they contain forested/native habitat, and Class C where they are occupied by agricultural lands, grasslands, or residential development as of 2019 using aerial photograph review, with the exception of Priority Streams discussed below.
    - Priority Streams include McKernan Creek and its tributaries MK4, MK4a, MK4b, MK4ab, and MK5. These streams are of greater habitat value because they provide habitat connection from the Cooper Mountain Nature Park and Winkleman Park areas to lands west of SW Grabhorn that will remain rural for the foreseeable future. Although some upland areas adjacent to Priority Streams lack quality habitat today, they provide important wildlife corridor function, particularly associated with the nature park, that will become increasingly important as the area becomes developed. Land within a 300' buffer of Priority Streams was rated as Class A where they contain forest cover/native habitat and Class B where occupied by agricultural lands, grasslands, or residential development as of 2019 using aerial photograph review.
    - Large patches of forested upland areas outside of this 300' buffer were mapped by Metro as part of the Title 13 adoption process. Where these lands contained forest cover/native habitat as of 2019, they were rated Class B.

Following Metro mapping methods, all areas within 300 feet of streams or wetlands also were mapped, whether they currently contain forested/native habitat (Class A or B), or they are occupied by agricultural lands, grasslands, or residential development (Class C).

Regulatory Context

Streams, Water Bodies, and Wetlands

All mapped drainages, including in-line ponds,[1] are assumed to be regulated by the Corps and U.S. Environmental Protection Agency under Section 404 of the Clean Water Act, and by the DSL under state Removal-Fill law. Mapped wetlands would also be regulated by these agencies; however, the Corps does not take jurisdiction over isolated wetlands, such as some of the small depressional wetlands not connected to streams. Small irrigation or stock water ponds clearly dug from uplands and not connected to jurisdictional waters may be exempt from the jurisdiction of both the DSL and the Corps. Local agencies, including CWS, the City, and the County, also have land use codes that protect streams, water bodies, and wetland resources. In general, regulations give first priority to avoiding these resources. Unavoidable impacts to these resources typically require mitigation.

Riparian Habitats

For the purpose of this natural resources review, riparian area boundaries have been defined in accordance with the methods for determining CWS vegetated corridor widths. As properties are annexed into the City and CWS district, CWS will have jurisdiction, and mapped vegetated corridors in the Community Plan area are assumed to be jurisdictional resources that have development restrictions. CWS requires all degraded vegetated corridors on a parcel to be improved as a condition of issuing development permits regardless of whether the vegetated corridor is impacted. In addition, CWS typically requires mitigation for unavoidable impacts.

CWS vegetated corridors mapped in Community Plan area are for general planning purposes, because as noted above, they currently do not carry CWS development restrictions. However, currently adopted County SNR regulations do apply. County mapping does not specifically show mapping of riparian communities in the Community Plan area; however, it does show a "Water areas, wetlands, and fish and wildlife habitat" SNR mapped along the various stream corridors. This County SNR mapping appears to be limited to the ravine bottoms and does not extend up the slopes as the CWS vegetated corridor mapping does.

In the early 2000s, both the County and the City were partners in the Tualatin Basin Natural Resource Coordinating Committee. Using Metro habitat mapping, this committee developed a voluntary program to protect, conserve, and restore Class I and II Riparian Habitats and Class A Upland Habitats, referred to as Habitat Benefit Areas (HBAs).

[1] An in-line pond is created by blocking flows within the stream channel.

Upland Habitats

The City protects upland habitats through the designation of high-quality areas, typically native forest, as an SNRA. The City's tree and vegetation protections also support protection of forested upland habitats. These protections would apply to the Community Plan area. The City's Resource Overlay will be further developed as a part of the Community Plan project.

As of this writing in December 2023, the County also protects upland habitats through designation of SNRs. However, no SNRs covering upland resources are mapped for the Community Plan area in the County's adopted SNR mapping.

As noted in the discussion of riparian habitats, above, Class A Upland HBAs are currently protected through voluntary means. These voluntary means include habitat-friendly development practices, but they do not necessarily include complete avoidance of impacts to these resources.

Existing Conditions

Drainage Basins and Streams

Roughly 7.83 miles of streams occur within the Community Plan area. The breakdown of the two stream types (perennial versus intermittent) is currently unknown, and because the field work occurred during the spring (not the dry season) and because of limited site access, determination of stream types in the Community Plan area was not conducted. However, many of the streams in the Community Plan area, particularly the upper reaches of these streams, are likely to be intermittent, whereas as the lower reaches likely to flow perennially. Table 1 provides a summary of Community Plan area drainage basins and associated streams. These are also displayed in Figure 2.

Based on a review of ODFW fish distribution maps, Community Plan area streams do not support populations of anadromous fish, such as salmon (*Oncorhynchus* sp.) and steelhead trout (*Oncorhynchus mykiss*). Likewise, there is limited habitat opportunity for native fish. Streams are fairly small (2 to 3 feet wide by 4 to 12 inches deep) and of relatively high gradient, and their upper reaches likely only flow seasonally. Portions of streams have also been rerouted, piped, and/or ditched. The lower reaches of McKernan Creek, within the Community Plan area, are likely to provide the greatest opportunity for native fish, because of their relatively larger channel size and consistent flows.

Although Community Plan area streams may not provide much on-site habitat opportunity for native fish populations, for the reasons described above, they likely do provide other important functions. These include habitat for native amphibians, export of coarse organic matter to downstream fish-bearing waters, water source for native wildlife, and macroinvertebrate habitat.

Those streams with the most intact riparian corridors are likely to be in the best condition. For example, the habitat within McKernan Creek, which primarily flows through a deep, forested ravine, should have greater bank and sediment stability, greater recruitment of woody debris and coarse organic materials, and greater overall habitat complexity than stream channels that have been notably altered and that run through agricultural fields or adjacent to roadways (such as Stream MK-2, which is an altered drainage that has be relocated into a roadside ditch between the edge of a field and the east side of SW Grabhorn Road).

Table 1. Drainage Basins and Streams

Clean Water Services Stream Shed[1]	Clean Water Services Basin ID[2]	Water Body[3]	Water Body ID[3]
Jackson/Lindow	LW	McKernan Creek	MK
	LW	Unnamed tributary to McKernan Creek-1	MK-1
	LW	Unnamed tributary to McKernan Creek-2	MK-2
	LW	Unnamed tributary to	MK-3

Clean Water Services Stream Shed[1]	Clean Water Services Basin ID[2]	Water Body[3]	Water Body ID[3]
		McKernan Creek-3	
	LW	Unnamed tributary to McKernan Creek-4	MK-4
	LW	Unnamed tributary to MK-4ab	MK-4a
	LW	Unnamed tributary to MK-4ab	MK-4b
	LW	Unnamed tributary to MK-4ab	MK-4ab
	LW	Unnamed tributary to McKernan Creek-5	MK-5
	LW	Unnamed tributary to McKernan Creek-6	MK-6
Summer Creek	SM7W4	Summer Creek	SM
	SM7W4	Unnamed tributary to Summer Creek	SM-1
Unnamed Tributary to Tualatin River	SMC	*Unnamed tributary to SMC	SMC
	TR06.5	*Unnamed tributary to Tualatin River	TR-1
	TR06.5	*Unnamed tributary to TR-1	TR-1a
Johnson Creek South	JSBS	No streams mapped in Community Plan area	--
	JSE	No streams mapped in Community Plan area	--
	JSCS	No streams mapped in Community Plan area	--

[1] Data from "CWS_SmallSubBasins" GIS shapefile, "STREAMSHED" data field.
[2] Data from "CWS_SmallSubBasins" GIS shapefile, "IDALL" data field.
[3] Water body IDs assigned by Cooper Mountain Community Plan project.

Wetlands

Table 2 provides a summary of wetlands identified during LWI mapping for the Community Plan project. These are displayed in Figure 2. The Community Plan area contains an estimated 23.6 acres of wetlands and probable wetlands. Table 2 provides a list of individual wetlands, their sizes, and their hydrogeomorphic (HGM) and Cowardin wetland classifications. For the wetland acreage totals provided in Table 2, a wetland size was available only for probable wetlands that have a polygon associated

with them, not for those mapped as a point (entries in the table that are shown as having "0.002" acres.) [2]

Table 2. LWI Wetland Summary Results for the Community Plan area

Wetland ID[1]	Cowardin[2]	HGM	Acres[4]
PW-MK-1-a	PEM1B	Slope	0.07
PW-MK-4a-a	PEM1B	Depressional	0.002
PW-MK-a	PEM1B	Depressional	0.06
PW-MK-b	PEM1B	Depressional	0.04
PW-MK-c	PSS1B	Slope	0.22
PW-MK-e	PSS1B	Slope	0.48
PW-MK-f	PSS1B	Slope	0.38
PW-MK-g	PSS1B	Slope	0.41
PW-MK-h	PSS1B	Depressional	0.002
PW-SM-a	PEM1B	Slope	0.002
PW-SM-b	PEM1B	Slope	0.13
PW-SM-d	PSS1B	Riverine	0.12
PW-SMC-a	PSS1B	Slope	0.002
PW-TR-1-a	PSS1B	Riverine	0.17
PW-TR-1a-a	PEM1B	Slope	0.002
PW-TR-1a-b	PEM1B	Slope	0.08
PW-TR-1a-c	PEM1B	Slope	0.09
PW-TR-1a-d	PEM1B	Depressional	0.002
W-MK-1	PEM2Bf	Slope	4.01
W-MK-1	PEM1B	Slope	1.10

[2] The data in Table 2 is based on the draft Local Wetland Inventory submitted to the Department of State Lands in May 2024 and is currently under review as of the date of this report (August 2024).

Wetland ID[1]	Cowardin[2]	HGM	Acres[4]
W-MK-1	PFO1B	Slope	7.26
W-MK-1-1	PEM1B	Slope	1.31
W-MK-4-1	PEM1B	Slope	1.14
W-MK-4-a[3]	PEM1B	Depressional	0.37
W-MK-4-b[3]	PSS1B	Depressional	0.002
W-MK-6-1	PSS1B	Slope	1.79
W-MK-6-1	PEM2Bf	Slope	3.21
W-MK-6-1	PFO1B	Slope	1.05
W-SM-c[3]	PEM1B	Slope	
Probable Wetland Acreage			2.26
Wetland Acreage			21.35
Grand Total			23.62

[1] "W" = wetland, "PW" = probable wetland
[2] PEM2Bf= Palustrine Emergent, Nonpersistent, Seasonally Saturated, Farmed
PEM1B = Palustrine Emergent, Persistent, Seasonally Saturated
PSS1B= Palustrine Scrub-shrub, Broad-leaved Deciduous, Seasonally Saturated
PFO1B= Palustrine Forested, Broad-leaved Deciduous, Seasonally Saturated
[3] Feature has been mapped as a wetland instead of a probable wetland despoite being less than 0.5 acres. This is because the feature was part of a past wetland delineation that received DSL concurrence.
[4] Probable wetlands with acreage of 0.002 are rough estimates of very small features that may be wetlands.

Only four wetlands larger than 0.5 acre occur in the Community Plan area. These tend to be relatively long and linear-shaped wetlands that follow along the McKernan Creek riparian corridors. These wetlands contain a patchwork of palustrine emergent wetlands that are dominated by non-native grasses (e.g., meadow foxtail [*Alopecurus pratensis*]) or are in agricultural production, as well as forested and scrub-shrub wetlands typically dominated by native plant species. One relatively large palustrine emergent wetland area occurs within the Nature Park and contains a relatively diverse native plant community as a result of active management.

Most wetlands were considered to be slope wetlands, because the dominant source of hydrology is likely hillside seepage or shallow subsurface flow. However, several small probable wetlands appear to be fed primarily by precipitation and a small amount of runoff, and had no outlet—these are classified as depressional. Two probable wetlands are fed primarily by flows from small streams rather than mainly groundwater and are classified as riverine.

Table 3 summarizes the functional assessment results for wetlands that are 0.5 acre or more in size. Wetland W-MK-1 meets locally significant wetland criteria (which means at least one of the four functions evaluated rated highly). Wetlands W-MK-1-1, W-MK-4-1,

and W-MK-6-1 do not meet locally significant wetland criteria, primarily because they do not provide fish habitat support and are fed by groundwater rather than river flows because of their positions that are much higher in the watershed than that of Wetland W-MK-1. However, it should be noted that the forested portions of both Wetland W-MK-6-1 and Wetland W-MK-1 meet the criteria for wetlands of Special Interest for Protection, because they are mapped Goal 5 resources.

Table 3. Wetland Functional Assessment Results

Wetland ID	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Meets Locally Significant Criteria
W-MK-1	Diverse	Intact	Degraded	Intact	Yes
W-MK-1-1	Degraded	Degraded	Degraded	Degraded	No
W-MK-4-1	Degraded	Degraded	Degraded	Degraded	No
W-MK-6-1	Degraded	Not applicable	Not present	Not present	No

Wetland plant communities typically consist of the forested, scrub-shrub, and emergent classes according to the USFWS classification system (Cowardin 1979). Emergent wet prairie wetland is found within the Nature Park, with portions having been planted to establish a scrub-shrub community. Agricultural wetlands are also present and occur in areas of annual crop production. Some agricultural fields may use tile drains to reduce saturated soil conditions, which results in either a reduction of wetland acreage or the complete removal of wetland conditions relative to historical conditions. The following sections provide additional details about the wetland plant communities.

Forested and Scrub-Shrub Wetland Habitat

The forested wetland habitat is typically dominated by Oregon ash (*Fraxinus latifolia*), red-osier dogwood (*Cornus stolonifera*), Pacific willow (*Salix lucida*), slough sedge (*Carex obnupta*), and reed canarygrass (*Phalaris arundinacea*). The same species, with the exception of Oregon ash, were found within the scrub-shrub wetland habitat.

Emergent Wetland Habitat

Emergent wetland habitats tend to be dominated by non-native pasture grasses. Dominant species typically included meadow foxtail (*Alopecurus pratensis*), tall fescue (*Schedonorus phoenix*), Kentucky bluegrass (*Poa pratensis*), and reed canarygrass.

Riparian Habitats

Aerial photo review reveals that the characteristics of the riparian areas in the Community Plan area correspond to their topographic settings. The steeper, forested riparian areas within the Community Plan area generally appear to have good vegetative cover, whereas riparian areas in flatter portions of the Community Plan area tend to have had greater disturbance to natural vegetation. This pattern is visible in

Figures 3 and 4. The steep ravine side slopes appear to have protected the forest within the riparian zones along these stream reaches. The Nature Park also provides important protection of riparian corridors in the Community Plan area. Table 4 provides a breakdown of riparian habitat classes in the Community Plan area.

Table 4. Title 13 Riparian Habitats in the Community Plan area

Title 13 Riparian Habitats (acres)	
Class I	**Class II**
135.14	47.68

Plant communities found within designated riparian areas in the Community Plan area include both true riparian plant communities (i.e., those typical of moist soil conditions) as well as those typically considered to be upland communities (i.e., relatively dry conditions). A description of the typical riparian plant community that is adapted to moist soil is provided below. Those plant communities that are adapted to relatively dry conditions and that may occur in the riparian or upland locations in the Community Plan area are described in the Upland Habitat section of this report, below.

Riparian Forest (Class I)

This habitat is dominated by a fairly open canopy of red alder (*Alnus rubra*), big leaf maple (*Acer macrophyllum*), black cottonwood (*Populus trichocarpa*), Douglas-fir, and western red cedar (*Thuja plicata*). The understory includes sword fern (*Polystichum munitum*), snowberry (*Symphoricarpos albus*), Indian plum (*Oemleria cerasiformis*), and tall Oregon grape (*Mahonia nervosa*), among others.

Upland Habitats

Much of the high quality upland habitat in the Community Plan area occurs within the Nature Park; however, there is considerable coverage of high quality habitat in private ownership as well. Table 5 provides a breakdown of upland habitat acreage by habitat class within the Community Plan area.

In addition, although not classified as Class A habitat, the numerous small groves of large conifer trees scattered among the residential units in the Community Plan area do provide valuable habitat, particularly for bird species.

Table 5. Title 13 Upland Habitats in the Community Plan area

Title 13 Upland Habitats (acres)		
Class A	**Class B**	**Class C**
243.18	152.38	149.15

Typical wildlife that may occur within upland areas includes numerous mammal species such as raccoon (*Procyon lotor*), black-tailed deer (*Odocoileus hemionus columbianus*), bobcat (*Lynx rufus fasciatus*), coyote (*Canis latrans*), Mazama pocket gopher (*Thomomys mazama*), and little brown bat (*Myotis lucifugus*), among others.

Birds heard during the site visits, including during the South Cooper Mountain Concept Plan site visits in 2013, include numerous songbirds, such as red-breasted nuthatch (*Sitta canadensis*), black-capped chickadee (*Poecile atricapillus*), Bewick's wren (*Thryomanes bewickii*), orange-crowned warbler (*Leiothlypis celata*), yellow-breasted chat (*Icteria virens*), and many others, and may include great horned owl (*Bubo virginianus*), sharp-shinned (*Acipiter striatus*)or Cooper's hawk (*Accipiter cooperii*), and hairy and downy woodpeckers (*Dryobates villosus* and *pubescens*), among others.

The following sections describe habitats outside of the Nature Park. Habitats within the Nature Park are described in detail in the Washington County Master Plan & Management Recommendations (2005). Where these habitats fall within the calculated CWS vegetated corridor, they are classified as riparian communities.

Mixed Forest (Upland Habitat Class A or Riparian Habitat Class I)

In the Community Plan area, forested areas are generally mid-seral to late seral (mid-seral refers to medium-sized trees generally 15 to 19 inches in diameter, and late seral refers to larger-sized trees generally larger than 20 inches in diameter). Overstory vegetation consists primarily of Douglas-fir and red alder, with smaller amounts of Oregon ash and Oregon white oak (*Quercus garryana*). Shrub cover ranges from sparse to dense and is dominated by snowberry, Indian plum, cluster rose (*Rosa pisocarpa*), beaked hazelnut (*Corylus cornuta*), Pacific madrone (*Arbutus menziesii*), poison oak (*Toxicodendron diversilobum*), and oceanspray (*Holodiscus discolorh*). Ground cover consists primarily of sword fern, native trailing blackberry (*Rubus ursinus),* salal *(Gaultheria shallon),* tall Oregon grape, and youth on age *(Tolmeia menziesii*). In densely forested areas, there tends to be minimal invasion of exotic species because of the closed forest canopy, although Himalayan blackberry (*Rubus armeniacus*) is present in places. However, where this habitat mixes with rural and semisuburban residences and roads, understory diversity has been reduced.

Oak Forest (Upland Habitat Class A or Riparian Habitat Class I)

Very little oak forest was present in areas with access, other than the Nature Park. Species in oak forest are similar to those described for mixed forest, but with greater cover by Oregon white oak, Pacific madrone, and poison oak. A few remnant individual oak trees or small oak groves are still present beyond the park boundaries. However, the relatively large grove of oak trees mapped by the Oakquest database north and east of SW Horse Tale Drive is no longer present (see Figure 3).

Young Forest and Mixed Shrub Areas (Upland Habitat Class B or C and Riparian Habitat Class II)

This habitat occurs in relatively unmaintained areas that were clear cut and have not been replanted with trees. Non-native grasses such as tall fescue and Kentucky bluegrass are being succeeded by Himalayan blackberry, trailing blackberry, and young trees. These habitat types were typically assigned to Upland Habitat Class C. Due to the relatively low functions. However, where these habitat types occurred along the main McKernan Creek corridor and McKernan Creek tributary confluence area, these habitat types were assigned to the Upland Habitat Class B category to acknowledge the important wildlife corridor functions they provide.

Agricultural Areas (Upland Habitat Class B or C)

These agricultural areas include fields planted with non-native grasses such as tall fescue and Kentucky bluegrass for pasture and grazing, as well as grape orchards with non-native grasses beneath. These habitat types were typically assigned to Upland Habitat Class C, due to the relatively low functions. However, where these habitat types occurred along the main McKernan Creek corridor and McKernan Creek tributary confluence area, these habitat types were assigned to the Upland Habitat Class B category to acknowledge the important wildlife corridor functions they provide.

Wildlife Corridors

Wildlife habitat areas in Cooper Mountain have been mapped.[3] These include creeks, wetlands, and many forested areas. Discussions with natural resource stakeholders and community members during the Cooper Mountain Community Plan process identified several key strategies to protect and enhance habitat areas, which may be implemented by the City, private landowners and developers, and other agencies such as Metro and the Tualatin Hills Park & Recreation District (THPRD). These include the following:

- Strategies to connect significant habitats:
  - Focus conservation efforts to create a large habitat area that includes McKernan Creek, its tributaries, and Cooper Mountain Nature Park.
  - Protect and enhance wildlife corridors connecting "the creeks" to areas to the southwest, north, and east.
- Conservation Strategies:
  - Clustering new housing away from habitat areas.
  - Incentives for property owners and developers to protect habitat areas.
  - Wildlife crossings as part of the transportation network.
  - Linking habitat areas as part of neighborhood design.
  - Trails and public areas to provide access and habitat conservation.
  - Updating natural resource inventories to increase the accuracy of habitat maps.

In the Cooper Mountain area, all jurisdictional waterways, wetlands, and associated buffers will be protected to a degree via federal, state, and local land use regulations. These protected drainageways will provide the primary opportunity for wildlife movement. The wildlife corridors proposed within this section highlight key areas for wildlife movement that would benefit from specific acknowledgment, potential increased protection and/or planning and design guidance.

[3] Mapping was based on a preliminary assessment of potential wildlife corridors data conducted in April 2022 and updated based on feedback during a Natural Resource Listening Session for the Cooper Mountain Community Plan conducted on April 12, 2022.

Corridor 1(a - d): This corridor indicates a connection from rural areas west of Grabhorn Road to the Cooper Mountain Nature Park. As the Cooper Mountain area develops, this corridor will become increasingly important to allow large mammals (e.g., deer, coyote) to move between the park and nearby rural areas. This corridor follows McKernan Creek (Corridor 1a) and its tributaries (Corridors 1b -d) and should allow for large mammal passage. This should benefit the local wildlife as well as reduce the risk for vehicle/wildlife interactions.

Corridor 2 (a - c): This corridor connects Corridor 1 to the Summer Creek drainage and associated habitats. Corridor 2a follows McKernan Creek to the east and connects with public lands owned/managed by Metro and Tualatin Hills Park and Recreation District (Winkelman Park area). Corridor 2b continues eastward from Winkelman Park to Summer Creek, crossing SW 175th Avenue. Based on input from the Natural Resource Listening Session it was determined that planned road improvements for SW 175th would likely be unable to provide large mammal passage; however, upland culverts for small animal passage (e.g., raccoons, possums) could still potentially be of benefit. Corridor 2c provides passage from the lower reaches of Summer Creek, located outside of the Cooper Mountain Community Plan, to upper reaches within the Plan area.

Corridor 3 (a - b): This corridor connects the Summer Creek drainage to an unnamed tributary of the Tualatin River that runs through South Cooper Mountain. The future realignment of SW 175th (at High Hill Lane) may provide opportunity for large mammal passage, though it is uncertain how much benefit this would provide due to the expected development in the Cooper Mountain area. However, small animals would still benefit from the creation of a habitat corridor connection.

Corridor 4: This corridor would connect upland habitats at Cooper Mountain Nature Park to upland habitats west of SW Grabhorn Road. Future realignment of Grabhorn Road design efforts in this general area should be reviewed to evaluate whether large mammal passage would be both feasible and beneficial to wildlife and vehicular safety.

Determination of Significance

Statewide Planning Goal 5 requires a determination of significance in order to enact land use regulations to protect an inventoried resource. The resources in this Cooper Mountain Natural Resources Report are determined to be significant or not significant, as follows:

- **Wetlands.** The Cooper Mountain Community Plan area's wetlands are documented in the Local Wetland Inventory (LWI), which follows the Department of State Lands requirements. Wetlands inventoried in the LWI are presumed to be subject to regulation by Clean Water Services and the Department of State Lands (contingent upon further site-specific delineations by property owners) and are therefore determined to be significant for the purposes of City's Goal 5 regulations.

- **Riparian Habitat Areas.** Riparian Habitat Areas (Class I and Class II in the Cooper Mountain area) are acknowledged Goal 5 resources and protected through the Tualatin Basin Plan, implemented by Clean Water Services. They provide valuable ecological services for the local flora and fauna and have environmentally beneficial impacts much further downstream. Therefore, Riparian Class I and Class II Habitat Areas are a significant regional resource.

- **Upland Habitat Areas.** In the Cooper Mountain area, upland habitat class A and Class B represent land with substantial ecological value today or potentially substantial ecological value in the future if protected through land use regulations. These areas were identified by Metro as regionally significant resources when occurring on lands added to the Urban Growth Boundary after December 28, 2005. Upland Class C in the Cooper Mountain area is significantly degraded through development or agricultural use, and not along priority drainages. Therefore, Upland Habitat Class A and Class B resources in the Cooper Mountain Community Plan area are determined to be significant.

- **Wildlife Corridors.** As described in the "Wildlife Corridors" section of this inventory report, the wildlife corridors in the Cooper Mountain area are generally coincident with riparian and upland habitat and will be subject to land use regulation and environmental protection through federal, state, and local law. The limited number of habitat connections that lie outside of protected Riparian/Upland Habitat areas are not specific to an individual location but represent focus areas for further study. For this reason, those wildlife corridors outside of inventoried riparian/upland habitat areas are not determined to be significant resources for the purposes of Statewide Planning Goal 5.

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Figure 1. Cooper Mountain Community Plan Area

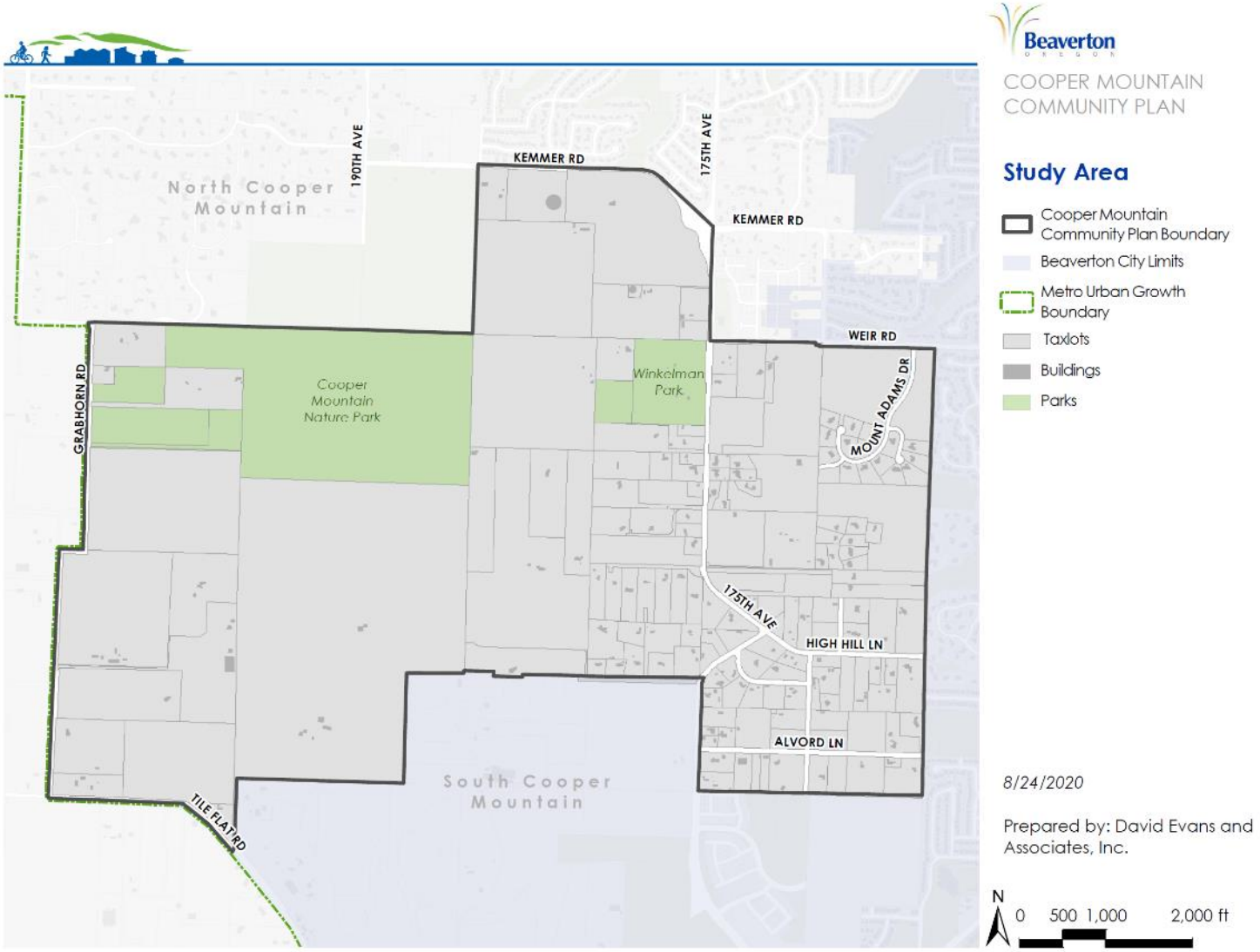


Figure 2. 2019 Aerial Imagery and Cooper Mountain Taxlots

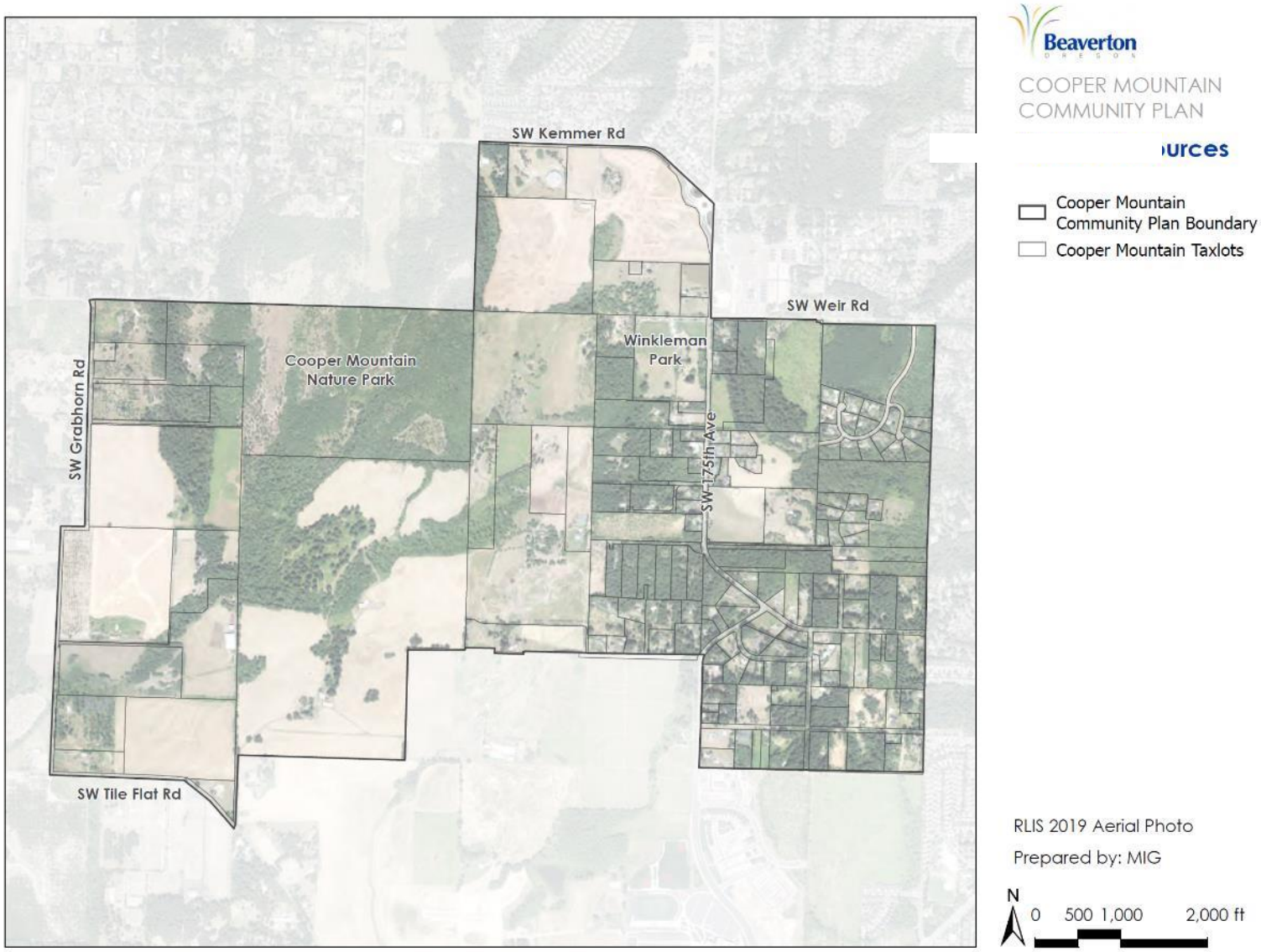


Figure 3. Drainage Basins, Streams, and Wetlands

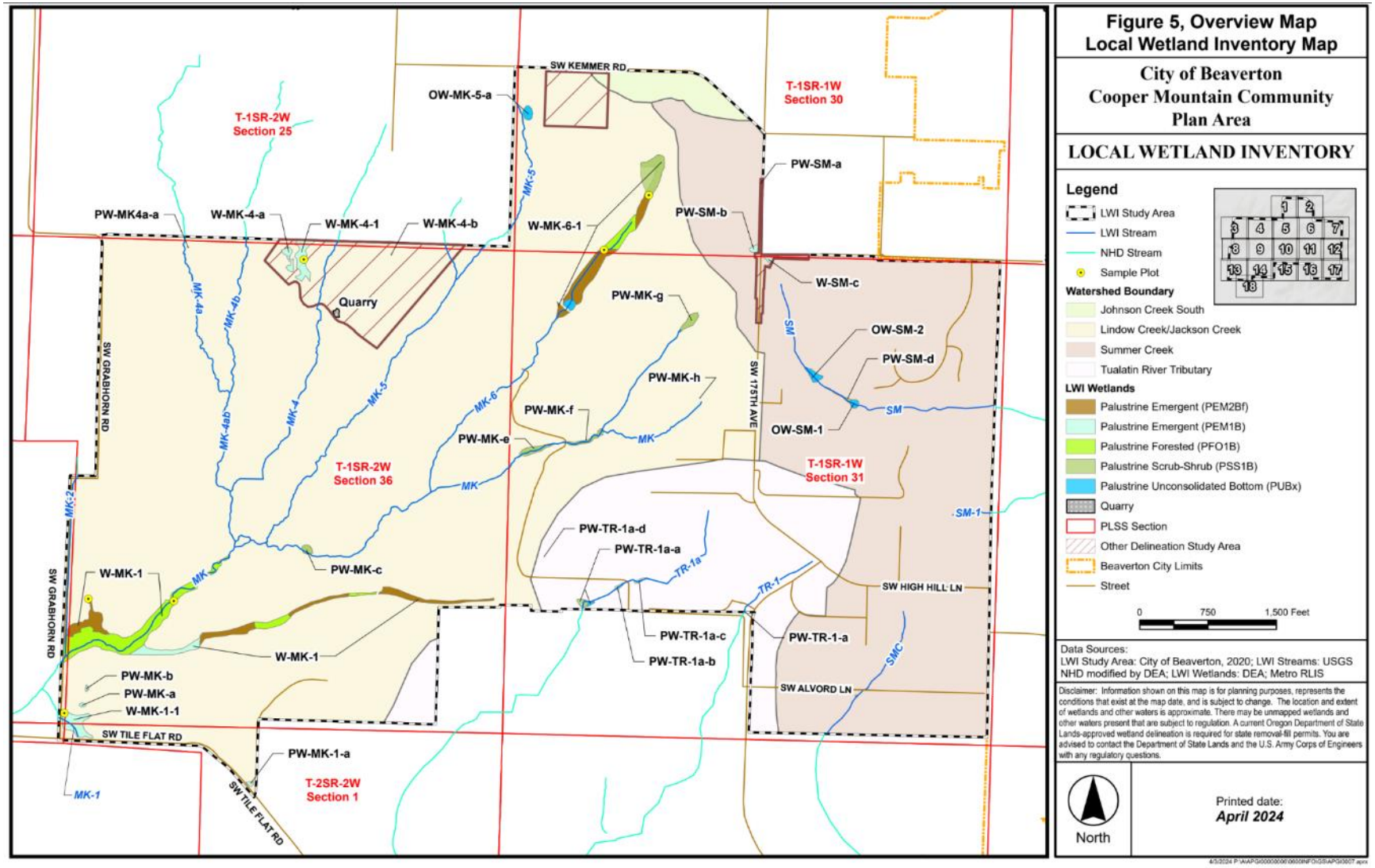
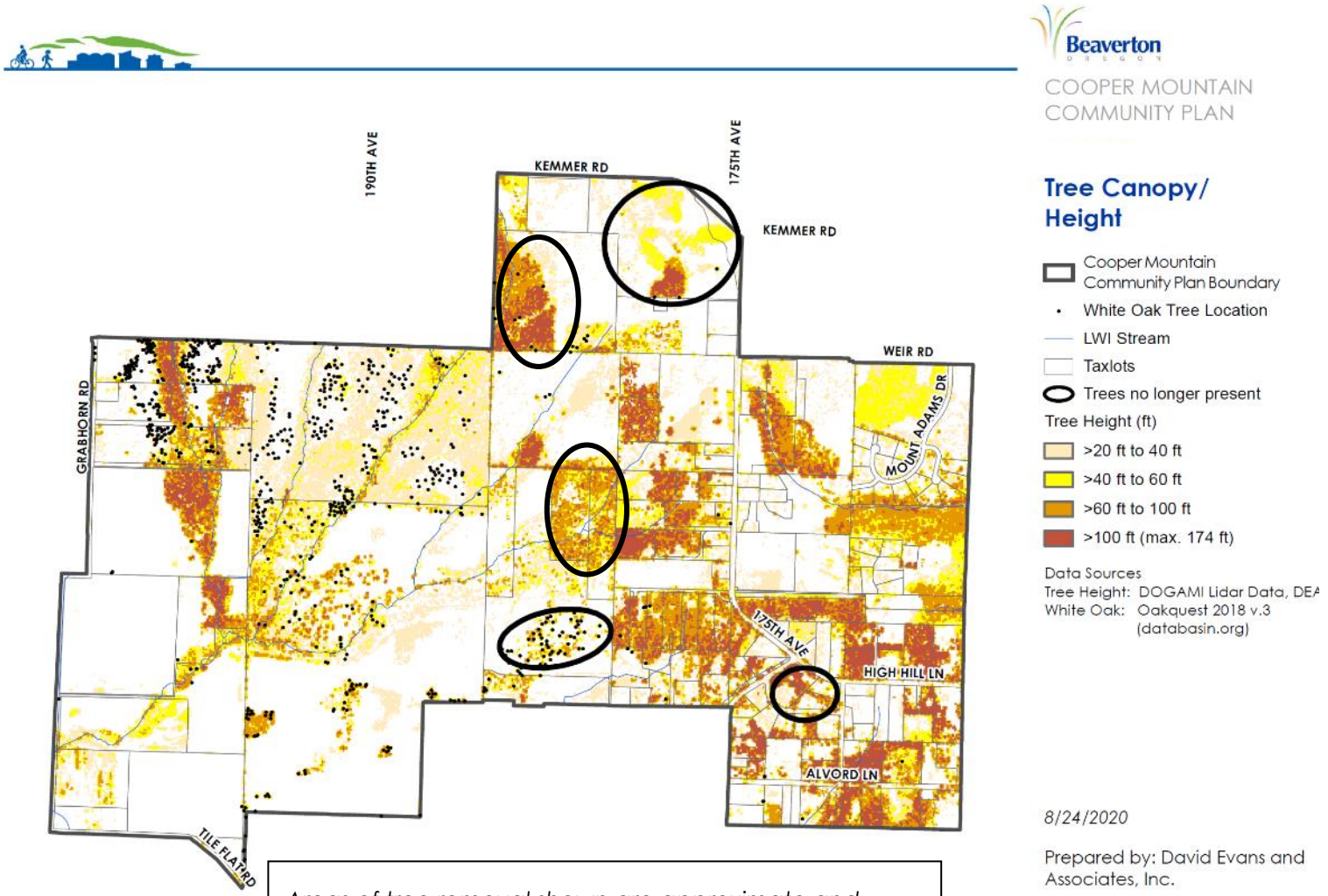


Figure 4. Tree Canopy/Height



Areas of tree removal shown are approximate and reflect large areas of removal only. Updated habitat mapping removed additional smaller patches of trees not shown here.

Figure 5. Streams, Local Wetland Inventory (LWI) Features, and Stream Buffers

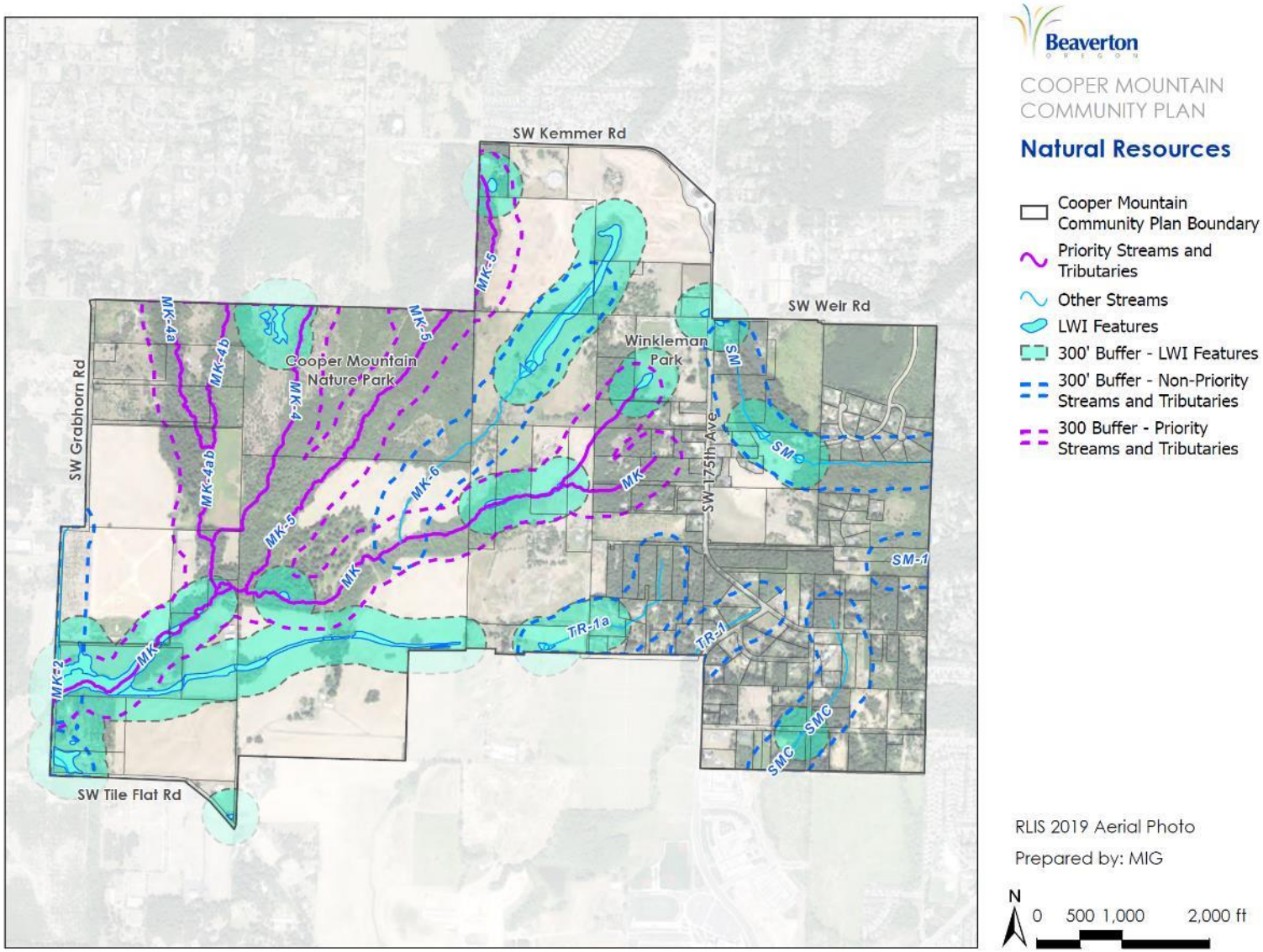


Figure 6. Riparian and Upland Habitats

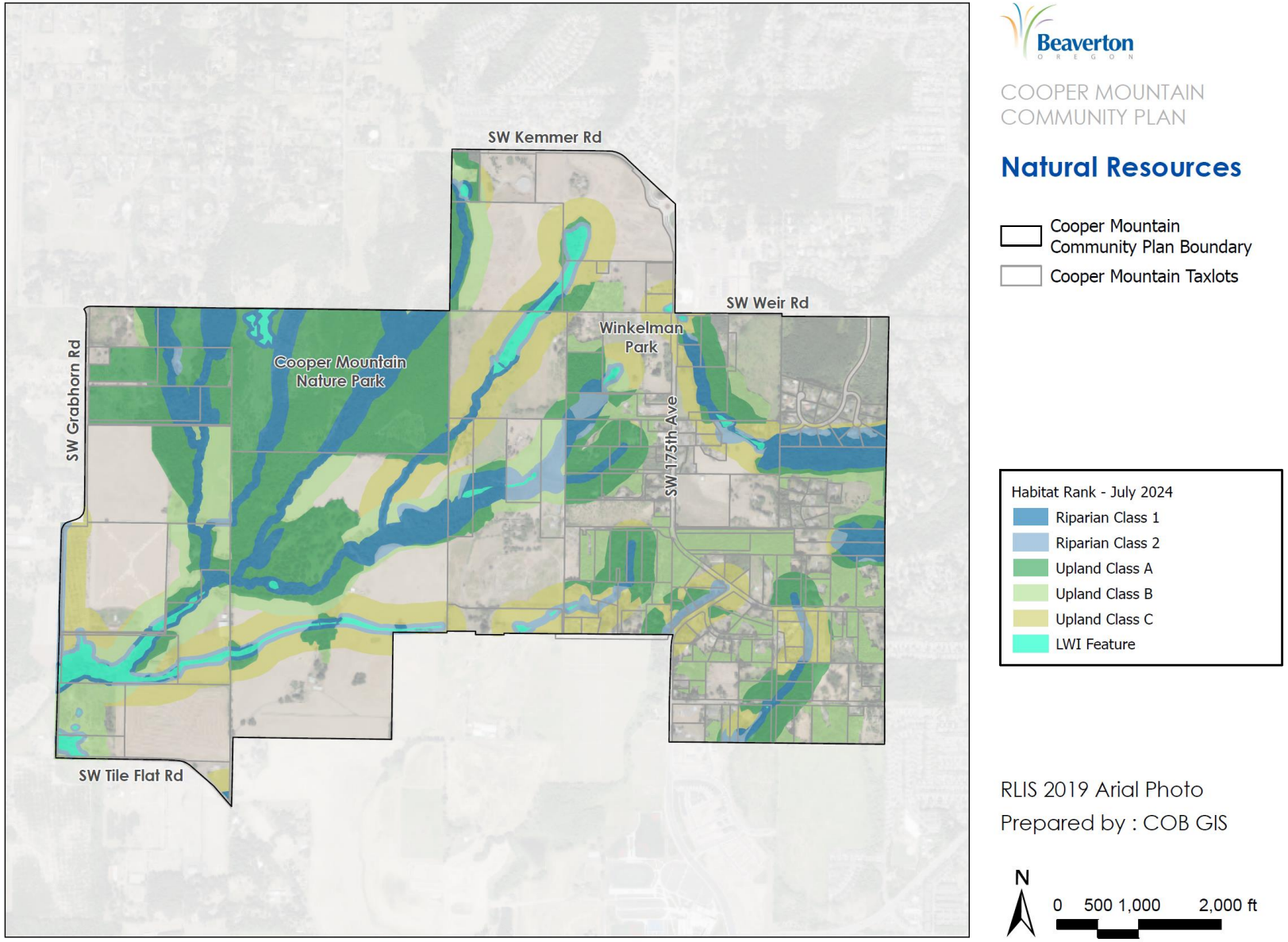


Figure 7. Cooper Mountain Natural Resources Inventory Buffers compared to 2005 Metro Title 13 Inventory

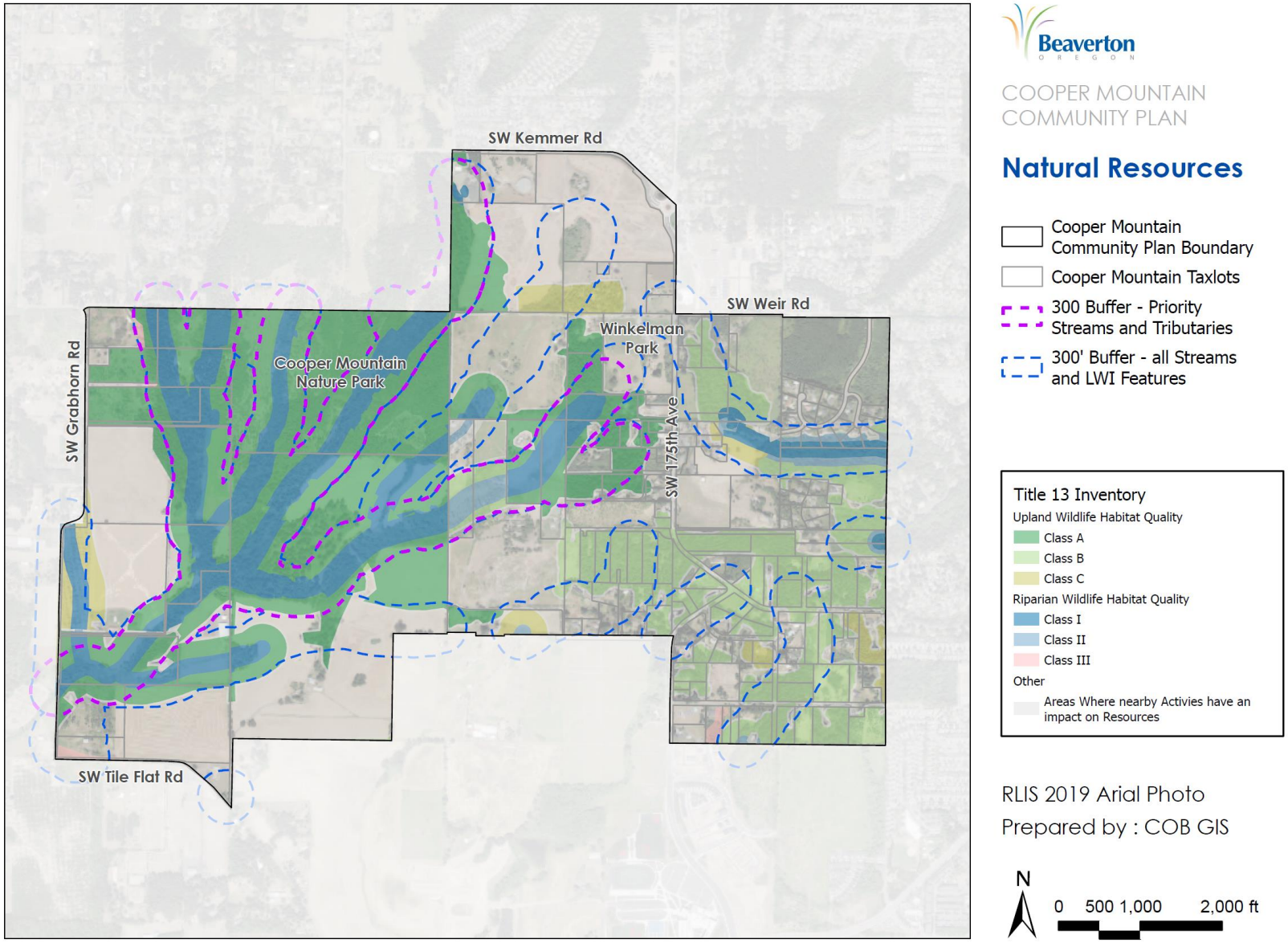
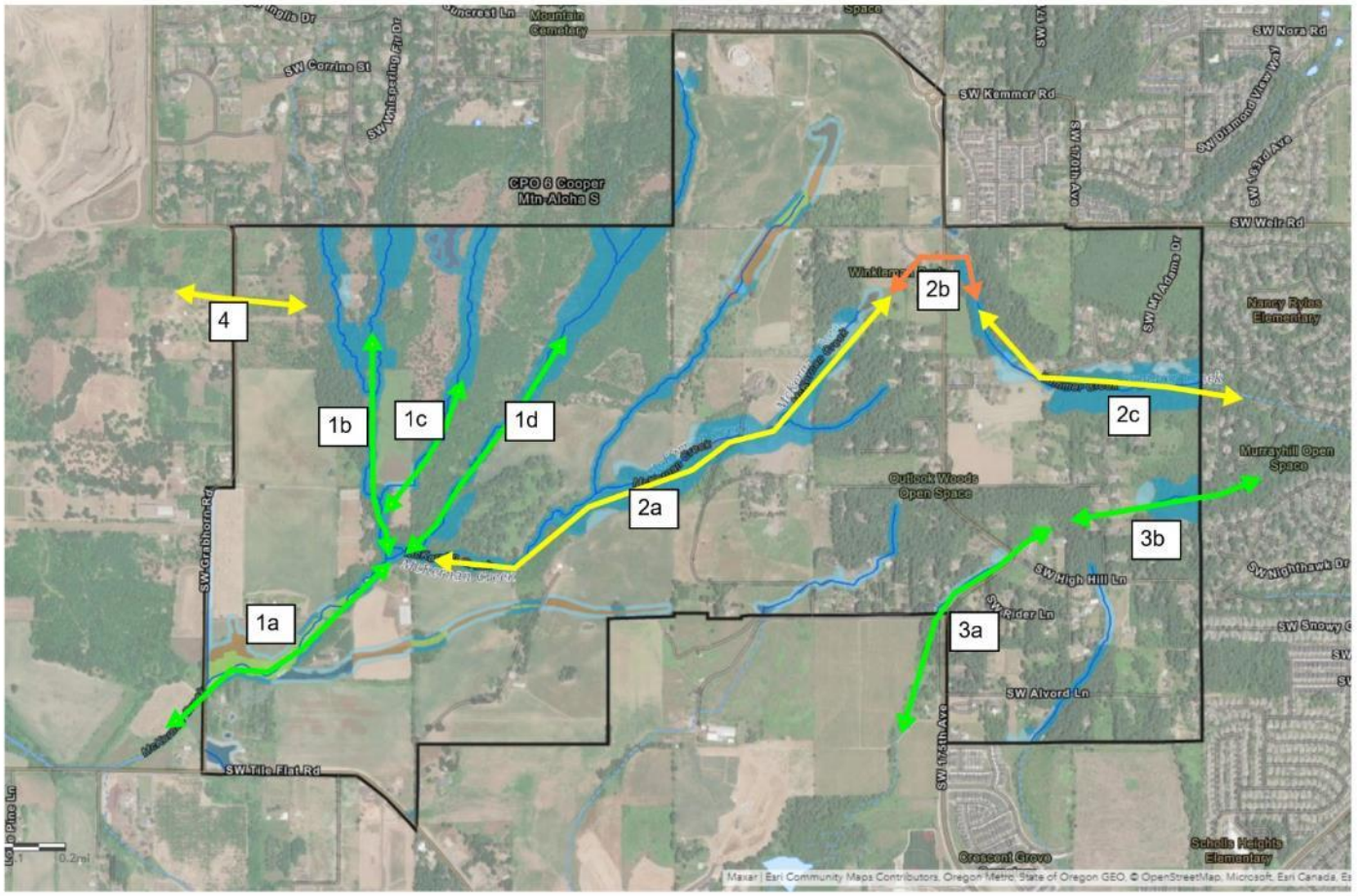


Figure 8. Wildlife Corridor Assessment



Cooper Mountain Proposed Wildlife Corridors (5/4/2022): See page 2 for additional information.

Green = Primary wildlife corridor. Large mammal passage (e.g., deer, coyote) is highly recommended
Yellow = Primary wildlife corridor. Large mammal passage feasibility/benefit unknown, but further review may be warranted. Smaller animals would still benefit.
Orange = Secondary wildlife corridor. May not be suitable and/or of high benefit for large mammals, but may still be beneficial to smaller animals.

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MEMORANDUM

TO: Project File

FROM: Alisa Maxwell, Capital Planning Project Manager

DATE: September 27, 2024

SUBJECT: Addendum to Cooper Mountain Community Plan, Natural Resources Report

---

On September 19, 2024, the Oregon Department of State Lands (DSL) approved the Cooper Mountain Community Plan, Local Wetlands Inventory (LWI). The approved LWI includes minor changes from the April 2024 LWI that was used to develop this Natural Resources Report.

The final approved LWI includes updates to naming and classification of wetland features. Specifically, wetland features previously classified as "open water" in the April 2024 LWI report have been classified as "probable wetland" and are included in LWI Wetland Summary Results Tables. As such, the following information in the Cooper Mountain Community Plan, Natural Resources Report (Final, August 2024) superseded by the following:

- Page iii – The Community Plan area contains an estimated 24.415 acres of wetlands and probable wetlands.
- Page 11 - The Community Plan area contains an estimated 24.415 acres of wetlands and probable wetlands.
- Table 2 is superseded by the table below.
- Figure 3 is superseded by the figure below from the approved LWI, dated September 2024.

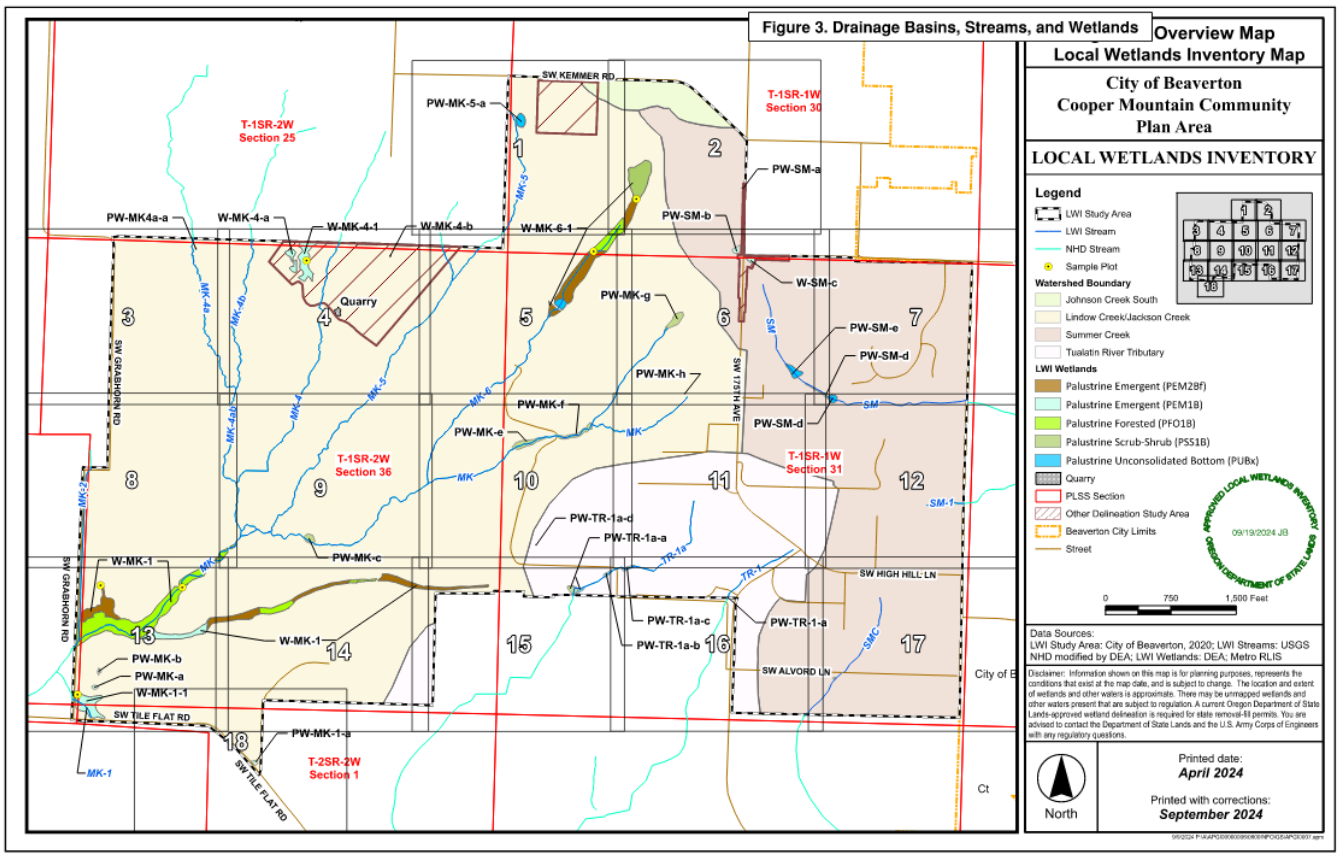
The locations and sizes of wetland features used in the Natural Resources Inventory are unchanged. The open water features were previously included in the mapping of wetland features for the purposes of identifying riparian and upland habitat areas. The conclusions and recommendations throughout the Natural Resources Report are unchanged. The map of Riparian and Upland Habitat Areas (Figure 6) is unchanged and continues to serve as the Goal 5 inventory for the Cooper Mountain Community Plan area.

Table 1. LWI Wetland Summary Results for the Community Plan area

Wetland ID[1]	Cowardin[2]	HGM	Acres[4]
PW-MK-1-a	PEM1B	Slope	0.07
PW-MK-4a-a	PEM1B	Depressional	0.002
PW-MK-a	PEM1B	Depressional	0.06
PW-MK-5-a	PUBx	Depressional	0.30
PW-MK-b	PEM1B	Depressional	0.04
PW-MK-c	PSS1B	Slope	0.22
PW-MK-e	PSS1B	Slope	0.48
PW-MK-f	PSS1B	Slope	0.38
PW-MK-g	PSS1B	Slope	0.41
PW-MK-h	PSS1B	Depressional	0.002
PW-SM-a	PEM1B	Slope	0.002
PW-SM-b	PEM1B	Slope	0.13
PW-SM-d	PSS1B	Riverine	0.12
PW-SM-d	PUBx	Depressional	0.17
PW-SM-e	PUBx	Depressional	0.33
PW-SMC-a	PSS1B	Slope	0.002
PW-TR-1-a	PSS1B	Riverine	0.17
PW-TR-1a-a	PEM1B	Slope	0.002
PW-TR-1a-b	PEM1B	Slope	0.08
PW-TR-1a-c	PEM1B	Slope	0.09
PW-TR-1a-d	PEM1B	Depressional	0.002
W-MK-1	PEM2Bf	Slope	4.01
W-MK-1	PEM1B	Slope	1.10
W-MK-1	PFO1B	Slope	7.26
W-MK-1-1	PEM1B	Slope	1.31
W-MK-4-1	PEM1B	Slope	1.14
[3]W-MK-4-a	PEM1B	Depressional	0.37
[3]W-MK-4-b	PSS1B	Depressional	0.003

Wetland ID[1]	Cowardin[2]	HGM	Acres[4]
W-MK-6-1	PSS1B	Slope	1.79
W-MK-6-1	PEM2Bf	Slope	3.21
W-MK-6-1	PFO1B	Slope	1.05
W-SM-c	PEM1B	Slope	0.11
Probable Wetland Acreage			3.062
Wetland Acreage			21.353
Grand Total			24.415

[1] "W" = wetland, "PW" = probable wetland
[2] PEM2Bf= Palustrine Emergent, Nonpersistent, Seasonally Saturated, Farmed
PEM1B = Palustrine Emergent, Persistent, Seasonally Saturated
PSS1B= Palustrine Scrub-shrub, Broad-leaved Deciduous, Seasonally Saturated
PFO1B= Palustrine Forested, Broad-leaved Deciduous, Seasonally Saturated
PUBx= Palustrine Unconsolidated Bottom, Excavated
[3] Feature has been mapped as a wetland instead of a probable wetland despite being less than 0.5 acres. This is because the feature was part of a past wetland delineation that received DSL concurrence.
[4] Probable wetlands with acreage of 0.002 are rough estimates of very small features that may be wetlands.



Appendix A: Cooper Mountain Funding Plan

COOPER MOUNTAIN INFRASTRUCTURE FUNDING PLAN

Final Report | June 27, 2024

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Executive Summary

The Cooper Mountain Community Plan is planning for new walkable neighborhoods with close to 5,000 future housing units. Investments in transportation, water, wastewater, stormwater, parks, and trail systems are needed to support and connect these new neighborhoods. Infrastructure plans for Cooper Mountain address:

- **Projects needed to serve new development in Cooper Mountain** (such as the new roads, pedestrian facilities, and public utility conveyance infrastructure within Cooper Mountain);
- **Projects to increase broader system capacity** to accommodate growth in Cooper Mountain and other areas (such as upgrades to intersections outside Cooper Mountain and pump station construction for water or sewer); and
- **Projects that increase capacity and address other issues**, and are planned to be located within Cooper Mountain (such as water system improvements to increase resiliency, or safety improvements to existing roads).

This infrastructure funding plan provides recommendations for funding projects needed to serve new neighborhoods in Cooper Mountain and estimates how development in Cooper Mountain is expected to contribute toward projects that offer broader benefits.[1]

The Funding Plan, like the rest of the Community Plan, is guided by the project's goals, which call for realistically delivering needed infrastructure and supporting equitable outcomes and housing variety to create inclusive new neighborhoods. It builds on years of work to develop the preferred land use approach, identify needed infrastructure improvements, and evaluate a range of potential funding tools. Partner agencies, developers, and other stakeholders have informed this draft plan, and are invited to share additional feedback and perspectives before it becomes final.

Key elements of the funding plan are summarized below.

- **Cooper Mountain development will fund projects needed to serve this area and contribute to funding broader system capacity.** As in most greenfield development, developers will build and pay for much of the infrastructure that will serve the new development, including local streets, local utility collection and distribution networks, and on-site stormwater management systems. Many larger roads and pipes will also be built by developers with cost-sharing mechanisms for the cost of oversizing roads or utility systems relative to local facilities. Larger projects and those that impact properties with little development potential will generally be built by the public sector service provider. However, the funding for cost-sharing and public-sector projects associated with increasing capacity will largely come from fees paid by

[1] Generally, based on legal limitations, development can only be required to pay a roughly proportionate share of growth-related costs for infrastructure. Costs to address existing deficiencies generally cannot be imposed on development.

development: System Development Charges (SDCs) and the Transportation Development Tax (TDT).

- **Other funding sources will contribute to investments needed to address other issues (safety, resilience, etc.).** This could include utility fees, grants, earmarks, or other local sources not imposed on development. Service providers may also choose to use these sources to pay for growth-related costs if appropriate (e.g., for timing reasons).
- **Existing transportation funding sources are likely inadequate to deliver key projects—a new source is proposed for Cooper Mountain to close the gap.** Without a new funding source, nearly all the expected TDT from development in Cooper Mountain would be applied to credits for the oversizing costs of developer-constructed major roads. This would leave little or no revenue from this area to pay for key public capital projects, including a crossing of McKernan Creek and upgrades to 175th Avenue. While the city and County could still prioritize TDT revenues from other areas to pay for these projects, there are many other projects competing for available TDT revenues at any given time. The recommended funding approach includes implementing a new funding source applicable to development in Cooper Mountain to pay for much of the cost of these critical public projects and reduce the need for TDT credits to go toward developer-constructed Collector roads within Cooper Mountain. Even with this new source, the city and County will need to partner to identify funding that does not come from development to cover the non-capacity-related costs of realigning the "kink" in 175th Avenue.
- **Existing funding mechanisms are likely sufficient for public utility infrastructure, though timing may be a challenge for upper elevation neighborhoods**. Under current structures, water, sanitary sewer, and stormwater systems investments are funded through a mix of SDCs (for capacity-related costs) and utility rates (for non-capacity costs). While this plan identifies no funding gaps, as the area develops it is possible that current levels of SDCs and SDC credit mechanisms may fall short. Additionally, development in several of the future neighborhoods in upper elevations is dependent on key utility projects (a potable water booster pump and a key sewer main) that may be challenging for individual developers to deliver on their own. The potable water booster pump will be built by the city, but other capital financing priorities may prevent the city from allocating money to this project before 2030. The sewer main, constructed by Clean Water Services, will need to extend through much of the Community Plan area and cross McKernan Creek. Combining the utility crossing with the future roadway crossing would create cost efficiencies, but would tie sewer availability (and the opportunity to develop in upper elevation neighborhoods) to the timing of this roadway crossing being funded and constructed.
- **Future park plans will require tapping revenue from other areas.** The preferred approach for the Community Plan includes more parks acreage than originally estimated for the area when Tualatin Hills Park & Recreation District (THPRD) prepared the project list for their recently updated SDC. This change creates a funding gap relative to parks SDCs charged by THPRD. However, at the time this plan was written, the existing SDC is estimated to be more than sufficient to cover the cost

of land for parks within Cooper Mountain. THPRD has the ability to consider using SDCs from other areas (or other district-wide sources as applicable) to support the build-out of the Community Park and trail amenities that serve the broader community.

- **The Infrastructure Funding Plan will have limited impacts on the ability to deliver a range of housing types and price points; complementary measures may be needed.** Both infrastructure and development costs in the Cooper Mountain Planning area may be higher than in other urban growth areas due to the steep terrain and requirements for natural resources crossings. Those conditions (along with market forces) are likely to be a driving factor in determining housing types and price points. The additional cost to development associated with the recommended new transportation funding source is likely similar to the supplemental transportation SDC in South Cooper Mountain or other urban growth boundary expansion areas. The city controls few of the existing SDCs applicable to this area, but it should consider how costs for any new sources are allocated relative to unit size, density, and housing type. Additional measures to support housing variety and affordability are discussed in a separate memorandum.

1. Introduction

1.1. Purpose

The Infrastructure Funding Plan identifies funding strategies for the necessary infrastructure to support the goals and preferred approach of the Cooper Mountain Community Plan. The Funding Plan covers not just city infrastructure, but also infrastructure provided by Washington County, Clean Water Services, and Tualatin Hills Park & Recreation District, addressing transportation, potable water, non-potable water, sewer, stormwater, and parks and trails. These infrastructure providers have existing authority to assess charges on new development. This plan does not address private utilities (e.g., electricity, natural gas); other public services such as fire, police, schools, and libraries for which capital facilities are typically funded by general obligation bonds; or funding for affordable housing (which is addressed in a separate document). The Infrastructure Funding Plan will be adopted as part of the Community Plan. The funding strategies envisioned by this plan are generally options that require future consideration and action by the city or partner agencies for the strategy to be implemented. Future work that may be required includes follow-up efforts, such as putting new funding sources in place, updating project lists, or applying for grants.

1.2. Background

Cooper Mountain is a 1,200-acre expansion area that was added to the urban growth boundary in 2018. The Community Plan is planning for new neighborhoods that will bring close to 5,000 new housing units to Cooper Mountain at full buildout. The ultimate vision of the Community Plan is to "create a community of walkable neighborhoods that honor the unique landscape and ensure a legacy of natural resource protection and connection."[2]

The Community Plan identifies regulations and funding tools to guide and support this growth and align it with the city's goals for the area. Annexation and development are not anticipated to occur until after the community plan process is complete.

1.3. Guiding Principles

The Funding Plan must align with the goals of the Community Plan:

1. Create equitable outcomes for residents, including underserved and underrepresented communities.

2. Provide new housing in a variety of housing types and for all income levels.

3. Preserve, incorporate, connect, and enhance natural resources.

[2] City of Beaverton, Cooper Mountain Community Plan (DRAFT), June 14, 2023.

4. Improve community resilience to climate change and hazards.

5. Provide public facilities and infrastructure needed for safe, healthy communities.

6. Provide safe, convenient access to important destinations while supporting transportation options, including walking and biking.

7. Provide opportunities for viable commercial uses, including places to work and places to buy goods and services.

8. Identify feasible, responsible funding strategies to turn the vision into a reality.

These principles call for an Infrastructure Funding Plan that both realistically delivers needed infrastructure and supports equitable outcomes and housing variety that can help create inclusive new neighborhoods. These principles have informed the approach to closing funding gaps and the identification of appropriate funding strategies for this area. In addition, the city is considering possible exemptions or reduced cost share for certain housing types.

1.4. Inputs to the Funding Plan

1.4.1. Funding Options Assessment

The Infrastructure Funding Plan builds on the Cooper Mountain Funding Options Assessment (FOA) completed in 2021 by ECOnorthwest in collaboration with Tiberius Solutions, Angelo Planning Group, consultants working on the infrastructure analysis, and city staff. The FOA took a preliminary look at key infrastructure needs and potential funding challenges for the Community Plan area; summarized existing funding mechanisms and cost-sharing policies in use by the city and the other service providers for the area (e.g., Washington County, Tualatin Hills Park & Recreation District (THPRD), and Clean Water Services (CWS)); and discussed potential new funding tools to consider in Cooper Mountain, including equity and fairness considerations. The FOA also included a review of prior work on infrastructure funding for South Cooper Mountain to understand what strategies the city might continue or change for this plan.

1.4.2. Infrastructure Planning

The Infrastructure Funding Plan draws on infrastructure planning and analysis work for the Community Plan, including:

- Transportation impact analysis (DKS Associates)
- Cooper Mountain Utility Plan for water (potable and non-potable), sewer, and stormwater (Consor)
- Parks and trails planning (MIG)

This infrastructure planning and analysis generated the project lists and cost estimates included in this Infrastructure Funding Plan.

1.4.3. Land Use Assumptions

The land use assumptions that informed revenue estimates are based on the Preferred Approach for the Community Plan as of June 2023.

Exhibit 1: Estimated Housing Units in Cooper Mountain at Buildout

Source: DRAFT Cooper Mountain Community Plan, June 2023, Table 1

Neighborhood	Single-Detached Dwellings	Middle Housing and five- and six-plexes	Multi-dwellings (at least 7 units)	Total
Cooper Lowlands	420	280	440	1,140
Grabhorn Meadow	270	180	100	550
High Hill	350	230	90	670
Hilltop	270	180	250	700
Horse Tale	170	110	170	450
McKernan	230	150	0	380
Siler Ridge	170	110	190	470
Skyline	100	70	100	270
Weir	210	140	0	350
TOTAL	**2,190 (44%)**	**1,450 (29%)**	**1,340 (27%)**	**4,980 (100%)**

In addition, the Preferred Approach includes two commercial areas at roughly 5 acres each plus opportunities for additional commercial development in other areas. ECOnorthwest estimated the potential commercial development at between roughly 96,000 and 167,000 square feet.

1.4.4. Engagement

The Cooper Mountain Community Plan strives for equitable outcomes for residents, including underserved and underrepresented communities. The project team actively sought public input from a broad, diverse audience at key project milestones. The city provided opportunities for community members, technical specialists, and decision-makers to share ideas and provide input throughout the project using a range of outreach activities.[3] Activities that specifically informed the Funding Plan include:

[3] Documentation of Community Plan engagement activities is available through the City of Beaverton's Cooper Mountain project website.

- **Community Plan Technical Advisory Committee:** The Technical Advisory Committee was convened to discuss the infrastructure elements related to different planning concepts. The Committee met nine times between 2021 and 2023.
- **Funding Options Assessment:** The Funding Options Assessment (FOA) discussed above was published in February 2021. The FOA was posted online for public comment and has supported staff conversations with residents, property owners, and potential developers since 2021.
- **Funding Work Group:** In 2022, the city convened a funding work group that included staff representatives from the City, Washington County, Clean Water Services, Tualatin Hills Park & Recreation District, and members of the Funding Plan consultant team (ECOnorthwest, Tiberius Solutions, and Angelo Planning Group). The work group reviewed the FOA and laid out a path to collaborating on an agency-to-agency basis to refine the funding analysis and strategies.
- **Partner Agencies:** Staff met individually with partner agencies, including Washington County, Clean Water Services, and Tualatin Hills Park & Recreation District, in November and December 2023 to review up-to-date project cost estimates and preliminary funding strategy approaches.
- **Private Developers:** Staff met one-on-one with interested developers in January and February 2024 to discuss funding approaches, including the public-private split of project costs across infrastructure types. Developers will also have opportunities to provide public comment on preliminary funding strategies presented by city staff at City Council work sessions in early 2024.

2. Funding Plan

2.1. Funding Sources Overview

Key sources to fund infrastructure for greenfield development in Oregon are summarized in brief below. This section provides an introduction to the terminology and basic concepts for sources that are broadly applicable across the Community Plan area; each of these are discussed in greater depth in relation to specific infrastructure systems and projects later in the plan. See also Appendix C for a more detailed description of these funding sources, as well as additional mechanisms not included in this plan.

- **System Development Charges (SDCs)**: SDCs are one-time fees paid by new development (or, in some cases, re-development) at the time of development. They are intended to capture an equitable share of the cost of "system" capacity—large backbone facilities that provide service system-wide or to a portion of the service area, with extra capacity beyond an individual development's needs. They can be based on the value of existing facility capacity available to serve growth and/or the cost of building future facilities to provide additional capacity to serve growth.[4]
  - SDCs can be applied uniformly throughout a service providers' district, or rates can be differentiated in different geographies. This can include establishing a **Supplemental SDC** that only applies within a defined geographic area for SDC-eligible capital projects that increase capacity and benefit/serve the defined area.[5]
  - When SDCs are established based on a project list that covers a broad service area (e.g., citywide), revenues from all development in the jurisdiction are generally combined and allocated toward eligible projects based on when projects are needed. There is no requirement that revenues collected in a specific growth area must be used on projects within that area. However, supplemental SDCs are typically tied to a specific subarea and a narrower project list to serve that subarea. This restriction can create phasing and timing challenges in implementing larger infrastructure projects.
  - Developers are often required as a condition of approval to build infrastructure components that are larger or have more capacity than is needed to serve the development itself—these are known as "qualified public improvements." **SDC credits** provide a mechanism to recognize the additional cost of the over-sized infrastructure built by the developer, by crediting future payments of SDCs. The City of Beaverton applies credits

[4] ECOnorthwest, Galardi Rothstein Group, and FCS Group, *Oregon System Development Charges Study: Why SDCs Matter and How they Affect Housing*, 2022, p.1.

[5] Note that a similar outcome can be achieved through area-specific fees established through development agreements at time of annexation.

against the SDCs owed by infrastructure category, which means those charges are not collected.[6]

  - Transportation Development Tax (TDT) is a voter-approved source in Washington County that functions as a transportation SDC. The Plan discusses TDT in more detail in the Transportation section.

- **Developer Contributions:** Developer contributions are payments or in-kind work by developers for infrastructure needed to develop their properties. This can include facilities developers build and turn over to the public sector (e.g., local roads and water/sewer distribution lines), exactions required as a condition of development (e.g., contributions of land for a park or sidewalk), and sometimes negotiated developer contributions for infrastructure or public amenities through a development agreement.
- **Utility Rates:** Water, sewer and storm water utility rates are charged on an on-going basis (e.g., monthly) to all customers connected to a given system. In the Community Plan area, all area service providers that charge on-going rates also charge SDCs for new development, and SDCs are the primary source of revenue for projects to serve new development. However, rates can supplement SDCs and fund infrastructure that also serves existing customers.
- **Local Improvement District (LID):** An LID is a special assessment district in which a group of property owners within a specific area share the cost of a capital project or infrastructure improvement that benefits them. Each property's assessment is proportional to its share of benefits. The assessment is due when the project costs are finalized, and places a lien on the property until paid, but property owners can choose to pay in installments over up to 20 years. For properties within an LID, the payment obligations are due regardless of whether the property is ready to pursue new development. Creating an LID requires many steps, including a public hearing and support from a majority of affected property owners.[7]
- **Reimbursement District:** A reimbursement district is a cost sharing mechanism, typically initiated by a developer, though it can be initiated by the local government.[8] It provides a reimbursement method to the party who initially pays and builds an infrastructure improvement that will benefit others, through fees paid by property owners at the time the property benefits from the improvement, generally when building permits or other permits are issued.

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[6] Some jurisdictions require developers to pay SDCs when development plans are approved and issue credits as reimbursements after the facilities are completed. See Oregon System Development Charges Study, p. 126.

[7] State law specifies the steps to form a LID. The City of Beaverton enables LID formation in the municipal code for a variety of infrastructure types and has specific provisions for the use of LIDs for newly developing areas. See Chapter 3.02: Local Improvement Procedures. https://www.codepublishing.com/OR/Beaverton/html/Beaverton03/Beaverton0302.html

[8] Reimbursement districts can be both a funding source (if they pay for infrastructure that would not otherwise be funded) and a financing mechanism (in that they allow one party to lay claim to future developer contributions).

- **Grants, Loans, Appropriations:** There are federal, state, and regional funding and financing programs for infrastructure that local governments can apply for or request. These programs may provide grants, loans, or appropriations ("earmarks") for specific projects.
  - Grants do not need to be repaid, though they typically require local matching funds for a certain percentage of total project costs. Grants are more common for transportation and parks than for water resource infrastructure. They are often competitive, though eligibility criteria, funding priorities, and competitiveness vary by program.
  - Loans to governmental entities for major infrastructure projects generally offer lower interest rates or other favorable financing terms compared to bonds or other debt. Loans (often structured as revolving loan funds) to governmental entities are much more common for water resources infrastructure than for transportation or parks, because they are typically repaid with revenue from utility rates, which are relatively consistent and predictable over time. Thus, they are not truly a source of additional funding, but rather a low-cost financing mechanism to frontload utility rate revenue to pay for capital projects.
  - Appropriations or earmarks are funds allocated to specific projects by a legislative body (e.g., state or U.S. legislature). There are no explicit criteria for such appropriations, but they are generally reserved for projects that align with legislative priorities and offer compelling benefits to the region or state.

2.2. Key Concepts

There are several important considerations in evaluating infrastructure funding options. This section describes these in brief; see the Cooper Mountain Funding Options Assessment for a longer discussion of these key concepts.

Who Pays?

Different funding tools draw revenue from different parties. However, the person who pays a tax or fee may not be the same person who ultimately bears the burden of that cost. Identifying who ultimately bears the cost of a tax or fee is known as "incidence." This is particularly relevant for costs imposed on new development.

Developers pay for SDCs and other fees and costs imposed on development, but developers generally absorb little or none of this cost themselves. Home prices, and most rents, are market-driven. In a strong market, these fees and costs of development are passed on to homebuyers and renters, especially if the new housing offers compelling amenities or housing supply is tight. If vacant land has no amenities on it, the initial property owner typically absorbs at least a portion of the costs to develop through a reduced sales price for the land, depending on the availability of

comparable developable land. Overall, the distribution of costs will vary based on market conditions and a variety of other factors.[9]

Is the Funding Option Fair?

The concepts of fairness and equity in public finance have several dimensions that consider who benefits, who has the ability to pay, how the mechanism may change behavior, or how it may achieve redistributive goals. The relative importance of each of these considerations will vary based on context.

For an infrastructure Funding Plan for a new growth area, specific fairness and equity considerations include:

- How much growth should be asked to pay for itself?
- How can funding mechanisms be designed to support goals related to housing affordability and inclusive neighborhoods?
- How are costs shared geographically relative to benefits?

Funding plans for new growth areas generally try to avoid imposing costs on, or diverting funds from, other areas unless the infrastructure investments will benefit the residents of those other areas as well. However, there is no requirement that infrastructure needed to serve a growth area be fully paid for by development in that area, nor that all revenue generated within a growth area from sources that apply more broadly be directed toward infrastructure in that area.

Equity Considerations for Infrastructure Funding

Pursuing racial equity in an Infrastructure Funding Plan requires acknowledging the history of racially discriminatory development policies in the United States and in Oregon, specifically. Federally-subsidized suburban growth in the postwar era—including in Beaverton and other Washington County suburbs—often included racially-restrictive covenants that excluded people of color from buying homes in the new suburban neighborhoods.[10] The city seeks to ensure future development in Cooper Mountain is inclusive of individuals and families from a variety of backgrounds and income levels and that infrastructure funding choices do not interfere with that goal.

Rising development costs can hinder development of lower-priced, market-rate housing and increase the need for subsidies for affordable housing. There is also evidence that the type of costs considered in the Funding Plan can be passed on to future homebuyers or renters in some circumstances. However, a large share of the total cost of greenfield development, including the cost of building infrastructure specific to

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[9] ECOnorthwest, Galardi Rothstein Group, and FCS Group, *Oregon System Development Charges Study*, 2022, p. 10–13.

[10] ECOnorthwest, Galardi Rothstein Group, and FCS Group, *Oregon System Development Charges Study*, 2022, p. 18–19.

one property or one subdivision development, is outside the purview of this Funding Plan, and none of the broadly based strategies for funding system-wide infrastructure can guarantee the delivery of specific types of housing at specific levels of affordability.

In addition, reducing infrastructure costs for development in growth areas by contributing more funding from non-growth sources can shift the burden to the broader population, and draw resources from high-priority, pre-planned projects. This shift may also burden a greater share of lower-income or disadvantaged households than the new growth area. This Funding Plan balances these realities by considering how and to what extent the available options can support or hinder development of a range of housing types and price points within Cooper Mountain and seeking to fund projects with broader benefits through broadly based funding tools, that capture the benefits provided to the community at large.

Funding Timing Considerations

The terms "funding" and "financing" are often used interchangeably, but there is an important difference between the two. Funding describes the ultimate sources of revenue to pay for infrastructure costs. Financing describes borrowing mechanisms to secure immediate funds that are repaid over time. Financing is important to address timing challenges inherent in some funding sources, and some sources lend themselves to financing more than others.

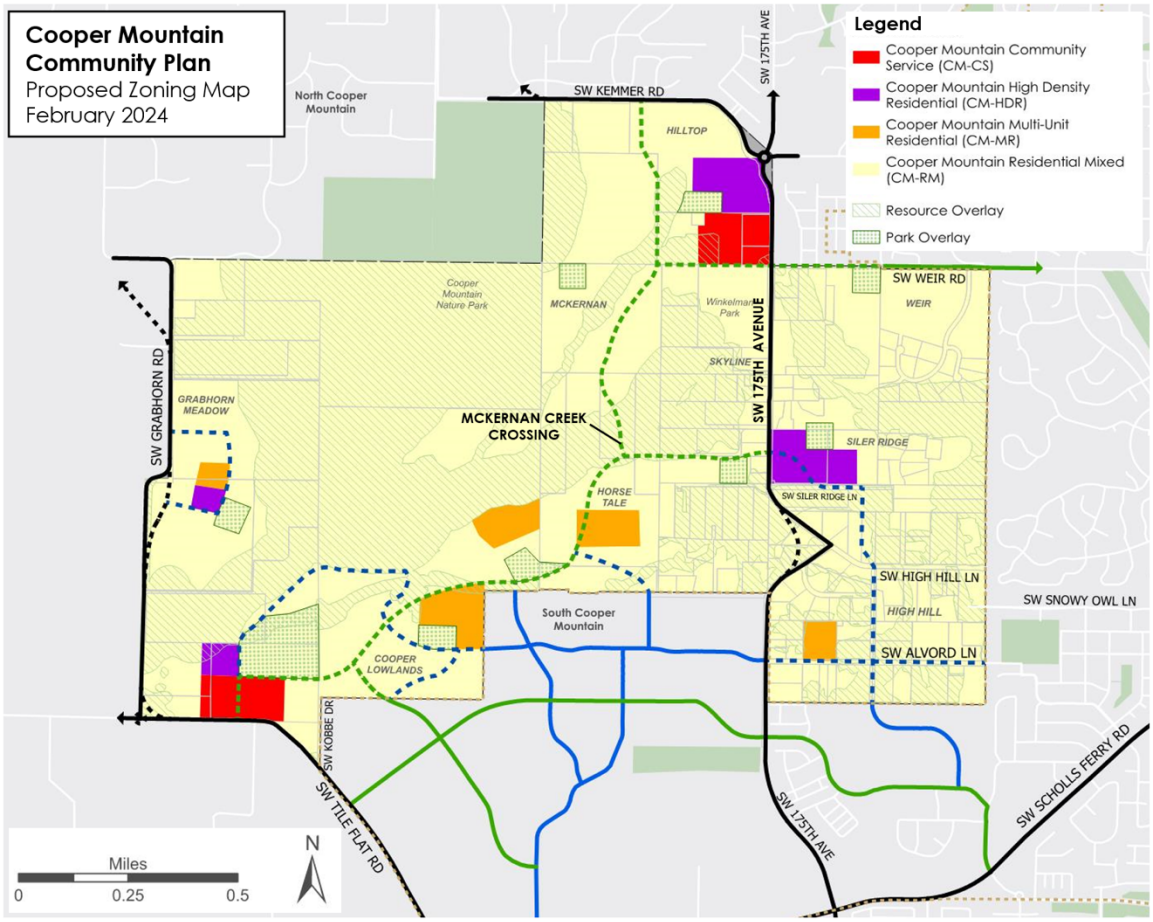
2.3. Transportation

2.3.1. Projects and Costs

In the Community Plan preferred approach, the future transportation system will include Neighborhood Routes (blue), Collector roads (green), and Arterial roadways owned by Washington County (black), as shown in Exhibit 2. Local streets will be added as neighborhoods develop.

Exhibit 2. Community Plan Zoning Map, Transportation Improvements

Source: City of Beaverton



The Cooper Mountain Transportation Impact Analysis identified 29 potential projects that are needed to serve projected growth or are impacted by development across Cooper Mountain, as shown in Exhibit 3. The project list includes constructing the onsite network of Neighborhood Routes and Collectors, including a bridge/culvert crossing of McKernan Creek to provide a continuous Collector route through the area. The project list also includes upgrades to existing County Arterial roads through the area (175th Avenue, Tile Flat Road, Grabhorn Road, and Kemmer Road) and intersection improvements both within Cooper Mountain and at offsite intersections impacted by future traffic from Cooper Mountain. All roadway projects will provide bike and pedestrian connectivity. Local roads are not included in the project list below or

addressed in this Funding Plan, as developers are responsible for constructing them, with no expectation of public cost-sharing.

Exhibit 3. Transportation System Improvements

Source: City of Beaverton

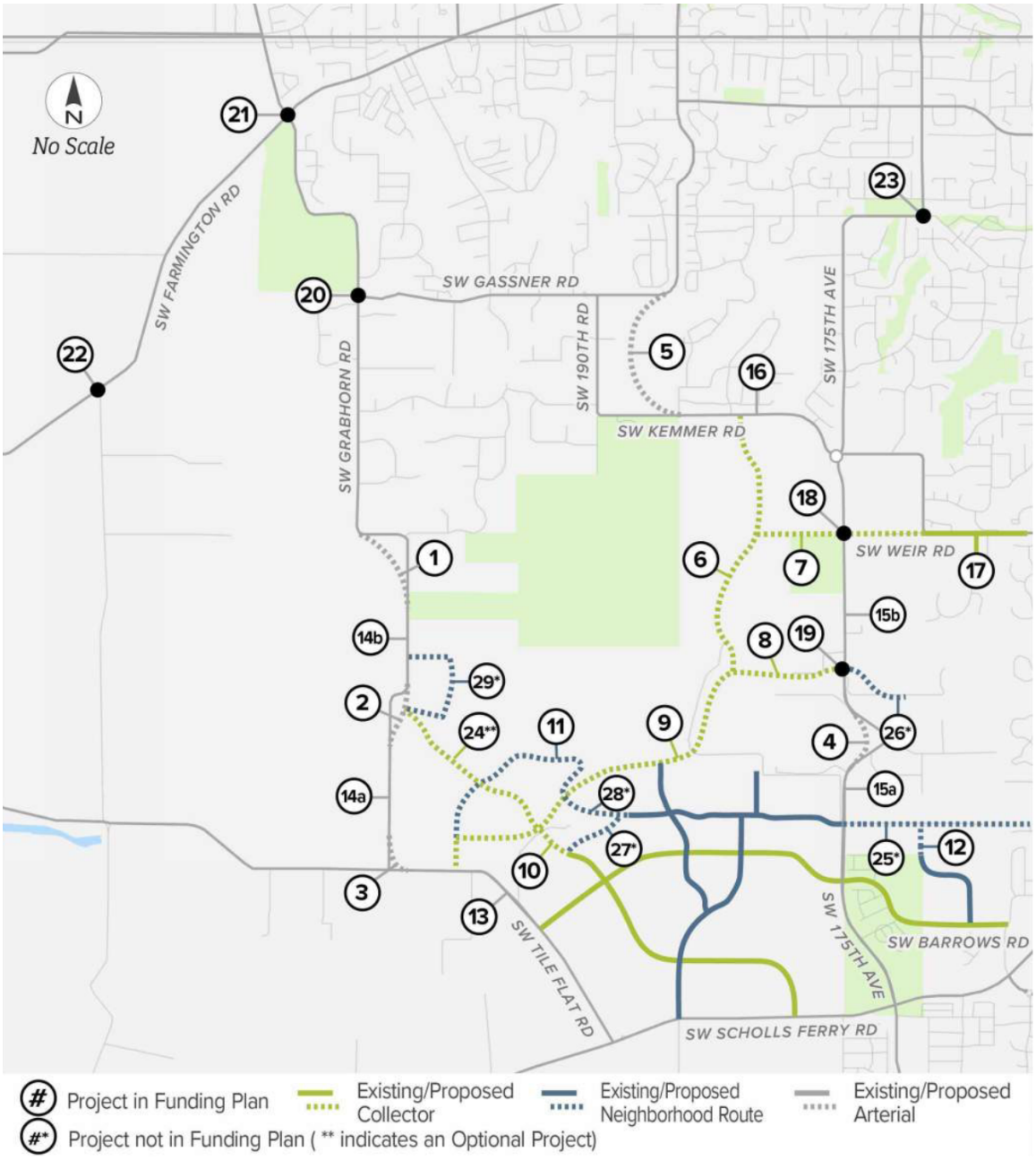


Exhibit 4. Projects and Cost Estimates, Transportation

Source: ECOnorthwest, City of Beaverton, DKS

Project Type	Description	Estimated Cost
Cooper Mountain Neighborhood Routes	New roads to provide circulation through and among new neighborhoods.	$31.3 million
Cooper Mountain Collectors	New roads that provide circulation across the area and connections to adjacent areas and major roads, including a key central spine that crosses McKernan Creek.	$80.7 million
Cooper Mountain Arterials	Intersection improvements, urban upgrades (e.g., adding sidewalk, bike lanes, and center turn lanes), and realignments of major through roads managed by Washington County that are within or on the edge of Cooper Mountain (175th Avenue, Tile Flat Road, Grabhorn Road, Kemmer Road, and Tile Flat Road). Includes realignment of the 175th Avenue "kink" and sharp corners on Grabhorn Road.	$49.2 million
Regional Projects	Major intersection improvements, future road extensions, and realignments outside Cooper Mountain that are anticipated to be impacted by traffic from Cooper Mountain as well as development in other areas.	$34.0 million
Total		**$195.2 million**

Costs do not include local street network.

Values are presented in constant 2023 dollars and rounded to the hundred thousand.

Project Delivery and Phasing

Many of the new roadways and transportation improvements included in this Funding Plan that are needed to serve development will be constructed by private developers, as development occurs, with cost-sharing through the County's Transportation Development Tax (TDT) credits as described below (local roads are excluded from this plan). This includes new Collector roads and Neighborhood Routes as well as urban upgrades to Arterial roads that abut larger tracts of developable property (e.g., sections of Grabhorn Road and Kemmer Road).

However, several important projects within or adjacent to Cooper Mountain are unlikely to be constructed by development due to their cost, complexity, and/or location. This includes:

- A **crossing of McKernan Creek** will likely be too costly to link to an individual development, and it passes through the undevelopable riparian corridor of McKernan Creek. The transportation connection is important for multimodal connectivity between northern and southern portions of Cooper Mountain and surrounding areas, but the facility also plays an important role in carrying utilities (e.g., water and sewer pipes) across the stream (see additional discussion in the Potable Water and Sewer sections). This makes its timing more important to enabling

development than it would be from a transportation perspective alone. Options and opportunities for funding this project are discussed in the funding options section below.

- **Urban upgrades to 175th Avenue**, including realignment of the "kink," will likely need to be public capital projects given fragmented ownership patterns along 175th and the need for right-of-way acquisition to realign the roadway. These projects are not critical to enable development to begin in Cooper Mountain, but they are important for regional connectivity and needed to improve both safety and capacity as development occurs in Cooper Mountain. Options and opportunities for funding this project are discussed in the funding options section below.

In addition, off-site intersection improvements may be constructed by the County as conditions warrant.

2.3.2. Baseline Funding Evaluation

Existing Revenue Sources

Overview

Washington County's voter-approved **Transportation Development Tax (TDT)** is a key existing funding source for transportation improvements in greenfield areas. TDT is conceptually similar to an SDC, but was voter-approved and is imposed on all development throughout Washington County. The city collects TDT and retains the funds to apply to projects within Beaverton city limits that are indicated on the TDT project list. This project list is jointly developed between the County and the cities, and disbursements are subject to County approval to ensure compliance with TDT guidelines. TDT also plays a critical role as a cost-sharing mechanism for developer-constructed projects through TDT credits. Similar to SDCs for other infrastructure categories, if developers build or improve Collector or Arterial roads on or abutting their property that increases capacity, the cost that exceeds the cost of a local road is eligible for cost-sharing through TDT credits, even if the project is not on the TDT list. However, projects that are on the TDT list are eligible for more credits than those that are not on the list:

- For projects on the TDT list, 100% of costs that exceed the cost of a local road are eligible for credits.
- For projects that are not on the TDT list, only 50% (for Collectors) or 75% (for Arterials) of the costs exceeding the cost of a local street are eligible for TDT credits.[11]

Developer contributions also play an important role in covering the costs of transportation improvements. Developer contributions can take several forms and may include cost-sharing arrangements or reimbursement districts so that a given

[11] Per Washington County's existing TDT policies for projects that are contiguous to the development and required as a condition of approval. Jurisdictions may designate "High Priority Collectors" (with approval from the County), making these eligible for TDT credits on 75% of the non-local portion of project costs even if they are not on the TDT project list.

development is paying roughly its proportionate share of the cost of the projects constructed with that development.

- Developers are generally required to build Neighborhood Routes if mapped on their property in the city's Transportation System Plan. Neighborhood Routes are similar to local streets in design and dimensions. As a result, they are generally not eligible for any cost-sharing, and are fully covered by developer contributions.
- Developers are required to build the local street network. As such, these costs are not included in the Funding Plan.
- As noted above, developers are typically responsible for the share of the cost of Collector and Arterial improvements on or abutting the development that are equivalent to the cost of building local roads.
- If a development has a measurable impact on an intersection or other facility further away from the development that will not be improved as part of the development, the development is sometimes required to pay a proportionate share of the estimated costs to improve the facility (e.g., based on the developments' projected share of traffic through that facility).

Revenue Estimates from Existing Sources

Projected TDT Revenue

Exhibit 5 shows the total estimated TDT revenue from Cooper Mountain based on existing TDT rates and the estimated residential and commercial development at buildout in Cooper Mountain under the preferred land use approach. See Appendix B for details on revenue estimates.

Note that when the city issues TDT credits to developers that build projects that qualify for TDT credits as discussed below, the developers may redeem those TDT credits instead of paying the TDT for a particular lot. Therefore, the TDT credit process may result in less TDT revenue collected by the city. This is an estimate of the potential TDT owed by development in the Community Plan area, regardless of whether the developer incurs this obligation with credits or cash.

Exhibit 5. TDT Estimated Revenue at Buildout (2023 dollars), Cooper Mountain

Source: ECOnorthwest analysis based on data from City of Beaverton and Washington County

Development Type	Estimated TDT Revenue
Residential Development	$41.7 million
Commercial Development	$1.4 million
Total	**$43.1 million**

Values are presented in constant 2023 dollars and rounded to the hundred thousand.

Developer Contributions

As noted above, developers are expected to pay the full cost of building Neighborhood Routes and local street networks. Where Collector and Arterial projects will be delivered by the private sector, developers will be expected to pay at least the

share of the cost that is equivalent to the cost of building a local road. The estimated developer share of Collector and Arterial projects assumed to be built by development is shown in Exhibit 6, below.

In addition, the proportionate share contribution to off-site intersection improvements (collectively, across all development in Cooper Mountain) was estimated based on the forecast share of traffic coming from Cooper Mountain at the affected intersections. The estimate in Exhibit 6 is preliminary, and it is a rough approximation of the total amount that developers in Cooper Mountain might be asked to contribute to these cumulative projects for purposes of this Funding Plan only. The actual amount of any required contributions will be determined based on traffic impact assessments for each development during the land use review and approval process.

Exhibit 6. Estimated Developer Contributions (Excluding TDT) by Project Type (2023 dollars), Cooper Mountain

Source: ECOnorthwest analysis with input from City of Beaverton

Project Type	Estimated Cost	Estimated Developer Contributions (Excluding TDT)
Cooper Mountain Neighborhood Routes	$31.3 million	$31.3 million
Cooper Mountain Collectors	$80.7 million	$45.3 million or more*
Cooper Mountain Arterials	$49.2 million	$13.4 million or more*
Cooper Mountain Project Total	**$161.2 million**	**$90.0 million or more***
Regional Projects	$34.0 million	$5.6 million
Community Plan Total	**$195.2 million**	**$95.6 million or more***

Values are presented in constant 2023 dollars and rounded to the hundred thousand.
** These estimates reflect only the estimated share of project costs that are equivalent to the cost of a local road, assuming that projects are "on-site" to the development that is required to construct them. The developer contribution on Collector and Arterial projects built by developers may be higher depending on the cost-sharing approach and TDT credit eligibility, as discussed below.*

Baseline Funding Assessment

Cooper Mountain Transportation Projects

Developer contributions for the "local" share of Cooper Mountain Neighborhood Routes, Collectors, and Arterials (roughly $90.0 million) plus the roughly $43.1 million in estimated TDT from Cooper Mountain development would cover most, but not all, of the cost for transportation projects within and abutting Cooper Mountain (roughly $161.2 million). This leaves a **gap of roughly $28.1 million for Cooper Mountain transportation projects**. Most of this gap (roughly $22.3 million) is for growth- and capacity-related costs, but it also includes non-capacity costs associated with realigning the "kink" in 175th Avenue that cannot be funded through capacity programs (such as TDT).

Closing this gap with only the existing funding sources would mean increasing costs for developers and/or adding Cooper Mountain Collector and Arterial roads to the TDT list,

making them eligible for TDT credits to cover the full share of costs above the "local" share. The analysis that follows illustrates the consequences of relying on the TDT alone to close the funding gap. The consequences of requiring developers to absorb the additional costs (if the City could show they were roughly proportional to the development) would be higher development costs for certain properties, and the potential for these costs to create economic barriers to development.

Regional Transportation Projects

Cooper Mountain development is estimated to contribute roughly $5.6 million of the $34.0 million needed for broader regional projects, through offsite impact fees charged by Washington County. The remaining $28.4 million will need to come from other sources. Because the identified regional projects are needed to accommodate growth from multiple areas and are not specifically tied to development in Cooper Mountain, this funding plan does not explore funding solutions for these projects in detail. Washington County will need to identify funding for these projects over time, potentially including developer contributions from outside Cooper Mountain, grants, earmarks, and/or countywide sources. The timeline for regional projects is uncertain and would be identified through Washington County's project prioritization processes.

Summary

Exhibit 7 summarizes the funding assumptions by project type and delivery (public vs. private) if the City were relying on existing sources to close the funding gap. Exhibit 7 shows how the project costs identified in Exhibit 4 would be allocated under this set of assumptions. An assessment of the gaps and challenges presented by this set of assumptions follows Exhibit 8.

Exhibit 7: Existing Sources Funding Assumption for Transportation by Project Type and Delivery

Project Type	Delivery	Existing Sources Funding Assumption
Cooper Mountain Neighborhood Routes	Private	Developer Direct
Cooper Mountain Collectors	Public	TDT revenue
	Private	On TDT List: Developer Direct (local costs) + TDT credits (100% of costs exceeding local costs)[1]
Cooper Mountain Arterials	Public	TDT revenue + other County sources[1] (non-capacity costs)
	Private	On TDT List: Developer Direct (local costs) + TDT credits (100% of costs exceeding local costs)[1]
Regional Projects	Public	Developer contributions (proportionate share) + other County sources[2] (remaining costs)

[1] *Assumes Collector and Arterial projects within Cooper Mountain are added to the TDT project list and eligible for credits for 100% of the cost that exceeds the cost of a local street.*
[2] *Other County Sources could include developer contributions from outside Cooper Mountain as well as potential grants, earmarks, and/or countywide local sources other than TDT.*

Exhibit 8. Funding Sources and Amounts by Project Type, Existing Sources Funding Assessment

Source: ECOnorthwest analysis based on input from City of Beaverton, and costs provided by DKS Associates

Project Type	Delivery	Developer Contributions	TDT Credits	TDT Revenue	Other County Sources	Total
Cooper Mountain Neighborhood Routes	Private	$31.3 million				$31.3 million
Cooper Mountain Collectors[1]	Public (McKernan Crossing)			$10.9 million		$10.9 million
	Private (All Others)	$45.3 million	$24.4 million			$69.8 million
Cooper Mountain Arterials	Public (175th Avenue[2])			$13.7 million	$5.7 million	$19.4 million
	Private (All Others)	$13.4 million	$16.4 million			$29.8 million
Regional Projects	Public	$5.6 million[3]			$28.4 million	$34.0 million
Total		**$95.6 million**	**$40.8 million**	**$24.6 million**	**$34.1 million**	**$195.2 million**

[1] *Assumes Collector and Arterial projects within Cooper Mountain are added to the TDT project list and eligible for credits for 100% of the cost that exceeds the cost of a local street. Other options are discussed in the following section.*

[2] *Cost is for 175th upgrades, including widening and realigning the "kink."*

[3] *Developer contributions are estimated for the Community Plan area as a whole based on the share of traffic through the intersections in question that comes from the Community Plan area.*

Values are presented in constant 2023 dollars and rounded to the hundred thousand. Project type subtotals may not sum to total due to rounding.

Gaps and Challenges

TDT-Eligible Costs Exceed TDT Revenue: The baseline funding assessment shows that nearly all the expected TDT revenue from development in Cooper Mountain could be paid for by developers redeeming TDT credits for developer-constructed Arterials and Collectors, assuming these projects were added to the TDT project list. These Arterials and Collectors would benefit existing and future users both within and outside Cooper Mountain. However, very little money would be collected by the city to fund projects that would need to be built by the public sector inside or outside Cooper Mountain.[12] This assessment assumes that the McKernan Creek Crossing and upgrades to 175th (including widening and realigning the kink) would require capital project funding. However, if developers pay the TDT charges by redeeming TDT credits, there would not be enough TDT cash revenue to cover the cost of the needed capital projects. As a result, the public agencies would need to use TDT revenues from other parts of the city or County to fund these projects, or find other funding sources to complete needed improvements.

Ability to Redeem TDT Credits: As an additional challenge, because many of the transportation improvements in this area would be eligible to receive TDT credits, developers of properties that build higher-cost infrastructure projects may end up with excess credits that they would need to apply to future phases of their development or transfer to other development in the area.[13] Because the TDT-eligible construction costs are expected to be high compared to the number of lots subject to the TDT in this area, if there is not sufficient development within the 10-year period that TDT credits are valid, developers may have credits that are not redeemed. This could become a barrier for properties where a substantial investment must be made up-front.

Securing Funding for 175th Avenue: While realigning the "kink" in 175th Avenue is already on Washington County's TDT project list, making the capacity-related share of costs eligible for TDT funding,[14] there is no guarantee that the County would allocate TDT funding to move this project forward within any specific time horizon, as there are many other County projects competing for available TDT revenues at any given time. The city could choose to allocate TDT revenues it collects from other areas toward this project (with County approval), but the city also has competing project needs in other areas of the city and very limited TDT funds. In addition, the non-capacity-related costs for realigning and completing safety improvements at the kink do not yet have other funding sources identified.

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[12] Developer contributions to impacted off-site intersections may still result in some monetary contributions from this area toward off-site projects, but not in the form of TDT revenue that the city would control.

[13] Washington County's TDT credit policies allow for transfer of TDT credits under limited circumstances that generally mean the transfer must be to other properties in the same area. When credits are "sold" to another developer, the original developer may or may not receive the full face-value of the credit—the County does not regulate or participate in the "resale pricing" of TDT credits.

[14] According to the TDT project list, this project is 25% related to capacity. Remaining project costs would need to be funded by another source that is not development-derived.

2.3.3. Funding Options

Alternative Funding Scenarios

The project team evaluated two alternative scenarios for funding transportation projects in Cooper Mountain to address some of the gaps and challenges identified above.

The two funding scenarios both include a new funding source from Cooper Mountain properties (such as a supplemental transportation SDC and/or a local improvement district) to fund specific transportation projects that are particularly important for the area's development, and shift some costs away from TDT to help ensure adequate funding would be available. The scenarios differ in which projects would be funded by the new source and how much the new source would be set to raise. In brief, Scenario A would add a new funding source only for the McKernan Creek crossing, while in Scenario B a new source would fund this crossing plus a share of costs for Collectors and 175th Avenue. The specific funding assumptions for the two scenarios are summarized in comparison to the baseline in Exhibit 9.

Exhibit 10 and Exhibit 11 show how the project costs identified in Exhibit 4 would be allocated under these alternative sets of assumptions.

Exhibit 9: Funding Assumptions for Transportation by Project Type and Delivery for Alternative Funding Scenarios

Project Type	Delivery	Existing Sources	Scenario A	Scenario B
On-Site Neighborhood Routes	Private	Developer Direct	Developer Direct	Developer Direct
On-Site Collectors	Public (McKernan Crossing)	TDT revenue	**New Source**	**New Source**
	Private (All Others)	On TDT List: Developer Direct (local costs) + TDT credits (100% of costs exceeding local costs)[1]	**Not on TDT list:** Developer Direct (local costs **+ 50% of costs exceeding local costs**) + TDT credits (**50% of costs exceeding local costs**)	**Not on TDT list, on list for new source:** Developer Direct (local costs) + TDT credits (**50% of costs exceeding local costs**) **+ new source (50% of costs exceeding local costs)**
On-Site Arterials	Public (175th Avenue)	TDT revenue collected by city + other County sources (non-capacity costs for "kink")	TDT revenue collected by city + other County sources (non-capacity costs for "kink")	TDT revenue collected by city (capacity costs for "kink") + other County sources (non-capacity costs for "kink") **+ new source (costs for widening north and south of "kink")**
	Private (All Others)	On TDT List: Developer Direct (local costs) + TDT credits (100% of costs exceeding local costs)[1]	On TDT List: Developer Direct (local costs) + TDT credits (100% of costs exceeding local costs)	On TDT List: Developer Direct (local costs) + TDT credits (100% of costs exceeding local costs)
Off-Site/Regional Projects	Public	Developer contributions (proportionate share) + other County sources[2] (remaining costs)	Developer contributions (proportionate share) + other County sources[1] (remaining costs)	Developer contributions (proportionate share) + other County sources[1] (remaining costs)

[1] *Assumes Collector and Arterial projects within Cooper Mountain are added to the TDT project list and eligible for credits for 100% of the cost that exceeds the cost of a local street.*

[2] *Other County Sources includes potential grants or earmarks as well as Countywide local sources other than TDT.*

*Key differences from the baseline are highlighted in **bold** font.*

Exhibit 10. Funding Sources and Amounts by Project Type and Delivery, Scenario A

Source: ECOnorthwest analysis based on input from City of Beaverton, and costs provided by DKS Associates

Project Type	Delivery	Developer Contributions	TDT Credits	TDT Revenue	New CM Source	Other County Sources	Total
On-Site Neighborhood Routes	Private	$31.3 million					$31.3 million
On-Site Collectors[1]	Public (McKernan Crossing)				$10.9 million		$10.9 million
	Private (All Others)	$57.5 million	$12.2 million				$69.8 million
On-Site Arterials	Public (175th Avenue)			$13.7 million		$5.7 million	$19.4 million
	Private (All Others)	$13.4 million	$16.4 million				$29.8 million
Off-Site/Regional Projects	Public	$5.6 million				$28.4 million	$34.0 million
Total	Private	**$107.8 million**	**$28.6 million**	**$13.7 million**	**$10.9 million**	**$34.1 million**	**$195.2 million**

Exhibit 11. Funding Sources and Amounts by Project Type and Delivery, Scenario B

Source: ECOnorthwest analysis based on input from City of Beaverton, and costs provided by DKS Associates

Project Type	Delivery	Developer Direct	TDT Credits	TDT Revenue	New CM Source	Other County Sources	Total
On-Site Neighborhood Routes	Private	$31.3 million					$31.3 million
On-Site Collectors[1]	Public (McKernan Crossing)				$10.9 million		$10.9 million
	Private (All Others)	$45.3 million	$12.2 million		$12.2 million		$69.8 million
On-Site Arterials	Public (175th Avenue)			$1.9 million	$11.8 million	$5.7 million	$19.4 million
	Private (All Others)	$13.4 million	$16.4 million				$29.8 million
Off-Site/Regional Projects	Public	$5.6 million				$28.4 million	$34.0 million
Total	Private	**$95.6 million**	**$28.6 million**	**$1.9 million**	**$34.9 million**	**$34.1 million**	**$195.2 million**

[1] Assumes Collector and Arterial projects within Cooper Mountain are added to the TDT project list and eligible for credits for 100% of the cost that exceeds the cost of a local street. Other options are discussed in the following section.

[2] Cost is for 175th upgrades, including widening and realigning the "kink."

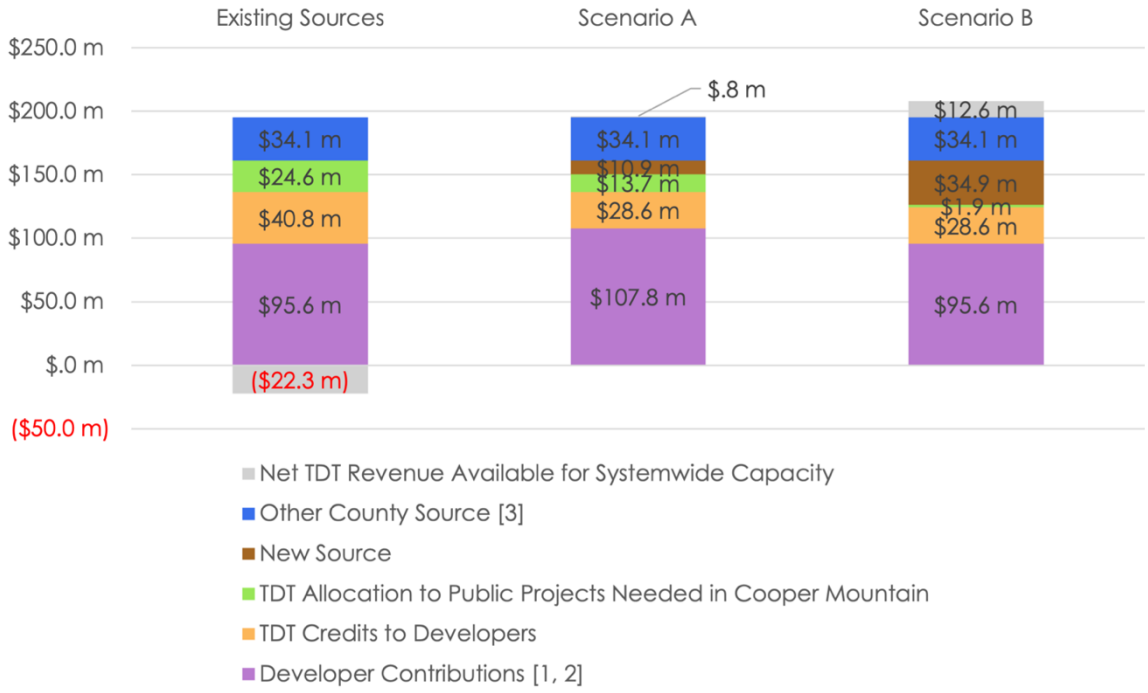
Values are presented in constant 2023 dollars and rounded to the hundred thousand. Project type subtotals may not sum to total due to rounding.

Likely Outcomes for Alternative Funding Scenarios

Exhibit 12 provides a summary of funding by source for each scenario.

Exhibit 12: Summary of Funding from Alternative Transportation Funding Scenarios

Source: ECOnorthwest analysis based on input from City of Beaverton, and costs provided by DKS Associates



[1] Local street costs are not included.

[2] Includes direct costs and proportional contributions for offsite projects.

[3] County funding sources are uncertain. This represents the share of costs for off-site projects that exceeds Cooper Mountain's proportionate contributions and the non-capacity portion of costs for realigning the "kink" in 175th Avenue.

Values are presented in constant 2023 dollars and rounded to the hundred thousand.

Scenario A: New Area-Specific Source for McKernan Creek Crossing

- Creates dedicated funding for the McKernan Creek crossing rather than relying on TDT allocation; however, if the new funding source is paid at time of development, sufficient revenue would not be available until the area is fully built out, which would create challenges given the need for this crossing to connect utilities within the area. The new source would require a financing solution to allow the project to be built before all revenue was received from the new source (see additional discussion in next section).
- Cooper Mountain TDT revenue at build out would roughly match the anticipated TDT-eligible costs for on-site projects (revenue neutral for TDT). The city may eventually collect enough TDT in monetary form from this area to contribute to a public project on a County Arterial, such as urban upgrades for 175th Avenue. However, TDT credits would likely account for roughly two thirds of developer TDT payment obligations. Depending on development phasing and whether developers

sell/transfer credits within the area, this could mean that many of the largest properties would be built out before the city would receive TDT cash payments because developers would be redeeming credits instead.

- Development along new Collector roads would incur higher "out of pocket" costs (by approximately $12.2 million) compared to the existing sources scenario or Scenario B due to reduced TDT credit issuance for Collectors that are not on the TDT list. This estimate of developer contributions reflects the current status of the TDT list, which does not include Cooper Mountain Collector roads.
- If the new funding source were spread across all units in Cooper Mountain, the per-unit cost would be approximately $2,600.[15] However, based on timing considerations, the new source might need to be applied in a way that would not apply to all development within the Community Plan area (see additional discussion below). This could result in a higher per-unit cost for the impacted areas.

Scenario B: New Area-Specific Source for McKernan Creek Crossing, Cooper Mountain Collectors, and 175th Widening

- Creates dedicated funding for the McKernan Creek crossing and widening 175th Avenue, rather than relying on TDT allocation.
- Surplus TDT (estimated at roughly $13 million at build out) generated in this area could be used for off-site capacity-increasing transportation projects.
- Increases the share of funding coming from development in Cooper Mountain compared to the existing sources scenario. However, if the new funding source were spread across all units in Cooper Mountain, the per-unit cost would be approximately $8,200.[16]
- Because the new Cooper Mountain source would fund multiple projects, if it were charged at time of development, it would not require the area to fully build out before sufficient revenue would be available to fund the McKernan Creek crossing. However, this would mean that the other public projects funded this way (widening 175th Avenue) would not have sufficient revenue until full build out of the area.

Potential Additional Funding Sources and Tools

New Area-Specific Funding Tools

The city has several options for how to implement a new area-specific funding tool, including:

- Supplemental SDC
- Local Improvement District (LID)
- Reimbursement District

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[15] Housing types may pay more or less than this per-unit average, depending on the methodology and approach of the new source.

[16] Housing types may pay more or less than this per-unit average, depending on the methodology and approach of the new source.

- Infrastructure fee applied through development agreements at time of annexation

Of these options, only an LID allows the project to be constructed before funds are collected rather than after, which is a crucial consideration for the McKernan Creek crossing. However, it also requires affirmative property owner support and imposes costs on property owners prior to development, which may be a major barrier. These and other key considerations associated with these alternatives are summarized in Exhibit 13 below. (See overview of these tools in the Funding Sources Overview section).

Exhibit 13: Key Considerations for New Area-Specific Funding Tool Options

*Key: **orange text** = disadvantage, **green text** = advantage.*

	Supplemental SDC	LID	Reimbursement District	Infrastructure Fee
When Due	At time of development (may be financed).	When costs are estimated in detail or upon project completion (may be financed).	At time of development.	At annexation / development[17]
Certainty and Suitability for Bond Repayment	**Not eligible to secure a bond** but can be used to pay debt service.	**Can be used to secure a bond.**	**Not eligible to secure a bond** but can be used to pay debt service.	**Not eligible to secure a bond** but can be used to pay debt service.
Expiration	Remains in place indefinitely, but **credits expire after 10 years**.	Closed when all assessments are paid in full (20 years maximum if financed).	**Limited duration**: 10 years, can be extended up to 10 additional years.	Remains in place indefinitely.
Project Suitability	Private-sector delivery (with credits) or public-sector delivery (for non-time-sensitive projects). Generally multiple projects of one infrastructure type.	Public-sector delivery. Generally a single project or a few projects benefitting the same properties. Could potentially include multiple infrastructure types.	Private-sector delivery (if costs are low enough to be front-loaded by developers) or public-sector delivery. Generally a single project.	Public-sector delivery. Single or multiple projects, can include multiple infrastructure types.
Administrative & Legal Considerations	**City has experience implementing.**	**Requires support from a majority of affected property owners.**	City adopted regulations to enable	**City has not used this approach to date.**

[17] Jurisdictions that use the approach generally establish the development agreement at time of annexation, but may defer collection of the fees until the time a building permit is issued.

	Supplemental SDC	LID	Reimbursement District	Infrastructure Fee
	Must be adopted by Council.	Special requirements apply for use in greenfield areas to reduce city's financial risk.[18]	reimbursement districts. **City has not used this approach to date.**	Development agreements are governed by state law, and other Oregon jurisdictions have used this approach.[19]
Equity & Housing Cost Considerations	Can be scaled by unit type / size if appropriate. Paid by developers; may affect prices of future housing to some extent.[20]	Apportionment method should align with distribution of benefits. **Could burden those who do not want to develop near-term.** **Can be passed on directly to future buyers.**[21] **May affect prices for future housing to some extent.**[20]	Apportionment method should align with distribution of benefits. Paid by developers; may affect prices of future housing to some extent.[20]	Apportionment method should align with distribution of benefits. Paid by developers; may affect prices of future housing to some extent.[20]

Given the considerations above, **Scenario A lends itself to an LID or reimbursement district** (if the city can finance the project secured by other sources and repay those sources with revenue from the LID or reimbursement district over time) because it is focused on funding a single project that is needed to allow development in a large portion of the area to occur. An LID or reimbursement district does not necessarily need to apply to all

[18] State law specifies the steps to form a LID. The City of Beaverton enables LID formation in the municipal code for a variety of infrastructure types and has specific provisions for the use of LIDs for newly developing areas. See Chapter 3.02: Local Improvement Procedures. https://www.codepublishing.com/OR/Beaverton/html/Beaverton03/Beaverton0302.html

[19] Development agreements are governed by ORS 94.504, which describes the allowable terms, required documentation, and maximum duration of agreements.

[20] All development costs, including the costs of infrastructure-related fees, must be covered by future home sales prices or rents in order for private developers to build housing. The extent to which an incremental increase in development costs translates to an increase in sales prices or rents depends on how tight the housing market is and whether the developer has the opportunity for cost-savings elsewhere (e.g., through negotiating a lower land purchase price). For additional discussion, see the *Oregon System Development Charges Study* by ECOnorthwest, Galardi Rothstein Group, and FCS Group, 2022.

[21] When the assessment is financed by the developer, the lien associated with the assessment generally must be paid off as part of closing to allow the buyer to get a mortgage.

properties in the Community Plan area—it could be focused on the neighborhoods that require the bridge for sewer service, or more broadly on the neighborhoods west of 175th that would connect directly onto the future Collector road that will cross McKernan Creek. This approach would recognize that these areas are both more likely to develop in the near-term and more directly benefitted by the bridge for utility service and/or transportation connectivity. An LID requires property owner support and may not be politically achievable.

Scenario B is best suited to a supplemental SDC because it would fund a mix of publicly-built and privately-built transportation projects. This option would partially resolve the revenue timing/financing issues associated with building the McKernan Creek crossing if enough development happens at lower elevations and in areas east of 175th to generate supplemental SDC revenue that must be spent in Cooper Mountain. To expedite the project timing, the city could consider financing the McKernan Creek crossing project secured by other sources and repay those sources with supplemental SDC revenue over time. A supplemental SDC would likely be appropriate to apply across all of the Community Plan area because it would fund portions of the Collector network within the Community Plan area that provides connectivity through and between all neighborhoods and nearby services. The TSDC in Scenario B would also fund capacity improvements to the portions of SW 175th Avenue that are in the planning area.

Potential Additional Sources for City and/or County Shares

Regional, State, and Federal Grants and Allocations

The city has been working to identify potential grant opportunities, particularly for roadway connectivity and safety projects, such as the McKernan Creek Crossing. However, those grants are very competitive and often only available for a small portion of the project cost. This Funding Plan does not include the assumption that grant funds will be available for any onsite or adjacent projects. If grant funding were to be secured, that could lower the city's obligation to specific projects. The result could be a lower TSDC rate or the shifting of city resources to accomplish other priorities.

Major Streets Transportation Improvement Program

Washington County has historically allocated a share of County property tax revenue to its **Major Streets Transportation Improvement Program (MSTIP)** to fund major transportation improvements across the county. Eligible projects: (1) improve safety; (2) improve traffic flow/relieve congestion; (3) are located on a major road used by many residents; and (4) address demands for cars, trucks, bicycles, pedestrians, and/or transit. MSTIP projects are chosen by the Board of County Commissioners based on recommendations from city and County officials, public input, and consideration of geographic balance to ensure all parts of the county benefit from the projects. However, on-going funding to this program, like other County transportation funding sources, is uncertain.

Citywide Funding Measures

The city will be updating its Transportation System Plan (TSP) over the next few years, and may identify other high-priority projects with broad benefits that lack a clear path to funding. If the city were to explore a general obligation bond or other citywide funding measure in the future, the city could consider including high priority transportation project projects in this area as part of a larger funding package.

2.3.4. Recommended Transportation Funding Strategy

- Add on-site Arterial upgrade projects most likely to be delivered by developers to the TDT list to maximize TDT credit availability. In Exhibit 3, this includes projects 2, 13, 14a, 14b, 16, 18, and 19.
- Do not add planned Cooper Mountain Collector roads to the TDT project list to avoid consuming all TDT from the area into TDT credits for building these roads.
- Establish a new funding source to cover the cost of the McKernan Creek crossing, a share of the cost[22] of Cooper Mountain Collector roads, and the widening of 175th Avenue. This includes projects 6, 7, 8, 9, 10, 15a, 15b, and 17. A supplemental transportation SDC is likely the most appropriate form for this new funding source; however, the city may need to consider additional or alternative tools if there has not been enough TSDC revenue collected by the time the crossing needs to be built.
- Work with Washington County to prioritize funding for the needed realignment of 175th Avenue (project 4) in the County and city's capital project planning.
- Work with Washington County to identify funding for the non-TDT-eligible portion of the costs to realign the 175th Avenue "kink", including seeking out transportation safety grant opportunities.
- Continue to rely on the County's existing system to require proportional contributions to off-site intersection upgrades as determined through development-specific Transportation Impact Assessments. This includes projects 1, 3, 5, 20, 21, 22, and 23.

Inclusive Development Considerations

The recommended approach adds as little additional cost to development as possible while ensuring that all projects needed to enable development across Cooper Mountain have a potential pathway to being funded and built. It also ensures that development in Cooper Mountain roughly pays for the costs of the transportation projects needed in the area rather than spreading that cost across the broader city.

In setting the cost allocation or apportionment methodology for a supplemental TSDC, future LID, or other new funding source, the city should explore taking unit size, density, or other housing characteristics into consideration as a factor that can impact trip generation rates. (Note that Washington County's TDT rates do not differentiate by unit

[22] The new source would cover 50% of the non-local portion of the project costs, with the other 50% covered by TDT credits, and the local portion covered by developers.

size or density, but updates to Washington County's TDT methodology are outside the scope of this Funding Plan.)

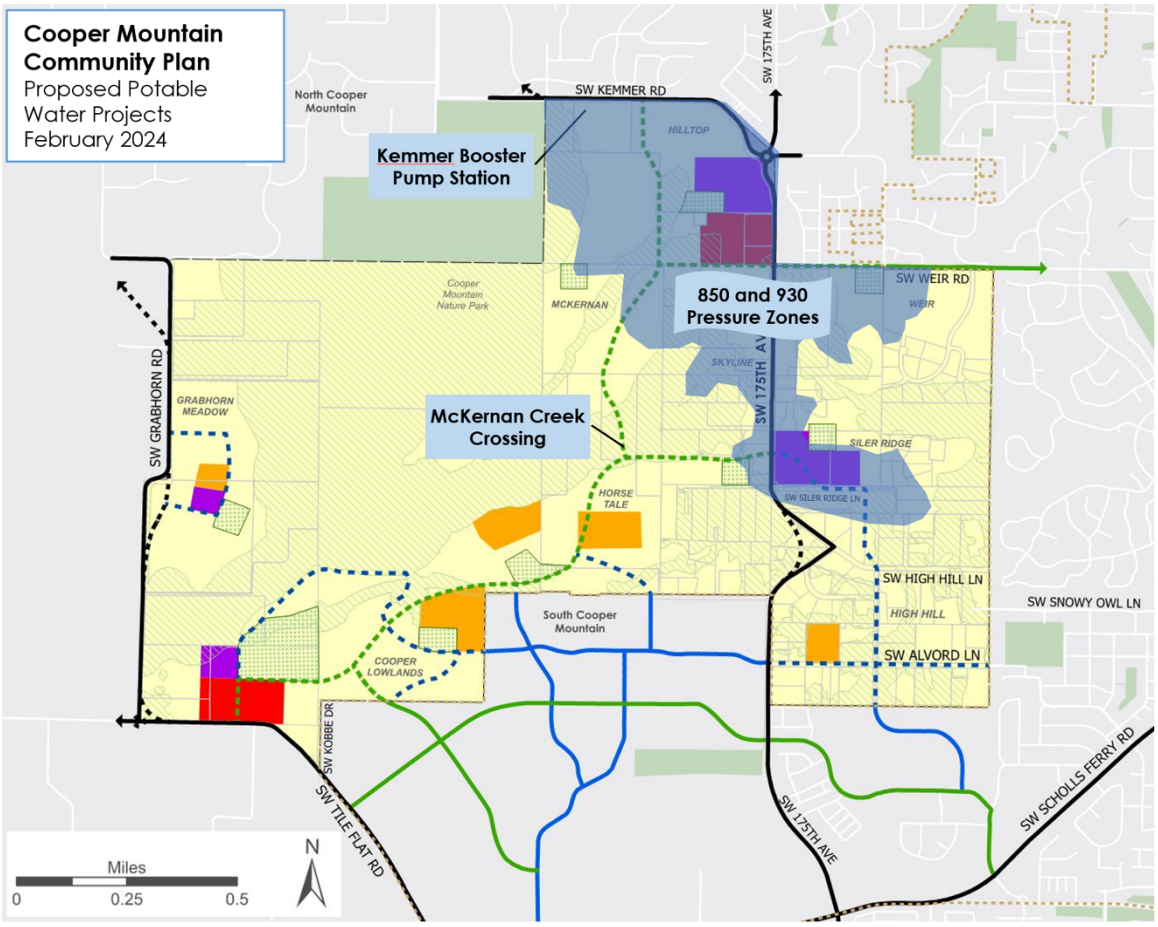
2.4. Potable Water

2.4.1. Projects and Costs

The city expects to be the water service provider for areas that annex to the city and develop, though existing residents could continue to be served by Tualatin Valley Water District unless they annex. The city has planned for adequate system capacity to serve new development in Cooper Mountain with potable water, but the area requires conveyance systems to provide service to future neighborhoods, as shown in Exhibit 14. Conveyance systems to distribute potable water *within* each neighborhood will be constructed as neighborhoods develop. These local projects are not included in this Funding Plan, and will be built and paid for by private developers.

Exhibit 14. Community Plan Zoning Map, Potable Water Improvements

Source: City of Beaverton



Lower elevation neighborhoods (Grabhorn, Cooper Lowlands, Horse Tale) can be served from existing potable water pressure zones. Upper elevation neighborhoods

(McKernan, Hilltop, Skyline and Siler Ridge) will require a new booster pump station to provide adequate water pressure.

The city also has projects planned for locations within Cooper Mountain that will contribute to citywide system resiliency and capacity and provide connections to regional water systems (Willamette Water Supply) but are not necessary to provide potable water service to the area. The cost of these projects is identified below in Exhibit 15, but because they are not directly related to development in the Community Plan area, this Funding Plan does not provide a detailed evaluation of funding sources for these projects.

Exhibit 15. Projects and Cost Estimates, Potable Water

Source: ECOnorthwest analysis based on input from City of Beaverton, and costs provided by Consor

Project Type	Description	Estimated Cost
Cooper Mountain Conveyance Systems	Drinking water conveyance system to connect new neighborhoods to water service, including pressure reducing valves and riparian crossings Trunkline connections between South Cooper and Kemmer Reservoir	$89.4 million
Pump Station	Booster pump station at Kemmer Reservoir	$3.0 million
System Needs	Future Tile Flat pump station and CM3 reservoir and ASR for increased citywide resiliency and capacity	$64.7 million
Total		**$157.1 million**

Costs do not include connections from individual properties to the conveyance system.

Values are presented in constant 2023 dollars and rounded to the hundred thousand. Project type subtotals may not sum to total due to rounding.

Project Delivery and Phasing

The majority of the new water lines needed to serve development will be constructed by private developers, as development occurs, though the city will be responsible for a share of the construction costs for larger pipes as discussed below.

A new pump station at Kemmer Reservoir is required to provide adequate water pressure to enable development of higher elevation areas of Cooper Mountain. This pump station must be built before development can occur in the portions of the McKernan, Hilltop, Skyline and Siler Ridge neighborhoods. Because of this phasing consideration, the city intends to build the new Kemmer Reservoir pump station. Lower elevation neighborhoods—Grabhorn, Cooper Lowlands, and Horse Tale—can be served from existing pressure zones.

In the long term, the city also plans to build additional booster pump stations, a reservoir, and Aquifer Storage and Recovery (ASR) facility in the Community Plan area to help expand capacity and resilience in the citywide potable water system.

2.4.2. Baseline Funding Evaluation

Existing Revenue Sources

Overview

The city has two primary sources of revenue to fund improvements to the potable water system: water SDCs and water utility rates. As noted in the Funding Sources Overview section, by law, water SDCs must be used for projects that expand system capacity to accommodate growth. Utility rate revenues can be used to pay debt service for major capital improvements that require funding beyond the capacity of SDC balances. These revenues are, however, primarily dedicated to operating, maintaining, and updating the water treatment plant, transmission, distribution, and storage systems for the city's potable water.

In addition, developer contributions will play an important role in covering the cost of the potable water distribution system. The public-private split of potable water distribution system costs is determined by the diameter of the pipe. Pipes that are 12 inches or less in diameter are the responsibility of private developers. Pipes larger than 12 inches are jointly paid for by the private and public sectors. These costs are allocated proportionally, with the public sector paying for the portion of the cost of pipe larger than 12 inches through SDC credits.

Revenue Estimates from Existing Sources

Exhibit 16 shows the total estimated water SDC revenues from development in Cooper Mountain. Because utility rates are not primarily intended to fund growth-related costs, we do not include an estimate of those revenues. See Appendix B for details on revenue estimates.

Note that when the city issues SDC credits to developers that build projects that qualify for SDC credits as discussed below, the developers may redeem those SDC credits instead of paying the SDC for a particular lot. Therefore, the SDC credit process may result in less SDC revenue collected by the city. This is an estimate of the potential SDCs owed by development in the Community Plan area, regardless of whether the developer pays this obligation with credits or cash.

Exhibit 16. Water SDC Estimated Revenue (2023 dollars), Cooper Mountain, 2023–2043

Source: ECOnorthwest, City of Beaverton

Development Type	Estimated SDC Revenue
Residential Development	$40.9 million
Commercial Development	$52,000
Total	**$41.0 million**

Values are presented in constant 2023 dollars and rounded to the hundred thousand.

Developer contributions as direct costs are estimated at $68 million as shown in Exhibit 17 based on the anticipated share of costs of the Cooper Mountain conveyance system that would be developer responsibility.

Baseline Funding Approach

Exhibit 17 shows the potable water projects and estimated costs by the sector that will deliver the project—private or public—and the expected funding sources. These costs include the estimated public share of privately constructed conveyance lines, based on the amount of pipe larger than 12-inches in diameter included in these projects, as described above. See Appendix A for details on project costs.

Exhibit 17. Projects and Cost Estimates by Delivery Type, Potable Water

Source: ECOnorthwest analysis based on input from City of Beaverton, and costs provided by Consor

Project Type	Description	Delivery Type	Estimated Cost	Funding Sources
Cooper Mountain Conveyance Systems	Conveyance system (≤12-inch)	Private Development	$79.1 million	Developer contributions
	Conveyance system (>12-inch)	Private Development – Public Share	$10.2 million	SDC credits
Pump Station	Booster pump station at Kemmer Reservoir needed for Cooper Mountain	Public Project	$3.0 million	SDCs, grants[1]
System Needs	Future Tile Flat Pump station and CM3 reservoir and ASR for increased citywide resiliency and capacity	Public Project	$64.7 million	SDCs, utility fees, grants
Total			**$157.1 million**	

[1] Subsequent to development of this plan, the city received a $3.0 million grant from the State of Oregon to support construction of the pump station at the Kemmer Reservoir.

Costs do not include connections from individual properties to the conveyance system.

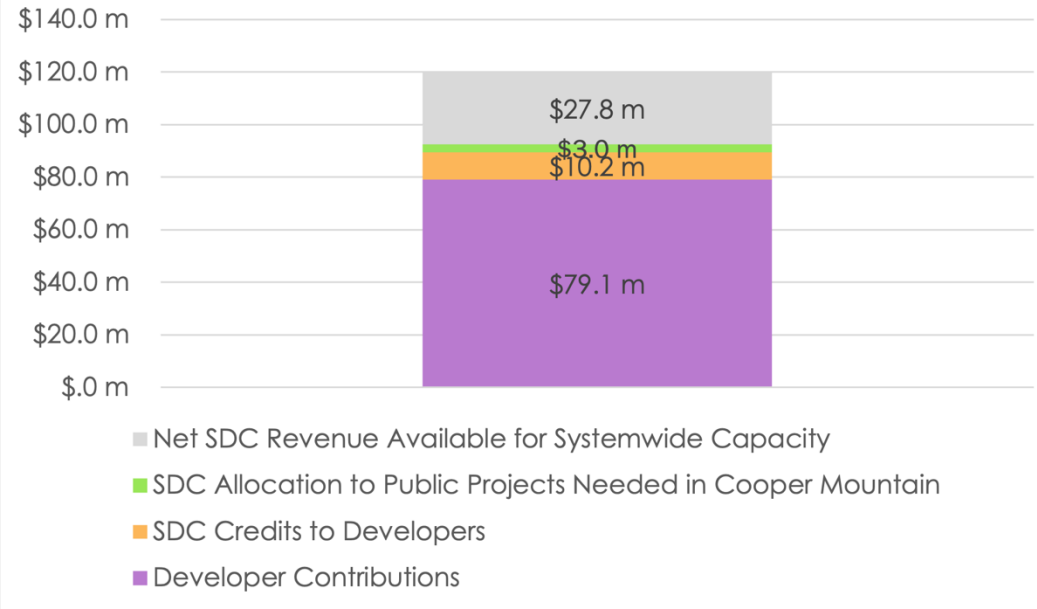
Values are presented in constant 2023 dollars and rounded to the hundred thousand. Project type subtotals may not sum to total due to rounding.

Expected water SDC revenues from Cooper Mountain (estimated at $41 million) are higher than the total SDC-eligible costs for potable water projects directly related to development in the Community Plan area (estimated at $13.2 million). Roughly $27.8 million in water SDC revenue from the Community Plan area (at buildout) may be available to fund system-wide capacity increasing projects across the city's potable water system, as shown in Exhibit 18. The growth-related (and hence SDC-eligible) share of the $64.7 million estimated for broader system needs is not subject to this Funding Plan, and because these projects are not tied specifically to development in the Community Plan area, these system needs are not included in the comparison of revenues to costs in Exhibit 18 below. However, the city's water SDC rates are based upon an extensive capital improvement list that anticipated the general needs of this area. The water SDCs generated in excess of the Cooper Mountain-specific needs are to fund growth-related projects currently being built out but financed through an extensive debt program. Projects include the Willamette Water Supply system, the Cooper Mountain Reservoir and associated infrastructure, and the North Transmission Line Intertie project to fully utilize capacity from the Joint Water Commission. Non-

growth-related system improvements are expected to be funded by utility fees and/or grants through the capital improvement program.

Exhibit 18. Comparison of Expected Revenues to Development-Driven Project Costs, Potable Water

Source: ECOnorthwest analysis based on input from City of Beaverton, and costs provided by Consor



Values are presented in constant 2023 dollars and rounded to the hundred thousand.

The city has previously invested in potable water supply projects to bring water to the Cooper Mountain area. This work includes the new reservoirs at Kemmer, which have been funded through a federal loan through the Water Infrastructure Financing and Investment Act (WIFIA) program, backed by citywide water utility rates. Repayment of that loan will begin in 2027. The city can use available SDC revenue from this area (or other areas) to help pay down this loan, reducing the burden on utility rates.

Gaps and Challenges

While SDC revenues are expected to be sufficient to cover development-driven project costs, the city will need to program SDC revenues from early development in Cooper Mountain or secure funding from other sources to fund construction of the pump station at the Kemmer Reservoir so that development in higher-elevation neighborhoods can proceed.[23]

2.4.3. Recommended Potable Water Funding Strategy

- Rely on the city's existing water SDCs, credit policies, and developer contributions to cover the costs for development-driven potable water projects within the Community Plan area.

[23] Subsequent to development of this plan, the city received a $3.0 million grant from the State of Oregon to support construction of the pump station at the Kemmer Reservoir.

- Program SDC revenue and pursue outside funding (such as grants related to housing production) to cover the cost of the pump station at the Kemmer Reservoir in the near- to mid-term to support development in higher-elevation neighborhoods.
- Apply additional SDC revenue from this area beyond what is needed for the development-driven on-site costs to support broader systemwide capacity increases over the longer term and/or pay down loans used to pay for previous water supply projects that benefit this area.
- Use broader-based funding sources (e.g., water utility rates) for the non-growth-related share of projects located within the Community Plan area that serve the broader city.

Inclusive Development Considerations

The plan does not ask rate payers across the city to supplement the cost of distribution in Cooper Mountain. Instead, the Community Plan area will contribute to funding a portion of projects that increase capacity for the city's potable water system on a larger scale and projects that were built previously that now serve this area. At the same time, the plan does not ask development in the Community Plan area to fully pay for the cost of facilities that will serve the broader city, and which are only partly intended to increase system capacity. Given their broader benefits, these projects will also receive funding through SDC revenues collected citywide or, for non-capacity projects, through utility rates.

2.5. Non-Potable Water

2.5.1. Projects and Costs

There are opportunities to expand the city's non-potable water system (purple pipe) into lower elevations of Cooper Mountain. Based on technical evaluation, staff recommends limiting the non-potable water system expansion to new neighborhoods near Tile Flat and Grabhorn Road, as shown in Exhibit 19. It is cost prohibitive to extend the purple pipe system to higher elevations, which would require a new network of pump stations beyond what is required for potable water.

The proposed areas for non-potable water service are those neighborhoods that can be served through extension of the conveyance system in the South Cooper Mountain area. No additional pump stations or large transmission lines would be required. Conveyance systems for non-potable water within each neighborhood with purple pipe will be constructed as neighborhoods develop. The local conveyance lines, all of which are less than 12" inches in diameter, are not included in this Funding Plan, and will be built and paid for by private developers.

Exhibit 19. Community Plan Zoning Map, Non-Potable Water Improvements

Source: City of Beaverton

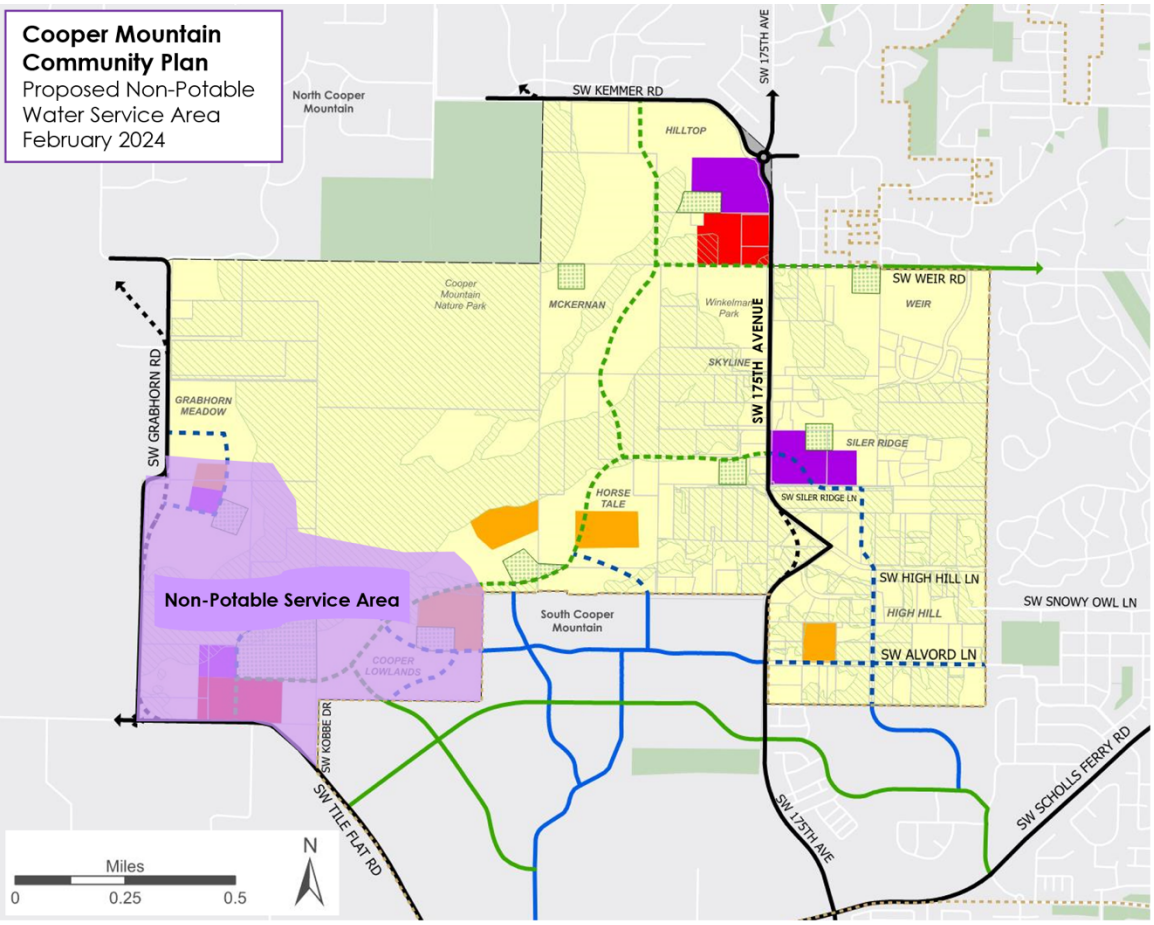


Exhibit 20. Projects and Cost Estimates, Non-Potable Water

Source: ECOnorthwest, City of Beaverton, Consor

Project Type	Description	Estimated Cost
Conveyance Lines	Purple pipe conveyance system to bring non-potable water to new neighborhoods	$19.2 million
System Needs	Additional stormwater treatment and ASR to increase non-potable water supply	Not Available
Total		**$19.2 million**

Costs do not include connections from individual properties to the conveyance system.
Values are presented in constant 2023 dollars and rounded to the hundred thousand.

Project Delivery and Phasing

All new non-potable water lines that are needed to serve development in the Tile Flat and Grabhorn areas will be constructed by private developers, as development occurs.

In the long term, the city may also consider opportunities to build additional stormwater treatment facilities and/or an Aquifer Storage and Recovery (ASR) facilities in Cooper Mountain to help increase the city's supply of non-potable water.

2.5.2. Baseline Funding Evaluation

Baseline Funding Approach

Developer contributions will play an important role in covering the cost of the non-potable water distribution system. The identified project costs for non-potable water are limited to distribution systems within the new neighborhoods, which are paid for directly by developers and are not eligible for SDC credits. If the city were to consider additional stormwater treatment facilities and additional Aquifer Storage and Recovery (ASR) facilities in Cooper Mountain to help increase the city's supply for non-potable water, those projects would serve the broader system and would require a broader funding source (such as SDCs, utility rates, or outside grant funding). However, those projects are not currently identified in the utility plan and are therefore not included in this funding plan.

Gaps and Challenges

The city plans to evaluate separate non-potable water rates and charges in the future that may possibly provide a dedicated funding stream for expansion, operations, and maintenance of the non-potable system; however, that is not in place today.

2.5.3. Recommended Non-Potable Water Funding Strategy

- Rely on development contributions to cover the cost of the planned conveyance lines for non-potable water in the Community Plan area, given that they are equivalent to potable distribution systems that are typically paid for directly by developers and are limited to the areas that can be served most cost-effectively.
- If the city establishes a non-potable water SDC and separate utility rates in the future, consider using those sources to expand the purple pipe system within the Community Plan area and for the city as a whole.

Inclusive Development Considerations

Limiting purple pipe infrastructure to lower elevation areas (Tile Flat and Grabhorn) addresses city goals to decrease the use of potable water for irrigation without imposing substantial additional development costs (such as a new pump station for non-potable water) that may have to be absorbed by future residents.

While the cost of the non-potable water distribution system is anticipated to be comparable to the cost of building local water lines, this additional cost is applicable only within certain portions of the Community Plan area, which incrementally increases development costs in the lower elevation areas. However, other areas may face their own additional costs for their own specific infrastructure needs (such as providing a booster pump station to bring potable water to upper elevation neighborhoods), which could even out total infrastructure costs across the area.

2.6. Sanitary Sewer

2.6.1. Projects And Costs

Cooper Mountain neighborhoods will be connected to the sanitary sewer network, with wastewater treatment provided by the regional sewer provider, Clean Water Services (CWS). Development across the Community Plan area west of 175th is dependent on the construction of the proposed Cooper Mountain Sanitary Pump Station and force main. These facilities will be funded and constructed by CWS. Providing sanitary sewer service to northern neighborhoods (McKernan and Hilltop) will require sanitary sewer crossing of McKernan Creek, as shown in Exhibit 21. Developing areas east of 175th will have connections to the existing Summer Creek system, which may require construction of sanitary sewer conveyance lines through riparian areas or acquisition of easements across neighboring properties.

Exhibit 21. Community Plan Zoning Map, Sewer Improvements

Source: City of Beaverton

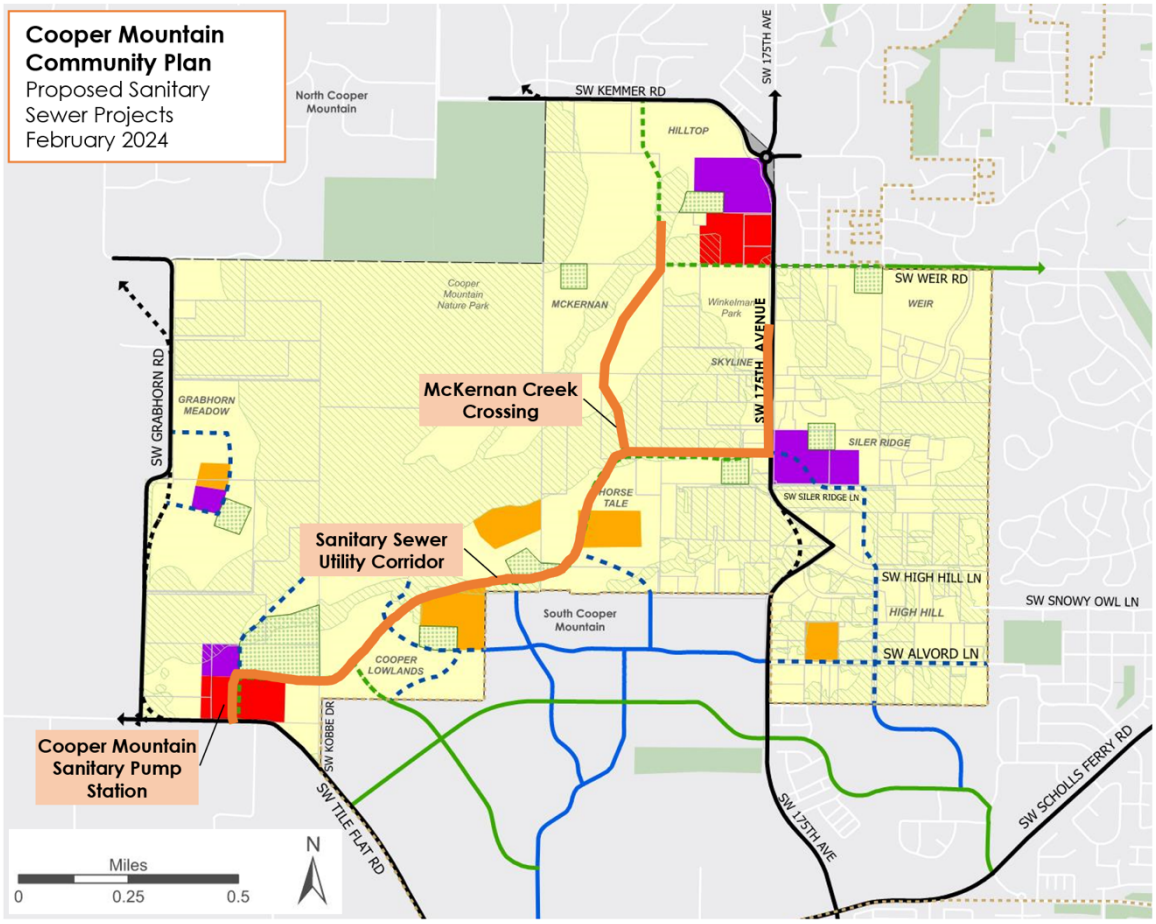


Exhibit 22. Projects and Cost Estimates, Sanitary Sewer

Source: ECOnorthwest analysis based on input from City of Beaverton and CWS, and costs provided by Consor

Project Type	Description	Estimated Cost
Conveyance Lines	Extension of sewer lines from new neighborhoods to downstream connections or pump stations, and associated road repair and riparian restoration	$37.1 million
Regional Needs	Cooper Mountain Sanitary Pump Station, force main, large diameter sewer, and treatment plant upgrades	$6.4 million
Total		**$43.5 million**

Costs do not include connections from individual properties to the conveyance system.
Values are presented in constant 2023 dollars and rounded to the hundred thousand.

Project Delivery and Phasing

The majority of the sewer lines needed to serve development will be constructed by private developers, as development occurs, though CWS will be responsible for constructing the regional pump station and associated force main. In addition, the city and CWS may be responsible for a share of the construction costs for larger conveyance pipes as discussed below.

Building the sewer connection across McKernan Creek is essential to enabling development of the upper elevation neighborhoods (McKernan and Hilltop) and may be combined with the planned transportation facility discussed in the Transportation section. At this time, the estimated size of the sewer connection across McKernan Creek is under 12 inches. However, the size of the sewer connection across McKernan Creek will determine the funding partners. CWS is responsible for funding sewer connections 12 inches or larger, using their SDC revenues or through issuing SDC credits. A multi-utility facility at McKernan Creek could potentially lower the costs for private developers to extend individual utilities through the nondevelopable riparian zone.

The Cooper Mountain Sanitary Pump Station and associated force main needed to serve much of the area west of 175th Avenue will be constructed by CWS. Because this project was identified as a need in the 2014 Cooper Mountain Concept Plan, CWS already has this project on its Capital Improvement Plan (CIP) project list, and it is expected to be operational in 2026.

In the long term, CWS also plans to make upgrades to wastewater treatment facilities to support overall system operations.

2.6.2. Baseline Funding Evaluation

Existing Revenue Sources

Overview

CWS has two primary sources of revenue to fund improvements to the sewer system: sewer SDCs and sewer utility rates. The City of Beaverton collects sewer SDCs on behalf of CWS. Under the current intergovernmental agreement with CWS, the city retains 4% of these revenues and remits 96% to CWS. As noted in the Funding Sources Overview section, by law, sanitary sewer SDCs must be used for projects that expand system capacity to accommodate growth (such as the proposed Cooper Mountain Sanitary Pump Station). Utility rate revenues can be used to pay debt service for major capital improvements that require funding beyond the capacity of SDC balances. While CWS had adequate sewer rate revenues to issue debt, the city does not. Sewer utility revenues are primarily dedicated to operating, maintaining, and updating the wastewater infrastructure, including the treatment plants and other existing components of the wastewater system.

In addition, developer contributions will play an important role in covering the cost of the sanitary sewer system. The public-private split of sewer system costs is determined by the diameter of the pipe. Pipes that are 8 inches or less in diameter are the responsibility of private developers. Currently, the city is responsible for pipes larger than 8 inches and less than 12 inches, while CWS is responsible for pipes 12 inches and larger, in addition to pumps and the wastewater treatment plants.

Revenue Estimates from Existing Sources

Exhibit 23 shows the total estimated sewer SDC revenues from development in Cooper Mountain. As noted, these revenues are split between the city and CWS, with the city retaining 4% and CWS receiving 96% of the SDCs. Because utility rates are not primarily intended to fund growth-related costs, we do not include an estimate of those revenues. See Appendix B for details on revenue estimates.

Note that when the city or CWS issues SDC credits to developers that build projects that qualify for SDC credits as discussed below, the developers may redeem those SDC credits instead of paying the SDC for a particular lot. Therefore, the SDC credit process may result in less SDC revenue collected by the city and CWS. This is an estimate of the potential SDCs owed by development in the Community Plan area, regardless of whether the developer pays this obligation with credits or cash, and irrespective of the split of revenues between the city and CWS.

Exhibit 23. Sewer SDC Estimated Revenue (2023 dollars), Cooper Mountain, 2023–2043

Source: ECOnorthwest, City of Beaverton.

Development Type	Estimated SDC Revenue	City Share of SDCs
Residential Development	$34.0 million	$1.4 million
Commercial Development	$20,000	$820

Development Type	Estimated SDC Revenue	City Share of SDCs
Total	**$34.0 million**	**$1.4 million**

Values are presented in constant 2023 dollars and rounded to the hundred thousand.

Baseline Funding Approach

Exhibit 24 shows the sewer projects and estimated costs by the sector that will deliver the project—private or public—and the expected funding sources. These costs include the estimated public share of privately constructed conveyance lines, based on the amount of pipe larger than 8 inches in diameter included in these projects, as described above. See Appendix A for details on project costs.

Exhibit 24. Projects and Cost Estimates by Delivery Type, Sanitary Sewer

Source: ECOnorthwest, City of Beaverton, Consor

Project Type	Description	Delivery Type	Estimated Cost	Funding Sources
Conveyance System	Gravity mains (≤8-inch)	Private Development	$34.4 million	Developer contributions
	Gravity mains (>8-inch)	Private Development – Public Share	$2.7 million	City share of SDC credits, CWS share of SDC credits[1]
	Cooper Mountain Sanitary Pump Station & Force main	Public Project	$6.4 million	CWS share of SDCs
Regional Needs	Treatment plant upgrades – needed for increased capacity generally	Public Project	Not Available	CWS share of SDCs, utility fees, grants
Total			**$43.5 million**	

1 Under the cost-sharing agreement with CWS, the city is responsible for the public share of pipes ≤12 inches, which is less than $150,000 of these costs.

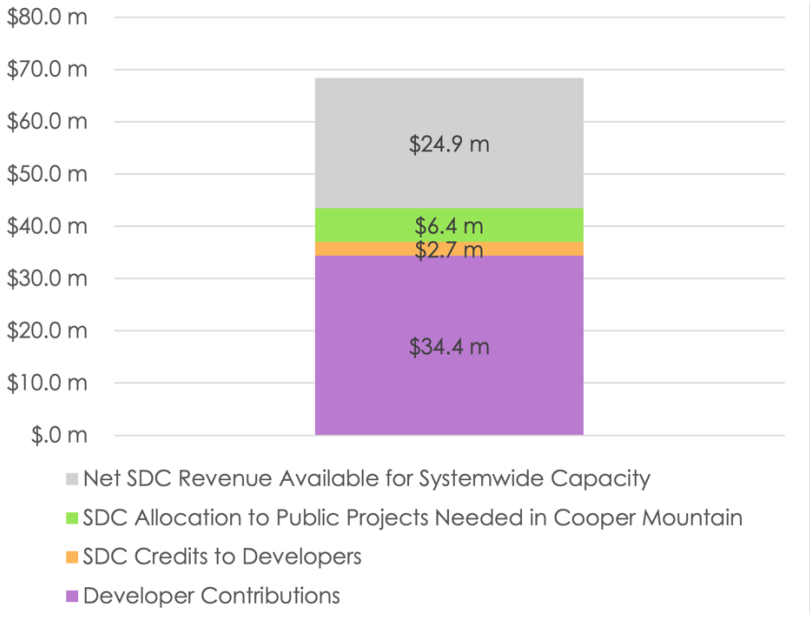
Costs do not include connections from individual properties to the conveyance system.

Values are presented in constant 2023 dollars and rounded to the hundred thousand.

Expected sanitary sewer SDC revenues from Cooper Mountain (estimated at $34.0 million) are higher than the total SDC credit-eligible costs for sewer projects directly related to development in the Community Plan area (estimated at $9.1 million). These projections do not account for the 96%/4% revenue split between CWS and the city. Roughly $24.9 million in sanitary sewer SDC revenue from the Community Plan area (at buildout) may be available to fund system-wide capacity increasing projects across the regional sewer system, as shown in Exhibit 25. The growth-related (and hence SDC-eligible) share of the broader system needs are the responsibility of CWS. Because these projects are not tied specifically to development in the Community Plan area, these system needs are not included in the comparison of revenues to costs in Exhibit 25 below. Non-growth-related system improvements are expected to be funded by utility fees and/or grants.

Exhibit 25. Comparison of Expected Revenues to Development-Driven Project Costs, Sanitary Sewer

Source: ECOnorthwest, City of Beaverton, Consor



Values are presented in constant 2023 dollars and rounded to the hundred thousand.

Gaps and Challenges

When viewed as a system, no funding gaps are expected anticipated; However, as development progresses and neighborhoods are built out, the 4% of the sewer SDC revenue retained by the city will be monitored for sufficiency. Additionally, the dependency of upper elevation neighborhoods on gravity line extensions through the central neighborhoods and across McKernan Creek with the future roadway crossing creates a phasing and delivery challenge that could impact development timing for these upper elevation neighborhoods.

2.6.3. Recommended Sanitary Sewer Funding Strategy

- Rely on the existing sewer SDCs, credit policies, and developer contributions to cover the costs for development-driven sewer projects within the Community Plan area.
- Rely on CWS to apply additional SDC revenue from this area beyond what is needed for the development-driven on-site costs to support broader systemwide capacity increases over the longer term.
- CWS should continue to make decisions about the use of broader-based funding sources (e.g., CWS sewer utility rates and SDCs) for treatment plant upgrade projects that serve the broader region.
- Partner with CWS to address timing of funding availability for the McKernan Creek crossing to allow development of upper elevation neighborhoods to move forward once lower neighborhoods have completed sanitary sewer infrastructure that will connect to the upper elevation neighborhoods to the planned Cooper Mountain Sanitary Pump Station (see Recommended Funding Strategy for transportation).

Inclusive Development Considerations

Because the SDC revenue from this area, 96% of which belongs to CWS, is expected to be more than sufficient to cover the area-specific infrastructure needs, sewer projects in this area will not increase the burden on rate-payers district-wide to fund infrastructure. However, because CWS's sets the SDC rates and uses a flat rate for all housing units regardless of size or housing type, they are more likely to impact the feasibility of developing lower-priced market-rate housing under their existing rate structure.[24] Updates to CWS's SDC methodology are outside the scope of this Funding Plan.

2.7. Stormwater

2.7.1. Projects and Costs

Development in Cooper Mountain will provide on-site stormwater management facilities at the neighborhood or project site scale. These stormwater facilities are expected to provide adequate stormwater retention and treatment and will not be connected to any larger stormwater conveyance network operated by CWS. Conveyance systems to deliver stormwater runoff to the stormwater management facilities will be constructed as neighborhoods develop. These local conveyance pipes are not included in this Funding Plan, and will be built and paid for by private developers.

The Cooper Mountain utility plan studied an alternative "resilient stream corridor" approach. However, it was determined that the resilient stream corridors would be an expensive and redundant requirement that required significant up-front construction by a public agency. The city and CWS may still pursue projects to enhance and restore stream channels, particularly along McKernan Creek, to better manage the potential change in flows from development in the basin. The city is coordinating with CWS to identify these projects, but they are not yet developed enough to estimate costs or identify appropriate funding sources.

Exhibit 26. Projects and Cost Estimates, Stormwater

Source: City of Beaverton, costs provided by Consor

Project Type	Description	Estimated Cost
Stormwater Management Facilities	Stormwater management facilities at a neighborhood scale and outfalls to streams	$70.0 million
Stream Restoration	Potential stream enhancement or habitat restoration efforts for McKernan Creek or tributaries	Not Available
Total		**$70.0 million**

Costs do not include connections from individual properties to the conveyance system.
Values are presented in constant 2023 dollars and rounded to the hundred thousand.

[24] ECOnorthwest, Galardi Rothstein Group, and FCS Group, *Oregon System Development Charges Study*, 2022, p. 79.

Project Delivery

New stormwater collection, treatment and storage facilities needed to serve development be constructed by private developers, as development occurs.

In the long term, CWS may deliver improvements to stream channel facilities through culvert upgrades, replacing existing pipe, or restoring vegetated corridors. Additionally, the city may contribute to small capital projects such as riparian planting and preventing erosion around culverts. These public projects are not yet identified, so the details are not included in this Funding Plan. However, such projects could be funded through water quality or conveyance SDCs, depending on the type of project proposed.

2.7.2. Baseline Funding Evaluation

Existing Revenue Sources

Overview

The City of Beaverton collects two stormwater SDCs to pay for the public portion of stormwater infrastructure. One stormwater SDC is set by CWS, and the other is set by the city. Under the current intergovernmental agreement with CWS, the city retains 100% of revenues generated from the stormwater conveyance SDC. Stormwater conveyance SDCs are the primary source of revenue for the City of Beaverton to fund improvements to the stormwater management system. As noted in the Funding Sources Overview section, by law, stormwater SDCs must be used for projects that expand system capacity to accommodate growth. The city collects stormwater conveyance SDCs from all development. Projects that do not build on-site stormwater management must pay a fee-in-lieu (which is divided into water quality and water quantity components). This plan assumes that all development in the Community Plan area will install on-site stormwater management systems and therefore no SDC revenue is projected for the stormwater management fees set by CWS.

Revenue Estimates from Existing Sources

Exhibit 27. Stormwater SDC Estimated Revenue (2023 dollars), Cooper Mountain, 2023–2043

Source: ECOnorthwest analysis of data from City of Beaverton

Development Type	Estimated SDC Revenue	Estimated Quality Fees	Estimated Quantity Fees
Residential Development	$5.6 million	–	–
Commercial Development	$32,000	–	–
Total	**$5.6 million**	**–**	**–**

Values are presented in constant 2023 dollars and rounded to the hundred thousand.

Baseline Funding Approach

The identified project costs for stormwater improvements are limited to collection, treatment, and storage systems within the new neighborhoods, which are paid for directly by developers and are not eligible for SDC credits.

Future projects may be identified for capacity or water quality improvements along the McKernan Creek corridor or in other riparian areas. Those projects could be constructed based on the funds available from the city's stormwater conveyance SDCs, water quality fees collected in the Community Plan area, or from development in other parts of the city. Using a "pay as you go" approach, the city could work with CWS to identify potential projects based on the available funds.

Gaps and Challenges

This plan has not identified any funding gaps related to stormwater. The required stormwater management facilities should be constructed and funded during development. The city will need to coordinate with CWS to identify and implement any larger conveyance or stream enhancement projects. There may be challenges in obtaining property access and implementing projects, but those issues are beyond the scope of this Funding Plan.

2.7.3. Recommended Stormwater Funding Strategy

- Rely on developer contributions to cover the costs for development-driven stormwater management facilities within the Community Plan area.
- Continue to work with CWS to identify conveyance related projects to enhance the McKernan Creek corridor and/or other riparian corridors, using funds collected from stormwater SDCs.

Inclusive Development Considerations

Because stormwater facilities are expected to be constructed and paid for by development, stormwater projects in this area will not increase the burden on rate-payers to fund infrastructure. System improvement projects within the Community Plan area, such as enhancing riparian corridors will be planned to align with the expected Cooper Mountain stormwater SDC revenues. However, because the city's stormwater SDCs use a similar rate for all housing units regardless of size or housing type, they are more likely to impact the feasibility of developing lower-priced market-rate housing under their existing rate structure.[25] Updates to the SDC methodology are outside the scope of this Funding Plan.

[25] ECOnorthwest, Galardi Rothstein Group, and FCS Group, *Oregon System Development Charges Study*, 2022, p. 79.

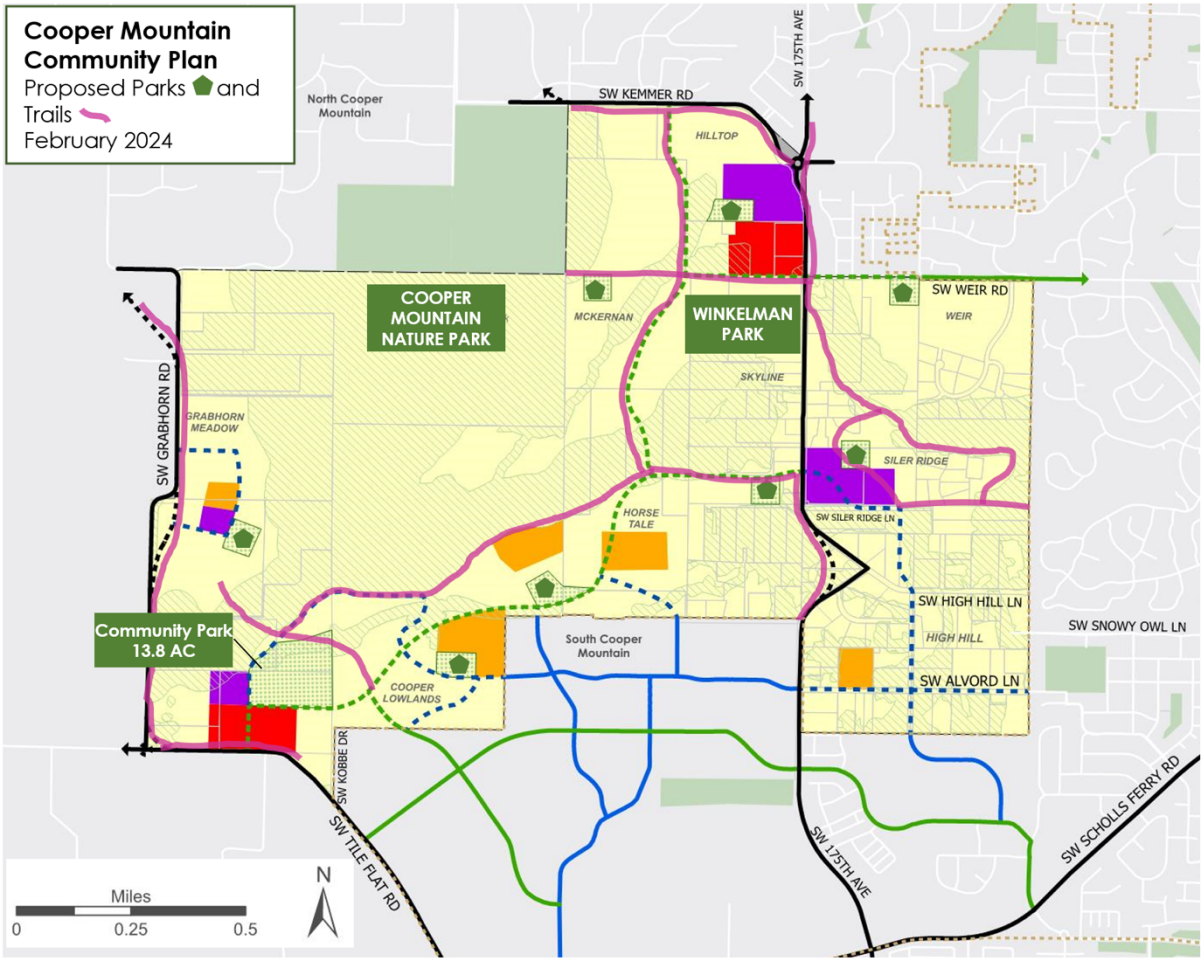
2.8. Parks & Trails

2.8.1. Projects And Costs

In the Community Plan preferred approach, parks and trails improvements include neighborhood parks, a community park, and multiuse trails, as shown in Exhibit 28. Tualatin Hills Park & Recreation District (THPRD) is responsible for providing park and trail infrastructure in Cooper Mountain.

Exhibit 28. Community Plan Zoning Map, Parks and Trails Improvements

Source: City of Beaverton



Park project costs include acquiring land and constructing park amenities, as described in Exhibit 29. Land costs vary depending on the development potential of the land, with higher costs per acre in areas where residential or commercial is allowed and lower costs in areas where development is restricted due to environmental constraints. Specialized amenities planned for some parks, such as water features and synthetic turf fields, have additional costs beyond the standard per-acre development costs. When new parks are developed in undeveloped areas, there is often a cost associated with improving the adjacent street frontage as well, including curbs, sidewalks, and partial road pavement. For this Funding Plan, frontage improvements for Collector roads

adjacent to parks are assumed to be funded as roadway projects described in the Transportation section. Other neighborhood parks are assumed to be located in neighborhoods where the frontages are local streets that will be constructed as part of land development to provide access and connectivity to new housing.

It is important to note that this Community Plan has a goal to establish more park acreage than has been assumed in THPRD's past planning documents. This plan identifies 21 acres of neighborhood parks and a large Community Park, whereas THPRD has previously anticipated 8 acres of parks in this planning area. This plan identifies the potential funding gaps and strategies to fund acquisition and development of a larger acreage of parks in this planning area.

The trail project costs in this section represent the cost of constructing multiuse trails that are independent from existing or planned roadways. When the Community Plan preferred approach includes shared use paths alongside roadways, those costs are included and budgeted with the relevant roadway projects described in the Transportation section of this plan.

Exhibit 29. Projects and Cost Estimates, Parks and Trails

Source: ECOnorthwest analysis based on input and costs from City of Beaverton and THPRD

Project Category	Description	Estimated Costs
Neighborhood Parks – Property Acquisition	21 acres for nine parks	$13.7 million
Neighborhood Parks – Amenities	Design and construction for nine parks	$29.2 million
Community Park – Property Acquisition	13.8 acres for one park[1]	$7.1 million
Community Park – Amenities[2]	Design and construction for one park and amenities[1]	$18.4 million
Trails	Design and construction for 3.6 miles of trails that are not linked to road corridors	$16.0 million
Total		**$84.4 million**

[1] The planned Community Park in Cooper Mountain is intended to serve existing and future residents both within Cooper Mountain and beyond.

[2] Cost estimate includes synthetic turf sports field and splash pad feature; actual park amenities to be determined during the planning and development process.

Values are presented in constant 2023 dollars and rounded to the hundred thousand. Project type subtotals may not sum to total due to rounding.

In addition to the park projects discussed in this plan, future development in Cooper Mountain may include additional parks, including an urban plaza in the commercial area and trailhead parks at some trail access points. An urban plaza and trailhead parks may be delivered by the public or private sectors.

Metro may consider options to expand the existing Cooper Mountain Nature Park. The nature park is a regional priority that serves the broader community (independent of future development in Cooper Mountain). As such, it is not included in this Funding Plan.

Similarly, THPRD already owns and operates Winkelman Park within the Community Plan planning area. Capital improvements to that facility are already planned by THPRD, regardless of future development in the Community Plan area, so are not included in this Funding Plan.

Project Delivery and Phasing

THPRD has collaborated with private sector developers in other similar development areas to deliver park and trail projects and expects to do the same in Cooper Mountain. One option is for developers to dedicate undeveloped land for parks or easements for trails to THPRD in exchange for SDC credits; THPRD then leads the development of the park. Another option is for private developers to fully build out the park amenities in collaboration with THPRD, in exchange for additional SDC credits. Land dedication and development of neighborhood parks will happen in phases, as development occurs.

THPRD plans to lead the development of the 14-acre community park. The planned community park site includes land split between three different property owners. While this plan reduces the required land dedication from any single property owner, there may be a longer timeline to negotiate acquisition from multiple parties.

2.8.2. Baseline Funding Evaluation

Existing Revenue Sources

The primary source of funding for park and trail improvements to serve new development is parks SDCs, collected by the city on behalf of THPRD. SDC revenue must be used for projects that are on THPRD's SDC-CIP project list. Exhibit 30 shows the total estimated parks SDC revenues from development in Cooper Mountain. See Appendix B for details on revenue estimates.

Note that when SDC credits are issued to developers that build projects that qualify for SDC credits as discussed below, the developers may redeem those SDC credits instead of paying the SDC for a particular lot. Therefore, the SDC credit process may result in less SDC revenue collected by THPRD. This is an estimate of the potential SDCs owed by development in the Community Plan area, regardless of whether the developer pays this obligation with credits or cash.

Exhibit 30. Parks SDC Estimated Revenue (2023 dollars), Cooper Mountain, 2023–2043

Source: ECOnorthwest analysis of data from THPRD

Development Type	Estimated SDC Revenue
Residential Development	$56.1 million
Commercial Development	$14,000
Total	**$56.1 million**

Values are presented in constant 2023 dollars and rounded to the hundred thousand.

Baseline Funding Approach

Exhibit 31 shows the park and trail projects and estimated costs, and the expected funding sources. See Appendix A for details on project costs.

Exhibit 31. Projects, Cost Estimates, and Potential Funding Sources, Parks and Trails

Source: ECOnorthwest analysis based on input and costs from City of Beaverton and THPRD

Project Category	Description	Estimated Costs	Funding Sources
Neighborhood Parks – Property Acquisition	21 acres for nine parks	$13.7 million	SDC credits
Neighborhood Parks – Amenities	Design and construction for nine parks	$29.2 million	SDCs / SDC credits
Community Park – Property Acquisition	13.8 acres for one park	$7.1 million	SDCs / SDC credits
Community Park – Amenities	Design and construction for one park and amenities[1]	$18.4 million	SDCs, grants
Trails	Design and construction for 3.6 miles of trails	$16.0 million	SDCs, grants, bonds
Total		**$84.4 million**	

[1] *Potential cost of amenities, such as a synthetic field, splash pad, and other features. Specific park amenities will be determined through the planning and design process.*

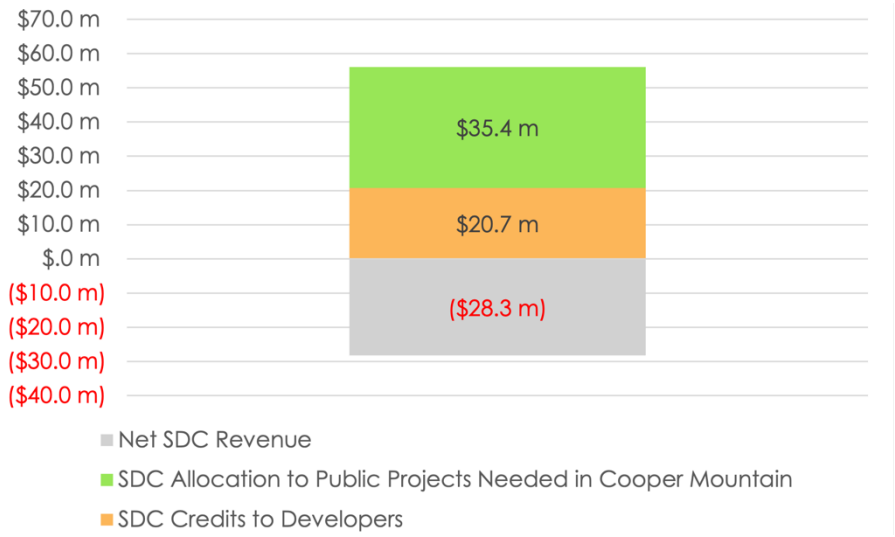
Values are presented in constant 2023 dollars and rounded to the hundred thousand. Project type subtotals may not sum to total due to rounding.

Gaps and Challenges

This plan has more park acreage than anticipated when THPRD set its SDCs in 2020. Therefore expected SDC revenues from Cooper Mountain are lower than the total cost of parks and trails projects planned for the area, for a total gap of approximately $28.3 million, as shown in Exhibit 32.

Exhibit 32. Comparison of Expected Revenues to Development-Driven Project Costs, Parks and Trails

Source: ECOnorthwest, City of Beaverton, THPRD



Values are presented in constant 2023 dollars and rounded to the hundred thousand.

The Community Plan preferred approach has more parks than are accounted for in THPRD's SDC-CIP project list, which is the basis for THPRD's SDC rates. The SDC-CIP project list includes only eight acres of neighborhood parks in Cooper Mountain, while the Community Plan plans for 21 acres.[26] This difference is one reason for the projected revenue shortfall. THPRD reassesses its SDC methodology and SDC-CIP project list every five years and will have an opportunity to consider the Cooper Mountain planning area goals in the next SDC evaluation.

THPRD's SDC-CIP project list includes 15 acres for a community park, which accommodates the Community Plan's 13.8-acre park. The planned Community Park in Cooper Mountain is intended to serve a broader area, not just development within Cooper Mountain. It is appropriate for SDC revenue from a larger area to help pay for the costs of this facility.

THRPD may need to consider how much SDC revenue is available (from Cooper Mountain or other areas) early in the development of Cooper Mountain if it seeks to acquire land for neighborhood parks when acquisition costs exceed the amount of SDCs owed by the development that is dedicating the property.

2.8.3. Funding Options

The policy around parks SDCs and SDC credits is set by THPRD, including decisions about which properties and park projects would be eligible for credits, the process for

[26] See Appendix C in Parks System Development Charges Methodology Report, September 2020, included as attachment in the meeting materials for THPRD Board Meeting, November 12, 2020. Per-acre development costs have also increased since the most recent SDC-CIP project list was approved in 2020. However, SDC rates are indexed based on increases in construction and land costs to account for this, even though the costs shown in the SDC-CIP project list are not escalated directly.

claiming credits, and options to transfer credits between projects.[27] THPRD is able to use SDCs collected systemwide to fund projects that have broader benefits. THRPD has also implemented area-specific SDC rates in the past in certain areas (e.g., North Bethany) to account for higher costs. Other options, if needed, would include a local bond, funding allocations from a regional Metro bond, or grants, though these sources are typically directed toward projects that are not growth-related and cannot be funded by SDCs.

2.8.4. Recommended Parks and Trails Funding Strategy

- Rely on THPRD to execute parks plan with their existing tools, including parks SDCs. SDCs from the Community Plan area are expected to cover the full cost of land acquisition and much, but not all, of the cost of building out the parks included in the Community Plan. THPRD may draw on SDCs from other areas, or other district-wide sources as applicable, to support the build-out of the Community Park and trail amenities that serve the broader community.

Inclusive Development Considerations

Supplementing the cost of parks in the Community Plan area with SDC revenue from other areas avoids a further increase to development costs in this area. THPRD's fees are already scaled with unit size and discounted or waived for affordable housing development, which reduces their impact on housing costs.[28]

[27] THPRD is currently working on revising the SDC Administrative Procedures Guide, which may update the current credit policies.

[28] ECOnorthwest, Galardi Rothstein Group, and FCS Group, *Oregon System Development Charges Study*, 2022, p. 79.

3. Conclusions and Implications

3.1. Summary

As in most greenfield development, developers will build and pay for much of the infrastructure that will serve the new development, including all of the local streets and the utilities collection and distribution networks, as well as on-site stormwater management systems. Larger roads and pipes that will connect utilities between neighborhoods or to the broader system are assumed to be mostly built by developers with cost-sharing mechanisms (generally SDC credits) for the cost of oversizing roads or utility systems relative to local facilities. Larger projects and those that impact properties with little development potential will generally be built by the public sector service provider, with funding largely coming from SDCs for costs associated with increasing capacity, and from other sources (generally grants or utility fees) for project elements serving other purposes (safety, resilience, etc.).

The existing systems and funding methods are expected to be adequate to deliver needed infrastructure in most cases. However, there are funding gaps for transportation, and there are several important projects that require special attention to timing. These issues are summarized below.

3.2. Key Funding and Financing Issues

3.2.1. Funding for McKernan Creek Crossing

Key Issue

The new Collector road system in Cooper Mountain will need a $10.9 million crossing of McKernan Creek. The crossing will likely be too costly to link to an individual development, and it passes through the undevelopable riparian corridor of McKernan Creek. The transportation connection is important for multimodal connectivity between northern and southern portions of Cooper Mountain and surrounding areas, but the facility also plays an important role in carrying utilities (e.g., water and sewer pipes) across the stream. This makes its timing more important to enabling development than it would be from a transportation perspective alone.

Proposed Solution

Establish a new funding source to cover the cost of the McKernan Creek crossing, such as an LID, supplemental SDC, reimbursement district, or infrastructure fee.

Next Steps

- Explore support for an LID among property owners in the Hilltop, McKernan, Horse Tale, Skyline, and Cooper Lowlands neighborhoods. If there is sufficient support among a group of property owners, consider how costs would be allocated and potential costs per future dwelling unit under this arrangement. Explore potential to combine other water/sewer projects needed to serve the same areas into a single LID.

- Explore potential to use water and sewer SDC revenue to contribute to the utility-related costs of this project, given its importance across multiple infrastructure systems and the potential for stream restoration.

3.2.2. Infrastructure Phasing for Higher Elevation Neighborhoods

Key Issue

Development in several of the future neighborhoods in upper elevations is dependent on specific utility projects that may be challenging for individual developers to deliver on their own:

- McKernan, Hilltop, Skyline and Siler Ridge neighborhoods (or portions of these areas) need a water booster pump station at Kemmer to provide adequate pressure to new potable water pressure zones. This project will be located on existing public property and is estimated at $3.0 million. The cost of this project is not a concern relative to funding in the long-term, but the timing of the need relative city's ability to allocate funding to this project creates a potential challenge.
- The Hilltop and McKernan neighborhoods also need the sewer line extension from the future CWS Cooper Mountain Sanitary Pump Station near Grabhorn/Tile Flat Road. The sewer line must extend through central neighborhoods, and across McKernan Creek. The sewer line and water distribution lines will likely be carried across McKernan Creek at the future roadway crossing. This is the most cost-effective method for crossing McKernan Creek, but makes these utilities dependent on construction of that road project.

Proposed Solution

- The city has plans to put the water booster pump station on a capital project list, though the earliest available timeline would be 2030 or later. This timing is reasonable, based on the development phasing that requires a bridge/sewer crossing of McKernan creek to access many of these neighborhoods.
- As an alternative, there is potential for one or more developers to fund the pump station earlier and establish a reimbursement district for all properties that are going to be in the new pressure zones, or to add this water booster pump station to an LID related to the McKernan Creek crossing (if that is the preferred strategy) as it would benefit a similar area.
- Continue pursuing grant funding or direct allocations from state and federal sources for the booster pump station project, based on its relevance to supporting housing production.[29]

[29] In 2024, the city received grant funding from the state legislature to accelerate the schedule of the booster pump station. Construction is expected in 2025 for completion in 2026.

Next Steps

- Discuss timing and options with property owners and developers in areas that require the booster pump station to determine whether there is a desire for alternative solutions that could accelerate the timeline to build this facility.

3.2.3. Safety Improvements for 175th Avenue

Key Issue

The "Kink" along 175th Avenue requires redesign and realignment to improve safety for all road users. This project has been known as a necessary regional improvement for over 10 years, since it was identified in the infrastructure Funding Plan for South Cooper Mountain. This project is not essential to complete prior to development in Cooper Mountain, but the increased traffic on 175th as Cooper Mountain builds out will exacerbate an already undesirable situation. In addition to its importance to Cooper Mountain, 175th Avenue carries regional traffic from several rapidly developing areas, including South Cooper Mountain in Beaverton and River Terrace in Tigard. In addition, 175th Avenue is a potential transit corridor but cannot function in that capacity with the current alignment and safety concerns.

The project is on Washington County's TDT list; however, it is competing for funds with many other projects and not currently identified in the priority capital project list. In addition, only 25% of the cost of the project (the estimated capacity-related share of costs) is eligible for TDT funding, while the rest must come from other sources. It is less appropriate to have Cooper Mountain development fund the gap, because the remaining costs are due to addressing the existing safety issues and would benefit all users of 175th Avenue. Funding for non-growth-related transportation capital projects is even more challenging.

Proposed Solution

- Include the cost of urban upgrades north and south of the "kink" in a Cooper Mountain-specific transportation funding source to provide dedicated funding for this portion of the project, and to free up TDT funding from this area to fund the capacity-related portions of the cost of realigning the "kink" on 175th Avenue.
- Work with Washington County to establish a higher priority for improvements for 175th Avenue.
- Rely on Washington County to deliver the project and fund the non-capacity-related portion of costs of realigning the "kink" with other sources, as resources allow.

Next Steps

- Establish Cooper Mountain-specific funding source.
- Work with Washington County to prioritize TDT funds and other County transportation funding for the 175th Avenue upgrades in the mid-term.
- Work with the County to apply for safety-related transportation grants to help cover the non-TDT-eligible costs of realigning the "kink."

- Support the County, as they develop a comprehensive CIP prioritization process and explore funding strategies to increase the County's capacity to deliver priority transportation projects.

3.2.4. Expanded Parks and Trails Plan

Key Issue

- When building its SDC-CIP project list, THPRD planned for approximately 8 acres of neighborhood parks in the Community Plan Area. The Community Plan proposed approximately 21 acres of neighborhood parks and new community park of approximately 14 acres, resulting in a funding gap relative to parks SDCs.

Proposed Solution

- Rely on THPRD's existing parks SDCs to cover the cost of acquiring park properties and building out park amenities to the level available.
- Draw on SDCs from other areas (or other district-wide sources as applicable) to support the build-out of the Community Park and trail amenities that serve the broader community.
- Support THPRD in updating its SDC-CIP list to include the parks goals outlined in the Community Plan.

Next Steps

- No further actions needed from city.

3.3. Inclusive Development Considerations

Under the proposed Funding Plan, growth-related costs are not expected to be funded by sources that impact existing residents or businesses. All growth-related costs are expected to be funded by sources linked to development, though the service providers have flexibility to use other sources as needed in some cases based on timing considerations, availability of grants or other funds, or other considerations.

The proposed Funding Plan also relies largely on existing funding sources. This plan indicates that only the transportation infrastructure category carries additional costs to implement the needed projects. The transportation funding strategy has the potential to impose additional costs on development in this area that is not part of the baseline funding scenario is for selected transportation projects. Both infrastructure and development costs in this area may be higher than in other areas due to topography, but this is not an issue the Funding Plan can address.

This suggests that the recommended Funding Plan is unlikely to substantially impact the ability to deliver a range of housing types and price points within Cooper Mountain. However, the baseline cost of building the infrastructure needed to serve new neighborhoods means delivering on the goal of inclusive neighborhoods is likely to remain a challenge.

Because the city controls few of the SDC rates applicable to development in this area, there are limited opportunities for the city to adjust rate structures or exemption policies

to lessen the impact on smaller, lower-priced homes or on affordable housing. However, the city may be able to use other funding sources or incentives to support these types of development (as discussed further in a separate memorandum) and can encourage partner agencies to consider these factors if and when they update their SDC methodologies in the future. If the city does implement a new funding source for this area, careful consideration should be given to how the costs are allocated to ensure that any relationship between demand/impact and unit size, density, and housing type are accounted for in developing the methodology.

Appendix A. Cooper Mountain Infrastructure Project Costs – PRELIMINARY DRAFT November 2023

Note: Final project estimates will be updated when the Cooper Mountain Utility Plan is finalized in 2024.

Transportation

Source: ECOnorthwest analysis of cost figures from DKS Associates

Project	Description	Project Category	Total Estimated Cost (2023)	Delivery	On TDT List?	Cooper Share (% of traffic)	Remainder
1	Realign the curve along SW Grabhorn Road near SW Stone Creek Drive, as a 3-lane County arterial with a shared-use path.	Off-site / Regional Projects	$6,900,000	public	N	$1,035,000	$5,865,000
2	Realign the curve along SW Grabhorn Road north of SW Tile Flat Road, as a 3-lane County arterial with a shared-use path.	Arterial Projects	$3,610,000	private	N	$555,000	$3,055,000
3B	Improve the SW Grabhorn Road intersection with SW Tile Flat Road **by installing a roundabout.**	Off-site / Regional Projects	$5,880,000	public	N	$960,000	$4,920,000
4	Realign SW 175th Avenue between SW Outlook Lane and Cooper Mountain Lane, as a 3-lane County arterial with a shared-use path.	On-Site Arterial Projects	$7,630,000	public	Y (1011, 25% capacity/growth)	$1,665,000	$5,965,000
5	Extend SW 185th Avenue from Gassner Road to Kemmer Road as a 3-lane County arterial with a shared-use path.	Off-site / Regional Projects	$10,290,000	public	N	$2,025,000	$8,265,000
6a	Create a new 2-lane City collector street between SW Kemmer Road and the bridge across McKernan Creek.	Collectors	$13,050,000	private	N	$6,550,000	$6,500,000
6b	Create a new bridge crossing with 2-lane City collector street to extend the collector to the SW Siler Ridge Lane extension.	Collectors	$10,910,000	public	N	$5,475,000	$5,435,000
7	Extend SW Weir Road from SW 170th Avenue to the new north-to-south collector street, as a 3-lane City collector street with a shared-use path.	Collectors	$8,250,000	private	N	$3,750,000	$4,500,000
8	Extend SW Siler Ridge Lane from SW 175th Avenue to the new north-to-south collector street, as a 3-lane City collector street with a shared-use path.	Collectors	$10,900,000	private	N	$5,830,000	$5,070,000
9	Extend SW Siler Ridge Lane from the new north-to-south collector street to SW Tile Flat Road, as a 3-lane City collector street.	Collectors	$31,380,000	private	N	$16,790,000	$14,590,000

Project	Description	Project Category	Total Estimated Cost (2023)	Delivery	On TDT List?	Cooper Share (% of traffic)	Remainder
10	Extend SW Mountainside Way to the SW Siler Ridge Lane extension, as a 3-lane City collector street with a shared-use path.	Collectors	$2,110,000	private	N	$1,180,000	$930,000
11	Create a new 2-lane City neighborhood route between the SW Siler Ridge Lane extension and SW Alvord Lane extension with a shared-use path.	Neighborhood Routes	$10,390,000	private	N/A	$5,820,000	$4,570,000
12	Extend SW Bittern Lane to SW Alvord Lane, as a 2-lane City neighborhood route.	Neighborhood Routes	$1,510,000	private	N/A	$845,000	$665,000
13	Improve SW Tile Flat Road from SW Scholls Ferry Road to SW Grabhorn Road, as a 3-lane County arterial with a shared-use path.	Arterial Projects	$6,170,000	private	N	$805,000	$5,365,000
14a	Improve SW Grabhorn Road north of SW Tile Flat Road, as a 3-lane County arterial with a shared-use path.	Arterial Projects	$4,030,000	private	N	$640,000	$3,390,000
14b	Improve SW Grabhorn Road south of SW Stonecreek Drive, as a 3-lane County arterial with a shared-use path.	Arterial Projects	$3,770,000	private	N	$565,000	$3,205,000
15A	Improve SW 175th Avenue from SW Barrows Road to SW Cooper Mountain Lane, as a 3-lane County arterial with a shared-use path.	Arterial Projects	$3,750,000	public	N	$865,000	$2,885,000
15B	Improve SW 175th Avenue from SW Outlook Lane to SW Kemmer Road, as a 3-lane County arterial with a shared-use path.	Arterial Projects	$8,060,000	public	N	$1,945,000	$6,115,000
16	Improve SW Kemmer Road from SW 175th Avenue to the SW 185th Avenue extension, as a 3-lane County arterial with a shared-use path.	Arterial Projects	$9,240,000	private	N	$2,010,000	$7,230,000
17	Improve SW Weir Road from SW 170th Avenue to SW Mt Adams Drive, as a 3-lane City collector street.	Collectors	$4,060,000	private	Y (2067, 100% growth/capacity)	$1,435,000	$2,625,000
18	Improve the SW 175th Avenue intersection with SW Weir Road by installing a **traffic signal** (when warrants are met).	Arterial Projects	$1,490,000	private	N	$560,000	$930,000

Project	Description	Project Category	Total Estimated Cost (2023)	Delivery	On TDT List?	Cooper Share (% of traffic)	Remainder
19	Improve the SW 175th Avenue intersection with SW Siler Ridge Lane by installing a **traffic signal** (when warrants are met).	**Arterial Projects**	$1,490,000	private	N	$515,000	$975,000
20	Improve the SW Grabhorn Road intersection with SW Gassner Road by adding southbound and westbound left-turn lanes.	Off-site / Regional Projects	$1,400,000	public	N	$240,000	$1,160,000
21	Improve the SW Farmington Road intersection with SW Grabhorn Road by extending the 5-lane widening of SW 209th Avenue to just south of Farmington Road.	Off-site / Regional Projects	$2,270,000	public	Y (3076, 100% growth/capacity)	$190,000	$2,080,000
22	Improve the SW Farmington Road intersection with SW Clark Hill Road by adding a westbound left-turn lane.	Off-site / Regional Projects	$700,000	public	N	$15,000	$685,000
23	Improve the SW 170th Avenue intersection with SW Rigert Road by installing a roundabout.	Off-site / Regional Projects	$6,520,000	public	N	$1,090,000	$5,430,000
25	Improve/Extend SW Alvord Lane from SW 175th Avenue to SW Siskin Terrace, as a 2-lane City neighborhood route.	**Neighborhood Routes**	$5,540,000	private	N/A	$3,100,000	$2,440,000
26	Improve SW Siler Ridge Lane east of SW 175th Avenue, as a 2-lane City neighborhood route.	**Neighborhood Routes**	$2,640,000	private	N/A	$1,480,000	$1,160,000
27	Create a new 2-lane City neighborhood route between the SW Alvord Lane extension and the SW Mountainside Way extension.	**Neighborhood Routes**	$2,650,000	private	N/A	$1,380,000	$1,270,000
28	Extend SW Alvord Lane to the SW Siler Ridge Lane extension, as a 2-lane City neighborhood route.	**Neighborhood Routes**	$3,010,000	private	N/A	$1,685,000	$1,325,000
29	Create a new 2-lane City neighborhood route loop connecting to SW Grabhorn Road.	**Neighborhood Routes**	$5,600,000	private	N/A	$3,135,000	$2,465,000
		Total	**$195,200,000**				

Potable Water

Source: ECOnorthwest analysis of cost data from Consor

Project	Cost Type	Project Size (units)	Total Project Cost	Private Dev Total	Public Dev Total	SDC Credit Share of Cost	SDC Eligible Project Size	SDC Credit ($)	Developer Direct Cost
930 Zone				$ 11,800,000				$ 467,000	$ 11,333,000
	18-inch pipe	1,100	$ 1,400,000			33%	367		
	12-inch pipe	7,900	$ 8,200,000						
	Arterial Road Repair	5,200	$ 2,200,000						
850 Zone				$ 8,780,000				$ -	$ 8,780,000
	12-inch pipe	6,100	$ 6,290,000						
	PRV Station	3	$ 1,110,000						
	Arterial Road Repair	3,300	$ 1,380,000						
Upper BPS	Upper BPS	1	$ 3,000,000		$ 3,000,000				
Upper Zones Total			**$ 23,580,000**	**$ 20,580,000**	**$ 3,000,000**			**$ 467,000**	**$ 20,113,000**
794 Zone				$ 16,970,000				$ 2,573,000	$ 14,397,000
	24-inch pipe	3,200	$ 4,580,000			50%	1,600		
	18-inch pipe	700	$ 850,000			33%	233		
	12-inch pipe	9,000	$ 9,280,000						
	PRV Station	3	$ 1,110,000						
	Bridge Crossing	300	$ 300,000						
	Arterial Road Repair	4,100	$ 850,000						
750 Zone				$ 2,080,000				$ -	$ 2,080,000
	12-inch pipe	1,200	$ 1,260,000						
	PRV Station	2	$ 740,000						
	Local Road Repair	300	$ 80,000						
675 Zone				$ 14,140,000					$ 14,140,000
	12-inch pipe	12,500	$ 12,890,000						
	PRV Station	2	$ 740,000						
	Local Road Repair	2,400	$ 510,000						
CM3 BPS	CM3 BPS		$ 5,160,000		$ 5,160,000				
Middle Zones Total			**$ 38,350,000**	**$ 33,190,000**	**$ 5,160,000**			**$ 2,573,000**	**$ 30,617,000**
550 Zone				$ 19,490,000				$ 5,687,000	$ 13,803,000
	24-inch pipe	7,400	$ 10,560,000			50%	3,700		
	18-inch pipe	1,000	$ 1,220,000			33%	333		
	12-inch pipe	5,900	$ 6,080,000						
	PRV Station	2	$ 740,000						
	Arterial Road Repair	1,000	$ 420,000						
	Local Road Repair	2,200	$ 470,000						
470 Zone				$ 16,100,000				$ 1,490,000	$ 14,610,000
	18-inch pipe	3,700	$ 4,470,000			33%	1,233		
	12-inch pipe	7,300	$ 7,550,000						
	PRV Station	2	$ 740,000						
	Bore Pit/Receiving Pit Based on 20 ft deep	2	$ 300,000						
	Trenchless Pipe up to 24-inch Based on 20 ft deep	350	$ 1,040,000						
	Vegetated Corridor Permitting and Restoration	2	$ 140,000						
	Arterial Road Repair	4,200	$ 1,760,000						
	Local Road Repair	400	$ 100,000						
West BPS					$ 5,220,000				
	Construction		$ 4,790,000						
	Property Acquisition		$ 430,000						
Lower Zones Total			**$ 40,810,000**	**$ 35,590,000**	**$ 5,220,000**			**$ 7,177,000**	**$ 28,413,000**

Project	Cost Type	Project Size (units)	Total Project Cost	Private Dev Total	Public Dev Total	SDC Credit Share of Cost	SDC Eligible Project Size	SDC Credit ($)	Developer Direct Cost
CMR3 Reservoir					$ 29,200,000				
	Construction		$ 24,930,000						
	Property Acquisition		$ 4,270,000						
CMR3 Site ASR			$ 13,050,000		$ 13,050,000				
Tile Flat BPS					$ 5,650,000				
	Construction		$ 5,220,000						
	Property Acquisition		$ 430,000						
ASR 7A (CMR 1&2 Site)			$ 6,412,000		$ 6,412,000				
Citywide Capcity and Storage Total			**$ 54,312,000**	**$ -**	**$ 54,312,000**			**$ -**	**$ -**
Total Potable Projects			**$ 157,052,000**	**$ 89,360,000**	**$ 67,692,000**			**$ 10,217,000**	**$ 79,143,000**
	Growth-related costs		$ 92,360,000						

Non-Potable Water

Source: Consor

Project		Quantity	Total Project Cost
NP 520 Zone			
	8-inch Pipe	5,500	$4,920,000
	6-inch Pipe	1,100	$900,000
	Potable Intertie	1	$470,000
Subtotal			**$6,290,000**
NP 410 Zone			
	8-inch Pipe	2,700	$2,150,000
	6-inch Pipe	7,700	$6,840,000
	Bore Pit/Receiving Pit Based on 20 ft deep	2	$290,000
	Trenchless Pipe up to 24-inch Based on 20 ft deep	350	$1,030,000
	Vegetated Corridor Permitting and Restoration	2	$140,000
	PRV	2	$740,000
	Arterial Road Repair	4,200	$1,760,000
Subtotal			**$12,950,000**
Total Non-Potable Cost			**$19,240,000**

Sanitary Sewer

Source: ECOnorthwest analysis of cost data from Consor and CWS

Project		Quantity	Total Project Cost	SDC Credit Share of Cost	SDC Eligible Project Size	SDC Credit ($)	Developer Direct Cost
CMSPS1							
	8 inch PVC pipe up to 10 ft deep	1,087	$559,795	0%	0.0	$0	$559,795
	8 inch PVC pipe 10-20 ft deep	1,414	$975,582	0%	0.0	$0	$975,582
	10 inch PVC pipe up to 10 ft deep	357	$229,633	20%	71.4	$45,927	$183,706
	10 inch PVC pipe 10-20 ft deep	123	$112,810	20%	24.6	$22,562	$90,248
	15 inch PVC pipe up to 10 ft deep	330	$242,635	47%	154.0	$113,230	$129,405
	15 inch PVC pipe 10-20 ft deep	873	$909,296	47%	407.4	$424,338	$484,958
	Bore Pit/Receiving Pit Based on 20 ft deep	1	$138,000	0%	0.0	$0	$138,000
	Trenchless Pipe up to 24 inches Based on 20 ft deep	250	$724,500	67%	166.7	$483,000	$241,500
	Riparian Zone Permitting and Restoration	1	$70,000	0%	0.0	$0	$70,000
	Standard 4 ft manhole up to 10 ft deep	8	$147,200	0%	0.0	$0	$147,200
	Standard 4 ft manhole 10-20 ft deep	13	$358,800	0%	0.0	$0	$358,800
	Arterial Road Repair	2,980	$1,239,258	0%	0.0	$0	$1,239,258
CMSPS2							
	15 inch PVC pipe 10-20 ft deep	899	$935,873	47%	419.5	$436,741	$499,132
	18 inch PVC pipe 10-20 ft deep	226	$187,045	56%	125.6	$103,914	$83,131
	18 inch PVC greater than 20 ft deep	627	$691,865	56%	348.3	$384,369	$307,496
	Standard 4 ft manhole up to 10 ft deep	4	$73,600	0%	0	$0	$73,600
	Standard 4 ft manhole 10-20 ft deep	3	$82,800	0%	0	$0	$82,800
	Arterial Road Repair	220	$91,303	0%	0	$0	$91,303
CMSPS2A							
	8 inch PVC pipe up to 10 ft deep	1,876	$966,398	0%	0	$0	$966,398
	8 inch PVC pipe 10-20 ft deep	81	$55,666	0%	0	$0	$55,666
	Standard 4 ft manhole up to 10 ft deep	7	$128,800	0%	0	$0	$128,800
CMSPS2B							
	8 inch PVC pipe up to 10 ft deep	922	$475,014	0%	0	$0	$475,014
	8 inch PVC pipe 10-20 ft deep	198	$136,620	0%	0	$0	$136,620
	Standard 4 ft manhole up to 10 ft deep	4	$73,600	0%	0	$0	$73,600
	Arterial Road Repair	1,120	$465,741	0%	0	$0	$465,741
CMSPS3							
	8 inch PVC pipe up to 10 ft deep	3,530	$1,818,656	0%	0	$0	$1,818,656
	8 inch PVC pipe 10-20 ft deep	2,186	$1,508,340	0%	0	$0	$1,508,340
	10 inch PVC pipe 10-20 ft deep	398	$364,695	20%	79.6	$72,939	$291,756
	Standard 4 ft manhole up to 10 ft deep	13	$239,200	0%	0	$0	$239,200
	Standard 4 ft manhole 10-20 ft deep	7	$193,200	0%	0	$0	$193,200
CMSPS3A							
	8 inch PVC pipe up to 10 ft deep	533	$274,602	0%	0	$0	$274,602
	Standard 4 ft manhole up to 10 ft deep	2	$36,800	0%	0	$0	$36,800
CMSPS4							
	8 inch PVC pipe 10-20 ft deep	4,088	$2,820,720	0%	0	$0	$2,820,720
	Standard 4 ft manhole 10-20 ft deep	13	$358,800	0%	0	$0	$358,800
	Bore Pit/Receiving Pit Based on 20 FT deep	1	$138,000	0%	0	$0	$138,000
	Trenchless Pipe up to 24 inches Based on 20 ft deep	200	$579,600	67%	133.3	$386,400	$193,200
	Riparian Zone Permitting and Restoration	1	$70,000	0%	0	$0	$70,000

Project		Quantity	Total Project Cost	SDC Credit Share of Cost	SDC Eligible Project Size	SDC Credit ($)	Developer Direct Cost
CMSPS5							
	8 inch PVC pipe up to 10 ft deep	864	$445,133	0%	0	$0	$445,133
	8 inch PVC pipe 10-20 ft deep	810	$558,900	0%	0	$0	$558,900
	8 inch PVC pipe greater than 20 ft deep	138	$120,612	0%	0	$0	$120,612
	Standard 4 ft manhole up to 10 ft deep	3	$55,200	0%	0	$0	$55,200
	Standard 4 ft manhole 10-20 ft deep	3	$82,800	0%	0	$0	$82,800
	Standard 4 ft manhole greater than 20 ft deep	1	$46,000	0%	0	$0	$46,000
CMSPS6							
	8 inch PVC pipe up to 10 ft deep	2,536	$1,306,547	0%	0	$0	$1,306,547
	8 inch PVC pipe greater than 20 ft deep	1,780	$1,555,720	0%	0	$0	$1,555,720
	Standard 4 ft manhole up to 10 ft deep	18	$331,200	0%	0	$0	$331,200
	Standard 4 ft manhole greater than 20 ft deep	6	$276,000	0%	0	$0	$276,000
	Arterial Road Repair	4,316	$1,794,765	0%	0	$0	$1,794,765
SSMH0004981							
	8 inch PVC pipe up to 10 ft deep	294	$151,701	0%	0	$0	$151,701
	8 inch PVC pipe 10-20 ft deep	294	$203,171	0%	0	$0	$203,171
	Standard 4 ft manhole up to 10 ft deep	1	$18,400	0%	0	$0	$18,400
	Standard 4 ft manhole 10-20 ft deep	1	$27,600	0%	0	$0	$27,600
	Clearing and Grubbing	0.34	$1,564	0%	0	$0	$1,564
	Riparian Zone Permitting and Restoration	1	$70,000	0%	0	$0	$70,000
SSMH0005288							
	8 inch PVC pipe up to 10 ft deep	592	$304,998	0%	0	$0	$304,998
	8 inch PVC pipe 10-20 ft deep	1,549	$1,068,810	0%	0	$0	$1,068,810
	Standard 4 ft manhole up to 10 ft deep	2	$36,800	0%	0	$0	$36,800
	Standard 4 ft manhole 10-20 ft deep	8	$220,800	0%	0	$0	$220,800
	Arterial Road Repair	2,141	$890,313	0%	0	$0	$890,313
SSMH0004814							
	8 inch PVC pipe up to 10 ft deep	392	$201,958	0%	0	$0	$201,958
	8 inch PVC pipe 10-20 ft deep	2,147	$1,481,430	0%	0	$0	$1,481,430
	Bore Pit/Receiving Pit Based on 20 ft deep	1	$138,000		0	$0	$138,000
	Trenchless Pipe up to 24 inches Based on 20 ft deep	100	$289,800	67%	66.7	$193,200	$96,600
	Standard 4 ft manhole up to 10 ft deep	1	$18,400	0%	0	$0	$18,400
	Standard 4 ft manhole 10-20 ft deep	7	$193,200	0%	0	$0	$193,200
	Clearing and Grubbing	0.61	$2,806	0%	0	$0	$2,806
	Riparian Zone Permitting and Restoration	1	$70,000	0%	0	$0	$70,000
SSMH0004844							
	8 inch PVC pipe up to 10 ft deep	907	$467,286	0%	0	$0	$467,286
	8 inch PVC pipe 10-20 ft deep	981	$676,890	0%	0	$0	$676,890
	Standard 4 ft manhole up to 10 ft deep	4	$73,600	0%	0	$0	$73,600
	Standard 4 ft manhole 10-20 ft deep	3	$82,800	0%	0	$0	$82,800
	Clearing and Grubbing	0.15	$690	0%	0	$0	$690
	Local Road Repair	1,618	$175,650	0%	0	$0	$175,650

Project		Quantity	Total Project Cost	SDC Credit Share of Cost	SDC Eligible Project Size	SDC Credit ($)	Developer Direct Cost
SSCO0000551							
	8 inch PVC pipe up to 10 ft deep	249	$128,285	0%	0	$0	$128,285
	8 inch PVC pipe 10-20 ft deep	249	$171,810	0%	0	$0	$171,810
	Standard 4 ft manhole up to 10 ft deep	1	$18,400	0%	0	$0	$18,400
	Standard 4 ft manhole 10-20 ft deep	1	$27,600	0%	0	$0	$27,600
	Clearing and Grubbing	0.29	$1,334	0%	0	$0	$1,334
SSMH0008718							
	8 inch PVC pipe up to 10 ft deep	1,026	$528,595	0%	0	$0	$528,595
	8 inch PVC pipe 10-20 ft deep	131	$90,390	0%	0	$0	$90,390
	Standard 4 ft manhole up to 10 ft deep	4	$73,600	0%	0	$0	$73,600
	Clearing and Grubbing	0.3	$1,380	0%	0	$0	$1,380
	Local Road Repair	634	$68,827	0%	0	$0	$68,827
SSMH0008365							
	8 inch PVC pipe up to 10 ft deep	2,692	$1,386,918	0%	0	$0	$1,386,918
	8 inch PVC pipe 10-20 ft deep	1,231	$849,390	0%	0	$0	$849,390
	Standard 4 ft manhole up to 10 ft deep	12	$220,800	0%	0	$0	$220,800
	Standard 4 ft manhole 10-20 ft deep	4	$110,400	0%	0	$0	$110,400
	Arterial Road Repair	1,360	$565,542	0%	0	$0	$565,542
	Local Road Repair	836	$90,756	0%	0	$0	$90,756
SCM_West							
	8 inch PVC pipe up to 10 ft deep	1,292	$665,638	0%	0	$0	$665,638
	Standard 4 ft manhole up to 10 ft deep	7	$128,800	0%	0	$0	$128,800
CWS credits	Additional planned system projects		$6,392,000			$6,392,000	
Total Sewer Projects			**$43,434,000**			**$9,058,619**	**$34,375,837**

Parks & Trails

Source: ECOnorthwest analysis of cost data from THPRD, with input from City of Beaverton

Project	Project Size (acres)	Acquisition Cost	Development Cost	Total Estimated Cost
Neighborhood Parks				
Hilltop	3.0	$1,950,000	$4,170,000	$6,120,000
McKernan	2.0	$1,300,000	$2,780,000	$ 4,080,000
Weir	2.0	$1,300,000	$2,780,000	$4,080,000
Siler Ridge	3.0	$1,950,000	$4,170,000	$6,120,000
Skyline	2.0	$1,300,000	$2,780,000	$4,080,000
Grabhorn Meadow	3.0	$1,950,000	$4,170,000	$6,120,000
Horse Tale	2.0	$1,300,000	$2,780,000	$4,080,000
Cooper Lowlands	2.0	$1,300,000	$2,780,000	$4,080,000
High Hill Natural Area	2.0	$1,300,000	$2,780,000	$1,800,000
Subtotal Neighborhood Parks	**21.0**	**$13,650,000**	**$29,190,000**	**$40,560,000**
Community Park				
Cooper Lowlands Natural Area	3.0	$45,000	$750,000	$795,000
Cooper Lowlands	10.8	$7,020,000	$15,012,000	$22,032,000
Cooper Lowlands Amenities	–	–	$2,600,000*	$2,600,000
Subtotal Community Park	**13.8**	**$7,065,000**	**$18,362,000**	**$25,427,000**
Total Parks	**34.8**	**$20,715,000**	**$47,552,000**	**$68,267,000**
Trails	**3.6**	**–**	**$16,000,000**	**$16,000,000**
Total Parks & Trails		**$22,620,000**	**$63,552,000**	**$84,267,000**

** Potential cost of amenities, such as a synthetic field, splash pad, and other features. Specific park amenities will be determined through the planning and design process.*

Appendix B. Cooper Mountain Land Use and Revenue Assumption Details

Land Use Assumptions

The land use assumptions that informed revenue estimates are based on the Preferred Approach for the Community Plan as of June 2023, summarized in Exhibit 33. The Preferred Approach includes two commercial areas at roughly 5 acres each plus opportunities for additional commercial development in other areas. ECOnorthwest estimated the potential commercial development at between roughly 96,000 and 167,000 square feet.

Exhibit 33. Residential and Commercial Land Use Assumptions at Build Out, Cooper Mountain

Source: ECOnorthwest, City of Beaverton/MIG | APG

Land Use Assumptions	Scenario 1 (Low)	Scenario 2 (High)
Residential		
Single-Family Detached Units	2,190	2,190
Attached Units	1,450	1,450
Multifamily Units	1,340	1,340
Commercial		
Commercial SF	95,832	167,270
Employees – Low	21	43
Employees – High	50	100
Equivalent Dwelling Unit	3	5
Average Annual Production over 20 Years		
Single-Family Units	182	182
Multifamily Units	67	67
Share of Single Family Detached	60%	60%
Share of Single Family Attached	40%	40%

For the purposes of calculating SDCs that are scaled by unit size, ECOnorthwest assumed a distribution of unit sizes shown in Exhibit 34. These assumptions are based on observed development patterns in South Cooper Mountain.

Exhibit 34. Dwelling Unit Size Assumptions

Source: ECOnorthwest

Dwelling Unit Size Assumptions	Share	Count
Single-Family Detached Units		
<1500 SF	5%	109
1500–2500 SF	80%	1,752
2501-3500 SF	15%	328
>3501 SF	0%	

Dwelling Unit Size Assumptions	Share	Count
ADU	0%	
Attached Units		
<1500 SF	10%	145
1500–2500 SF	90%	1,305
2501-3500 SF	0%	
>3501 SF	0%	
ADU	0%	

Revenue Assumptions

Transportation

The City of Beaverton collects a voter-approved Transportation Development Tax (TDT) on behalf of Washington County. Rates (effective September 1, 2023) vary by dwelling unit type and commercial development use:

- Single-family Detached: $10,559
- Single-family Attached: $6,340
- Multi-family Unit: $6,935
- Retail: $14,556 per thousand square feet of gross floor area

Potable Water

The City of Beaverton currently collects a water SDC in its service area. Rates (effective September 1, 2023) vary by meter size:

- Meter size of 5/8-inch: $10,329
- Meter size of 3/4-inch: $15,493
- Meter size of 1-inch: $25,821
- Meter size of 1.5-inch: $51,643
- Meter size of 2-inches or larger: Variable; determined based on the number of Equivalent Dwelling Units (EDUs) estimated based on projected water demand.

For multi-family units, ECOnorthwest gathered data on SDC payments from recent developments in Beaverton to derive an average SDC of $2,476 per unit.

Additionally, the city charges a $499 connection fee per meter.

Non-Potable Water

The City of Beaverton does not currently collect a separate SDC for the non-potable water system.

Sewer

The City of Beaverton collects a sewer SDC, of which 96% is remitted to Clean Water Services as the service provider for wastewater. Rates (effective September 1, 2023) are $6,824 per dwelling unit or equivalent dwelling unit (for non-residential development).

Stormwater

The City of Beaverton collects stormwater SDCs to pay for the public portion of stormwater infrastructure. Under the current intergovernmental agreement with CWS, the city retains 100% of stormwater revenues. Rates (effective September 1, 2023) per unit vary by development type:

- Single-family Unit (1–2 units): $1,384
- Multifamily Unit: $1,252
- Commercial Development: $1,252

For multifamily and commercial development, Equivalent Surface Units (ESU) are calculated using assumptions about impervious surface area for those development types. One ESU is 2,640 square feet of impervious area. Multifamily developments are assumed to have 800 square feet of impervious area per unit. Commercial development is assumed to have 70% of the total site area as impervious surface, based on similar assumptions for South Cooper Mountain.

In addition, CWS charges Storm Water Quality and Storm Water Quantity fees of $238 and $291 per ESU. These fees are normally waived if an on-site Quantity or Quality system is provided.

Parks & Trails

The City of Beaverton currently collects a parks SDC on behalf of Tualatin Hills Park & Recreation District (THPRD). Rates (effective September 1, 2023) vary by the size and type of dwelling unit or based on an estimated number of employees for different types of commercial development:

- Dwelling unit < 1,500 square feet: $10,665
- Dwelling unit 1,501–2,500 square feet: $12,577
- Dwelling unit 2,501–3,500 square feet: $14,338
- Dwelling unit >3,500 square feet: $15,344
- Accessory Dwelling Unit (ADU): $5,484
- Multifamily units: $10,112
- Commercial development, per employee: $631

THPRD instructs the City of Beaverton to apply the multifamily SDC rate to attached dwelling units. For the purpose of this Funding Plan, ECOnorthwest assumed the "low" scenario for development of 96,000-square feet of retail in Cooper Mountain, with an estimate of 21 employees.

Appendix C. Funding Options Assessment, January 2021

FUNDING OPTIONS ASSESSMENT

Final Report | January 29, 2021

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Acronyms and Abbreviations

CIP	Capital Improvement Plan
CPR	Changed Property Ratio
CWS	Clean Water Services
EMP	Employees
FOA	Funding Options Assessment
GO	General Obligation
LID	Local Improvement District
MSTIP	Major Streets Transportation Improvement Program
SCM	South Cooper Mountain
SDC	System Development Charge
TDT	Transportation Development Tax
THPRD	Tualatin Hills Park & Recreation District
TSDC	Transportation System Development Charge
TUF	Transportation Utility Fee
UGB	Urban Growth Boundary

Executive Summary

Purpose

The purpose of this Funding Options Assessment (FOA) is to:

- Evaluate likely funding needs to build the "backbone" infrastructure that will serve and enable future development in Beaverton's Cooper Mountain Community Plan area;
- Document existing funding sources for this infrastructure and provide preliminary revenue projections from those sources;
- Identify potential new funding sources to consider;
- Summarize what has and hasn't worked well for infrastructure funding in other newly developing areas; and
- Lay out other considerations in evaluating funding options for inclusion in the Funding Plan.

This document is a stepping-stone in the process of producing an Infrastructure Funding Plan—the document that will set the direction for funding the infrastructure needed for development in the Cooper Mountain Community Plan area. The Infrastructure Funding Plan will be produced and adopted as part of the Community Plan, when there is more information about infrastructure costs and following input from Council and stakeholders regarding the considerations and options laid out in this document.

Key Findings and Opportunities

1. While collector roads, trails, and neighborhood parks may be delivered through private development, a number of key infrastructure projects will need to be public-sector led.

Private-sector led infrastructure is generally required as a condition of development, with cost-sharing (e.g., System Development Charge (SDC) credits) to cover the difference between the individual developer's share of the cost and the full cost of the project. (Local roads and utility lines to serve a given development are typically built by development as well but are not included as part of the "backbone" infrastructure addressed in an Infrastructure Funding Plan.) This approach has worked reasonably well for certain kinds of on-site infrastructure where costs are reasonable, credits/cost-sharing are calibrated appropriately, and the facility can be built in phases. In the case of Cooper Mountain, collector roads and community and regional trails are good candidates for a private-sector led approach. Neighborhood parks may be private-sector led if cost-sharing issues can be resolved through the Funding Plan.

Public-sector led infrastructure projects are generally programmed into a capital improvement plan and may draw on a mix of funding sources, including some that are derived from development (e.g., SDCs). The Cooper Mountain Community Plan will include a number of important projects that will likely need to be public-sector led, such as the realignment of 175th Avenue at "the kink", realignment of Grabhorn Road, a

segment of a new north-south neighborhood route / collector road across McKernon Creek, a community park, major sanitary sewer lines, a sanitary sewer pump station at Tile Flat Road, and a proposed "Resilient Stream Corridors" concept being explored by the project team. These projects require a public-sector led approach because they have benefits that extend beyond any individual development, are too costly for a private-sector led approach, will likely be built prior to development, require property acquisition across properties that may not develop right away, and / or cannot be built in segments or phases.

2. Existing funding sources that are already in use in Beaverton and Washington County will generate substantial revenue.

The existing sources that could fund needed infrastructure in Cooper Mountain include System Development Charges (SDCs) for parks, water, sanitary sewer, and storm sewer; Transportation Development Tax (TDT) and Washington County's Major Streets Transportation Improvement Program (MSTIP) for transportation; utility rates for water, sanitary sewer, and stormwater; and developer contributions. Based on the anticipated development in Cooper Mountain and existing rates, future development in Cooper Mountain could generate roughly:

- $43m in parks SDCs
- $28-29m in water SDCs
- $21-22m in sanitary sewer SDCs
- $3-4m in storm sewer SDCs
- $28-32m in TDT

New development in Cooper Mountain will also generate new property tax revenue as well as new utility ratepayers, which will increase revenue to existing funding sources that may be available to Cooper Mountain infrastructure: MSTIP (which is an allocation of Washington County's property tax revenue) and water, sewer, and stormwater utility rates (which are also used to maintain levels of service and ongoing maintenance).

3. Existing funding sources may be sufficient for some infrastructure types, though challenges remain.

Costs of needed improvements are not yet known for most infrastructure systems, but initial indications provide a foundation for identifying areas that are likely to need the most attention in the eventual Funding Plan. To date, the project team has learned that:

- Existing funding sources and financing tools may be sufficient for **water** infrastructure.
- For **sewer**, where responsibilities are shared between Clean Water Services (CWS) and the City, existing funding sources are likely sufficient for CWS's responsibilities, but not for City responsibilities given current cost-sharing arrangements.
- For **parks**, SDC funding through Tualatin Hills Parks and Recreation District (THPRD)will likely be sufficient, over the long term, given that the parks SDC rates and project list are being updated at present and will include parks needed within Cooper Mountain. However, the key challenge for parks is timing: land

acquisition needs to occur prior to or concurrent with development, and park improvements should not lag too far behind. Financing strategies may be needed by THPRD to address challenges related to the timing of available funding.

- **Stormwater management**, particularly if addressed through a novel Resilient Stream Corridors approach, is likely to need solutions in the Funding Plan.

4. New funding sources will likely be needed for transportation.

Initial cost estimates for new transportation facilities and improvements are available, but there is more work to do to determine which projects are necessary to enable development in Cooper Mountain. Until that information is available, an assessment of the funding gap would oversimplify the transportation funding needs and not be helpful. However, based on other infrastructure funding plans for similar areas, transportation is likely to be the system with the greatest funding gaps.

Some of the biggest public-sector led transportation projects may be able to obtain partial funding from MSTIP or regional/state/federal grants, if there is enough consensus around their importance. Existing funding sources will cover a portion of transportation project costs. However, additional funding sources are likely to be needed, such as a supplemental transportation SDC or Local Improvement District. Initial estimates for these tools suggest that with costs similar to those imposed in other growth areas, they could generate $27-41m through a supplemental transportation SDC and perhaps $10-20m for a Local Improvement District (LID; this would likely need to replace some of the transportation SDC costs and revenue to avoid potentially imposing too high a cost on development if the LID is placed prior to the property being sold to the consumer). Between these two options, the LID offers greater potential for accelerating funding for key projects, though it can be much more complex to administer. The Funding Plan should consider the use of these tools (and others if needed) to fund critical transportation projects. It should also consider the potential role of reimbursement districts to address timing issues with paying for shared infrastructure. For transportation, in particular, the Funding Plan should identify recommended funding sources for specific projects or groups of projects and take SDC/TDT credit policies into consideration.

5. Simply matching new and existing funding sources to projects is insufficient to achieve the goals of the Community Plan; the City must also consider equity, development feasibility, and housing affordability.

Selecting the mix of sources and pairing them to infrastructure projects will require careful consideration. Given the City's racial equity goals and intent to create an inclusive community in Cooper Mountain, the City will need to go beyond an evaluation of when funds will be available and the legal constraints and limitations on the use of funds. It will need to consider who will ultimately bear those costs and the implications on development outcomes and community development goals.

While infrastructure costs are only directly passed on to future renters and homebuyers to a limited degree (they are typically absorbed in large part by the landowners through lower land prices), they do influence the type and price-points of housing that

are financially viable for development. This can limit the range of housing options produced in a new growth area. Allowing more density can help spread fixed costs and reduce costs per unit to some extent, but additional interventions will be needed to support development of lower-cost housing options that can help create a more inclusive community.

This suggests an approach that includes:

- Development-derived sources for projects that primarily serve Cooper Mountain, with rate structures that offer savings to lower cost housing types and regulated affordable housing to the extent that they create less demand on the system in question (e.g., due to lower vehicle ownership);
- Contributions from other (non-development-derived) City-/County-/region-wide sources for projects that offer broad benefits to existing residents and/or businesses beyond Cooper Mountain;
- Limiting reliance on flat utility rates that tend to be regressive and can disproportionately impact lower-income households (usage charges tend to be less regressive); and
- Targeted funding contributions from other (non-development-derived) existing or new sources to reduce costs for affordable housing and potentially other development that supports the City's equity goals.

In preparing the Funding Plan, the City should also continue to work with developers and other public-sector partners to identify creative solutions, focus on strategies to deliver core projects in a timely manner, and maintain flexibility to respond to changing conditions.

Introduction

About the Funding Options Assessment

The Cooper Mountain Community Plan will refine planned land uses, infrastructure needs, and policies for the Cooper Mountain planning area shown in Exhibit 1. The final Community Plan will include an Infrastructure Funding Plan that lays out how major needed infrastructure improvements will be paid for. As an interim step in the process of developing the Infrastructure Funding Plan, the project team (ECONorthwest, in collaboration with Tiberius Solutions, Angelo Planning Group, consultants working on the infrastructure analysis, and City staff) prepared a Funding Options Assessment (FOA) that will inform the eventual Funding Plan.

The FOA documents detail funding mechanisms and cost-sharing policies currently in use by the City as well as the many overlapping service providers that will be involved in providing infrastructure to the area (e.g., Washington County, Tualatin Hills Park & Recreation District (THPRD), and Clean Water Services (CWS)) and identifies potential new funding tools to consider in Cooper Mountain. It also includes a review of the team's prior work on infrastructure funding for South Cooper Mountain to understand what the City of Beaverton would like to do differently this time.

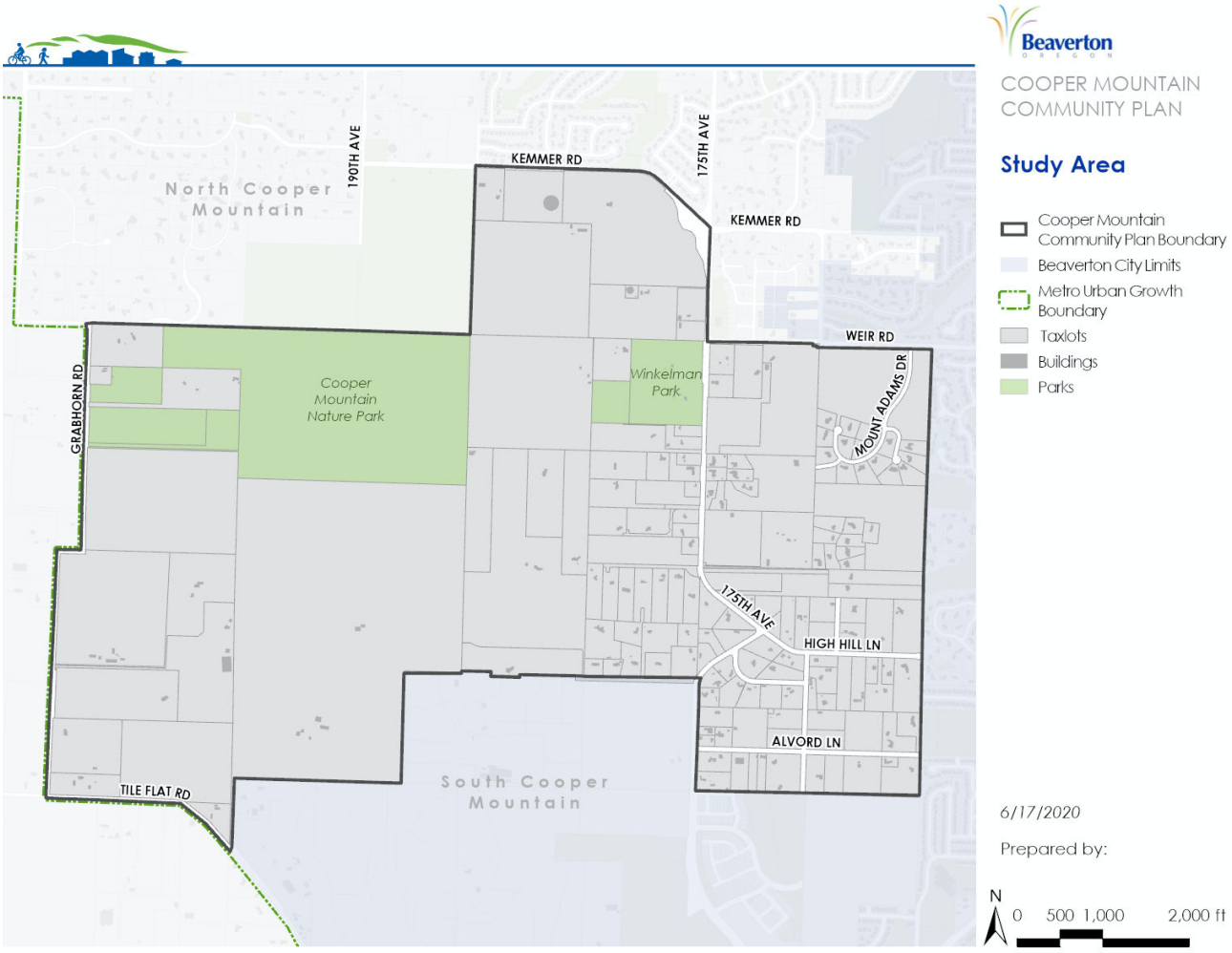
The FOA includes:

- **Lessons Learned:** A summary of what has and has not worked well in past infrastructure funding plans and in the delivery of planned infrastructure, including in South Cooper Mountain.
- **Known Infrastructure Projects and Infrastructure Funding Needs:** An outline of the infrastructure projects needed to unlock new development in South Cooper Mountain, organized by infrastructure type. This section also includes initial estimates of transportation project costs to understand the order of magnitude funding gap that will need to be overcome.
- **Existing Funding Sources and Revenue Projections:** A description of funding sources currently available to fund infrastructure in Cooper Mountain as well as an initial projection of revenue from these sources.
- **Most Promising New Funding Sources for Further Exploration:** An overview of the tools with the best potential to address the preliminary funding gap for transportation along with timing challenges in generating needed funds for infrastructure investments.
- **Funding Options Evaluation:** An evaluation of the existing and most promising funding sources identified in the FOA across several evaluation criteria.
- **Appendix A: Lessons Learned:** More details describing what has and has not worked well in past infrastructure funding plans and in the delivery of planned infrastructure.
- **Appendix B: Revenue Projection Details:** Detailed revenue projections and documentation of funding assumptions for existing revenue sources.
- **Appendix C: Broader List of Infrastructure Funding Tools:** A discussion of a range of sources that other jurisdictions have used to pay for infrastructure. This appendix documents the funding sources that were not short-listed for further exploration in the FOA.

- **Appendix D: Initial Transportation Project List:** An initial list of transportation projects in and around Cooper Mountain based on transportation planning work to date.

Exhibit 1. Cooper Mountain Planning Area

Source: City of Beaverton.



Overview: Infrastructure Delivery Approaches

This document (and the later Infrastructure Funding Plan) are focused on infrastructure that serves multiple developments, as local roads and the local infrastructure systems to serve individual developments are the responsibility of the land developers.

Infrastructure that serves multiple developments can include:

- **Streets**: neighborhood routes, collectors, and arterials
- **Water and sewer**: trunk lines, pump stations, etc.
- **Stormwater**: regional detention facilities, resilient stream improvements with integrated stormwater management (developers are responsible for water quality facilities and/or Low Impact Development approaches for their developments)

At the most basic level, there are two high-level approaches to delivering infrastructure that serves multiple developments:

- **Private-sector led**: Require land developers to build the infrastructure, and offer cost-sharing approaches (e.g., System Development Charge credits or reimbursement districts) to cover the difference between the individual developer's share of the cost and the full cost of the project. The availability and amount of credits depend on several factors, including:
  - **Location** (on-site vs off-site)
  - **Typology** (e.g., arterial, collector, or local street)
  - **Inclusion on the relevant project list** (e.g., listed on the Systems Development Charge (SDC) and/or Transportation Development Tax (TDT) project list)
  - **Credit policies** of the service provider for the SDC (or TDT)
- **Public-sector led:** Using funds from whatever sources are available and applicable (often including sources derived from development, such as System Development Charges), the public sector (City, County, or service providers) designs and builds the needed facilities.

Certain infrastructure funding tools and strategies are better suited to a private-led approach than a public-led approach, and vice versa. Thus, understanding which infrastructure projects are likely to be private-sector led versus public-sector led is an important early step developing the Infrastructure Funding Plan.

Lessons Learned

South Cooper Mountain and other recent urbanizing areas have many similarities and some differences in how they have funded and delivered shared infrastructure. This section identifies what has and has not worked well in past infrastructure funding plans and in the delivery of planned infrastructure.

Successes and Challenges: Private-Sector Led Infrastructure Funding and Delivery

Certain types of infrastructure have been successfully delivered through a private-sector led approach in South Cooper Mountain as well as other developing areas. This approach works best where:

- **Projects can be phased**: Developers often only deliver a portion of an infrastructure project needed to serve development on their site specifically. For some facilities, it is either impossible or undesirable to deliver the project in pieces, so allowing developers to build as they develop is not an option. Larger facilities that serve multiple developments and those that must be built at one time can be too costly for a single developer to construct, or may extend beyond the boundaries of the development, requiring land that the developer does not control.
- **Costs are within developers' ability to pay and aligned appropriately with credit amounts:** When up-front costs are significant or when the credit formula does not cover a high enough share of the project costs, developers may be unwilling to build the infrastructure, or may be unwilling to move forward with the development at all. Conversely, when credits account for much of what developers owe in SDCs (or TDT), this can leave little to pay for other projects, such as larger off-site infrastructure needs.

Examples where this has been largely successful include:

- In South Cooper Mountain, development has been or will be required (as a condition of approval) to build many of the on-site collector roads, with TSDC and TDT credits covering most of those costs.

Examples of issues with this approach include:

- The TSDC in South Cooper Mountain, while it has contributed to successful developer-led infrastructure delivery, has mostly been allocated to credits, leaving little available for public-sector led projects.
- In South Cooper Mountain, there were instances where developers wanted to develop property that would require extending infrastructure across a property that was not yet developed in the development process, creating phasing challenges.
- Contractors sometimes installed non-approved components and "asked for forgiveness" later, putting the City in a difficult position of having to decide whether to force the developer to remove and replace those components.
- In Pleasant Valley, the Gresham city council worked out an infrastructure agreement with several developers in 2007 in which developers would pay up front for

infrastructure and be reimbursed through SDC credits. However, the Great Recession stalled development as key developers filed bankruptcy, and the City had to revisit its funding plan, potentially moving to a public-sector led approach.[1]

Successes and Challenges: Public-Sector Led Infrastructure Funding and Delivery

Public-sector led projects must typically compete for limited funding resources. In most cases, the public sector will seek to leverage or maximize federal, state, and regional funds; however, these resources are highly competitive. Common local sources include TDT, Major Streets Transportation Improvement Program (MSTIP) funds, SDC revenues, and revenue from ratepayers. Funding public-sector led projects with existing sources that are not dedicated to the specific area requires prioritizing them over competing projects.

An alternative to relying on existing local sources is to implement new, area-specific dedicated funding sources. Building public-sector projects with area-specific dedicated funding sources can also be a challenge because of the increased costs of development, and a potential mismatch between timing of funding availability relative to when infrastructure is needed to catalyze development.

Examples of where a public-sector led approach has been largely successful include:

- Prioritizing funds from existing sources: In South Cooper Mountain and River Terrace, widening of SW 175th Avenue and Roy Rogers Road was funded through the MSTIP program, and was built prior to much of the development in South Cooper Mountain and River Terrace taking place.
- New, area-specific funding source: The City of Hillsboro implemented a Local Improvement District for transportation improvements in South Hillsboro that land developers could opt into in exchange for reduced supplemental transportation SDCs. Several major developments opted in and agreed to fund four key transportation projects totaling over $26m needed to enable development in the area.[2] While administration has been complex, this approach succeeded in delivering back-bone infrastructure earlier than would have been possible with supplemental SDC funding alone.

[1] City of Hillsboro, "Development Activity in UGB Expansion Areas," report for Metro, 4/26/2016. https://www.oregonmetro.gov/sites/default/files/2016/04/26/UGB%20Report%20for%20Metro%20FINAL%20-%20combined%2004%2026%202016.pdf

[2] South Hillsboro Local Improvement District Frequently Asked Questions, Version 1, 1/1/2018. https://www.hillsboro-oregon.gov/home/showdocument?id=22897; Letter to South Hillsboro property owners: "South Hillsboro Finance Plan update, Petition to form a Local Improvement District," January 8, 2016. https://www.hillsboro-oregon.gov/home/showdocument?id=8693

Examples of issues with this approach include:

- Prioritizing funds from existing sources: For South Cooper Mountain, the City of Beaverton had hoped that Washington County would include realigning SW 175th Avenue at "the kink" in the MSTIP-funded projects, but the project was not prioritized by the County at that time, illustrating the competitive nature of this funding source and the uncertainty of securing funding even for potentially eligible projects.
- New, area-specific funding source: In North Bethany, Washington County adopted a special service district for roads with an additional assessment to fund public-sector led transportation infrastructure improvements, along with a supplemental transportation SDC and use of MSTIP and TDT. While the new assessment district is generating funds, they are accruing slowly even with much development complete, and have made limited contributions to funding public-sector led transportation projects. The supplemental TSDC and other sources have made a larger contribution, and many key projects have been private-sector led.[3]

Keys to Developing a Successful Infrastructure Funding Plan

The project team summarized the following takeaways based on comments from listening sessions with City of Beaverton staff and with developers as well as content analysis of existing funding plans developed for new urban areas in the region.

- **Leverage City of Beaverton staff and developer expertise to find creative solutions.** The City of Beaverton should leverage their relationships with partners, continuing to provide a channel for open communication. Bringing diverse perspectives to the table can prompt innovative ideas and air concerns that will enable stronger solutions. Further, creative solutions require buy-in to safeguard long-term support for strategies documented in the plan.
- **Emphasize the importance of implementation.** Any strategy documented in the Cooper Mountain Funding Plan should strive to get core infrastructure projects delivered in a timely manner. Existing revenue and new funding mechanisms should prioritize key projects needed at the front end and backbone infrastructure needed to unlock development. If new funding tools are needed to address funding gaps, the analysis must consider *when* those tools would produce needed revenue. Funding options that enable projects to get built up front (and paid back over time) may become a key strategy in the Funding Plan.

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[3] Washington County Land Use & Transportation website, "North Bethany Funding," accessed 12/2/2020.

North Bethany County Service District for Roads, Presentation for NBCSDR Budget Subcommittee Meeting Nov. 9, 2018, "Project Status Updates and FY 19-20 Recommendations," https://www.co.washington.or.us/LUT/upload/North-Bethany-CSD-Subcommittee-Pres-11-09-18.pdf

- **Maintain flexibility to account for uncertain, future conditions.** Over the planning period, financial and economic conditions could change—new revenues from grants could become available, new tools requiring a public vote could fail, and/or Council action / policy intervention (not anticipated in this Plan) could alter the course of needed development. The Cooper Mountain Funding Plan should be designed to be implemented flexibly.

Appendix A presents additional lessons learned from South Cooper Mountain and other communities.

Infrastructure Projects & Infrastructure Funding Needs

This section identifies infrastructure project needs, by infrastructure type, based on the infrastructure analysis conducted through the end of October 2020 and project team discussions to date.

Roads

Transportation projects are anticipated to represent the most costly infrastructure project category in Cooper Mountain. Several projects have been identified that are likely to be public-sector led, including:

- **175th Avenue "kink" and urban arterial upgrades** (3-lane arterial with bicycle/pedestrian facilities)
- **Grabhorn Road realignments and urban arterial upgrades** (3-lane arterial with bicycle/pedestrian facilities)
- **Creek crossing and middle segment of "road corridor 1"** (portion of a new, planned collector road where there is unlikely to be adjacent development, and costs will be higher due to a creek crossing)

Other projects, including new neighborhood routes and collector roads through developable areas, are assumed to be private-sector led. See Appendix D for a table of projects and preliminary cost estimates.

Preliminary estimates for the cost of transportation projects (excluding shared-use paths) within Cooper Mountain add up to approximately $103m.

Trails

The project team anticipates the following categories of trail projects in Cooper Mountain:

- Regional trails
- Community trails
- Nature trails

The trail system in South Cooper Mountain and other newly urbanizing areas has been largely built through a private-sector led approach. All trails in Cooper Mountain are identified in the updated THPRD SDC project list. While only about 40% of the cost of trails are SDC credit eligible overall, THPRD applies this limit as a district average, and allows for SDC credits for the full cost of trails built with new development. In fact, private-sector led delivery is so important to THPRD in this context that THPRD has offered SDC credits based on public-sector costs—typically 25-35% more than what the project costs the developer. One possible exception to the reliance on private-sector led delivery is that nature trails in stream corridors may need to be public-sector led due to lack of adjacent development and need for coordination with other agencies around stream corridor improvements.

Two planned shared-use paths in within Cooper Mountain included in the preliminary transportation cost estimates total roughly $3m. Cost estimates for other trails are not yet available.

Parks

The project team anticipates two categories of park projects in Cooper Mountain, as outlined below. Parks in Cooper Mountain are planned to be included in the updated THPRD SDC project list.

- **Community park**: THPRD is planning for one community park, about 20 acres in size, consisting of mostly open spaces (although not necessarily fields). Funding and delivery are anticipated to be public-sector led. The project is included on the preliminary parks SDC project list for the current update process at an estimated cost of just over $27m.[4]
- **Neighborhood parks**: Four neighborhood parks in the Cooper Mountain area are included in the preliminary THPRD SDC project list for the current update process at a total cost of roughly $14.5m. [5] THPRD prefers for neighborhood parks to be delivered in cooperation with development through a private-sector led approach. However, the cost of building out these parks has been an issue with this approach, even with generous SDC credit policies. This issue will need additional work in the Funding Plan.

Preliminary estimates for the cost of park projects in Cooper Mountain add up to $41.5m.

Stormwater

The project team is developing a sub-basin strategy that considers use of resilient stream corridors for stormwater management. This approach would include habitat restoration, stream restoration, integrated stormwater management, and trails. This type of project may need to be public-sector led as it would need to be delivered top to bottom of the stream corridor, not built incrementally. While it would ideally precede development to address enhanced stormwater management and resilience practices and allow developers to build smaller individual stormwater management systems, it may be easier to implement after developers have set aside vegetated corridors in open space tracts or easements. Potential public sector partners include CWS and THPRD as well as Metro who has interest in acquiring stream corridors to extend its Nature Park.

[4] Appendix B, SDC Project List. http://www.thprd.org/pdfs2/document4510.pdf

[5] Appendix B, SDC Project List. http://www.thprd.org/pdfs2/document4510.pdf

Preliminary estimates for the cost of stormwater projects in Cooper Mountain are not available at this time, but an additional funding mechanism is likely to be needed for any shared stormwater facilities.

Sewer

Anticipated sanitary sewer projects include:

- **Sewer trunk lines:** The area generally west of 175th Avenue will require major gravity lines down the hill to a pump station; a force main will bring sewer flows back up to tie into existing sewer lines. Under current cost-sharing policies, developers pay for sewer pipes that are 8" diameter or less, the City covers the cost of upsizing from 8" to 12", and CWS covers the costs for pipes larger than 12".
- **Tile Flat Pump Station and Force Main:** The pump station and force main will be needed to serve much of the development west of 175th Avenue. CWS has this project on its Capital Improvement Plan (CIP) project list, with funding anticipated in FY 2023-2024.
- **Existing sewer line upsizing:** Areas that drain to the Summer Creek basin may necessitate the upsizing of sewer lines downstream that were never sized for this UGB expansion. This cost will likely be the City's responsibility rather than CWS based on existing sewer line sizes.

Preliminary estimates for the cost of sewer trunk lines in Cooper Mountain are not available at this time, but the cost of the pump station and force main are estimated at $3.8m in the CIP and anticipated to be funded by CWS with existing sources.

Water

Major new water lines will be needed to serve development, but funding is not expected to be a primary issue. It is anticipated that water infrastructure will be public-sector led, with infrastructure funded with water rates and financed through bonds. The City is anticipated to be the water service provider for areas that annex to the City and develop, though existing residents would continue to be served by TVWD unless they annex. Preliminary estimates for the cost of water projects in Cooper Mountain are not available at this time.

In addition, the City of Beaverton has been investing in a "purple pipe" non-potable water distribution system in the South Cooper Mountain area. The City has not developed a specific purple pipe expansion program for the Cooper Mountain area outside SCM, but future purple pipe system expansion could potentially deliver non-potable irrigation supplies in areas of future development on Cooper Mountain. While some non-potable system components were recently added to the water SDC project list, cost-sharing policies may need to be addressed if the distribution system is expanded.

Existing Funding Sources & Revenue Projections

The infrastructure funding options documented in this section include revenue sources that are *currently* available to fund infrastructure projects in Cooper Mountain. These existing sources derive from the City of Beaverton and relevant service providers.

This evaluation considers only funding sources that pay for infrastructure that adds capacity to support new growth and that serves a specific area. It is also focused on infrastructure that serves multiple developments, as the onsite infrastructure needs for a single development (e.g., local roads, water and sewer lines that serve only one property) are typically paid for in full by the developer.

Existing Funding Sources Overview

The primary existing sources of funding for infrastructure needed to support new development across most infrastructure categories in Beaverton are outlined below. These are described generally below, with details of their use for specific infrastructure funding categories following.

- **System Development Charges (SDC).** SDCs are fees paid by land developers and are intended to reflect the increased capital costs incurred by a municipality or utility as a result of a development. Existing SDCs from service providers who will serve Cooper Mountain include:
  - THPRD Parks SDC
  - City of Beaverton Water SDC
  - CWS/City of Beaverton Sanitary Sewer SDC (City retains 4 percent)
  - CWS/City of Beaverton Storm Sewer SDC[6]
- **Transportation Development Tax (TDT).** TDT is conceptually similar to an SDC but was voter approved and imposed on all development countywide.
- **Major Streets Transportation Improvement Program (MSTIP).** MSTIP is a cost-sharing program that uses property tax revenues received by the County to fund major transportation improvements across the county. Eligible projects are those that: (1) improve safety; (2) improve traffic flow/relieve congestion; (3) are located on a major road used by many residents; and (4) address demands for cars, trucks, bicycles, pedestrians, and/or transit. MSTIP projects are chosen by the Board of County Commissioners based on recommendations from city and county officials, public input, and consideration of geographic balance to ensure all parts of the county benefit from the projects.

[6] There is also a Storm Water Quality Fee-In-Lieu and Stormwater Quantity/Hydromodification Fee-In-Lieu if on-site facilities are not provided, but these are not SDCs. They are typically not applicable for new greenfield development, though that could change if the resilient stream corridors concept is implemented, as discussed further below.

- **Developer Contributions:** Developer contributions are payments or in-kind work paid by land developers to fund infrastructure that is needed to develop their properties. No specific dollar amount is projected for this source, but it typically makes up the non-credit-eligible portion of private-sector led projects. In addition to exactions required as a condition of development, development agreements can be used in some situations to establish public-private partnerships that include negotiated developer contributions for infrastructure or public amenities.
- **Utility Rates.** Water, Sewer and Storm water utility rates are generally charged to all customers connected to a given system. All area service providers that charge on-going rates also charge SDCs for new development, and SDCs are the primary source of revenue for projects to serve new development. However, rates can supplement SDCs and fund infrastructure that also serves existing customers. Existing utility rates include:

    - **Water rates.** Water rates consist of a fixed fee in addition to consumption charges that vary with usage. The City of Beaverton bills for water each month while TVWD bills every-other month. Revenues are used to operate, maintain and update the water treatment plant, transmission and distribution systems, including repair and installation of water mains, maintenance of individual water services and meters, and construction and upkeep of reservoir and well sites, in addition to paying debt service for major capital improvements that require funding beyond the capacity of SDC balances.
    - **Sewer rates.** Sewer rates consist of fixed fees and volume charges imposed by both Clean Water Services (CWS) and the City of Beaverton. Revenues are used to process wastewater, maintain the wastewater treatment plants and the sewer conveyance and distribution systems. The sewer rates are split between a regional portion and a local portion, with 84% representing the regional portion, transmitted to CWS, to pay for regional assets such as the treatment plants, and 16% for the local portion. In addition, the City of Beaverton adds a $2 surcharge to the local portion for local needs.
    - **Surface Water Management Rates.** Clean Water Services imposes a surface water management fee to maintain storm runoff facilities (including ditches, street drains, and catch basins), to provide street sweeping services, and to help clean various streams and rivers in the area. Similar to sewer rates, these rates are split between regional responsibility and local responsibility: 25% of the monthly fee is the regional portion, transmitted to CWS, and 75% is to fund local needs. In addition, the City of Beaverton adds $2 to this monthly fee to fund local needs.

Revenue Potential from Existing Sources: Initial Estimates

This section summarizes initial estimates of how much new funding development in Cooper Mountain is likely to generate given current funding tools, existing rates, and estimated future development.

Development Scenarios

To estimate financial capacity, the FOA relies on two primarily development scenarios (see

Exhibit 2). Scenarios are based on findings from the Cooper Mountain Market Study, completed as part of the broader Community Plan project. Both scenarios assume the same number of housing units will be developed in Cooper Mountain (based on the target number established by Metro as a condition of the UGB expansion), but Scenario 1 assumes a larger share of those units will be attached single-family, and multifamily units, compared to Scenario 2. Additionally, Scenario 2 assumes more retail development than Scenario 1.

Revenue projections, in upcoming sections, will be presented as a range based on the scenarios. Scenario 1 informs the low estimate and Scenario 2 informs the high estimate.

Exhibit 2. Primary Development Scenarios, Cooper Mountain

Source: Market Analysis for the Cooper Mountain Community Plan, draft September 2020.

	Scenario 1 (Low)	Scenario 2 (High)
Residential Development		
Single-family detached units	1,880	2,632
Attached units[7]	1,128	564
Multifamily units	752	564
Commercial Development		
Retail center square feet	15,000	30,000

[7] The Cooper Mountain market analysis identified a need for a limited number of duplexes, triplexes, and quadplexes (about 1% of total units in Scenario 1 and 0% in Scenario 2). The estimates for these housing types (in Scenario 1) were combined with the attached housing category.

Funding Estimates

Based on development assumptions highlighted in

Exhibit 2 and the City's / other service providers' existing fee schedules, Exhibit 3 presents a summary of financial capacity of existing revenue sources that are primarily used to pay for capital improvements needed for new development (excluding developer contributions, which are more variable)—utility rate revenue projections are not included here. Note that not all of these funds are likely to be allocated to fund infrastructure projects within Cooper Mountain; some will likely be allocated to projects elsewhere in the jurisdiction that collected the revenue.

For more details about these projections, see Appendix B.

Exhibit 3. Revenue Projections for Existing Sources of Revenue (2020 dollars), Cooper Mountain, 2021-2041

Source: ECONorthwest.

Note: values are presented in constant 2020 dollars and rounded to the thousand.

	Financial Capacity Estimate (Low)	Financial Capacity Estimate (High)
Parks SDC (THPRD rate)	$43,005,000	$43,469,000
Water SDC (updated rates, Feb. 2021)	$28,254,000	$29,439,000
Sanitary Sewer SDC (total to CWS and City)	$21,825,400	$21,837,000
Storm Water SDC	$4,056,000	$4,225,000
TDT	$28,377,000	$31,932,000
MSTIP*	$4,718,000	$4,913,000

** MSTIP estimates reflect 25% of the additional property tax revenue to Washington County over 20 years from new development in Cooper Mountain, assuming a linear phase-in of residential development over that period and commercial development in roughly year 15. This is an estimate based on past funding allocations, but the allocation is set by the Board of County Commissioners and there is no guarantee that any particular amount will be allocated to MSTIP or to projects in this area.*

Most Promising New Funding Sources for Further Exploration

This section describes new funding mechanisms that the City of Beaverton (or other parties) could use to pay for infrastructure investments in the study area. These tools are considered "new" because they are not existing citywide tools that would apply to Cooper Mountain by default; they would need to be specifically established for use in Cooper Mountain by the City Council.

While there is a long list of potential funding sources (see Appendix B), this section focuses on a short list of tools that are most applicable to Cooper Mountain. This analysis selected the following tools for evaluation because they have the most promise for generating a substantial amount of funding in a relatively short timeline and have relatively few legal and administrative challenges for implementation.

- **Supplemental System Development Charge (SDC).** A supplemental SDC is an additional one-time fee that is typically paid at the time of building permit issuance. These fees are layered on top of a City-wide SDC. These fees are paid by new development within a defined geographic area. Supplemental SDC funds may be used for SDC-eligible capital projects that increase capacity and benefit/serve the defined area. A supplemental SDC can be implemented without a public vote. The City of Beaverton imposes supplemental transportation SDCs, based on trip generation, in South Cooper Mountain.[8] (Note that a similar outcome can be achieved through area-specific fees established through development agreements at time of annexation.)
- **Local Improvement District (LID).** An LID enables a group of property owners to share the cost of a capital project or infrastructure improvement. It is a type of special assessment district where property owners within a specific area are assessed a fee to pay investments that benefit them. The amount of the assessment must be proportional to the share of benefits that a property receives. Through the LID process, cities can offer property owners the option to finance the assessment over a longer period of time by making annual payments (typically concurrent with property taxes). A lien is placed on each benefitting property that is assessed. To implement an LID, the City must adopt an ordinance through a public hearing process and the ordinance must be supported by a majority of affected property owners. State law specifies the steps to form a LID. The City of Beaverton enables LID formation in the municipal code for a variety of infrastructure types, and has specific provisions for the use of LIDs for newly developing areas.[9]
- **Reimbursement District.** A reimbursement district is a cost sharing mechanism, typically initiated by a developer, though it can be initiated by the local

[8] Rates (effective 7/1/19) are $8,968 for single-family detached homes, $5,364 for single-family attached homes, $5,875 for multifamily units, and variable rates for commercial development.

[9] See Chapter 3.02: Local Improvement Procedures. https://www.codepublishing.com/OR/Beaverton/html/Beaverton03/Beaverton0302.html

government.[10] It provides a reimbursement method to the party who pays to build an infrastructure improvement that will benefit others, through fees paid by property owners at the time the property benefits from the improvement. A developer can typically apply to create a reimbursement district by demonstrating benefit to properties beyond their own. In addition, the size of the improvement must be measurably greater than would otherwise be ordinarily required for the improvement. The City is working to develop code language to enable reimbursement districts, which is expected to be adopted in 2021. CWS has an existing ordinance addressing reimbursement districts for sanitary sewer and stormwater improvements. CWS also has a specific version of a reimbursement district that allows the agency to recoup costs for publicly-funded regional stormwater facilities that serve multiple developments as development occurs that connects to the facilities.

[10] Reimbursement districts can be both a funding source (if they pay for infrastructure that would not otherwise be funded) and a financing mechanism (in that they allow one party to lay claim to future developer contributions).

Funding Tools Evaluation

This section provides a more detailed evaluation of the existing funding sources, and most promising new funding sources that may be used to fund infrastructure in Cooper Mountain.

Overview

Key Concepts

There are several important considerations in evaluating whether a given funding option is appropriate to the situation. These include:

- Who pays, and is that fair, appropriate, and aligned with City goals for racial equity?
- When are funds available?
- What are the legal constraints and limitations on how funds can be used?

This section provides context for evaluation of potential funding tools for each of these criteria.

Who Pays?

Different funding tools draw revenue from different parties. However, the person who pays a tax or fee may not be the same person who ultimately bears the burden of that cost. Identifying who ultimately bears the cost of a tax is known as "tax incidence." This is particularly relevant for costs imposed on new development, as discussed below.

For example, are paid by developers, property taxes are paid by property owners, ongoing utility rates are paid by users of that utility, and gas taxes are paid by motorists.

Developers pay for system development charges (SDCs) and other fees and costs imposed on development, but generally absorb little or none of that cost themselves. Rather, they typically factor infrastructure funding obligations and other anticipated land development costs, along with the amount of development they expect to be able to build and the expected value and marketability of that development, into the amount they are willing to pay for land. They typically are not willing or able to accept a lower rate of return[11] to develop in an area with higher infrastructure costs unless those higher costs are mitigated by greater certainty (reduced risk). If the expected financial returns do not justify the risks of the investment in the development, the

[11]Sometimes, developers use financing or financial equity sources that require a particular rate of return, which limits their ability to negotiate changes in cost structure. However, the public sector often does not have reliable information about particular developers' required or projected rate of return or their specific financial assumptions to independently evaluate whether a given cost will push returns below an acceptable threshold.

development generally doesn't move forward. Once they have purchased land based on their expected costs of development, it is challenging for developers to pay more for infrastructure without affecting their rates of return, unless they believe they can reduce costs or increase revenues (through higher sales or rental prices or more development – see next) from other aspects of their development. Thus, when costs increase unexpectedly, development sometimes stalls until market conditions can support the higher costs.

Future homebuyers and renters may absorb some of the costs if the new housing offers compelling amenities or supply is tight. People are generally unwilling to pay more to live in an area simply because it costs more to build there; however, they often will pay more if the higher cost translates to a material improvement in the quality of the housing or the neighborhood relative to suitable lower-cost options, or if there are few other suitable choices available. In the case of greenfield development, developers may anticipate being able to charge a premium to some degree if the new area offers homes or neighborhoods with particular features or amenities that make it more attractive to prospective homebuyers or renters than other existing neighborhoods, or if there is a tight market with few alternatives for prospective buyers or renters. That premium (whether due to location, amenity, or supply constraints) can help cover some increase in development costs to build in the greenfield location, and, in that sense, a portion of the cost can be passed on to future buyers or renters, but only to the degree that the market can bear.[12] Infrastructure costs can also affect the housing options available to future homebuyers and renters by constraining the range of housing types and price-points that are financially feasible. This can make housing at lower price-points (for that type of housing) more difficult to build. However, for large, fixed costs, spreading the costs across more development means that even a small premium on a per-unit basis will cover more of the total costs. This can lead developers to emphasize higher density development, such as small-lot detached housing and townhomes, which tend to be somewhat less expensive than larger-lot detached housing.

The initial property owner typically absorbs at least a portion of the costs to develop through a reduced sales price for the land, because, as noted above, the developer attempts to account for the infrastructure funding costs in establishing an appropriate purchase price. This is especially true if there is other buildable land with lower infrastructure costs within the same market area. If the property owner is unwilling to accept the price for the land, they may choose to hold the land in anticipation of a higher price later, and no development would occur. In this situation, reduced development activity could translate to reduced housing supply, which could then drive up the price for housing in the region.

[12] If the additional costs are so high that they exceed developers' perceptions of future homebuyers' willingness to pay, the financial feasibility of the development project could be at risk.

Overall, the distribution of costs will vary based on market conditions and a variety of other factors. However, when total infrastructure costs imposed on development are too high, development simply will not occur.

Funding Fairness and Equity Considerations

The concepts of fairness and equity in public finance have several dimensions, as summarized below. The relative importance of each of these considerations above will vary based on the context.

- **Benefit-Based:** linking the fee or assessment to the benefits received. Where a public good or service provides specific private benefits, this can be appropriate, but because resources are not evenly distributed, this approach can disproportionately impact those with less resources.
- **Behavior-Based:** using taxes and fees to influence behavior (e.g., imposing a cost on an undesirable action). This can be an appropriate way to address externalities (the unintended impacts that one's actions have on others), provided the goal is defensible and the tax is clearly linked to the goal.
- **Ability to Pay:** linking the amount charged to the user's financial resources and ability to pay. This can help ensure that the costs of government goods or services "bear as nearly as possible with the same pressure upon all."[13] This is an important consideration for all funding tools, but particularly for allocating costs of goods and services that have broad benefits. However, it can be difficult to measure ability to pay (annual household income is a common proxy, but variations in what are considered essential household costs add complexity), and it does not necessarily address broader concepts of justice.
- **Distributive Justice:** structuring taxes or fees to achieve a particular redistributive goal (e.g., maximizing social welfare, minimizing the impacts of undeserved good or bad fortune, or correcting for past injustices). This may go beyond ability to pay in terms of current income to consider generational effects (e.g., wealth transfers).[14]

For purposes of this document, we group the benefit-based and behavior-based considerations as "funding fairness" and the ability to pay and distributive justice considerations as "funding equity".

In the context of an infrastructure funding plan for a new growth area, specific fairness and equity considerations include:

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[13] Mill, J. S. (1970) Principles of Political Economy. London: Penguin Books, p. 155 [Book V, Chapter. II, Section. 2]. Quoted in David G Duff, Tax Fairness and the Tax Mix (Oxford: The Foundation for Law, Justice and Society, 2008).

[14] David G Duff, Tax Fairness and the Tax Mix (Oxford: The Foundation for Law, Justice and Society, 2008). Available online at: https://commons.allard.ubc.ca/cgi/viewcontent.cgi?article=1103&context=fac_pubs

- How much growth should be asked to pay for itself? (Are current residents in a city "held harmless" in paying for the infrastructure needed for future residents?)
- How can funding mechanisms be designed to support goals related to housing affordability and inclusive neighborhoods? (For example, does imposing special assessments on new housing make it unaffordable for low- and moderate-income households?)
- How costs are shared geographically relative to benefits? (For example, are those with homes immediately adjacent to a park asked to pay more to support park development or maintenance? If a collector is needed to allow development in a particular area or neighborhood, should development only within that area pay?)

Pursuing racial equity means that the history of racially discriminatory development and housing policies in this country (including in Oregon) cannot be ignored in funding conversations. In the post-war era, the federal government subsidized infrastructure to spur suburban development across the country. Home loans in those new suburban neighborhoods were limited to white households due to redlining and discriminatory housing practices. This federally-subsidized suburban growth—including in Beaverton and other Washington County suburbs[15]—fueled racial segregation that benefited white people and hurt people of color.

Federal funding for smaller, local development projects has been challenging to come by, leaving local governments to find ways to fund infrastructure, and increasing reliance on variations of impact fees – such as SDCs – where development (growth) bears more of the cost of infrastructure. As the cost of development increases (due to multiple factors, including paying more for infrastructure), it is less likely that the market will deliver lower-cost housing options, increasing the need for subsidies or other interventions to achieve mixed income, inclusive neighborhoods.

However, reducing the infrastructure costs borne by development means either those costs must be paid by others—such as the broader population of the city or region as a whole (e.g., via city-wide taxes and fees or TDT/MSTIP)—or funding fewer projects. If the population that would absorb the costs is, on balance, less well-off than the population that will live in the new development, shifting costs to the broader population or reducing funding for projects to serve other areas would raise its own equity concerns. Thus, there are tradeoffs to consider when collecting revenues narrowly (from a specific geographic area) or widely (across a large area) and determining how much funding should come from development.

[15] Federally funded, large infrastructure projects have benefited Beaverton and Washington County – one specific example is Scoggins Dam. This Bureau of Reclamation project was 85% funded by the federal government, with the balance funded by local partners, including Beaverton. Scoggins Dam creates Henry Hagg Lake, which the area uses for summer-time water supply. Beaverton residents have received the benefit of this federal project in terms of having adequate water supply in the dry summer months without having to pay the full cost of the infrastructure.

Addressing racial equity is a top priority in the Cooper Mountain Community Plan, and, therefore, the funding strategies should reflect this priority and be integrated with planning for affordable and mixed-income housing development.

Funding Timing and Phasing Considerations

The terms "funding" and "financing" are often are used interchangeably but there is an important difference. The ultimate source of revenue used to pay for infrastructure costs is funding. Funding comes from households and businesses that pay taxes and fees that give governments money to build and maintain the system and to operate programs associated with the system. Funding is also derived from external sources – in the form of grants or developer contributions.

When funds are borrowed and paid back over time, then these costs have been financed. Public agencies finance costs for the same reasons that households and businesses do—to reduce the current out-of-pocket expense by spreading the payments over time (e.g., financing a housing purchase with a home mortgage; the funding to pay the mortgage over time typically comes from the homebuyer from income received each month from a job). The ultimate source of funding for financed costs is not the financing instrument itself—e.g., bonds—but rather the revenue sources accrued over time through rates, fees or taxes used to repay the borrowed funds.

Many funding tools used to pay for infrastructure to support growth in fact depend on growth to provide funding for the infrastructure. The timing of when monies become available will have implications for when the needed infrastructure can be built relative to when development occurs. This can have implications for system performance and for the ability for development to move forward at all. In the worst case, it can become a catch-22 where development cannot occur because the needed infrastructure is not in place and cannot be built by a single development, and there is not enough revenue to pay for the infrastructure until development occurs.

Financing can address some of these issues. For example, if a jurisdiction finances a project by incurring a loan or selling bonds, project costs can be paid for up front, and then different tools (e.g., system development charges, local improvement districts, etc.) may be used to repay the debt as revenues accrue over time. However, debt also has its own limitations such as debt capacity constraints, public vote requirements, and added costs (e.g., interest payments, legal fees). Different funding sources also offer more or less dependable streams of revenue with which to pay back the debt. Financing options may include general obligation (GO) bonds, revenue bonds, and local improvement districts. Financing projects over time increases the total cost due to interest and financing costs. However, an additional benefit to financing projects over time is that users are paying for the project after it is available and they can benefit from it.

For purposes of this "Funding Options" chapter, we focus on when the funds are typically paid to the City or service provider relative to the timing of development.

Existing Funding Sources

SDCs and TDT

- ***Legal Considerations.*** SDCs and TDT are assessed on new development. Enabling legislation provides a uniform framework that all local governments must follow to collect SDCs/TDT[16]. Local jurisdictions must adopt a method for calculating SDCs and Washington County adopts the method for calculating TDTs so that fees are set to reflect the growth-related share of the estimated cost of needed capital improvements that the fee will pay for.
- ***Timing of Revenue Availability.*** The charge is typically collected when a building permit is issued, meaning revenues must accrue over time before sufficient funding capacity is available to pay for projects.
- ***Equity Impacts.*** SDC/TDT rates typically vary by the type of development and may be established at lower rates than the maximum that is legally permissible to phase in increases or support equity and affordability objectives, though rates must be related to the impact a given type of user imposes on the system. In some cases, more dense housing options and/or housing that primarily serves lower-income households create less demand per housing unit on the system in question (for example, due to lower water demand from smaller units or homes with smaller yards, or lower vehicle ownership among lower-income households). The rate structure (the basis for apportioning costs) can and should account for this rather than using a flat per-unit fee in those cases. Some jurisdictions have established exemptions for income-/rent-restricted affordable housing; the City of Beaverton's legal advice is that under current SDC methodologies (which do not account for waivers), waivers are only legal when the fees are paid from another source rather than waived altogether. (THPRD is currently considering establishing waivers in their SDC methodology for affordable housing as part of the on-going update process.[17])
- ***Use of Funds.*** SDCs/TDTs can only fund growth-related capital improvements for water supply, wastewater collection, drainage and flood control, transportation, or parks and recreation. Each infrastructure type has its own fee. For example, a transportation SDC may only fund transportation capital projects on the City's eligible project list that informed the methodology to establish rates.

Developer Contributions

- ***Legal Considerations.*** The amount that cities can require developers to pay for or build as a condition of development must be roughly proportional to the

[16] While the TDT is referred to as a voter-approved tax, it is enabled under and subject to the same statutory requirements as SDCs.

[17] Memorandum to Jeannine Rustad, Tualatin Hills Park and Recreation District, from Galardi Rothstein Group, "Preliminary Parks Level of Service and Unit Costs," June 17, 2020. Available at http://www.thprd.org/pdfs2/document4510.pdf.

development's impacts, and there must be a clear relationship between the impact and the improvement or contribution the City is requiring. However, development agreements for infrastructure or public amenities that are not required as a condition of development and those established as part of an annexation agreement are not subject to the same requirements for proportionality as exactions required for development.

- ***Timing of Revenue Availability.*** Developers pay or make improvements at the time their development triggers the need for specific projects. This could lead to the delivery of piecemeal infrastructure and collection of revenues over time.
- ***Equity Impacts.*** Developers pay for the infrastructure investments; however, as with SDCs, the cost is largely passed on to some combination of the initial property owner and the future users of the property, depending on market conditions. For affordable housing development, the cost of infrastructure improvements can increase the subsidy needed to develop the housing, since the revenues are limited to ensure affordability and the land costs are driven by market-rate development.
- ***Use of Funds.*** Targeted to specific projects / portions of projects where a given development will have a substantial impact.

MSTIP

- ***Legal Considerations.*** MSTIP is a funding *program* adopted by the Washington County Board of Commissioners.[18]
- ***Timing of Revenue Availability***. Washington County Commissioners determine MSTIP funding amounts and project priorities on a five-year cycle.
- ***Equity Impacts***. MSTIP uses property tax revenues from across the County, and revenues are targeted to major transportation improvements that broadly serve the county. Projects within Cooper Mountain would need to demonstrate broad value to county residents to be considered for this funding source, which links the funding (all county taxpayers) to the benefits of the project.
- ***Use of Funds***. Eligible projects must meet certain criteria to receive funding. Generally, eligible projects should: provide geographic balance - benefit residents throughout the county, improve safety, remove bottlenecks, include major roads used by many residents, address multiple transportation demands (cars, trucks, bicycles, pedestrians, transit), and achieve high local government priorities. In general, the program should only be considered for improvements that would likely benefit travel between and beyond urban growth expansion areas.

[18] Technically, the MSTIP is not a funding source, because the source of funds is property tax revenue and the MSTIP is simply a program that dedicates a portion of that revenue to funding transportation projects.

Utility Rates (Water, Sewer, and Surface Water Management)

- ***Legal Considerations.*** Utility rates are legal and can be enacted by ordinance or resolution.
- ***Timing of Revenue Availability.*** Revenues are typically received monthly. Revenues grow in proportion to population/customer growth. Revenue from future customers in a growth area will come in gradually over time as development occurs and new customers begin to use the system.
- ***Equity Impacts.*** Fairness from a "user pays" perspective depends on whether the fee is flat (e.g., per household and business) or based on usage. Typically, utility rates include a combination of both a fixed portion and usage portion to help strike a balance between revenues needed to maintain the system and allowing the user to control costs through variable usage. Utility fees can disproportionately affect lower-income households because they do not consider a household's ability to pay. Utility fees with a flat rate tend to be regressive.
- ***Use of Funds.*** Utility fees are used by jurisdictions to pay for operations, maintenance and major repairs and upgrades of the system. Capital projects to serve new development may be supported by monthly rates through the payment of debt service if bonds had to be issued to construct improvements. Utility funds are limited to pay for the costs associated with the particular utility – water rates pay for the costs associated with providing water, sewer rates for the costs associated with providing wastewater treatment, etc.

New Sources and Financing Tools

Supplemental SDC

- ***Legal Considerations.*** Supplemental SDCs are subject to the same enabling legislation and legal restrictions as broad-based SDCs (described above). Fees must be calculated based on the increased demand that a new development will place on the system. (Note that these restrictions do not apply to similar area-specific fees established through development agreements at annexation.)
- ***Timing of Revenue Availability.*** The fee is typically collected when a building permit is issued, meaning revenues accrue over time, and there may be a time lag before sufficient funding capacity is available to pay for projects. For geographically-specific SDCs, this is particularly challenging because there are no funds from development occurring in other areas to provide revenue in early years.
- ***Equity Impacts.*** The equity impacts are similar to those for broad-based SDCs in terms of how costs are passed on and who is affected. However, geographically-specific SDCs target costs over a narrower base, potentially increasing the per-unit SDC relative to spreading costs across the jurisdiction, which can increase the difficulty of building affordable and low-cost housing in that area relative to other areas (assuming they are higher than or in addition to the broad-based SDC).
- ***Use of Funds.*** Like broad-based SDCs, supplemental SDCs must be tied to a specific project list for a given type of system (e.g., water, sewer, or transportation) for infrastructure improvements needed to support growth. For a geographically-

specific supplemental SDC, the projects must benefit development in that area, but need not necessarily be located within the area itself.

- ***Potential Revenue.*** While financial capacity would ultimately be contingent on the SDC rate selected and what type of infrastructure was going to be funded, a supplemental SDC for transportation is likely to be considered for the Funding Plan based on experience in other growth areas. **Based on transportation SDC rates in South Cooper Mountain, South Hillsboro, and River Terrace, residential development scenarios in Cooper Mountain alone could generate upwards of $27.3m - $41.6m (in 2020 dollars) for transportation using similar rates.** (Financial capacity is not inclusive of commercial development as rates are more variable or unknown.)

Local Improvement District

- ***Legal Considerations.*** The process to form a LID is outlined in state statute. An ordinance must be passed through a public hearing process. The assessment is determined based on the cost of the improvements being funded, the number of benefitted properties, and the apportionment method (which can vary). For residential property, the estimated assessment cannot exceed the pre-improvement value of the property based on assessor records.
- ***Timing of Revenue Availability.*** LIDs are often structured so that assessments are due upon project completion, but can be paid back over time, regardless of whether development has occurred on a given property. This can motivate landowners to develop their properties more quickly so they are not incurring costs before they have received any revenue from development. However, LIDs allow for the use of financing options, meaning they are typically established to repay a bond—allowing projects to be developed up front and repaid over time.
- ***Equity Impacts.*** This tool enables a group of property owners to share the cost of a project or public improvement that they will benefit from. The charges established by the LID should be proportional to the benefits individual property owners will enjoy. Revenues derive from a temporary assessment placed upon the property, which will impact property owners within the LID district. This cost increase could be more difficult for lower-income property owners to pay. Further, despite the financing mechanism allowing LID payments to be amortized over time, most homebuyers (and this is true for commercial property buyers as well) will use bank loans to complete their purchase, and LIDs must be paid in full before entering into a new mortgage because the LID process places a lien upon the property that has first priority, equal to property taxes, and ahead of the mortgage. Before a property changes hands, all liens must be satisfied. Thus, prospective homebuyers may (and should) factor in the cost of the LID as part of the purchase price. This could reduce the price they are willing to pay for the home, which once again is borne by the initial property owner, and has the same impacts described above for supplemental SDC's (i.e., reduced supply and changes in the types of land uses built).
- ***Use of Funds.*** Capital costs for specific projects.
- ***Potential Revenue.*** Potential revenue would be based on total project costs covered by the LID. The South Hillsboro LID noted previously is anticipated to generate roughly $26m over about 751 net acres of development. This translates to an overall average of roughly $35,000 per net acre; based on the anticipated development on those properties (including over 5,400 homes) this is estimated to

cost $4,000 to $8,000 for a single family home or $2,000 to $4,000 for a townhome.[19] **Applying similar assessments per housing unit as those imposed in South Hillsboro to the projected development in Cooper Mountain would yield roughly $10-20m from residential development (excluding multifamily)** if all development were included. However, in South Hillsboro this was offered in exchange for reduced supplemental transportation SDCs, so this estimate of potential revenue should not be considered fully additive with revenue potential from a supplemental SDC.

Reimbursement District

- ***Legal Considerations.*** Cities in Oregon can adopt a reimbursement district ordinance to provide a mechanism for developers to share project costs with those who benefit from the project. Either a developer or a service provider initially sets up the reimbursement district and pays for the improvement up front, and is paid back – reimbursed – by future developments that take benefit from the improvement. For cost sharing to occur, a reimbursement district must be formed, and benefited properties must connect to the project. These districts have a limited duration period. If benefiting properties do not connect to the project within an established period of time (10 to 30 years), then the district expires. In these instances, the initial developer or service provider who paid the upfront costs loses out on the reimbursements.
- ***Timing of Revenue Availability***. Revenues from a reimbursement district would accrue over time as development occurs. Reimbursement Districts are a financing mechanism (rather than a funding tool) and are established to pay back a land developer or service provider who fronts the funds to pay for specific projects up front.
- ***Equity Impacts***. Individual properties would only become subject to the reimbursement district charges (which would be proportional to the benefits they received) if they take benefit or connect to the project.
- ***Use of Funds***. Capital costs for specific projects. Given the uncertainty of reimbursement and the limited time in which reimbursement can be collected, reimbursement districts are best suited to projects that benefit just a few properties, all of which are likely to develop within the reimbursement period.
- ***Potential Revenue***. Potential revenue would equal the cost of the improvement, and be based on total reimbursement amounts attributable to the district. However, if the initial investment is to be made by private development (rather than public funds), this will limit the amount that can be financed in this way to what a developer can reasonably afford to pay for up front and be reimbursed for later (with some uncertainty about being fully repaid).

[19] South Hillsboro Local Improvement District Frequently Asked Questions, Version 1, 1/1/2018. https://www.hillsboro-oregon.gov/home/showdocument?id=22897.

Appendix A. Lessons Learned

The Cooper Mountain Funding Options Assessment (FOA) included identifying lessons learned from other recent funding plans. Key takeaways are summarized in the main body of the FOA. To develop this component, ECONorthwest summarized findings from:

- **Listening Session with City of Beaverton staff.** On November 2, 2018, staff from the City of Beaverton met to discuss what went well, and what could have gone better, during South Cooper Mountain (SCM) planning and implementation. Staff shared notes from this discussion with the consultant team.
- **Listening Session with Developers.** On June 23, 2020, the project team convened a listening session with developers familiar with the Cooper Mountain area. Among other topics, developers were asked about their experiences paying for and constructing infrastructure in SCM (i.e., what worked well and what did not work well). The project team also asked developers about the tools and approaches they have used in other communities that might work well in Cooper Mountain.
- **Content Analysis of Funding Plans.** ECONorthwest reviewed five existing infrastructure funding plans of newly urbanizing areas in Washington County to understand the patterns and common elements of these products, relative to the SCM Funding Plan.

The subsections below further summarize what was heard at the two listening sessions and findings from an assessment of existing infrastructure funding plans. Note that the findings listed here primarily recount the main points raised at listening sessions—not necessarily points that have consensus among staff, developers, and the consultant team. Other than the key takeaways listed in the body of the FOA, this Appendix is not intended to validate the points raised by individuals as the listening sessions.

This Appendix categorizes lessons learned in thematic categories and then by experiences gained from the South Cooper Mountain (SCM) Funding Plan project versus other funding plan projects. The three thematic categories are:

1. Funding Plan Development Processes
2. Funding Plan Elements that Improve Outcomes
3. Delivery of Infrastructure (i.e., as it relates to funding and financing)

1. Funding Plan Development Processes

Development of any funding plan involves a multi-step process that seeks resolution of a particular problem. In this case, the Cooper Mountain Funding Plan (and the interim Funding Options Assessment), will propose strategies to pay for needed infrastructure in the Cooper Mountain study area.

A typical planning development process will include several steps, such as:

- Step 1: Identify problems and needs
- Step 2: Develop goals and objectives
- Step 3: Develop alternative strategies

- Step 4: Select strategies and document them in a detailed plan
- Step 5: Design a monitoring and evaluation plan

Following a well-founded process is essential to delivering a quality product that decision makers and others can use to achieve intended outcomes.

Experiences from South Cooper Mountain

In addition to financial analysis conducted as part of the SCM Funding Plan, the Plan relied on land use scenarios and infrastructure analysis conducted as part of the larger Cooper Mountain Community Plan project. This work helped to define "needed infrastructure" and their costs.

Then, before the Funding Plan was developed, ECONorthwest and the project team consulted with public and private partners to understand who should pay for infrastructure, through what sources, and what amounts. This consultation allowed the project team to evaluate and select the strategies described in the Plan. Components of that process to maintain or adjust include:

- **Manage Open Communication.** Staff and listening session participants shared several ideas to maintain or improve communication during the planning process. In general, communication with key parties should occur at each stage in the process. Ideas included:
  - Ongoing discussions with City Council to keep them in the loop, to understand what is non-negotiable, and to get Council support early-on. Communication methods could include one-on-one meetings and work sessions.
  - Continued messaging and communication with developers. Developers were included in the SCM planning process and helped to refine and select key strategies included in the funding plan. However, it was noted that some developers rejected strategies after being part of earlier agreements. Continued discussions with developers (before, during, and after negotiations) should be encouraged as well as ongoing messaging of value propositions.
  - Continued open communication between multiple service providers (e.g., THPRD and CWS) will promote greater buy-in and will be a critical path for funding strategy alternative decisions. To manage communication, consider memorandums of understandings or timelines for agreements.
  - To manage communication, the project team could establish point persons to reach out to key parties, schedule key meetings on the outset, and develop protocols to gather input before decisions are made.
- **Balance Perspectives.** Open communication will lend itself to the collection of multiple perspectives and varying opinions. An offshoot of open communication is the practice of balancing perspectives heard when selecting funding strategies. Including developers in the determination of funding solutions was beneficial for SCM, but some members of City staff felt the results might not have been the best outcome for implementing or paying for infrastructure.
- **Determine Intent.** The funding plan should define objectives or goals, as these factors will guide the direction toward funding solutions. Staff wanted to ensure that

all parties kept the "city's interests in mind." Defining those interests can enable a common language and understanding about funding elements or processes that are non-negotiable. They can also serve as criteria for monitoring and evaluating future implementation from a funding perspective.

- **Be Cognizant of Timing.** In SCM, to comply with the Transportation Planning Rule, the project team had to wait until final zoning was established before a financial plan for roads could be completed. At the outset, the project team should identify all critical paths in the development of the funding plan (and interim FOA). Then, identify the potential barriers that could block those paths.
    - Many participants commented on the timing of the overall process, however, there was disagreement about whether planning took too long or went too quickly.

Experiences from Other Communities

- **Outreach.** Most funding plans rely on one or more public/stakeholder outreach activities, which fall under the broader, project engagement strategy. These include presentation(s) to stakeholder work groups, technical advisory committees, and task forces; online forums and public meetings; and surveys and interviews with staff and stakeholders. Communities often engage development interests through these general-purpose avenues, rather than through targeted outreach to developers alone. This may be insufficient for the Cooper Mountain Funding Plan if a robust funding strategy between several developers and the public sector is desired. In the case of South Hillsboro, however, the City worked with major landowners in the area to negotiate memoranda of understandings—used to inform future legal agreements (signed prior to annexation) specifying roles and responsibilities of each party.

2. Funding Plan Elements that Improve Outcomes

This section addresses funding plan elements—the actual content, and the organization of the content—included in the plan.

Experiences from South Cooper Mountain

- **Develop Revenue Projections.** ECONorthwest's forecast of system development charge (SDC) revenue was cited as important. Revenue projections, tied to the implementation schedule, will be an important plan element to understand the factors that may affect future revenue streams as well as the amount of money that could be available at key milestones.
- **Acknowledge Non-Capital Costs.** Ongoing operations and maintenance costs (O&M) was not a cost component considered in the SCM Funding Plan. However, a participant felt that the City should look ahead to how those will be addressed, including whether maintenance should be managed by Homeowners Associations or the City.
- **Consider a Range of Funding Tools and Programs.** The SCM funding plan relied on SDCs to fund the various infrastructure funding gaps. The appropriate funding tools

and programs will likely vary by infrastructure type. Funding tools considered in other funding plans included: utility fees, local improvement districts, reimbursement districts, general obligation bonds, and urban renewal (tax increment financing). Further, the Plan may consider implementing reimbursement districts, or other fees that allow projects to be built up front and paid back over time. Listening session participants were also interested in mechanisms that could fund joint projects between several developers and the public sector.

- **Connect the Dots.** Several participants explained that it was helpful to understand how the SCM Plan linked to other planning documents. The funding plan could provide a crosswalk to communicate which infrastructure projects are listed (or will be listed) in relevant master or facilities plans, the Capital Improvement Program (CIP), the Transportation System Plan (TSP), etc. This crosswalk could become helpful in later stages of development as land is acquired and projects are delivered.
- **Incorporate Next Steps.** Participants mentioned, that in some cases, the City planned but did not implement. The City may need strategies to ensure implementation continues, such as by establishing new programs or implementation tools. The SCM Funding Plan concluded with implications, but it may be helpful for the Cooper Mountain Funding Plan to also include recommendations for next steps or a flexible/non-binding action plan to organize workflow for the next 10 years.
- **Assign Responsibilities.** The SCM Funding plan identified general funding responsibilities. For instance, funding tables documented the amount of money likely to derive from developer contributions, SDC ratepayers, or the City via TDT and MSTIP allocated dollars. To ensure implementation of next steps is further formalized, the plan of action could identify specific parties to lead key charges. For example, who (what department) will handle public outreach if new taxes are needed that require a public vote? Who will coordinate with Metro, property owners, stakeholders, and/or service providers? Who will coordinate amongst City staff to ensure infrastructure is delivered on time, and projects are communicated consistently to external audiences?

Experiences from Other Communities

- **Include Funding Tool Evaluations.** A participant in the Cooper Mountain listening session mentioned a need for more funding tools to share costs among different parties. Another participant mentioned that system development charges cannot be solely relied on to cover infrastructure costs. Many funding plans use evaluations to weigh the tradeoffs of multiple fee and/or tax-based funding tools that could be implemented to cover infrastructure funding gaps. A funding tool evaluation could be included in the FOA to identify a larger set of tools that could cover total costs—and that spread the burden of payment around more equitably. It can also be used to explore and vet tools that appear attractive to many parities, such as the reimbursement district.

3. Delivery of Infrastructure

Here, delivery of infrastructure relates to the ability of selected funding strategies to get projects built on schedule. In this sense, and among other considerations, one must

consider the availability of funds throughout a given time period and the eligibility of revenue sources or other strategies to fund specific projects and their costs.

Experiences from South Cooper Mountain

- **Focus on Backbone Infrastructure Needed at the Front-End.** Backbone infrastructure include the core elements and connections of the infrastructure network. Listening session participants stressed the importance of making sure backbone infrastructure is accessible and delivered in the front-end. This suggests that available funds should be funneled to these projects as a first priority. For example, Cooper Mountain will need trunk lines, which are very expensive. If those projects are delivered early, they will begin generating revenue from the development that was able to move forward.
- **Time Annexations Appropriately.** The City has an opportunity to get zoning, funding tools, and developer/intergovernmental agreements in place before annexation and development occurs to ensure smooth implementation of the plan, but some funding methods might require land to be inside the city. Understanding these opportunities, constraints, and timing annexations will be important to the success of the plan's implementation.

Experiences from Other Communities

- **Explore State and Federal Transportation Funding Programs**. Transportation funding programs include Oregon's Pedestrian and Bicycle Program, Transportation Enhancements Program, Transportation Improvement Program, and Immediate Opportunity Fund as well as Federal Regional Flexible Funds Allocation (administered by Metro). In some cases, the request of these programmatic funds would require that Cooper Mountain transportation infrastructure be included in the City's TSP. Historically, however, these State programs have not been entirely fruitful for Oregon cities that are planning for greenfield, residential development. These State funding sources will not likely provide a substantial amount of funding for Cooper Mountain.
- **City-initiated Projects.** In the case of Wilsonville Frog Pond, after difficult negotiations, the City of Wilsonville agreed to build a catalyst frontage improvement and defer a park improvement until a threshold number of homes were permitted. Development is reimbursing the City of Wilsonville through a supplemental infrastructure fee (paid on a per house basis). This strategy provided greater certainty on timing of improvements.
- **Consider the tradeoffs of Districts.** Local improvement districts (LIDs) and Reimbursement Districts are common tools that cities use for infrastructure funding. Listening session participants noted that broad-based LIDs can be very complex or straightforward (depending on their structure). In the case of South Hillsboro, an LID for transportation and other infrastructure was used and applied on individual lots; developers found it complicated to work out the details and administer. (ECONorthwest has been supporting efforts to update the South Hillsboro LID assessments as zoning and land use plans shift through the course of development, highlighting one challenges with this approach.) Participants also noted that the Reimbursement District tool is not included under the current City Code.

Appendix B. Revenue Projection Details

ECONorthwest and Tiberius Solutions developed revenue projections for existing funding sources that are primarily used to pay for capital improvements needed for new development (excluding developer contributions, which are more variable). Preliminary results are documented below.

Parks and Trails Infrastructure: SDCs

The City of Beaverton collects a parks SDC on all new development in the City on behalf of THPRD.[20] Fee rates (effective 7/1/19) vary by area, as outlined below.[21] An estimate of revenue from development in Cooper Mountain for parks SDCs is presented in

[20] THPRD allows applicants to apply for SDC credits for qualified public improvements, donation or contribution of land or construction of park or recreation facilities on the district's SDC-CIP list. For more information: http://cdn1.thprd.org/pdfs2/document17.pdf

[21] THPRD is in the process of updating SDC rates. This section will be updated when the new rates are released.

Exhibit 4.

- **In all park district areas, except the South Cooper Mountain area,** the rate is $11,895 per new one- and two-family dwellings and $9,595 per new multifamily dwelling, and $397 per employee for new commercial development.
- **In the South Cooper Mountain area,** the rate is $13,905 per one- and two-family dwellings, $11,097 per multifamily dwelling, $8,193 per new unit in a senior housing development, and $397 per employee in a new commercial development.[22]

[22] THPRD is considering discontinuing the SDC overlay for South Cooper Mountain, per a technical memorandum from Galardi Rothstein Group dated June 17, 2020 (available at http://www.thprd.org/pdfs2/document4510.pdf).

Exhibit 4. THPRD Parks SDC Revenue Potential (2020 dollars), Cooper Mountain, 2021-2041

Source: ECONorthwest.

Note: values are presented in constant 2020 dollars and rounded to the thousand.

	Citywide Rates		SCM Rates	
	Scenario 1	**Scenario 2**	**Scenario 1**	**Scenario 2**
Residential Development				
Single-family detached units	$22,363,000	$31,308,000	$26,141,000	$36,598,000
Attached Units	$13,418,000	$6,709,000	$15,685,000	$7,842,000
Multifamily	$7,215,000	$5,412,000	$8,345,000	$6,259,000
Commercial Development[23]				
Low EMP Density	$9,000	$17,000	$9,000	$17,000
High EMP Density	$20,000	$40,000	$20,000	$40,000
Total (with low EMP density)	**$43,005,000**	**$43,446,000**	**$50,180,000**	**$50,716,000**
Total (with high EMP density)	**$43,016,000**	**$43,469,000**	**$50,191,000**	**$50,739,000**

[23] Low and high employment (EMP) density assumptions are: 21 and 50 employees in Scenario 1 and 43 and 100 employees in Scenario 2 (based on THPRD Parks SDC Worksheet, square foot per employee range of 700 and 300 square feet per employee).

Water Infrastructure: SDCs

The City of Beaverton will be responsible for providing water service to the Cooper Mountain planning area. The City of Beaverton currently collects a water SDC in their service area. Rates (effective 7/1/19) vary by meter size:

- Meter size of 5/8-inch: $6,255 per new residential dwelling unit and commercial connection (plus $124 per meter).
- Meter size of 3/4-inch: $9,007 per new residential dwelling unit and commercial connection (plus $140 per meter).
- Meter size of 1 inch: $16,013 per new multifamily dwelling unit and commercial connection (plus $186 per meter).
- Meter size of 2 inches or larger: SDC rate is variable on all new development (plus $365 per 1.5-inch meter, $476 per 2-inch meter, and variable for meters that are 3-inches or larger).

However, on July 14, 2020 the City adopted a new citywide SDC methodology for its water system.[24] On August 4, 2020, Beaverton's City Council adopted a resolution establishing the new Water SDC rates. The new Water SDC rates (effective February 1, 2021), will vary by meter size, and are:[25]

- Meter size of 5/8-inch: $8,774
- Meter size of 3/4-inch: $13,161
- Meter size of 1-inch: $21,935
- Meter size of 1.5-inch: $43,870
- Meter size of 2-inches or larger: Variable; determined based on the number of Equivalent Dwelling Units (EDUs) estimated based on projected water demand.

An estimate of revenue from development in Cooper Mountain for water SDCs is presented in Exhibit 5.[26]

[24] Beaverton City Council may grant credits against the water improvement SDC (imposed by the resolution adopting the revised SDCs (August 4, 2020)), for qualified public improvements as defined in ORS 223.304 on certification by the City Engineer that the improvement(s) qualify for that credit.

[25] Rates provided by the City of Beaverton.

[26] Financial capacity for single-family detached and attached units assumes a 5/8-inch meter per unit. Financial capacity for multifamily units is based on an assumed average SDC rate per unit of $2,476. The rate is informed by previous water SDC payments on multifamily development comparables (provided by the City of Beaverton). Financial capacity for commercial development is based on a scenario in which the retail center comprises one 1-inch meter (Scenario 1) and a scenario in which the retail center comprises one 1.5-inch meter (Scenario 2).

Exhibit 5. Water SDC Revenue Potential (2020 dollars), Cooper Mountain, 2021-2041

Source: ECONorthwest.

Note: values are presented in constant 2020 dollars and rounded to the thousand.

	Scenario 1	Scenario 2
Residential Development		
Single-family detached units	$16,495,000	$23,093,000
Attached units	$9,897,000	$4,949,000
Multifamily units	$1,862,000	$1,397,000
Commercial Development		
Retail Center	$22,000	$44,000
Total	**$28,254,000**	**$29,439,000**

Sanitary Sewer Infrastructure: SDCs

The City of Beaverton collects a sanitary sewer SDC on behalf of CWS. The City retains four percent of SDC revenues from this source, the remaining 96 percent is remitted back to CWS. The connection rate (effective 7/1/19) is $5,800 per new dwelling unit and per equivalent dwelling unit for new commercial development.

An estimate of financial capacity for sanitary sewer SDCs is presented in Exhibit 6.

Exhibit 6. Sewer SDC Revenue Potential (2020 dollars), Cooper Mountain, 2021-2041

Source: ECONorthwest.

Note: values are presented in constant 2020 dollars and rounded to the thousand.

	Scenario 1	Scenario 2
Residential Development		
Single-family detached units	$10,904,000	$15,266,000
Attached units	$6,542,000	$3,271,000
Multifamily units	$4,362,000	$3,271,000
Commercial Development		
Retail Center	TBD	TBD
Total	**$21,808,000**	**$21,808,000**

Stormwater Infrastructure: SDCs

The City of Beaverton collects and retains the Stormwater SDC imposed by CWS. Rates (effective 7/1/19) vary by development type, as outlined below. An estimate of financial capacity for stormwater SDCS is presented in Exhibit 7.

- **New residential development:** $1,252 per Equivalent Service Unit (ESU) of created impervious area on non-right-way property.
- **New commercial development:** $1,252 for each 2,640 square feet of newly created impervious surface.

In addition to the $1,252 per ESU fee, stated above, the City of Beaverton imposes a $238 Storm Water Quality Fee and a $291 Storm Water Quantity Fee. These two fees are waived if onsite detention and water quality infrastructure is constructed. The $1,252 SDC fee is never waived.

Exhibit 7. Stormwater SDC Revenue Potential (2020 dollars), Cooper Mountain, 2021-2041

Source: ECONorthwest.

Note: values are presented in constant 2020 dollars and rounded to the thousand.

	Scenario 1	Scenario 2
Residential Development		
Single-family detached units	$2,354,000	$3,295,000
Attached units	$1,412,000	$706,000
Multifamily units[27]	$285,000	$214,000
Commercial Development		
Retail Center[28]	$5,000	$10,000
Total	**$4,056,000**	**$4,225,000**

[27] Estimate is based on sq. ft. of impervious surface. The estimate relies on assumptions from the South Cooper Mountain Funding Plan: 43.56 multifamily units per acre and an assumed 80 percent impervious sq. ft. per acre factor.

[28] Estimate is based on sq. ft. of impervious surface. Per the Cooper Mountain Market Study, the estimate relies on an assumed Retail Center area of 1-acre for Scenario 1 and 2-acres for Scenario 2. The estimate relies on an assumption from the South Cooper Mountain Funding Plan: an assumed 70 percent impervious sq. ft. per acre factor.

Traffic Development Tax (TDT)

The TDT tax rate (effective 7/1/19) is $8,968 per new one-family dwelling unit, $5,364 per new two-family dwelling unit, $6,064 for new multifamily dwellings, and variable for commercial development (e.g., see Exhibit 8). The City keeps TDT revenues collected within city limits; revenues must be spent on projects identified on the TDT-eligible project list.

Exhibit 8. Washington County TDT Land Use Categories and Rates

Source: Washington County.

Land Use Categories	ITE Code	Unit	Rate
Health/Fitness Club	492	per TSFGFA	$9,128
Recreation/Community Center	495	per TSFGFA	$10,765
Specialty Retail	814	per TSFGLA	$12,300
Pharmacy/Drugstore w/out Drive-Thru	880	per TSFGFA	$13,805
Quality Restaurant (not a chain)	931	per TSFGFA	$27,443
Bank/Savings: Walk-in	911	per TSFGFA	$28,581
High Turnover, Sit-Down Restaurant (chain or stand-alone)	932	per TSFGFA	$23,021
Medical-Dental Office Building	720	per TSFGFA	$32,960

An estimate of financial capacity for TDT is presented in

Exhibit 9.

Commercial development rates (secondary development assumptions) are based on the minimum (low), average (medium), and maximum (high) rates outlined in Exhibit 8. These rates were selected based on an assumed tenant mixture identified in the Cooper Mountain Market Study.

Exhibit 9. Transportation Development Tax Revenue Potential (2020 dollars), Cooper Mountain, 2021-2041

Source: ECONorthwest.

Note: values are presented in constant 2020 dollars and rounded to the thousand.

	Scenario 1	Scenario 2
Residential Development		
Single-family detached units	$17,426,000	$24,396,000
Attached units	$6,254,000	$3,127,000
Multifamily units	$4,560,000	$3,420,000
Commercial Development		
Retail Center	*(Secondary development assumptions below)*	
Assumed rate: Low	$137,000	$274,000
Assumed rate: Medium	$296,000	$593,000
Assumed rate: High	$494,000	$989,000
Other Development		
Parks	TBD	TBD
School Facilities	TBD	TBD
Total, with		
Low Commercial	**$28,377,000**	**$31,217,000**
Medium Commercial	**$28,536,000**	**$31,536,000**
High Commercial	**$28,734,000**	**$31,932,000**

MSTIP

MSTIP is a discretionary allocation of general fund / property tax revenue by Washington County that varies from year to year. There is no guarantee that any property tax revenue derived from development in Cooper Mountain will be spent on projects in Cooper Mountain. There is no way to accurately predict at this stage whether and how much MSTIP funding might be available for transportation projects in Cooper Mountain, but it will be based on the projects themselves, not revenues derived from development. However, to provide a point of reference in discussions with the County about allocating future revenue to projects in Cooper Mountain, the calculations below estimate how much new development in Cooper Mountain may contribute to available MSTIP funds. The MSTIP estimates below reflect 25% of the additional property tax revenue to Washington County over 20 years from new development in Cooper Mountain (based on past funding allocations), assuming a linear phase-in of residential development over that period and commercial development in roughly year 15. An estimate of potential new revenue from Cooper Mountain available for the MSTIP program is presented in Exhibit 10. Revenue projection details for Scenario 1 and 2 are presented in Exhibit 11.

Exhibit 10. MSTIP New Revenue Potential Summary (2020 dollars), Cooper Mountain, 2021-2041

Source: ECONorthwest.

Note: values are presented in constant 2020 dollars, based on cumulative revenue over time, and rounded to the thousand. [29]

	Scenario 1	Scenario 2
Residential Development		
Single-family detached and attached units	$4,367,000	$4,640,000
Multifamily units	$343,000	$257,000
Commercial Development		
Retail Center	$8,000	$16,000
Total	**$4,718,000**	**$4,913,000**

[29] The estimate is based on assumptions for total assessed value, assuming a linear development trajectory, Washington County's 2019-20 Change Property Ratios, a County millage rate of $2.248 per $1000 of assessed value based on 2020-2021 tax rates, and a 25% share of annual property tax revenues being allocated to the MSTIP program based on past trends.

Exhibit 11. MSTIP Revenue Potential, Scenario 1 and 2 Details, (2020 dollars), Cooper Mountain, at Buildout and 2021-2041

Source: ECONorthwest.

	Units at Buildout	Est. Real Market Value per Unit or SF	Total Real Market Value at Buildout	CPR	Assessed Value at Buildout	Property Tax Revenue to Wash. Co., Annual at Buildout	Estimated MSTIP Share	MSTIP Allocation, Annual at Buildout	MSTIP Allocation, 20-year total
Scenario 1									
Residential Development									
SFD/SFA Units	3,008	$400,000	$1,203,200,000	0.623	$749,593,600	$1,685,386	25%	$415,940	$4,367,000
Multifamily	752	$220,000	$165,440,000	0.356	$58,896,640	$132,423	25%	$32,681	$343,000
Commercial Development									
Retail center	15,000	$250	$3,750,000	0.639	$2,396,250	$5,388	25%	$1,330	$8,000
Total			**$1,372,390,000**		**$810,886,490**	**$1,823,197**		**$449,951**	**$4,718,000**
Scenario 2									
Residential Development									
SFD/SFA Units	3,196	$400,000	$1,278,400,000	0.623	$796,443,200	$1,790,723	25%	$441,936	$4,640,000
Multifamily	564	$220,000	$124,080,000	0.356	$44,172,480	$99,317	25%	$24,511	$257,000
Commercial Development									
Retail center	30,000	$250	$7,500,000	0.639	$4,792,500	$10,775	25%	$2,659	$16,000
Total			**$1,409,980,000**		**$845,408,180**	**$1,900,816**		**$469,106**	**$4,913,000**

Appendix C. Broader List of Infrastructure Funding Tools

This appendix presents a range of sources that other jurisdictions have used to pay for infrastructure.

Based on discussions from the City of Beaverton and previous listening sessions, the Funding Options Assessment (FOA) evaluated a short-list of most promising new funding tools. That evaluation is presented in the main body of the FOA.

The broader list of possible tools is outlined below (in Exhibit 12), which does not include the short-listed options. It excludes grant-based sources as these are outside local control and are difficult to predict. Exhibit 12 also includes a qualitative assessment of financial capacity ($-$$$).

Exhibit 12. Infrastructure Funding Tools

Source: ECONorthwest.

Funding Tool	Description	Potential Financial Capacity
Fuel (or gas) tax	This is a tax on the sale of gasoline and other fuels, typically levied as a fixed dollar amount per gallon. Under ORS 319.950, a local gasoline tax may be levied by a city, county, or other local government after a public vote. Revenues from a gas/fuel tax funds can be used for transportation construction, repair, maintenance, preservation, bike/pedestrian improvements, and sidewalks. At present, this tool is not short-listed. If the City did impose a citywide fuel tax, it should fund a wider range of citywide transportation priorities, given the requirement for a public vote. Paying for transportation infrastructure to serve new development is a tough sell when existing residents are the ones voting. In addition, while the cost of gas is currently lower than it has been in the past, adding to the cost of gas has traditionally frustrated the public, making this a relatively controversial tax to levy. **At best, the fuel tax might be an appropriate way to fund one or two major projects in Cooper Mountain, if implemented as part of an overall transportation funding package citywide, e.g. following a TSP update.**	$$$ A citywide fuel tax has the potential to generate substantial revenue; however, financial capacity would be contingent on the voter approved rate.

Funding Tool	Description	Potential Financial Capacity
General Fund allocation	The general fund is technically not a funding tool, but an account that all local governments have, where a variety of unrestricted revenue sources are collected (e.g., property taxes, business license fees, franchise fees, etc.). General funds tend to be dedicated to carry out the ordinary operations of cities, but these funds may be used for capital expenses as well. At present, this option is not short-listed. Local jurisdictions rely heavily on general fund revenues to fund all types of critical services, such as police and fire. Most jurisdictions have insufficient general fund revenues to fund these core services at their desired levels. Diverting these revenues to the project list in Cooper Mountain may not be politically feasible. However, **this option could be worth exploring in the context of advancing equity goals (e.g. to pay SDCs, TDTs, or required infrastructure improvements for affordable housing developments in Cooper Mountain), rather than to pay for infrastructure improvements more broadly. However, it is important to note that trade-offs to services would be carefully considered by Beaverton City Council.**	$ - $$$ Financial capacity is contingent on fiscal policy direction. An allocation to infrastructure in Cooper Mountain would require equivalent cuts to other programs.
Local option levy (property tax)	Local option levies are temporary property tax increases, approved by voters. Local option levies cannot exceed five years if used to fund operations/maintenance and 10 years if used to pay for capital projects. However, the levy can be reviewed and extended, if the public continues to vote in favor of the levies. At present, this tool is not short-listed. It is subject to a public vote, implying this tool could be reconsidered if the public believes its use in Cooper Mountain is a fair use of funds for projects with a citywide benefit. Similarly to the fuel tax, **this option could be reconsidered to fund one or two major projects in Cooper Mountain, if implemented as part of an overall transportation funding package citywide, e.g. following a TSP update.**	$$$ Although voter-approved local option levies (whether for operations/maintenance or for capital projects) are the first to be impacted by compression[30], a local option levy has the potential to generate substantial revenues.

[30] Because of the complexities of Oregon's property taxation system, in some situations, adding new taxes does not always reliably result in net new revenue for local government operations. This occurs because of compression, or a mandatory reduction of property tax revenues to comply with state law when certain thresholds are exceeded.

Funding Tool	Description	Potential Financial Capacity
Parking fee	Parking revenues can be raised from both operations (e.g., parking meters or publicly owned parking lots) and fines. There are no legal restrictions on what parking revenues can be used for. **This tool is excluded from further analysis** as revenues would be insufficient to contribute meaningfully to infrastructure costs in Cooper Mountain. Cooper Mountain is a greenfield area and there is nowhere in the surrounding area where people have to pay for parking (except maybe for reserved or covered parking in apartment complexes which does not generate public revenue). Residential permit parking also has no precedent in the surrounding areas and would make the area less desirable than the other neighborhoods nearby.	$ It is not feasible to impose parking rates to a high enough level to make a meaningful contribution. Parking fees work in high-demand downtown commercial areas.
Sales tax	A tax on retail sales, typically added to the price at the point of sale. Oregon does not currently have a sales tax, though nothing precludes cities from adding one of their own. Is possible for a city to adopt a tax on specific items, such as the sale of motor vehicles, rental cars, bicycles, prepared food and non-alcoholic beverages, etc. **This tool is excluded from further analysis** for political reasons; numerous sales tax proposals have been defeated at the polls by wide margins. In addition, sales tax is generally considered regressive because low-income people pay a higher percentage of their income than high-income people.	$$-$$$ While sales taxes are traditionally unpopular in Oregon, they have the potential for generating substantial revenues. Revenue capacity would, however, be more limited, if the sales tax is applied to a specific subset of goods.
Service or special district	Area residents vote to establish a district which levies a property tax to provide specific public improvements within the boundaries of a city or drainage district. All revenues derived from levying a higher property tax rate is limited to the properties within the district boundary. Revenues cannot be transferred or loaned for other purposes. **This tool is excluded from further analysis** as it would be inefficient to create a new taxing authority with its own administration, and existing districts, including CWS and THPRD, are anticipated to provide service in this area. This tool was implemented for roads in North Bethany, which is an unincorporated area, but it has generated little revenue for projects.	$$ Financial capacity is contingent on the property tax rate selected). Capacity is limited to the properties within the district boundary.

Funding Tool	Description	Potential Financial Capacity
Tolls	Tolling is allowed on Oregon roads to fund transportation projects. **This tool is excluded from further analysis** as the roads in and around Cooper Mountain are unlikely to be good candidates for tolling or to receive public support for this option. In addition, the administrative burden and implementation costs would outweigh the benefits.	$ High revenue yields are produced in high-speed limited access corridors, service in high-demand corridors, and bypass facilities to avoid congested areas.
Transient lodging tax	The City of Beaverton imposes a four percent city-wide lodging tax. The City uses revenue to promote tourism in connection with the Patricia Reser Center for the Arts. However, 30% of revenue generated from this source may be flexibly used to pay for costs that are not tourism related. Tax rates vary by jurisdiction, and the City could consider a higher tax rate. **This tool is excluded from further analysis** as there is not a direct connection between the amount of transient lodging tax someone pays, and the benefits they receive from certain types of infrastructure. This option could be reconsidered to pay for public art, outstanding trails, or pocket parks with views – things that might appeal to tourists visiting the Cooper Mountain Nature Park and draw people to the area.	$-$$ The City of Beaverton imposes a four percent lodging tax, which generated about $1.2 million in 2018. An additional increase in the tax rate could increase, and even double, this source's financial capacity. However, the hospitality industry is suffering, so increasing the tax rate would not be advisable in the near-term.
Transportation Utility Fee	A transportation utility fee (TUF) is a charge assessed to all businesses and households in a jurisdiction or area. In Oregon, cities can enact a TUF by ordinance. The fee may be flat or based on trip generation and the rate may vary by development type. The fee may be paid by households, businesses, and/or commercial property owners within the area in which the fee is imposed. The fee is typically collected monthly, but it could be collected seasonally or annually, etc. Revenues received from the TUF are flexible – they could be used for construction, repair, maintenance, preservation, operations, and administration of the transportation system. At present, this option is not short-listed but may be revisited depending on the magnitude of the transportation funding gap.	$-$$$ Financial capacity is contingent on the fee rate selected and the geographic range in which the fee applies.

Exhibit 13. Infrastructure Financing Tools

Source: ECONorthwest.

Financing Tool	Description
General obligation bond	General obligation (GO) bonds are a voter-approved, temporary increase in property tax rates. Proceeds from GO bonds can only be used for capital projects. State law allows local governments to issue general obligation debt for infrastructure improvements. GO bond levies typically last for 20 to 30 years for and must be approved by a public vote.
Revenue bond	Following a 60-day noticing procedure, a City can issue revenues bonds via a resolution, unless the public petitions (with sufficient, valid signatures) to refer the bond to a public vote. An expected source of revenue for bond repayment must be identified.

Appendix D: Transportation Project and Cost Estimates

The project team has determined preliminary cost estimates for transportation projects in and adjacent to Cooper Mountain. Costs estimates are identified in 2020 dollars, using a mid-point cost estimate, in Exhibit 14. More work remains to determine which projects need to be funded to enable development of Cooper Mountain. Some of the off-site projects may be removed from this list for the final funding plan, and additional projects may be identified through subsequent analysis.

Exhibit 14. Summarized Transportation Costs Estimates (2020 dollars), Cooper Mountain

Source: DKS Associates

Project ID	Project Name	Project Type	Within Cooper Mountain	TDT Project	Jurisdiction	Project Summary	Total Estimated Cost - Mid (2020)*
1	Extend 185th Avenue from Gassner Road to Kemmer Road as a 3-lane County arterial.	Roadway - arterial	No	No	Washington County	New Street Extension	$6,625,863
3	Realign the curve along Grabhorn Road near Stone Creek Drive, as a 3-lane County arterial.	Roadway - arterial	Yes	No	Washington County	New Street Extension	$5,262,730
4	Realign the curve along Grabhorn Road north of Tile Flat Road, as a 3-lane County arterial.	Roadway - arterial	Yes	No	Washington County	New Street Extension	$3,370,448
5	Realign Grabhorn Road east to provide a through connection with Tile Flat Road, as a 3-lane County arterial.	Roadway - arterial	Yes	No	Washington County	New Street Extension	$5,418,023

Project ID	Project Name	Project Type	Within Cooper Mountain	TDT Project	Jurisdiction	Project Summary	Total Estimated Cost - Mid (2020)*
8a	Create a new north-to-south 2-lane City collector street between Grabhorn Road and the UGB, just south of the Alvord Lane Extension	Roadway - collector	Yes	No	Beaverton	New Street Extension	$10,887,811
9	Improve the Rigert Road/170th Avenue intersection.	Intersection	No	No	Washington County	Intersection Improvement	$2,300,647
11	Improve the Scholls Ferry Road/ Horizon-Teal Boulevard intersection.	Intersection	No	No	Washington County	Intersection Improvement	$575,162
13b	Improve Grabhorn Road from the UGB, north of the new east-to-west Collector Street, to the UGB, near Stone Creek Drive, as a 3-lane County arterial.	Roadway - arterial	Yes	No	Washington County	Improve to 3 lanes	$4,796,849
13c	Improve Grabhorn Road from the UGB, near Stone Creek Drive, to Gassner Road, as a 3-lane County arterial.	Roadway - arterial	No	Yes - 1091	Washington County	Improve to 3 lanes	$4,986,652
14b	Improve 175th Avenue from the UGB, north of Alvord Lane, to Kemmer Road as a 3-lane County arterial.	Roadway - arterial	Yes	No	Washington County	Improve to 3 lanes	$4,532,274
15	Improve Kemmer Road from 175th Avenue to the 185th Avenue extension as a 3-lane County arterial.	Roadway - arterial	Yes	No	Washington County	Improve to 3 lanes	$2,979,338

Project ID	Project Name	Project Type	Within Cooper Mountain	TDT Project	Jurisdiction	Project Summary	Total Estimated Cost - Mid (2020)*
16	Improve Gassner Road from Grabhorn Road to the 185th Avenue extension as a 2-lane County collector.	Roadway - collector	No	No	Washington County	Improve to 2 lanes	$2,847,051
17b	Construct a community shared-use path (South Cooper Loop Trail) along the east side of Grabhorn Road and Tile Flat Road, between the UGB and the west side of the Cooper Mountain Nature Park.	Shared-use path	Yes	No		Shared-use path	$1,455,159
19b	Construct a community shared-use path (South Cooper Loop Trail) along the west side of 175th Avenue, between the UGB and Weir Road.	Shared-use path	Yes	No		Shared-use path	$1,512,675
22	Install crosswalk and pedestrian activated flasher on 175th Avenue at Weir Road.	Street Crossing	Yes	No	Washington County	Street Crossing	$92,026
Road Corridor 1, Segment A	Create a new 2-lane neighborhood route south of Road Corridor 3 (parking on both sides)	Roadway - neighborhood route	Yes	No		New Street Extension	$3,117,377
Road Corridor 1, Segment B	Create a new 2-lane City collector street between Road Corridor 3 and north side of the ravine	Roadway - collector	Yes	No		New Street Extension	$4,474,758

Project ID	Project Name	Project Type	Within Cooper Mountain	TDT Project	Jurisdiction	Project Summary	Total Estimated Cost - Mid (2020)*
Road Corridor 1, Segment C	Create a new 3-lane City collector street between the north side of the ravine and Kemmer Road	Roadway - collector	Yes	No		New Street Extension	$10,237,879
Road Corridor 2	Create a new 2-lane City neighborhood route from Road Corridor 3 to Weird Road (no parking due to topography)	Roadway - neighborhood route	Yes	No		New Street Extension	$6,545,340
Road Corridor 3, Segment A	Create a new 2-lane City neighborhood route south of High Hill Lane (no parking due to topography)	Roadway - neighborhood route	Yes	No		New Street Extension	$3,008,096
Road Corridor 3, Segment B	Create a new 2-lane neighborhood route between SW 175th Avenue and High Hill Lane (parking on both sides)	Roadway - neighborhood route	Yes	No		New Street Extension	$4,681,816
Road Corridor 3, Segment C	Create a new 3-lane City collector street between SW 175th Avenue and Road Corridor 1	Roadway - collector	Yes	No		New Street Extension	$7,707,167
Road Corridor 3, Segment D	Create a new 3-lane City collector street between Road Corridor 1 and Road Corridor 4	Roadway - collector	Yes	No		New Street Extension	$8,903,504

Project ID	Project Name	Project Type	Within Cooper Mountain	TDT Project	Jurisdiction	Project Summary	Total Estimated Cost - Mid (2020)*
Road Corridor 4	Create a new 3-lane City collector street east of Grabhorn Road	Roadway - collector	Yes	No		New Street Extension	$10,876,308