



Park Place Concept Plan

March 12, 2008
Version 1.4

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Park Place Concept Plan

March 12, 2008

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Acronyms

ADA	Americans with Disabilities Act
ADU	Accessory Dwelling Unit
CEG	Certified Engineering Geologist
CIP	Capital Improvement Plan
CRW	Clackamas River Water
EDU	Equivalent Dwelling Unit
EIS	Environmental Impact Statement
GIS	Geographic Information System
HCA	Habitat Conservation Area
HUD	U.S. Dept. of Housing and Urban Development
LF	Linear Foot
LID	Local Improvement District
LIDAR	Light Detection and Ranging
MDD	Maximum Daily Demand
MHI	Median Household Income
MSTIP	Major Streets Improvement Program
DOGAMI	Oregon Department of Geology and Mineral Industries
OCSD	Oregon City School District
ODOT	Oregon Department of transportation
ORS	Oregon Revised Statutes
PAC	Project Advisory Committee
PE	Public Engineer
SAFTEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SDC	System Development Charge
SFWB	South Fork Water Board
TSP	Transportation System Plan
TCSD	Tri-City Sewer District
UGB	Urban Growth Boundary
WWTP	Wastewater Treatment Plant



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1. Executive Summary

In 2002, nearly 500 acres of rural land located just east of Oregon City was brought into the Portland Metropolitan Urban Growth Boundary (UGB) to accommodate future growth. The Park Place Concept Plan was developed to help the City of Oregon City prepare for this growth by working with local citizens, area stakeholders, and local and regional jurisdictions to develop a common vision for the area. This vision provides a framework for growth that respects and augments the area's context, history, and natural systems. The Park Place Concept Plan emphasizes good urban design, multi-modal connectivity, opportunities for place-making and cultivating community, diversity, and, above all, a way to provide for future growth in a sustainable manner. Ultimately, the Park Place Concept Plan will ensure that the land brought in is planned in an efficient and sustainable manner that will maximize the use of the available lands while protecting the natural resources in the study area.

Key components of the Park Place Concept Plan include:

- Two primary north-south connections between Holcomb Boulevard and Redland Road (Swan Avenue and Holly Lane)
- Two distinct mixed-use neighborhoods (North Village and South Village) that accommodate 1,459 new dwelling units
- Neighborhood-oriented commercial nodes that integrate commercial land uses, residential land uses, and public open space
- An area for a new civic institution, like a library or community center
- An 8-10 acre community park and a 3-5 acre neighborhood park
- A mix of housing types and ranges of affordability
- An extensive system of off-street and on-street trails and pedestrian/bicycle connections
- Innovative, green on-site stormwater treatment methods
- Protected sensitive areas, including drainages and steep slopes
- Streets and buildings oriented for solar access
- The use of green edges to define neighborhoods and buffer developments
- Integration of parks and open spaces into existing and future neighborhoods

The following list describes these components and how elements of the Park Place Concept Plan comply with the established evaluation criteria (see page 71 in Appendix). These planning principles are based on the core values developed during the planning process and applicable local and regional community development standards and practices.

Community Design

Identifiable centers and green edges: The preferred alternative includes two discrete mixed-use/commercial centers, one on Livesay Road and another in the southern portion of the study area near Donovan Road supported by the enhanced transportation system. Each center provides for a mix of civic and commercial uses and spaces to serve the planning area. Edges around and between residential areas and existing

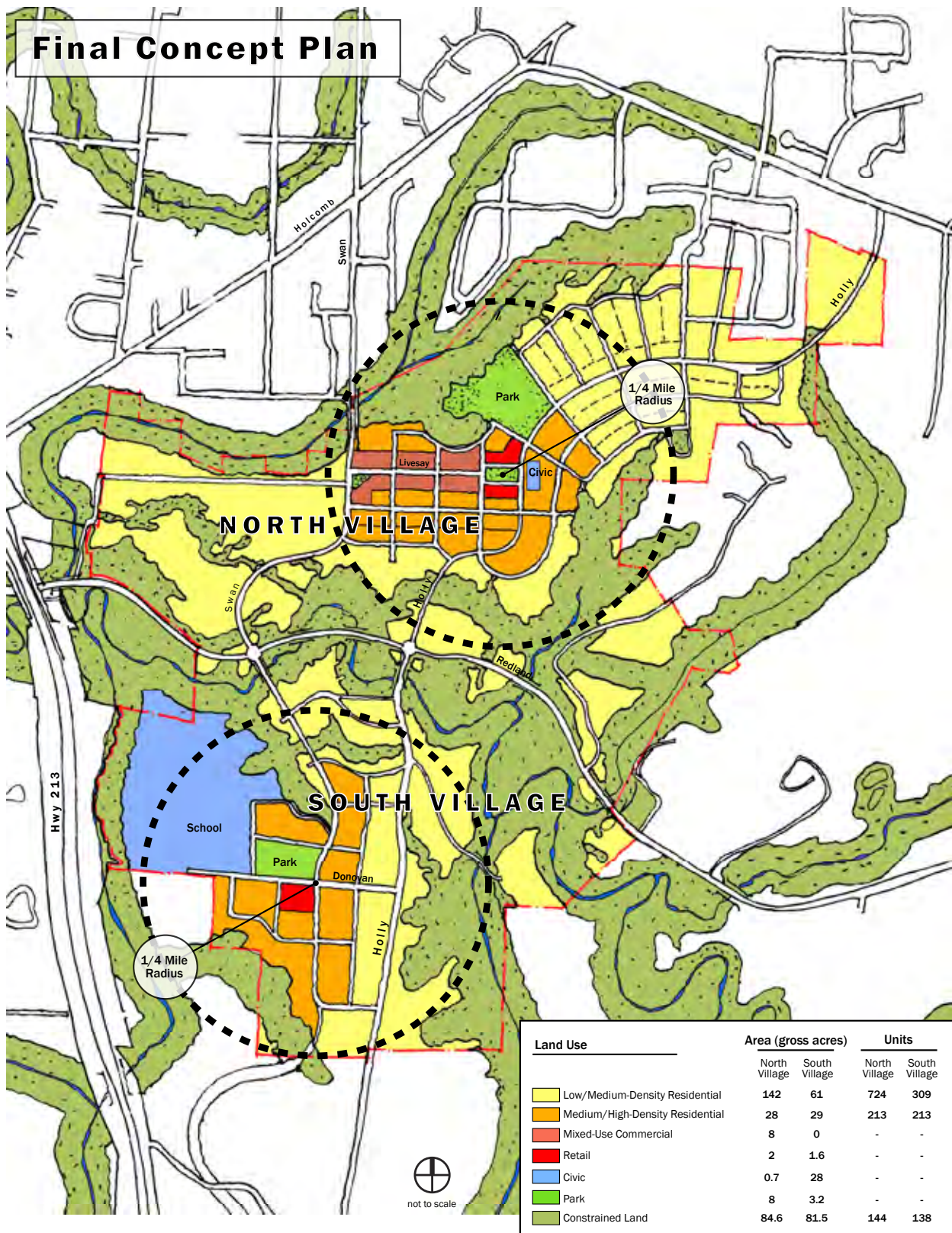


Figure 1-1. Park Place Concept Plan Urban Growth Diagram

This map is for concept planning purposes only. The specific locations of natural resource boundaries, open space, parks, land uses, roads, trails, infrastructure and related improvements may change and is subject to on-site verification and design at the time of development.

neighborhoods are defined by open spaced (primarily corresponding to natural areas) and larger rear setbacks for new lots that border existing neighborhoods.

Existing low-density clusters: Properties along Lower Livesay Road and Holly Lane are expected to remain as low-density clusters in the foreseeable future. They will have the potential to transition to medium-density residential uses over time. However, in the near term they are expected to retain the lowest densities within the planning area.

Mix of housing types and densities: The Park Place Concept Plan recommends and provides for a mix of different Comprehensive Plan and zoning designations that allow and/or require different densities and housing types, including low, medium and high densities, single-family homes on a range of lot sizes, townhouses, duplexes, multi-family units and mixed commercial/residential uses. Section 4 describes recommended residential densities and housing types in more detail.

Housing affordable to range of incomes: As noted above, the Plan provides or allows for a range of housing types and densities, including those that are most likely to be affordable to households or families with lower incomes, including single-family homes on small lots, townhouses, duplexes and multi-family units. The Plan also identifies potential zoning or development code strategies for distributing less expensive housing units among different areas rather than concentrating them all in one place. Finally, the Plan also incorporates policies aimed at working with other local housing agencies and non-profit organizations to achieve housing goals.

Greenway, street lighting, street furnishings: The Park Place Concept Plan includes recommendations for street and other standards, including those for neighborhood commercial or mixed-use areas, and provisions for street lighting, furnishings, trees and other amenities, as well as public gathering places.

One or more mixed use centers: The Plan includes two mixed-use centers. One is located along upper Livesay Road in the approximate center of the northern portion of the planning area, and is surrounded by medium and higher density housing. The second center is located to the west of the Holly Lane area near Donovan Road and Swan Avenue. This center is proposed to be located near high density residential uses, across the road from a park and in conjunction with some type of civic use. Twin north/south street corridors link these centers to one another and the surrounding Plan area, increasing their attractiveness and viability.

Central public space: Public gathering spaces are recommended and illustrated within or directly adjacent to both of the mixed-use centers described above.

Future school sites: Metro's Title 11 requirements stipulate that school sites should be identified, if needed. A preliminary projection of school age children

in the planning area, in conjunction with a review of Oregon City School District enrollment data, indicates that there will not be a need for an entire elementary, middle or high school, and that in the short to medium term, existing surrounding schools will be able to accommodate school needs. This issue should continue to be monitored by the City and school district as the area continues to be developed.

Natural Resources

Parks and open space per guidelines: The Park Place Concept Plan incorporates a significant amount of open space, located in conjunction with environmentally constrained and natural areas within the planning area. The amount of open space exceeds Metro and City guidelines. Two developed neighborhood and/or community parks are proposed within the planning area, consistent with recommended local and national acreage guidelines and service areas.

Trail and open space connections: The Park Place Concept Plan identifies a substantial, interconnected network of trails corresponding to the open space system, and in some cases parallel to road corridors. Proposed trail locations are consistent with the City's adopted Trails Master Plan and other local and regional plans, help connect activity centers, and provide alternatives to travel by automobile.

Protect natural resources: As noted above, the Park Place Concept Plan identifies a significant open space network and natural resource protection areas. They will be protected by a range of local regulations, as well as public ownership or easements, where feasible, that will prohibit or limit development and related adverse effects.

Avoid development in stability hazard areas: The City's existing development regulations will be applied and enhanced to direct development away from or mitigate the impacts of development within slope stability hazard areas.

Water, Wastewater, and Stormwater Infrastructure

Mimic existing hydrology: The Park Place Concept Plan has been developed in a manner that minimizes impacts to the existing hydrological conditions of the study area. Moreover, the stormwater concept plan and recommendations seek to utilize existing natural drainage features and low-impact development best practices to most mimic existing hydrologic functions.

Consistent with capacity of infrastructure: Preliminary review of local public facility master plans indicates that sufficient wastewater and water capacity exists to accommodate projected levels of development within the study area. The Park Place Concept Plan identifies potential improvements to existing or future facilities to ensure that water, wastewater treatment and stormwater management needs can be met.

Optimize existing infrastructure: The water and stormwater infrastructure improvements of the Park Place Concept Plan have been developed to utilize existing infrastructure to the extent possible. Due to the nature and intensity of development forecasted within the Park Place Concept Plan area, water and stormwater infrastructure systems will need to be upgraded and upsized. Stormwater infrastructure improvements will seek to mimic existing drainage patterns minimizing the need for significant stormwater facility development.

Transportation

Streets sized to handle future growth: A network of local, collector, and arterial streets provide the area with sufficient capacity and connectivity to meet anticipated travel demands, well into the future. Access to HWY 213 and I-205 will be provided by an improved 5-lane Redland Road corridor, (unless a smaller cross section is proven adequate) designated as a Minor Arterial. Holcomb Boulevard will serve the area as a 2- to 3-lane Minor Arterial. Holly Lane and Swan Avenue, designated as Collectors, will both be extended and improved to provide pedestrian, bicycle, and auto/transit facilities from Holcomb Boulevard to south of Donovan Road. Donovan Road and the eastern half of Livesay Road are designated as Neighborhood Collectors with a 2-lane cross section and amenities to meet the needs of the adjacent land uses. Local streets will be sized appropriately to meet traffic needs while contributing to traffic safety and promoting use of alternative modes of travel.

Provide safe environment for all modes of travel: Safe travel by each mode of travel is inherent in the design and layout of the Plan's transportation system. Conflict points between autos and pedestrians/bicycles are minimized and treated appropriately, wherever they occur. Uses that generate large numbers of pedestrians and bicyclists are directly linked to neighborhoods with appropriately sized and designed facilities to safely meet the travel needs.

Opportunities for all modes of travel: The Park Place Concept Plan identifies facilities that provide for a full range of travel modes, including an adequate road system for automobiles, bicycle lanes, sidewalks and trails that provide multiple opportunities for bicycle and pedestrian travel, and a looped transit system that will enhance public transit travel opportunities. The network of streets is designed to easily disperse vehicular traffic, readily accommodate transit, and fully integrate pedestrian and bicycle travel.

Connectivity within and outside study area: The Park Place Concept Plan incorporates a well-connected transportation system with two primary north/south travel routes (Holly and Swan corridors) providing connectivity both within and outside of the planning area. Similarly, Redland Road serves the same purpose for east/west travel through the area, complemented by Holcomb Boulevard. Local streets in a grid pattern will provide strong connectivity within individual sub-areas of neighborhoods.

Minimize increases in impervious surfaces: Transportation network redundancy, interconnected streets, and an emphasis on pedestrian, bicycle, and transit

amenities work together to manage the need for impervious surface. Stormwater management techniques that store and treat transportation system run-off within the public right-of-way minimizes the adverse impact of impervious surfaces.

Minimize adverse impacts on existing properties: To the greatest extent possible, the Park Place Concept Plan minimizes impacts to existing properties. Strategies to do so include:

- Providing a parallel collector route to Holly to reduce impacts on properties along that street.
- Designing streets and intersections in the context of the land uses they serve.
- Considering development parameters, such as parcel size and access locations, while laying out the transportation network.
- Providing design flexibility in roadway alignments, while diligently preserving safety and capacity for all travel modes.

Financing and Other Criteria

Funding sources pay for facilities and services: The financing of public improvements needed for Park Place's urban development is projected for transportation, water, wastewater, stormwater, and parks. Once the Park Place Concept Plan is adopted, Oregon City and the regional agencies that fund or own elements of the services will have to amend their master plans and systems development charges.

Transportation improvements: ODOT, Metro, Clackamas County, and Oregon City own various elements of the transportation network. Many of the roadways that ODOT and Metro are responsible for, will have to be constructed regardless of Park Place developing. Areas adjacent to Park Place also are developing and creating the need for many of the roadway improvements that are also needed by Park Place development.

Water: The regional service provider already has capacity for water treatment, storage and delivery to Park Place. Development of a water distribution system in Park Place will largely be paid for by properties that develop.

Wastewater: The regional service provider already has wastewater treatment and transmission lines near Park Place. Developing a wastewater collection system in Park Place will largely be paid for by properties that develop.

Stormwater: Natural storm drainages exist in Park Place, so that as development occurs on-site, roadway improvements will include installation of stormwater management improvements. Developing properties in Park Place will be responsible for constructing these improvements.

Parks: The two parks identified in the Concept Plan have to be integrated into Oregon City's parks master plan and at that time decide how to fund the proposed parks. It may be funded entirely from system development charges or as an integral part of the master plan's financing strategies.

2. Background

1. Introduction

Concept plans describe how an area is expected to develop over time. In general, they identify the general location and intensity of land uses, including a variety of housing types (affordable and market-rate), commercial and industrial land uses, parks, open spaces, and schools. They describe how basic services, such as transportation facilities (streets, sidewalks, transit routes, etc.), utilities, and stormwater facilities, are provided. Additionally, they demonstrate how environmental resources and sensitive habitats will be protected. Finally, concept plans establish implementation, phasing, and financial strategies to help guide future growth.

The concept planning process is established by State legislation, specifically Senate Bill 100, which requires that all regional growth agencies (in this case Metro) review their existing urban growth boundary (UGB) every five years and adjust it accordingly to accommodate the latest 20-year growth projections. Metro brought the Park Place study area into the Portland UGB in 2002 after an extensive technical analysis of the region. As such, Oregon City was required to initiate a concept planning process for the UGB expansion areas to adequately plan for future growth. The outcome of this planning process is the Park Place Concept Plan (“Concept Plan”).

The Park Place Concept Plan is organized as follows:

- The **Background** chapter summarizes the Plan’s guiding core values, existing conditions, and opportunities and constraints.
- The **Concept Plan** chapter presents the vision and design principles for the area, and provides detailed descriptions of the Plan elements.
- The **Implementation** chapter recommends implementation strategies and regulatory amendments based on feedback from service providers and members of the consultant team.
- The **Finance and Funding** chapter summarizes the costs associated with new growth and proposes a variety of ways to pay for it.

The Park Place Concept Plan is supplemented with a Technical Appendix, which provides comprehensive descriptions and details of the Plan elements.

2. Core Values

Early in the concept planning process, the project team worked with community members to develop a set of “core values,” or aspects of the community they think are important. Preliminary core values were drawn from *Envision Park Place* (2005) and then refined through an iterative process involving members of the Project Advisory Committee (PAC) and participants in the first two Community Forums.

Planning Process

Summer 2006

- *Public Outreach*
- *Background information collection and existing conditions analysis*
- *Core Values development*
- *Community Information Night*
- *Community Forums 1 and 2*

October 2006

Design Charrette

- *Day 1: Site Tour*
- *Day 2: Sketch Diagram Concepts*
- *Day 3: Refined Alternatives*
- *Day 4: Refine Preferred Alternative*
- *Day 5: Presentation of Preferred Alternative*

Winter - Spring 2006-07

- *Concept Refinement*
- *Develop Implementation Strategies*
- *Community Forum #4*
- *Planning Commission Hearing*
- *City Council Hearing / Adoption*

2007 and Beyond

- *Annexation*

Evaluation criteria were derived from the core values, which were then used to evaluate plan alternatives and the preferred plan. (Evaluation criteria can be found in Appendix D.) The core values are organized into three categories: Environment, Community Design, and Transportation/Traffic. A fourth category (“Other Core Values”) captures core values that do not readily fit within the other categories. The Park Place Core Values are as follows:



Livesay Creek

Environment

- We value natural resources in our neighborhood, including streams, aquifers, wetlands, woods, mature trees, viewsheds, hillsides and wildlife habitat, including migratory corridors for wildlife. Such features should be incorporated in the design of neighborhoods and specific developments.
- We value distinguishing between developed and natural areas with buffers.
- We value an interconnected system of neighborhood and community parks, recreation areas, open spaces and pathways that provide recreational opportunities and allow residents to feel connected to the natural environment.
- We value connections among community-oriented facilities and other destinations.
- We value a sustainable approach to planning and development that minimizes negative impacts on the natural environment and property owners, including impacts associated with runoff, flooding, landslides, steep slopes, geologic hazards, erosion, street lighting, traffic and other factors.



Public Involvement

Community Design

- We value the rural character of the Park Place Concept Plan area and a planning approach that will allow us to maintain this rural feeling as the area develops and grows.
- We value a choice of housing types, densities and price ranges, including housing that is affordable to existing and future residents of all ages and incomes, and that complements existing landscapes, environments and architectural styles.
- We value our history and seek to preserve and incorporate historical and artistic elements in the design and development of our community.
- We value high quality design that makes efficient use of land, provides transitions between urban and rural areas and incorporates sustainable/“green” design principles and practices.
- We value having the civic and retail services that provide for the community’s basic day-to-day needs located within the community.

Transportation/Traffic

- We value a safe, interconnected system of roads and other transportation facilities that allows people to move freely within the neighborhood and connects them to other parts of the city and region.
- We value a system of roads, trails and pathways that allow people to travel by a full range of transportation modes - bicycle, horse, walking, automobile and transit.
- We value a transportation system that safely connects residents to shopping, parks and other community facilities within the Park Place neighborhood.
- We value a transportation system that limits congestion without overbuilding roads and provides adequate facilities to address traffic conditions (intersection improvements, adequate road capacity, etc.).
- We value the use of traffic calming tools such as traffic islands, roundabouts, curvilinear streets, curb extensions and other methods.

Other Core Values

- We value local shops (e.g., Steve's Market) and other employment opportunities.
- We value, clear, complete, timely and open communication, and meaningful opportunities for involvement in the planning process.
- We value protection of property owners' rights.
- We value security and safety.
- We value phased development that provides adequate public services and infrastructure such as police, fire protection and schools in place before, or as development is allowed to occur.
- We value adequate schools, teachers and other resources needed to educate our children.
- We value the use of innovative funding methods to pay for enhanced levels of public service.

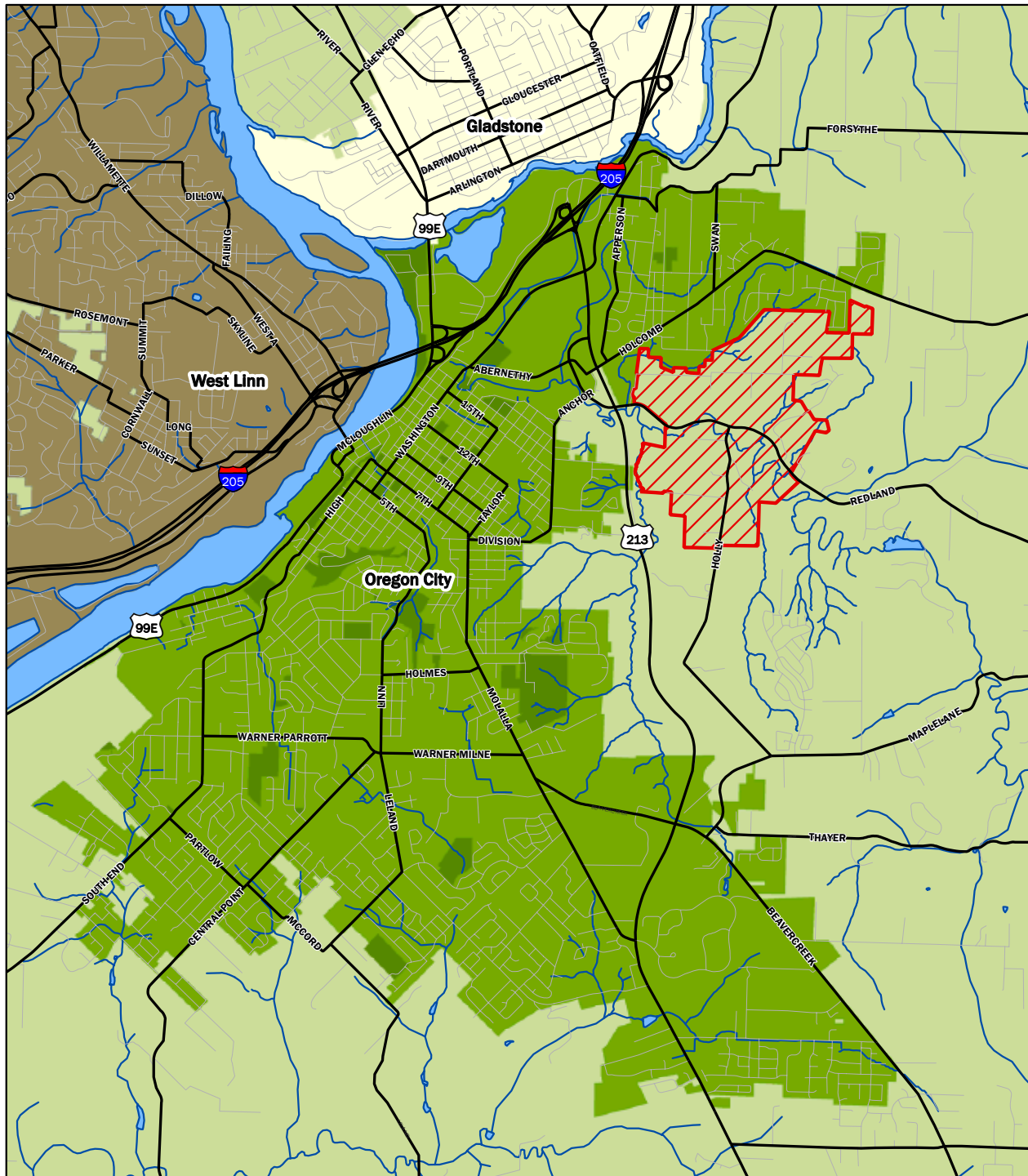


Holcomb Boulevard

3. Existing Conditions

The full Existing Conditions analysis for each of the Plan elements is provided in Appendix B of this document. A summary of the document follows.

The Park Place study area is adjacent to Oregon City's Park Place neighborhood on the eastern edge of the City (Figure 2-1). The total land area is approximately 480 acres, of which 180 acres are located immediately adjacent to Oregon City limits in the vicinity of Livesay Road. These 180 acres were brought into the UGB in the 1980's, but were not annexed into the City of Oregon City. The remaining approximate 300 acres were brought into the UGB in 2002.



Source: Oregon City GIS, 2006; RLIS 2006

- Oregon City
- Clackamas Co.
- Gladstone
- project boundary
- West Linn

Park Place Concept Plan

Area Context

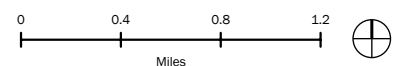


Figure 2-1. Park Place Study Area

This map is for concept planning purposes only. The specific locations of natural resource boundaries, open space, parks, land uses, roads, trails, infrastructure and related improvements may change and is subject to on-site verification and design at the time of development.

The study area is comprised of 138 individual property owners. To date, the largest amount of acreage under single ownership is approximately 48 acres. Thirty-eight acres are in public ownership, the majority of which comprise Ogden Middle School (Oregon City School District). Nearly half of the parcels in the study area are one acre or less. Consequently, any large-scale development based on a comprehensive vision for the area may take many years to be realized unless a significant number of people are compelled to sell property to a single entity.

Land Use

The primary existing land uses in the study area are rural farms, low-density residential housing, and civic uses (i.e., schools and churches). There are no commercial, office, or industrial land uses within the study area; the closest commercial nodes are located on Holcomb Boulevard near Front Avenue, and at the intersection of Redland Road and Holcomb Boulevard. A regional shopping center may be developed a half-mile from the western edge of the study area, which will influence the type and subsequent success of future land uses and traffic patterns in the study area.

The majority of the housing in the study area is located along Livesay Road and Holly Lane. These areas are generally characterized by low to moderately angled slopes and minimal wildlife habitat. Houses in the study area were constructed as early as 1900 and as recently as 2005; the majority of the housing was constructed between 1960 and 1980. Modest cottages, farm houses, and ranch style houses comprise the architectural styles in the study area. The study area is surrounded by pockets of higher-density, single-family residential subdivisions: Barlow Crest, Trailview Estates, Meadowridge Estates, and Holcomb Ridge.

Buildable Land

The term “buildable land” is defined by Metro as land that is suitable for development or redevelopment (after considering issues like steep topography, wetlands and waterways, habitat areas, easements, and land for public services, like roads, schools, and parks), and is used to calculate future land use densities. This calculation is required by Title 11 of Metro’s *Urban Growth Functional Plan*, which states that new urban area plans must provide “for average residential densities of at least 10 dwelling units (du) per acre of net vacant buildable land.” The average residential density is only applicable to areas added to the UGB in 2002; the area added to the UGB in the 1980s was calculated at the lower density of four dwelling units per acre.

The Park Place buildable lands methodology aggregates all of the vacant and developable land (as determined by Metro and real estate market experts) in the area and removes land that have slopes greater than 25%, a “high” or “moderate” Habitat Conservation Area rating (includes designated wetlands and essential riparian habitat), established easements, or a registered historic building. Twenty-four percent of the total is subtracted to account for new

Land Use

General Findings

- Existing land uses are primarily rural farm, low-density residential and civic
- Majority of existing housing is located along Livesay Road and Holly Lane
- Most of the housing was built between 1960 and 1980
- Study area consists of varied topography with limited access points
- The study area must accommodate a minimum of 1,458 new dwelling units

Table 2-1. Buildable Land Summary

2002 UGB Expansion Area	
Vacant + Developable Land	246.9 acres
Constrained Land	-103.4 acres
New Roads and Utilities	-34.4 acres
Net Buildable Land	109.1 acres
Units (10 du/acre)	1,091 units
1980 UGB Expansion Area (Livesay Area)	
Vacant + Developable Land	171.6 acres
Constrained Land	-48.7 acres
New Roads and Utilities	-31.2 acres
Net Buildable Land	93.4 acres
Units (4 du/acre)	367 units
Park Place Study Area Total	1,458 units

roads, stormwater facilities, and future civic uses, like schools and libraries. This final number is then multiplied by the required minimum densities for the area: 10 dwelling units for the area added to the UGB in 2002 and 4 dwelling units for the area added to the UGB in the 1980s.

The result of this analysis is that a minimum of **1,458 dwelling units** (Table 2-1) are required in the Park Place Concept Plan study area at build-out. For a more detailed description of the buildable lands methodology and analysis, please refer to Appendix E.

Regulatory Conditions

Development of a Concept Plan fulfills regional planning requirements as established in the Metro 2040 Plan and Urban Growth Management Functional Plan. These regional plans as well as local comprehensive plans and codes are responsible for complying with and implementing Statewide Planning Goals.

Regulatory Conditions

General Findings

- *Primary elements of the Concept Plan include: Governance, Housing, Transportation and protection of Natural Resources*
- *Elements of the plan are illustrated in an Urban Growth Diagram*
- *Majority of the study area is to consist of single family housing*
- *Upon adoption of the Concept Plan, the City will determine Comprehensive Plan designations and an annexation strategy*

The Concept Plan must include the following elements: governance, housing plans (including minimum density, diversity, and affordability), commercial and industrial land uses as needed, a conceptual transportation plan, natural resources and protection plan, a public facilities plan, and a plan for public schools. Conceptual plans for these elements must reflect and account for policies and projects established in the City's Comprehensive Plan, Transportation System Plan, Trails Master Plan, and Parks and Recreation Master Plan. Ultimately these element plans will be presented as a report and illustrated in an Urban Growth Diagram.

Following adoption of the Park Place Concept Plan and any necessary plan amendments by City Council, the next step in the process is for the City to determine the appropriate Comprehensive Plan designations based on the Preferred Concept Diagram, and to develop an Annexation Strategy. As part of annexation, the City will adopt zoning for the Park Place plan area according to the Comprehensive Plan designations. It is anticipated that most of the buildable land in the plan area will be designated for medium- and medium/low-density housing (e.g., single-family homes on medium-sized lots), which is compatible with existing uses and development patterns.

However, Title 11 requirements from Metro's Functional Plan require a minimum density of 10 units per net buildable acre in new urban areas. Given an exception for land in Park Place that is not considered new urban area, buildable land in Park Place will need to accommodate 1,458 housing units. As a result, implementation measures in the study area will need to allow for mixed-use designations and more medium- and high-density housing. Creation of a new residential zone, modification of existing zones and regulations, including master planning requirements, and establishment of clear and strong policies in the Park Place Concept Plan are designed to meet housing targets and to implement the type and intensity of development that is envisioned in the Final Concept Plan.



Livesay Road

Transportation

The study area is served by a multi-modal transportation system that includes roadway, transit, bicycle, and pedestrian facilities and services. Isolated locations on the roadway system experience congestion and delays. However, applicable agency standards are met at all study area intersections and road segments.

The Highway 213 corridor is approaching capacity, particularly on the segment between Redland Road and the I-205 interchange. Federal appropriations have been obtained through the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFTEA-LU) for the planning of improvements, including funding for an Environmental Impact Statement (EIS) and preliminary engineering for the I-205/OR 213 interchange.

The public transit system provides limited service to this low-density, suburban location. Additionally, the bicycle and pedestrian systems are incomplete, but plans exist to make incremental improvements. Until pedestrian, bicycle, and transit improvements are made, current conditions will make travel by these modes undesirable and will promote greater vehicular trip-making.

Water, Wastewater, and Stormwater Infrastructure

Limited water service exists within the study area except for a small portion of Livesay Road, which is served by the Oregon City water distribution system. Capacity exists within the Oregon City system to be expanded within the study area. Transmission mains, owned by Clackamas River Water, run through the study area to serve communities outside the study area.

Limited wastewater collection exists within the study area. Many properties are on septic systems. Two-trunk interceptor lines, owned by the Tri-City Sewer District, pass through the study area and convey wastewater flows from Country Village and Ogden Middle School. These two interceptors connect within the study area and their flows are conveyed by the Highway 213/ Newell interceptor to the wastewater treatment plant. These interceptors and the treatment plant have capacity to serve future development within the study area.

Stormwater is presently managed in the study area with roadside ditches and natural drainage channels. No major stormwater infrastructure facilities exist beyond these surface facilities. All stormwater within the study area is conveyed to Abernethy Creek, Newell Creek, and Livesay Creek. Abernethy Creek and Newell Creek are subject to occasional flooding; however, no significant flood damage is known to have occurred in the study area since the 1996 flood.

Transportation

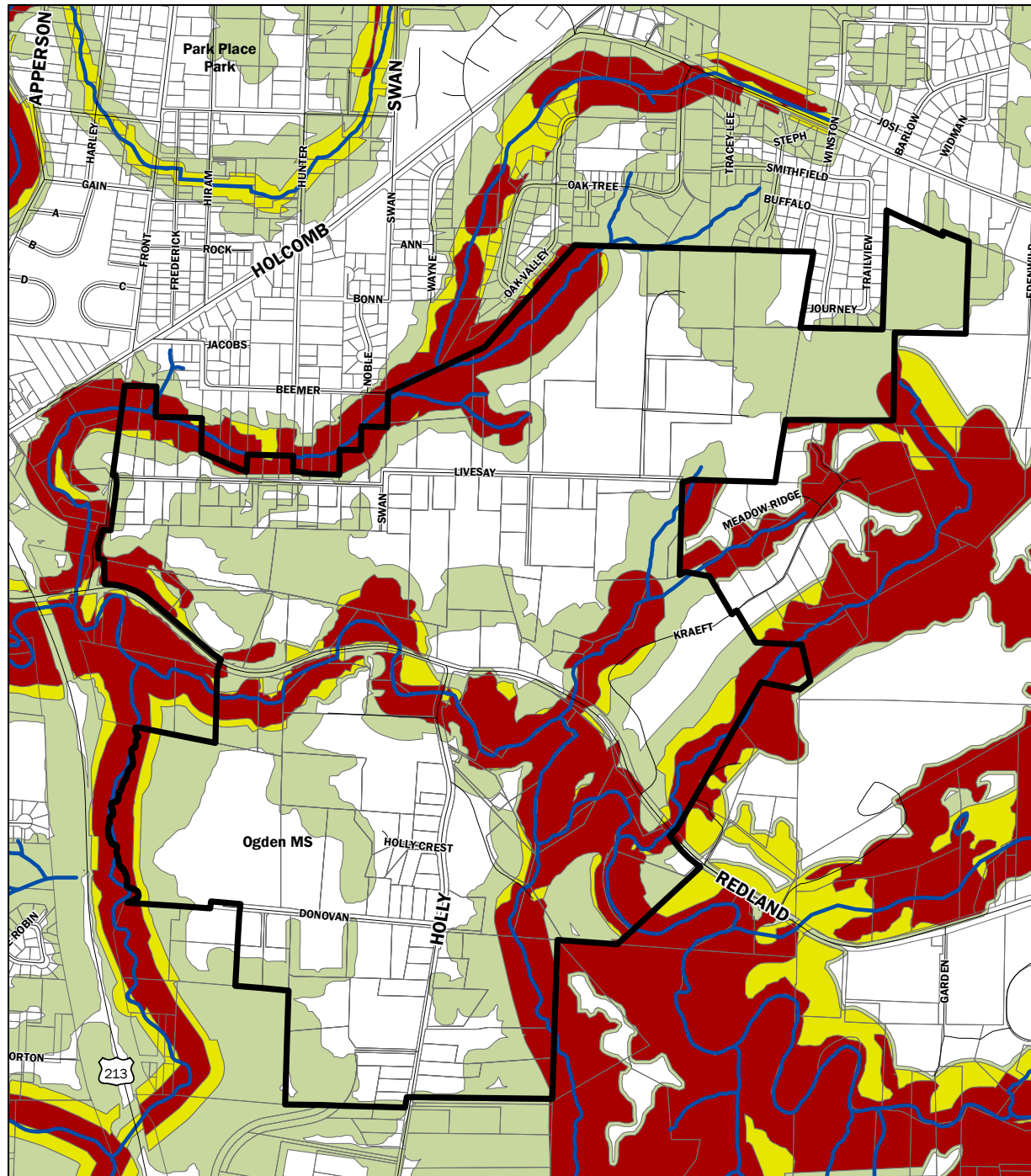
General Findings:

- *Very limited transit service*
- *Incomplete pedestrian system*
- *Limited system does not promote walking*
- *Incomplete bicycle system*

Water Infrastructure

General Findings:

- *Limited water distribution*
- *Capacity exists in the water system to serve the study area*
- *Limited wastewater collection*
- *Wastewater Treatment Plant and interceptors have capacity to serve the study area*
- *A natural stormwater drainage system exists*



Source: Oregon City GIS, 2006; RLIS 2006

- High
- Moderate
- Low
- Non-Regulated Goal 5 Resources - (No HCA designation)

Park Place Concept Plan
Habitat Conservation Area (HCA) Values

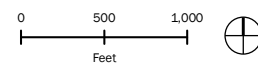


Figure 2-2. Habitat Conservation Areas

This map is for concept planning purposes only. The specific locations of natural resource boundaries, open space, parks, land uses, roads, trails, infrastructure and related improvements may change and is subject to on-site verification and design at the time of development.

Natural Resources

Through evaluation and mapping efforts performed by Metro, Habitat Conservation Areas (HCA) in the study area have been established. Metro created an inventory map showing areas of greatest significance, called “regionally significant habitat,” which includes riparian areas, wildlife habitat, and parks and open spaces. From this map, Metro established a Habitat Conservation Area Map (Figure 2-2) which identifies the highest value streamside habitat that will be subject to regulatory performance standards and best management practices. The Habitat Conservation Area Map also helped inform the buildable lands analysis.

Geologic Conditions

The study area is located in the Abernethy Creek drainage of the Willamette Valley. The Abernethy Creek drainage consists of a narrow meandering creek fed by Newell and Holcomb Creeks and flows directly into the Willamette River, immediately northwest of the study area. The drainage is characterized by steep canyons that are subject to ongoing slope processes (Figure 2-3). The local geology is dominated by the fine-grained facies of the Missoula Flood deposits (Madin, in press) primarily comprised of silt, sand, and gravel of late Pleistocene age. These deposits generally form terraces at the lower extent of the local creeks and mantle slopes up to about elevation 200 to 250 ft. In the low-lying areas within the floodplain of Abernethy Creek is alluvium and Pleistocene-age Willamette Silt, which consists of fine-grained sands, silt and clay with scattered lenses of fine- to medium-grained sand. At the north edge of the study area (along Holcomb Boulevard, at the south end along Holly Lane and at the southwest edge, adjacent to Newell Creek Canyon), mudstone, claystone, and sandstone of the Troutdale Formation are present, typically in steep canyons and ridges. Geomorphic and geologic evidence indicates these tributary canyons of Abernethy Creek have been modified by ongoing, large-scale landslides (Figure 2-4). The Oregon Department of Geology and Mineral Industries’ (DOGAMI) preliminary geologic map of the area indicates an inferred trace of the Oatfield Fault may extend into the northwest portion of the study area; however there is no direct evidence that the fault exists in this area (Madin, in press).

Due to the topographic and geologic conditions in the study area, there is a history of landslides within the Abernethy Creek drainage that have damaged property and infrastructure (Burns, 1993, 1998). In addition, recent mapping of landslide geomorphology in Oregon City using LIDAR imagery and aerial photographs indicates the tributary canyons of Abernethy Creek have been modified by ongoing large-scale landslides (Madin and Burns, 2006). A full discussion of the consultant’s technical analysis and recommendations are in the Appendix K.

Natural Resources

General Findings:

- *Regionally Significant Habitats areas have been inventoried*
- *Habitat Conservation Areas have been identified including three major riparian corridors: Livesay Creek, Abernethy Creek, and Newell Creek*
- *Development best management practices have been established*

Geotechnical

General Findings:

- *Study area is characterized by steep canyons*
- *Study area is dominated by weathered siltstone and mudstone*
- *Canyon and hillsides are subject to ongoing slope processes*

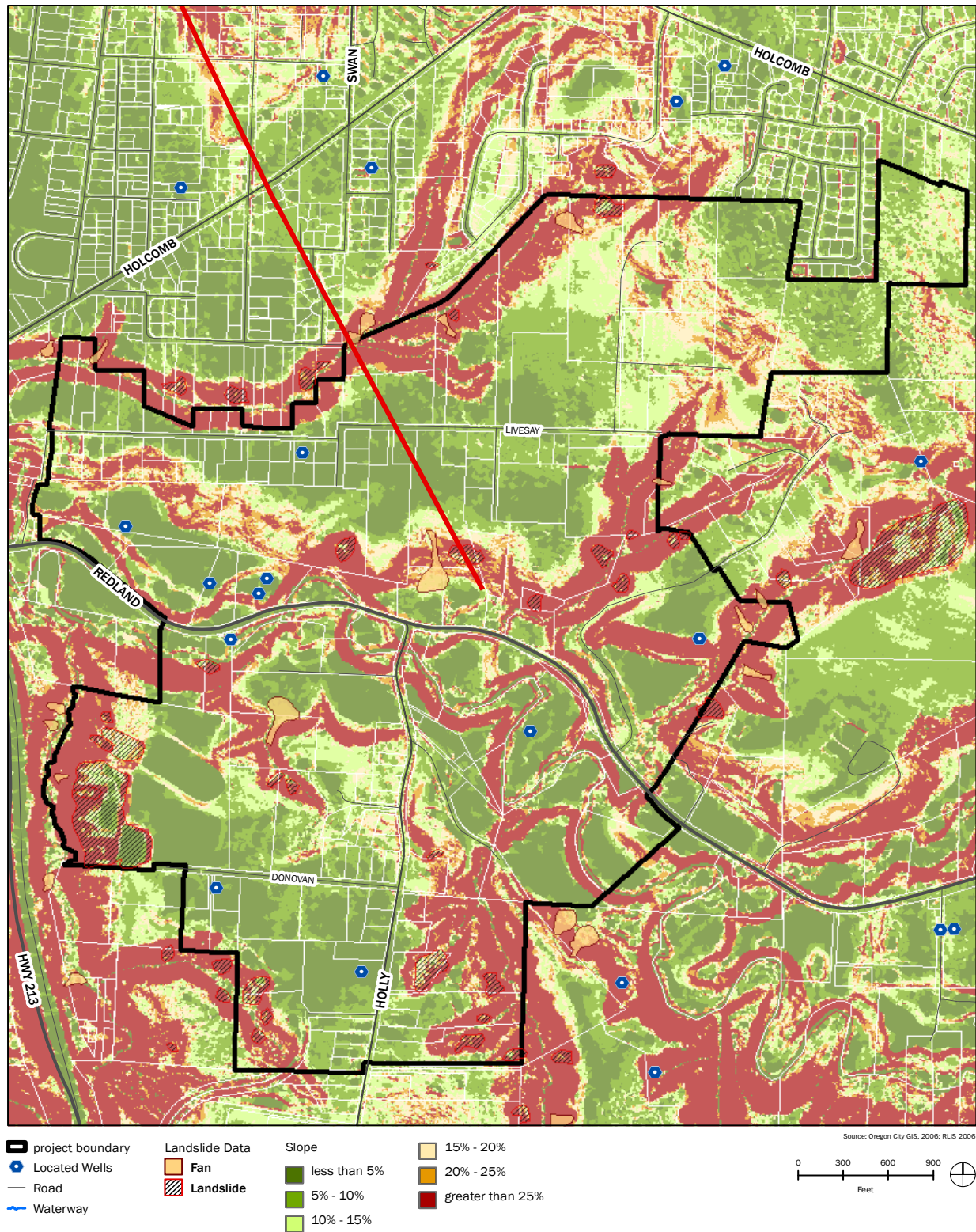


Figure 2-3. Steep Slopes and Landslide Geomorphology

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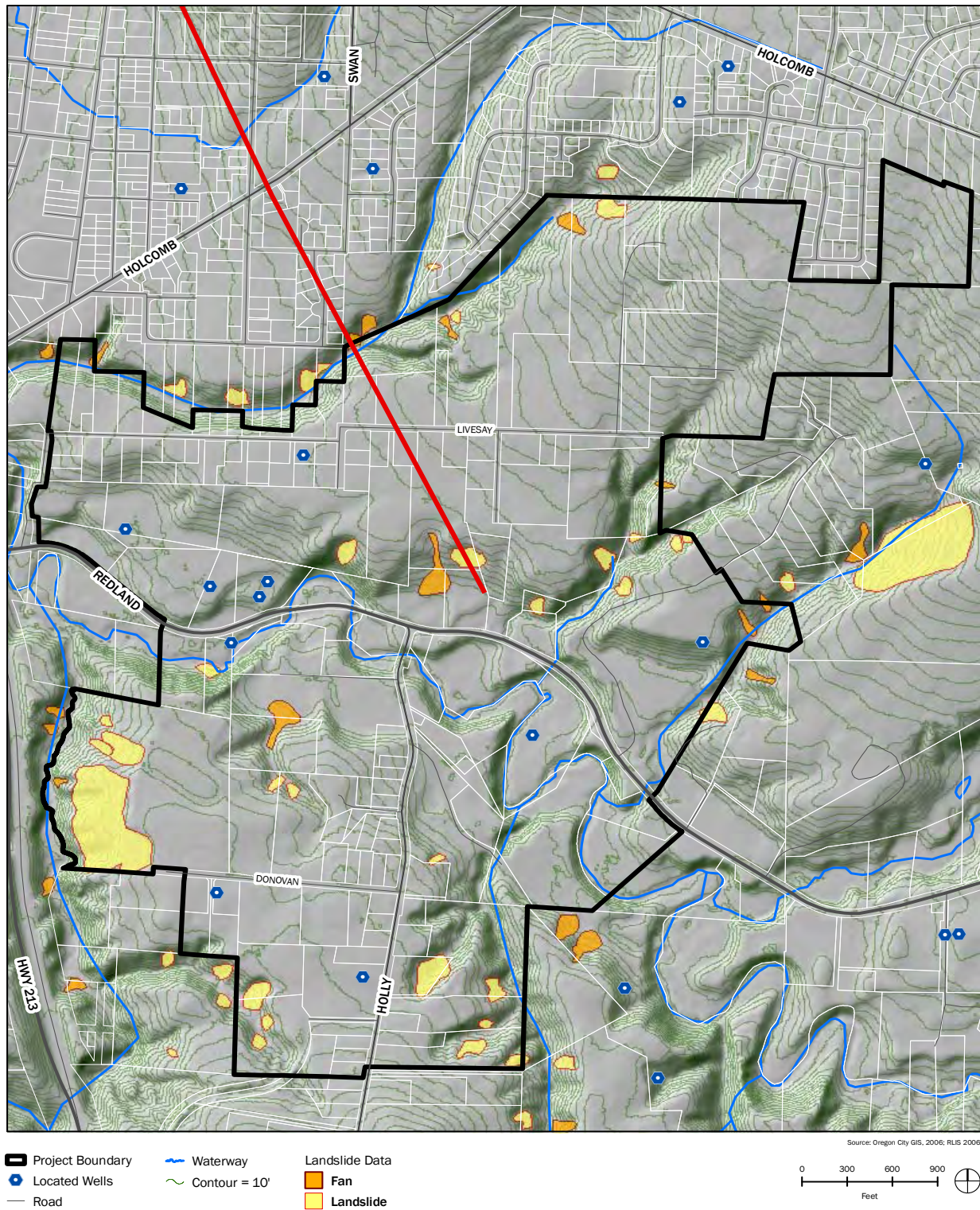


Figure 2-4. Landslide Geomorphology

This map is for concept planning purposes only. The specific locations of natural resource boundaries, open space, parks, land uses, roads, trails, infrastructure and related improvements may change and is subject to on-site verification and design at the time of development.

Market Assessment

The study area is characterized by varied topography, with limited access points and visibility. As a result, the predominant land uses in the area are expected to be residential. However, a moderate level of commercial (retail and office) development can be supported in the study area, which would serve the Park Place neighborhood and surrounding environs, as well as assist in organizing the Plan. The Portland metropolitan area economy has been enjoying a period of substantial employment growth. Trends in the commercial and industrial markets also indicate better than reported rates of growth and greater optimism for future space needs. Population growth held steady during the recent economic decline in the area, and the recent employment growth indicates that the level of growth can be sustained.

The retail market is currently sound in the Oregon City area, although there is a notable lack of regional-draw retail space. Retail is an area of obvious opportunity in the Oregon City area as population and associated levels of local buying power increase. The pending development of a major regional retail center in the immediate area will address this need for the broader community. Because of this development (and other physical circumstances of the study area), retail development in the study area will be limited to neighborhood supported uses.

The study area is expected to support between 20,000 and 40,000 square feet of retail space when fully developed. The area has limited access points, making it an unlikely candidate for more regional-serving retail services. From a market perspective, a commercial center that can capitalize on through traffic from existing arterials will increase the viability of retail space, particularly during the study area's build-out period.

Office space demand within the study area will respond to community needs, supported by the area's population base and industrial activity. Likely tenant types would include medical office, insurance brokerages, realty companies, title companies, and other professional office users. These types of office tenants will often utilize ground floor commercial space, as they have a significant amount of customer traffic, but could be located in more traditional office configurations.

Commercial development in the planning area is not seen as necessary for the success of the area, which is expected to be developed largely as residential. The commercial needs of the planning area can be met outside of the concept planning area by existing and planned developments. However, commercial development can serve to organize the Park Place Concept Plan by providing a "center" to the community. In addition, commercial development can meet some of the needs of the community, providing a marketable amenity for residential development while reducing trips out of the neighborhood.

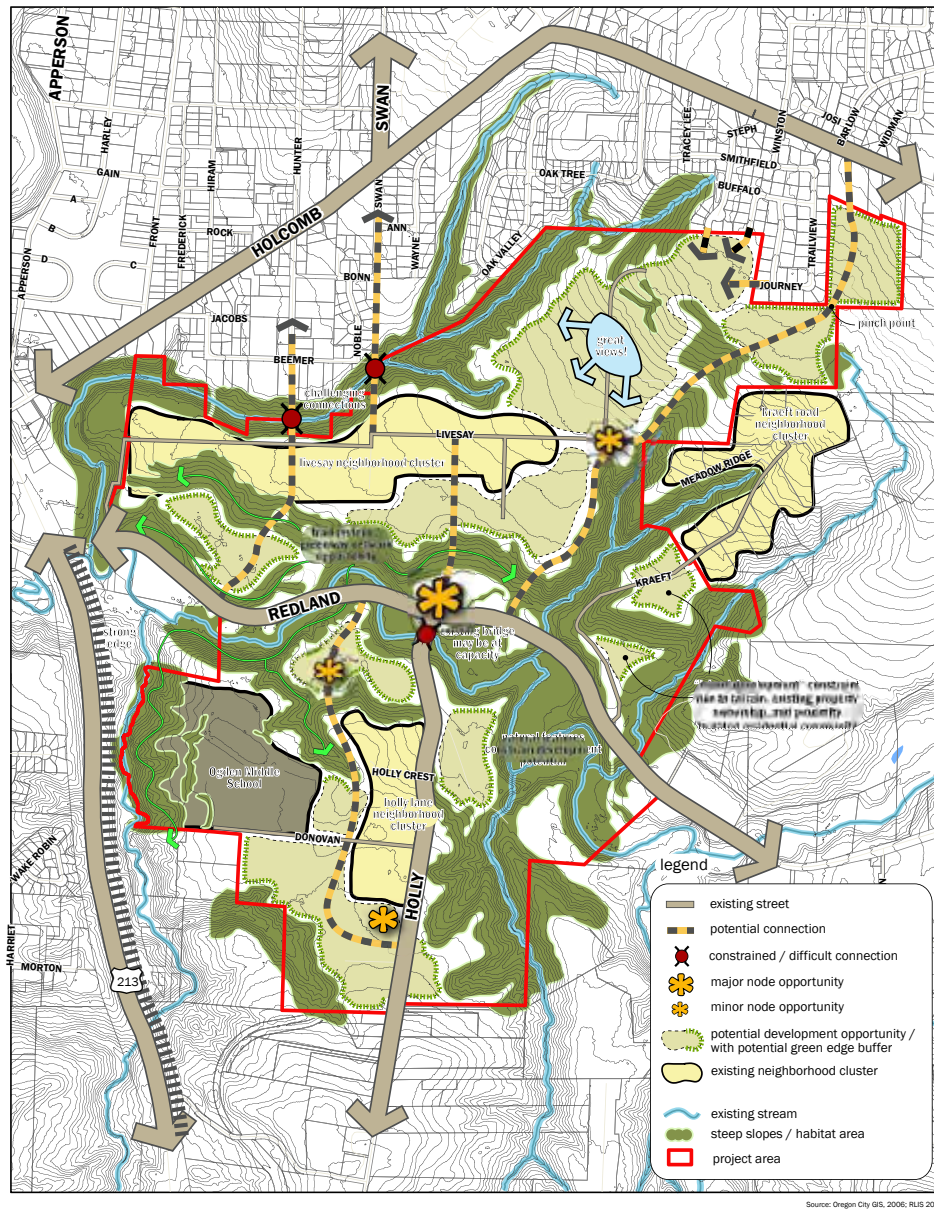
Market Conditions

General Findings:

- *Predominant land use is residential*
- *Oregon City is growing - primarily residential growth*
- *Current shortage of regional retail*
- *Retail suffers from lack of exposure, and being located on the edge of an urban area*
- *Future retail limited to neighborhood uses*
- *20,000 - 40,000 square feet of retail could be supported in the study area*
- *Local office including medical office, insurance brokerages, realty companies, title companies and other professional office uses are often willing to utilize ground floor commercial space in order to attract foot traffic.*

4. Opportunities and Constraints

The opportunities and constraints diagram (Figure 2-5) synthesizes findings from the existing conditions analysis and integrates input from the public meetings. The diagram was refined at the second community forum and updated for the design charrette in October 2006.



Park Place Concept Plan: Opportunities and Constraints

Figure 2-5. Opportunities and Constraints

This map is for concept planning purposes only. The specific locations of natural resource boundaries, open space, parks, land uses, roads, trails, infrastructure and related improvements may change and is subject to on-site verification and design at the time of development.

Opportunities & Constraints

Key elements of the opportunities and constraints diagram include:

- The study area currently consists of two neighborhood clusters: Holly Lane neighborhood cluster and the Livesay neighborhood cluster.
- The majority of the study area's buildable land (development opportunity sites) are located north of Redland Road.
- Opportunity to surround new and existing development with green buffers.
- The northeast portion of the area has great views to the south and west. Development layout lends itself to a (east-west) solar orientation.
- Sensitive areas (waterways, floodplains, wetlands, habitat conservation areas, and areas with slopes in excess of 25%) are treated as limited development zones.
- Opportunity to establish an extensive off-street trail network
- The study area has limited opportunities for north-south roadway connections due to steep slopes and sensitive habitat areas.
- The existing Holly Lane bridge is approaching capacity.
- Livesay Creek is both an opportunity (resource, habitat, aesthetic) and a constraint (difficult to connect across).
- Opportunities exist for major and minor nodes at the confluence of major roadways and on flat lands.
- Lower Livesay is a challenging area to redevelop due to limited access, steep slopes, and numerous small lots.

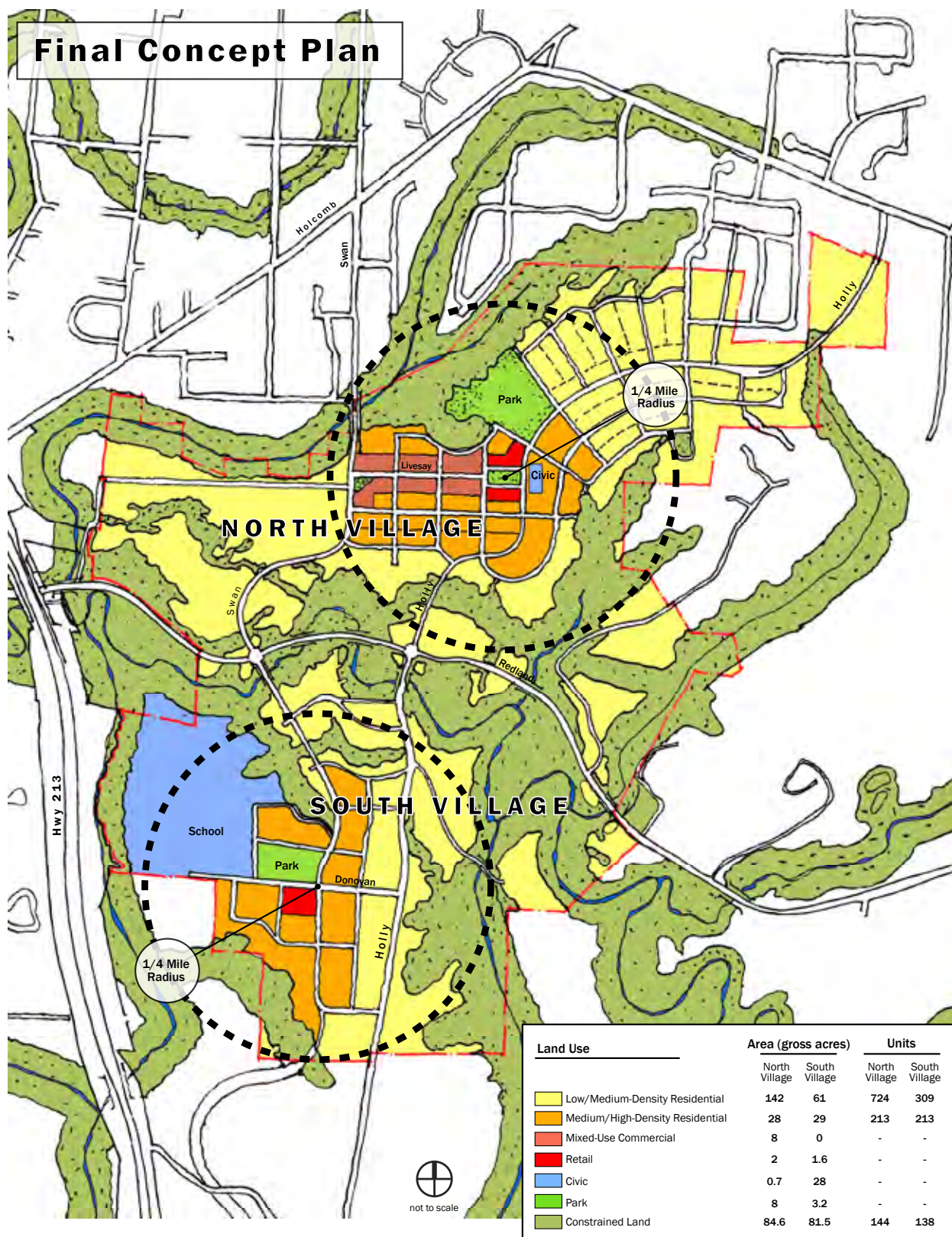


Figure 3-1. Park Place Concept Plan Urban Growth Diagram

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3. Park Place Concept Plan

1. Introduction

A series of growth alternatives for the Park Place study area were developed during a multi-day planning charrette the week of October 15, 2006 in Oregon City. The charrette (summarized on page 22; see Appendix C for detailed descriptions and sketches) consisted of interactive meetings, site tours, design sessions, and a series of public forums. Charrette participants included members of the project's Project Advisory and Technical Advisory Committees, local and regional service providers, Oregon City staff, property owners, developers, and citizens living in and around the Park Place study area. This intensive and transparent planning process resulted in a mutually agreed upon vision for the study area that became the foundation of the Park Place Concept Plan ("Concept Plan"). Following the charrette, the Park Place Concept Plan was refined to more accurately reflect the location of existing and proposed streets, natural resource areas, buildable lands, and to respond to remarks from the final public meeting.

The Concept Plan identifies the approximate location of land uses, public facilities and roads. Specific locations for these elements will be determined as part of more detailed future planning and development processes.

2. Concept Plan

The vision for the Park Place Concept Plan is to provide a framework for growth that respects and augments the area's context, history, and natural systems. The Park Place Concept Plan emphasizes good urban design, connectivity, opportunities for place-making and cultivating community, diversity, and, above all, a way to provide for future growth in a sustainable manner.

The key components of the Concept Plan (Figure 3-1) include:

- Two primary north-south connections between Holcomb Boulevard and Redland Road (Swan Avenue and Holly Lane)
- Two distinct mixed-use neighborhoods (North Village and South Village) that accommodate 1459 new dwelling units
- Neighborhood-oriented commercial nodes that integrate commercial land uses, residential land uses, and public open space
- An area for a new civic institution, such as a library or community center
- A mix of housing types and ranges of affordability
- An extensive system of off-street and on-street trails and pedestrian/bicycle connections
- Innovative, "green" on-site stormwater treatment methods
- Protected sensitive areas, including drainages and steep slopes
- Streets and buildings oriented for solar access
- The use of green edges to define neighborhoods and buffer developments
- Integration of parks and open spaces into existing and future neighborhoods

Park Place Concept Plan Charrette Summary



photos from top: charrette participants on a tour of the study area; members of the project team working on various growth alternatives; fielding questions and concerns at the first public forum; community member evaluating one of the growth concepts

Day 1 (Sunday, October 15)

- Reviewed Core Values and Evaluation Criteria (see Appendix B1) with stakeholders.
- Reviewed the opportunities and constraints diagram with stakeholders.
- Conducted a site tour of selected locations in the study area.

Day 2 (Monday, October 16)

- Held a stakeholder meeting to identify potential opportunities and constraints to creating the Park Place Concept Plan.
- Developed five preliminary planning alternatives (afternoon).
- Held Public Open House to review and comment on preliminary alternatives (evening).

Day 3 (Tuesday, October 17)

- Met with public agency representatives and others who were unable to attend Day 2 stakeholder meetings and/or decided to return for additional individual meetings.
- Narrowed five preliminary planning alternatives to two refined alternatives.
- Evaluated refined alternatives using evaluation criteria/core values (afternoon). Held second Public Open House to review and comment on two refined alternatives (evening).

Day 4 (Wednesday, October 18)

- Held stakeholder group meetings with public agency representatives, property owners, neighborhood group representatives and others, including PAC members to review refined alternatives and recommend a Preferred Alternative (morning).
- Refined the Preferred Alternative based on feedback from morning stakeholder group meetings (afternoon).

Day 5 (Thursday, October 19)

- Continued to refine the Preferred Alternative (morning and afternoon).
- Held final public meeting (Clackamas Community College) to present the Preferred Alternative (evening).

Design Principles

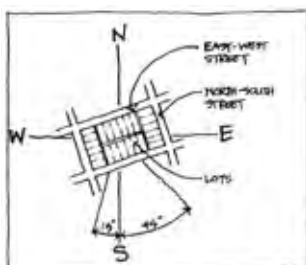
The following design principles were developed during the planning charrette. Both the core values and the design principles helped shape the various elements of the Final Concept Plan.



Create neighborhood centers in the heart of the community. All great neighborhoods have a center that acts as the heart of the community and provides a sense of place.



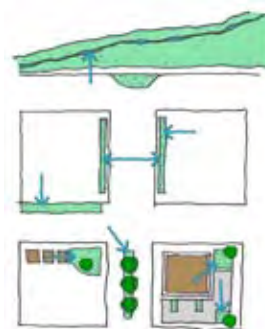
Create a mix of housing types that include ranges of affordability. One way to provide neighborhood diversity is to enable the development of a variety of housing types and sizes. This also allows people to stay in the neighborhood for long periods of time as they transition through the various stages of life.



Design for solar access. Maximizing solar access provides better daylight and ventilation, opportunities for using renewable energy systems (i.e., solar power) and improves the energy-efficiency of buildings.



Integrate existing open spaces and parks into existing and future neighborhoods. Linking new parks with existing natural areas, provides a greater range of open space options for residents and encourages better neighborhood connectivity.



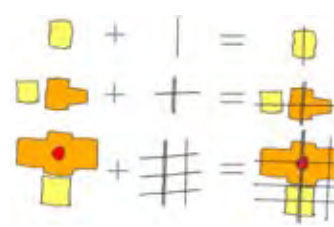
Integrate stormwater management. By treating or detaining stormwater on site, there is less need for costly infrastructure. On site treatment also improves overall water quality.



Integrate a network of streets and trails into neighborhoods. People are more likely to walk to destinations and for recreation if a safe and convenient system is in place.



Utilize existing green edges to define neighborhoods. Providing "green edges" or buffers between development provides opportunities for better neighborhood connectivity, wildlife habitat preservation, a more rural, park-like environment, and greater privacy.



Link land use and transportation. As communities develop, it is important to provide transportation connections that are commensurate with the intensity of adjacent land uses. It is important to provide transportation options for all residents and visitors, including children, the elderly, and those with disabilities.

3. Plan Elements

The following section describes the elements of the Park Place Concept Plan in detail and how the evaluation criteria and design principles are applied.

Land Use: The Villages

The Park Place Concept Plan proposes a mix of residential, commercial, park and open space, and civic land uses. Redland Road serves as the logical division between two neighborhoods: North Village and South Village. Neighborhood-oriented nodes serve as the heart of these new neighborhoods and provide a variety of civic and commercial spaces. These nodes are centrally located in the neighborhoods along existing and future roadways and are surrounded by medium density residential land uses that transition to lower-density residential land uses. In response to the market analysis findings, the Concept Plan appropriates enough land for 30,000 square feet of commercial development in the North Village and 10,000 square feet of commercial development in the South Village.

North Village

The majority of new growth (approximately 936 units) is proposed to be accommodated in the North Village neighborhood, north of Redland Road (Figure 3-2). A new main street along Upper Livesay Road between the Holly Lane and Swan Avenue Extensions, called "Livesay Main Street," serves as

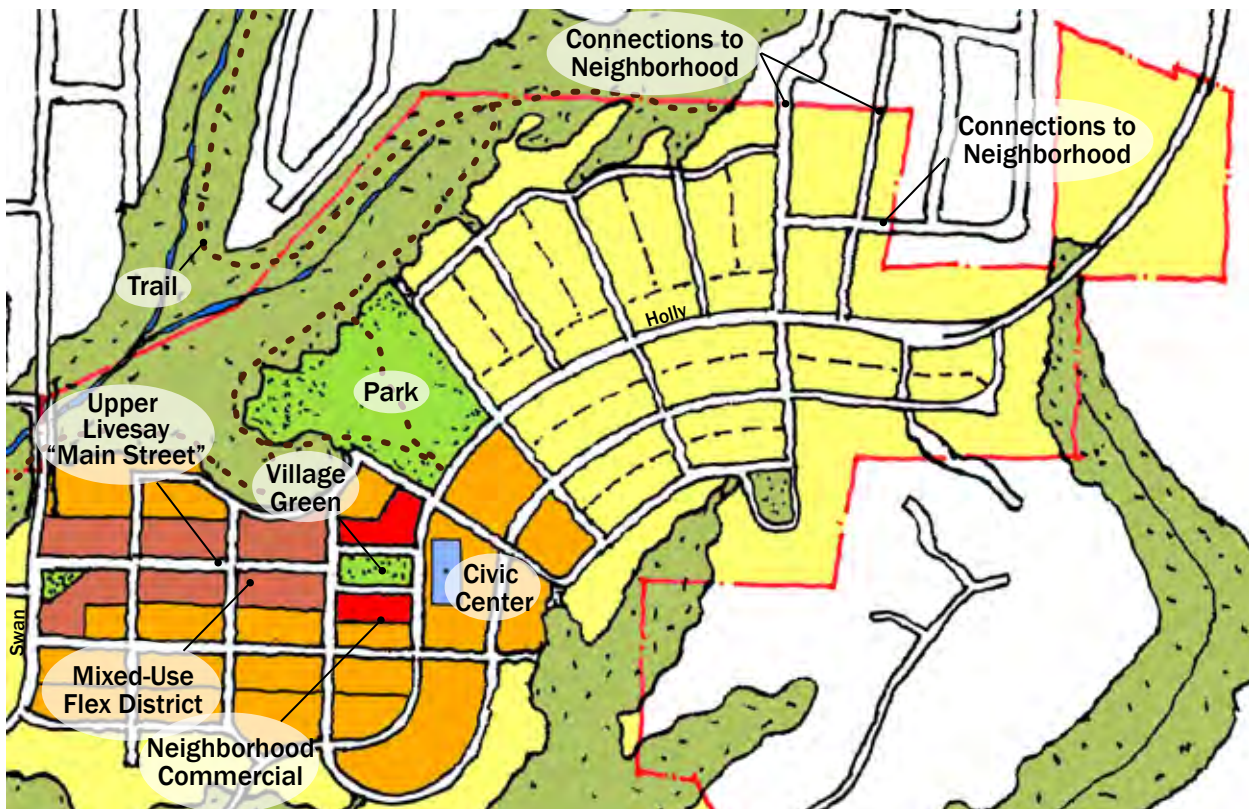


Figure 3-2. North Village Neighborhood

This map is for concept planning purposes only. The specific locations of natural resource boundaries, open space, parks, land uses, roads, trails, infrastructure and related improvements may change and is subject to on-site verification and design at the time of development.

the heart of the North Village. The Livesay Main Street is envisioned to have wide sidewalks, landscaped stormwater facilities (bioswales), pedestrian-scale lighting, street trees, and benches. The roadway terminates at the junction of the Holly Lane Extension with a Village Green and civic building (i.e., library, community center, environmental interpretative center, or post office). This mixed-use district is surrounded by medium-density housing (figures at right), which is within walking distance of the core area, and single-family housing that blends into the surrounding existing single-family residential neighborhoods. Small-scale commercial businesses, like a coffee shop, bookstore, dry cleaners, or café, are proposed to anchor the intersection of Holly Lane Extension and Livesay Main Street and surround the Village Green.

The land uses along Livesay Main Street are envisioned to be a mix of residential and commercial uses (e.g., ground-floor, neighborhood-oriented commercial with housing or offices above). The buildings should convey a rich palette of architectural elements that distinguish the Village from the existing auto-oriented commercial uses and a proposed regional shopping center in the area bounded by Washington Street, Abernethy, and Highway 213. The types of elements incorporated into the design of the street facing façade should include large storefront windows, recessed entry ways, awnings and canopies, building lighting, and a rhythm of columns and/or pilasters that break the façade into smaller, more intimate modules.

In order to ensure that architectural design elements are integrated into future development in the North Village, it is necessary to develop implementation measures that reflect these elements. As part of the implementation measures proposed for Park Place, the City's existing Neighborhood Commercial (NC) zone will be modified to include "main street" standards for use in creating vibrant neighborhood centers in the North and South Villages.

The Park Place Concept Plan includes a general street plan and street cross-sections as well as an overview of natural resource planning in Park Place, with recommended extension of density transfer provisions to all natural resource overlay zones occurring in the Park Place plan area. These implementation measures are described in more detail in Chapter 4 of this document and Appendix I.

South Village

The South Village is located at the intersection of Swan Avenue and Donovan (Figure 3-3). The South Village proposes a small neighborhood commercial node with a 3 - 5 acre park (figures at left) surrounded by a significant amount of medium-density housing; however, it will probably be some time before the existing single-family residential neighborhoods experience sufficient pressure to redevelop. Civic landmarks in the South Village include the existing Ogden Middle School and a new park. Similar to the North Village, these uses are surrounded by medium- and low-density housing.



New mixed-use development and civic node in the North Village



A variety of housing types and densities is proposed in both the North Village and the South Village



Taller buildings and a mix of uses provide a desirable sense of enclosure around the civic space in the North Village

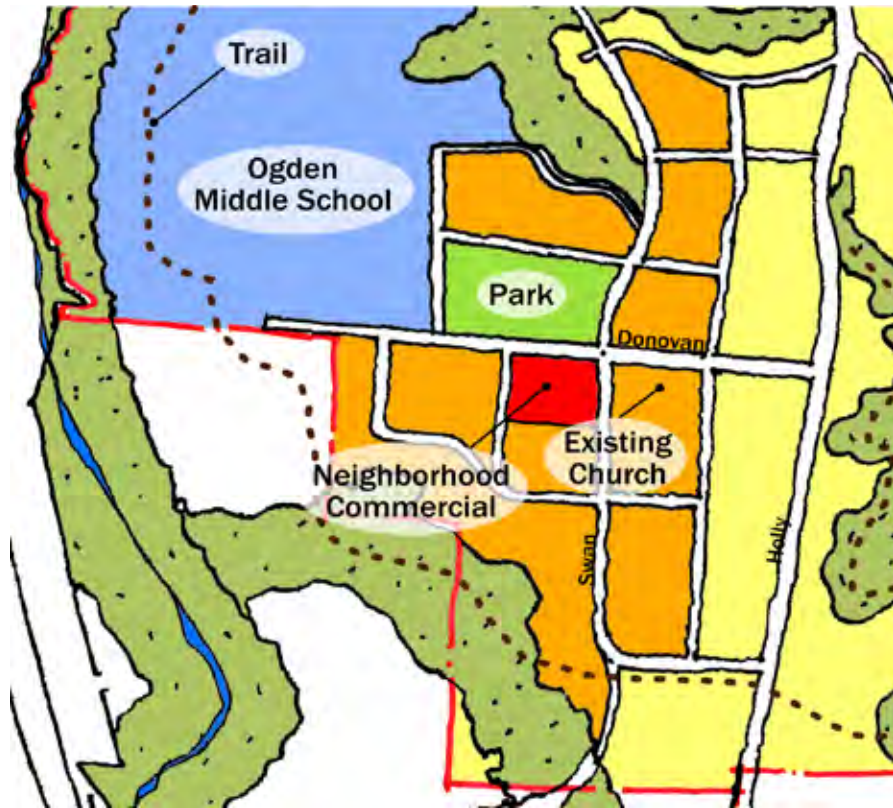


Figure 3-3. South Village Neighborhood

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Street trees, on-street parking, pedestrian-scale lighting, and street furniture create interesting places to meet in the community

Housing

The primary land use proposed in the Park Place Concept Plan is residential. Of the approximately 408 net buildable acres in the study area, approximately 360 acres are proposed for residential use. Residential land will be provided in a range of very low-density (R-10) zones to neighborhood commercial (NC) zones. In order to provide attractive and affordable housing for a variety of incomes and household types. It is recommended that a new residential zone (R-5), modifications to existing zones, additional design standards for attached single-family housing (townhouses and rowhouses), and multi-family housing be instituted to implement the Park Place Concept Plan. Recommended residential types and zones include:

Low-Density Residential (R-10, maximum 4 units/acre)

- Single-family detached dwelling units (including manufactured homes)
- Accessory dwelling units (ADUs)

Low/Medium-Density Residential (proposed R-5, minimum 6 units/acre)

- Single-family detached dwelling units (including manufactured homes)
- Accessory dwelling units (ADUs)
- Single-family attached dwelling units (townhouses/rowhouses)
- Two-family dwelling units (duplexes)

Park Place Concept Plan Housing Development Types

Houses don't always have to be large to provide a quality living space. A variety of housing sizes and types attract a mixture of ages, incomes, family structures and lifestyles to help create a richer, more diverse community.



Single-Family Housing

Part of the challenge of meeting the housing needs of a growing and thriving region is to offer housing types that address the values that drive demand for detached, single family housing, but with smaller spaces and smaller price tags.

Single-family houses can be a range of sizes, styles, and colors. Above all, they should be community-oriented with architectural elements that encourage “eyes on the street” and neighbor interaction.



Multi-Family Housing

Multi-family housing clustered around common open spaces (instead of parking lots) help foster a sense of community that usually isn't found in conventional apartment complexes. Vehicle access is provided in the rear and with alleys.

There are a variety of ways to provide quality, community-oriented apartments. In some cases, apartment complexes can be designed to look like single-family residences and contain six or seven apartments. This provides density without dramatically changing the character of the neighborhood.

Medium/High-Density Residential (R-3.5, minimum 9 units/acre)

- Single-family detached dwelling units (including manufactured homes)
- Single-family attached dwelling units
- Two-family dwelling units (duplexes)
- Multi-family dwelling units (proposed)

Neighborhood Commercial (NC)

- Dwelling units above ground floor (if in conjunction with a permitted or conditional use)



One example of a “Green Finger” - development buffer and greenway

The needed mix of housing units is shown in Table 3-1. These figures mirror the ratio of existing housing types in Oregon City according to the 2000 Census. Additional information about the affordability of housing is provided in the following section.

Type of Housing	Number of Units Needed
Single-Family Residential Detached	950
Two-Family Residential Attached (Duplex)	87
Manufactured Home in Park	48
Single-Family Residential Attached	9
Multi-Family Residential	282
Accessory Dwelling Units	17
Group Quarters	65
TOTAL	1,458

The City’s lowest-density zoning is recommended for the “green fingers” of natural resource and environmentally sensitive lands in Park Place. These areas are appropriate for low-density development and will be protected, in part, by the City environmental overlay zones which restrict development altogether in certain areas or reduce the allowable density of residential development in other areas.

Table 3-1. Type and Amount of Housing Needed

Table 3-2 identifies the potential number of housing units of different types that could be developed within the concept planning area based on proposed zoning. The low/medium-density zone is more likely to be the site of manufactured homes and ADUs than the medium/high-density zone. The distribution of housing types in Table 3-2 however, represents only one scenario for accommodating needed housing within zones proposed for Park Place. It is possible that housing types may develop in different ratios, including development of attached single-family housing in the low/medium-density residential zone.

Schools

No new school sites are identified in the Park Place Concept Plan. The two existing elementary schools near the study area, Park Place Elementary and Holcomb Elementary, currently have capacity for an additional 300 students.

Moreover, future enrollment for these elementary schools is projected to remain relatively flat, as new households in their service area are projected to include fewer young children. Ogden Middle School is currently at its preferred capacity. Although enrollment figures are expected to increase slightly with the addition of new households to Park Place, this growth is expected to be gradual and not significant enough to trigger the need for a new middle school.

Based on enrollment projection assumptions used by the Oregon City School District, which vary for different types of housing units, development in the study area is expected to result in the following approximate number of additional students when the area is completely developed:

Table 3-2. Type and Amount of Housing By Land Use Designation

Residential Land Use Designation/Zone	Number of Units Needed	Housing Type
Low/medium-density residential (yellow) – minimum 6 units/acre	907	Single-Family Residential Detached (including Manufactured Homes)
	17	Accessory Dwelling Units (ADUs) sited with Single-Family Residential
Sub-total	924	
Medium/high-density residential (orange) - minimum 9 units/acre	117	Single-Family Residential (Detached and Attached)
	369	Two-Family Residential Attached (Duplex) and Multi-Family Residential
	65	Group Quarters
Sub-total	551	
Total	1,475	

- 350 elementary school students
- 150 middle school students
- 150 high school students

These increases in enrollment are expected to occur gradually over the next five to twenty years, depending on the pace of annexation and development in the planning area. Given the additional capacity of existing schools, these additional students would not create the need for a new elementary school which averages about 500 students in the Oregon City School District. Similarly, the increase in enrollment would not result in the need for an entire new middle school, which averages about 700 students in the District. Therefore, no additional school site is recommended in the Park Place Concept Plan.

Parks and Open Space

The Park Place Concept Plan incorporates a significant amount of open space, mostly attributed to environmentally-constrained natural areas within the planning area. This open space network takes the form of “green fingers.” These

“green fingers” consist of sensitive habitat and drainage areas that frame pockets of development while protecting the existing natural habitat. The proposed “green fingers” provide a buffer between resource areas, existing development, and new development. The “green fingers” also serve as a signature element for the burgeoning neighborhood, especially when they are combined with the Plan’s proposed system of trails and pathways. This open space concept can be realized through local regulation, sensitive development practices, and through public acquisition. The amount of open space proposed in the Plan exceeds Metro and City guidelines.

As discussed, the Park Place Concept Plan includes a neighborhood park in both the North Village and the South Village. These parks are shown in locations that optimize the following concept planning criteria:

- Locate parks adjacent to future village centers in order to maximize proximity and therefore walkability for the greatest number of residents;
- Locate parks adjacent to civic uses such as schools or other facilities in order to synergize with existing or planned public amenities;
- Locate parks on sites that are relatively flat in order to accommodate the need for play fields; and
- Locate parks adjacent to existing natural areas so as to integrate open spaces with parks. This may allow for reduced park areas by allowing passive recreation areas to occur in natural open space areas.

There may be other locations within the proposed neighborhood fabric that meet these criteria and the locations indicated on the Urban Growth Diagram should not be taken as absolute. The parks were shown in these locations because they meet these criteria. It is essential that any alternative sites identified in the future meet the same or similar criteria.

The City’s existing Park and Master Plan identifies the need for two developed parks in this area to meet its standard of having neighborhood or community parks within ½ mile of all residents. According to conversation with Jim Row, (former) Oregon City Park and Recreation Planner, The Oregon City Park and Recreation Master Plan, National Recreation and Park Association’s park and recreation facility guidelines, and information compiled by Cogan Owens Cogan, a single park would not meet this standard. Such national and local guidelines typically indicate standards of between 1-3 acres of neighborhood parks per 1,000 residents, 2-4 acres of community parks per 1,000 residents and overall goals of six to 10 acres of developed park facilities per 1,000 residents. These standards indicate the need for 18-30 acres of developed parks, including neighborhood and community or other developed park facilities in the planning area, assuming a buildout population of about 3,000 residents. The proposed number of facilities and acres of developed parks is generally consistent with these targets.

The parks shown on the Urban Growth Diagram are located in their respective neighborhood centers and are surrounded by commercial, civic uses, and medium density housing. The parks are intended to provide basic recreational opportunities for residents and may include amenities such as play equipment, athletic fields, picnic tables or shelters, walking trails, and other features. The neighborhood park in the North Village is approximately eight to ten acres and within walking distance of the Livesay Main Street. The South Village neighborhood park is approximately three to five acres and surrounded by medium/high-density residential. These two parks are consistent with the type of parks identified as needed in the City's *Parks and Recreation Master Plan (2004)* and with recommended national acreage guidelines and service areas.



Open Space - Natural Area



Neighborhood Park

Transportation

The core values and guiding principles of the Park Place Concept Plan describe a multi-modal transportation system that is fully integrated with the land uses it serves. By design, the system is inherently sustainable, safe, and interconnected and serves the local and regional travel anticipated for the area.

Regional Growth Impacts

Substantial growth in local and regional travel is anticipated over the next 25 years. The Highway 213 corridor will be hardest hit, with travel demands growing by nearly 50 percent to almost 60,000 vehicle-trips a day. Improvements to this corridor would be very costly and face many difficult challenges to overcome. City and regional planners agree that this vital facility must be protected by enhancing the City's transportation system to better serve local travel.

Redland Road, Holcomb Boulevard, and Holly Lane are also forecast to experience significant increases in travel demands. Each corridor is constrained by narrow rights-of-way, physical features, and/or difficult topography that make improvements difficult. Nonetheless, it is imperative that the local transportation system be improved and expanded to better serve the Oregon City area and protect the regional resources of HWY 213 and I-205. Therefore, the Park Place Concept Plan provides for a transportation system that addresses these constraints while minimizing the adverse impact of local and regional growth.

Holly Lane and Swan Avenue Extensions

Holly Lane serves a vital role in both the local and the regional context as the only continuous north/south travel corridor on the east side of HWY 213. Holly Lane connects the northern area of Oregon City to many key destinations in the hilltop area of the city, such as Berryhill Shopping Center, Clackamas Community College, Oregon City High School, City Hall, and many other retail and employment locations. As a result, this corridor is expected to see travel demands increase by nearly 13,000 vehicles per day to a total of more than 16,000 vehicles per day. Were this to occur, Holly Lane would need to provide five lanes near its intersection with Redland Road and three lanes for the remainder of its length. In addition, Redland Road would need to provide six lanes (unless a smaller cross section is proven adequate) near its intersection with Holly Lane and five lanes for the remainder of its length to Abernethy Road.

The cost and feasibility of these improvements is questionable. Much of the Holly Lane corridor has a very narrow right-of-way with many single-family residences that take direct access from Holly Lane. Climbing sections of Holly Lane will be very costly to reconstruct and face several engineering challenges. The existing two-lane bridge across Abernethy Creek would need to be demolished and replaced with at least a five-lane bridge. Finally, much of Redland Road is significantly constrained by topography on the north side and the Abernethy Creek on the south side.

The Park Place Concept Plan provides for a parallel, collector-level corridor to Holly Lane, referred to as the Swan Avenue extension, as a solution to the issues described above. Establishing this corridor from Forsythe Road to points well south of Donovan Road ensures that the existing Holly Lane can remain a two-lane, collector-level facility, south of Redland Road. The Swan Avenue extension will include bridges across the Livesay Creek canyon and Abernethy Creek, creating much needed connections between adjacent neighborhoods and providing adequate capacity and system redundancy critically needed during times of emergency. In addition, Holly Lane would be extended north from Redland Road to connect with Holcomb Boulevard, providing good access, connectivity, and system redundancy to the area.

The Swan Avenue extension provides the opportunity for a continuous, north/south, collector-level facility that is fully equipped to serve all travel modes. The facility will include sidewalks and on-street striped bike lanes on both sides and accommodate future transit service. Equipped as such, Swan Avenue is anticipated to attract 10,000 to 12,000 vehicles a day, while Holly Lane is only required to serve 4,000 to 6,000 vehicles per day. This allows the existing Holly Lane to remain a two-lane road with improvements to address safety concerns and manage travel speeds.

There are many other benefits derived from the Swan Avenue extension, such as:

- the Livesay Creek Canyon is finally overcome as a barrier of access to schools, parks, retail uses, and neighborhoods, which reduces demands on Redland and Holcomb and reduces out-of-direction travel;
- the new Swan Avenue-Abernethy Creek bridge provides a critical connection that is out of the flood plain, redundant to the Holly Lane-Abernethy Creek bridge crossing, and improves system connectivity and local access;
- areas north and south of Redland Road are more accessible and achieve higher levels of development as a result;
- the Swan Avenue connection from Livesay Road to Redland Road alleviates the need for the existing Livesay Road intersection with Redland Road and dramatically reduces the likelihood of cut-through traffic using lower Livesay Road;
- improvement requirements for Redland Road are appreciably reduced, lowering costs and environmental impacts; and,
- a more complete, robust, and redundant multi-modal transportation system can be developed that is cost-effective and environmentally sound.

The Swan Avenue-Livesay Creek Canyon bridge and the Swan Avenue-Abernethy Creek bridge are vital links in the local and regional transportation system and critical components to the viability of the land use concept. These allow

a continuous collector-level corridor to be created. This alleviates the need to widen and significantly improve the Holly Lane corridor, which minimizes adverse impacts to existing properties along Holly Lane. The connections provide for more direct routes between key destinations in and around the study area. This reduces out-of-direction travel, particularly travel on Holcomb Boulevard and Redland Road. Finally, these connections provide convenient access to a large enough population base to fully support the north and south mixed-use village areas.

Sustainability

A sustainable transportation system is achieved through a number of specific components. Many of the new public rights-of-way will be equipped with on-site storm water and water quality management techniques that minimize or eliminate the need to carry run-off to treatment facilities. All rights-of-way will be equipped to serve pedestrian and bicyclists (with the possible exception of Holly Lane south of Redland Road), which will reduce the need for vehicular travel. The pattern of classified streets in the Plan naturally accommodates transit service to and through the area, creating a viable alternative to vehicular travel for most types of trips. The redundant and interconnected network of facilities distributes traffic, shortens trip lengths, and optimizes opportunities for non-auto travel. These components work in combination to provide a sustainable transportation system and minimize the adverse impacts of impervious surface and vehicular travel.

Land Use and Transit

The Land Use component of the Park Place Concept Plan achieves a level of residential density that is considered transit-supportive. As such, there is a much greater likelihood that transit service will be extended to this area. The potential exists for services to connect the Park Place area to the Oregon City Transit Center (which connects Oregon City the greater Portland region) and the Clackamas Community College Transit Center (which connects multiple areas of Oregon City). Said services are likely to greatly improve the number of transit riders in the planning area.

Nature and the Pedestrian/Bicycle System

The natural beauty of the Park Place area is a tremendous asset that justifies a high-quality pedestrian and bicycle system to access it. People are drawn to this beauty and desire to see it, as they travel, and spend time in it, as they recreate. The natural surroundings will be a stimulus for activity, which is best served by a pedestrian and bicycle system associated with public rights-of-way and on trails. Therefore, all public streets (any street owned by a public agency) will be equipped with sidewalks on both sides, sized appropriately to the adjacent land uses and expected pedestrian activity. On-street striped bike lanes will exist on most of the classified roadways (any roadway functionally classified as a collector or above by any public agency) to safely accommodate and delineate bike routes. A system of hard- and soft-surface trails will intertwine with the public rights-of-way to provide direct access to nature for both modes. The result is a natural

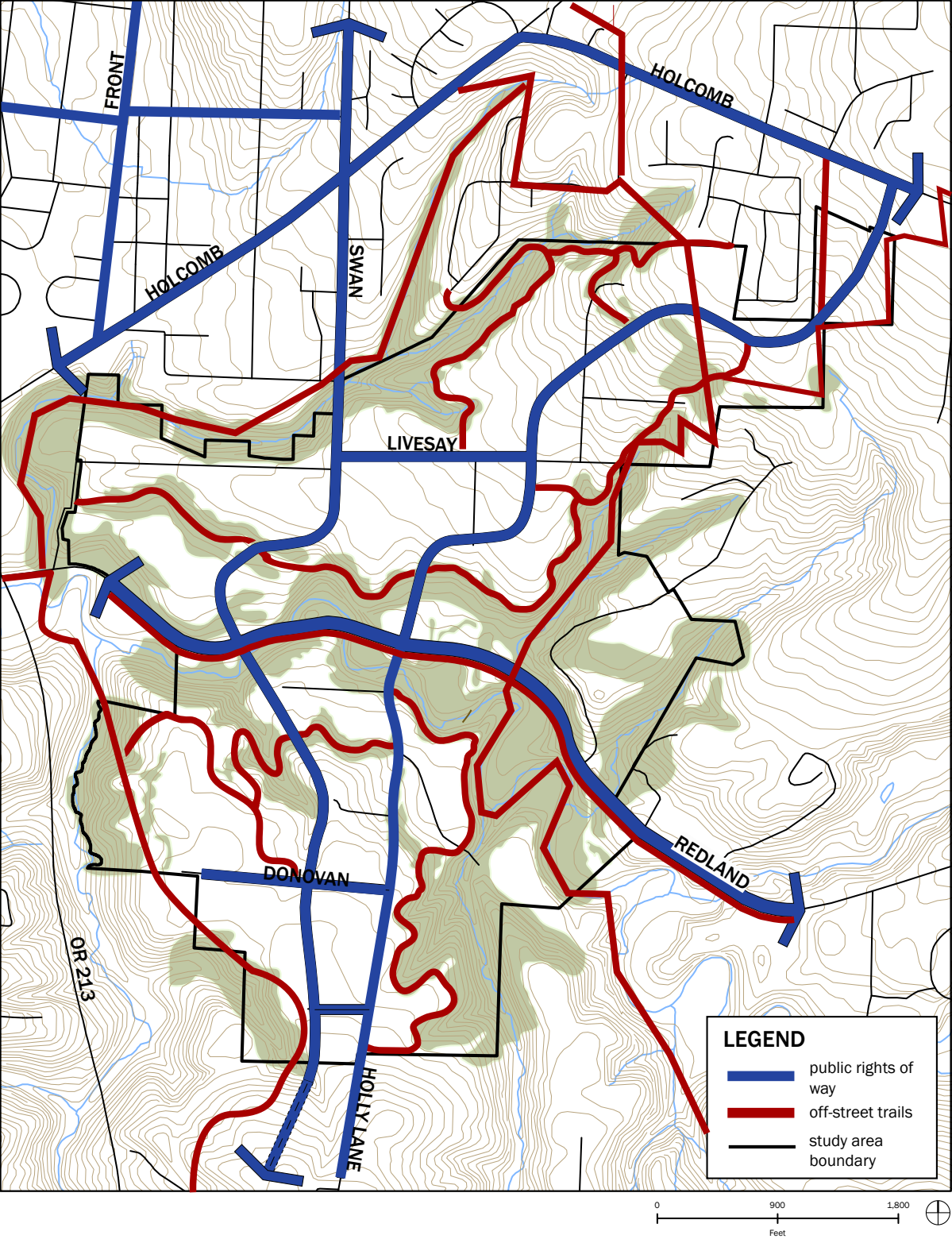


Figure 3-4. Concept Plan Street System Map

This map is for concept planning purposes only. The specific locations of natural resource boundaries, open space, parks, land uses, roads, trails, infrastructure and related improvements may change and is subject to on-site verification and design at the time of development.

environment, complemented by a robust pedestrian/bicycle network that is expected to stimulate a much higher level of pedestrian and bicycling activity than in many other areas of the region.

The following sections provide a description of each mode of travel in Park Place and the recommended multi-modal system to support those modes.

Street System

A network of streets is necessary to satisfy the core values of the Plan and meet the needs of the traveling public. The Concept Plan Street System Map (Figure 3-4) and the Concept Plan Functional Classification Map (Figure 3-5), depict this system of streets and the way in which each is anticipated to function. Each street is carefully sized to carry the expected travel demand it is intended to serve, while minimizing the impact of unnecessary impervious surface. Described below are the functional classifications applied to roadways within the planning area. Other improvements (e.g., intersection improvements) will be evaluated and designed in more detail as development occurs. They could include a mix of traffic signals and/or roundabouts, as well as additional turn lanes.

Functional Classification

Roadways within the plan area are categorized into different groups. These groups are referred to as “functional classifications” and are defined in the City of Oregon City’s Transportation System Plan (TSP). Roadway classifications applied within the Park Place neighborhood include Minor Arterial, Collector, Neighborhood Collector, and Local Street.

Minor Arterial streets are roadways that “connect principal traffic generators; carry local traffic between neighborhoods and to community and regional facilities within a city.”

Collector streets are typically characterized by a 2 or 3-lane cross-section, low to moderate traffic volumes, trip lengths, and traffic speeds.

The primary function of Neighborhood Collectors is to provide local access and circulation. The roadway typically has low traffic volumes and speeds to ensure livability and safety.

Minor Arterial

Redland Road is the only street classified as a Minor Arterial within the Park Place Concept Plan area, since it connects area residents to the Highway 213 corridor (Expressway classification) and to downtown Oregon City via Abernethy Road, another Minor Arterial. Other streets with the same designation in the Park Place vicinity include Anchor Way, Abernethy Road, Clackamas River Drive, Holcomb Boulevard, and Washington Street.

Collector

The existing Holly Lane is designated a Collector street, because it connects area residents to Redland Road and Maplelane Road, both of which are Minor Arterials. Other Collector streets in the vicinity include Forsythe Road, Front Avenue and Swan Avenue, north of Holcomb Boulevard. The extensions of Swan Avenue (from Holcomb Boulevard to south of Donovan) and Holly Lane (from Redland Road north to Holcomb Boulevard) are also designated as Collector facilities. This designation is chosen because of the anticipated function each extension will serve, connecting between Minor Arterial streets and linking neighborhoods to several areas of the city.

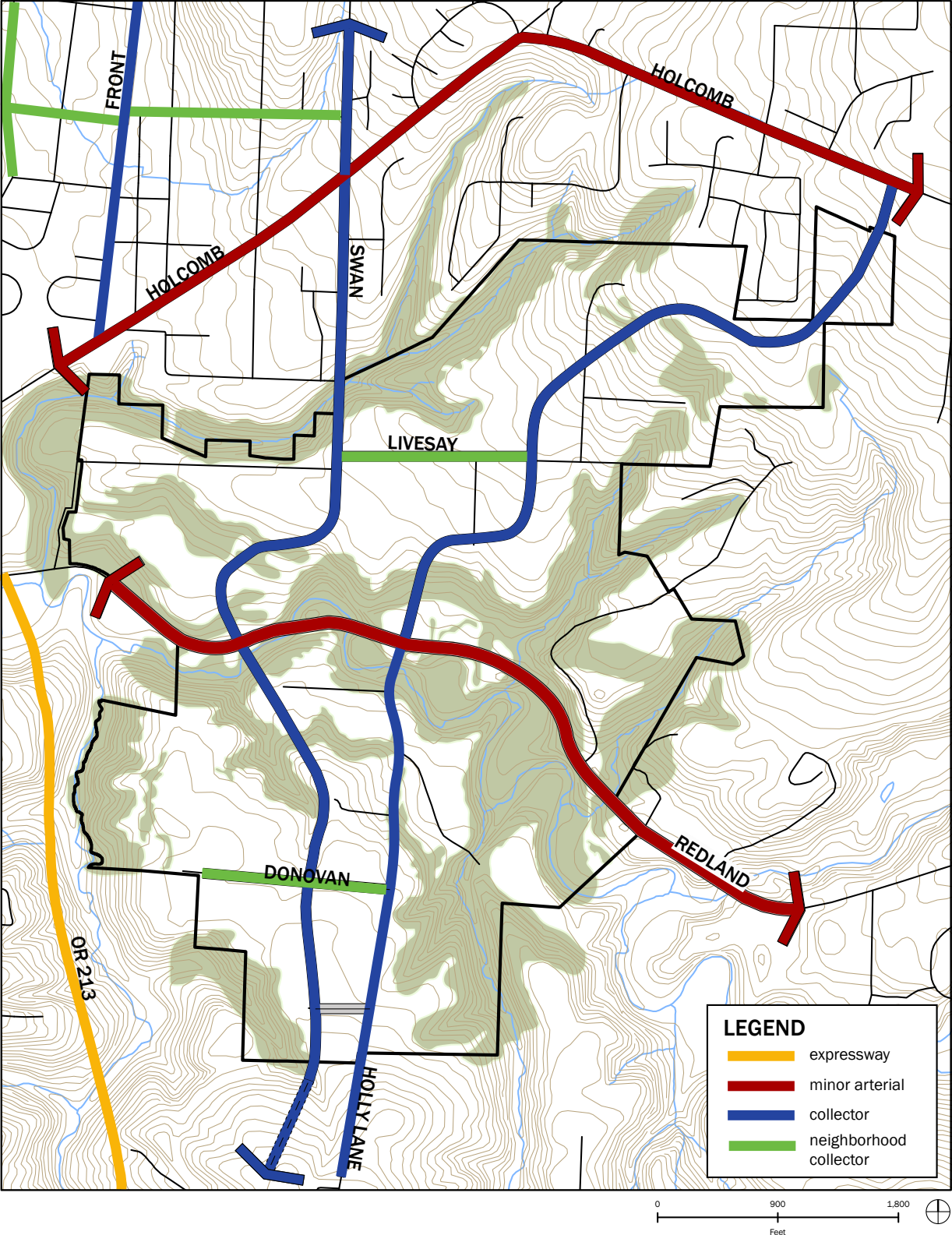


Figure 3-5. Concept Plan Functional Classification Map

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Neighborhood Collector

Livesay Road, between Swan Avenue and Holly Lane, and Donovan Road, from Holly Lane to Ogden Middle School, are designated as Neighborhood Collectors. Apperson Boulevard and Cleveland Street are other Neighborhood Collectors in the vicinity.

Local Street

A Local street is one that “provides direct access to adjacent properties and land uses within neighborhoods; lowest mobility function and highest accessibility function; low traffic volumes and speeds; through traffic discouraged; typically 2-lane sections; on-street parking encouraged; typically stop-sign control at intersections with collector and arterial streets; sidewalks and landscaping are required; and, bicycle lanes are optional.” All roadways not depicted in Figure 3-5 will be constructed as local streets.

Sizing

The Concept Plan Functional Classification Map (Figure 3-5) illustrates the basic street sizes expected as a part of implementing the Park Place Concept Plan. As shown, only the segment of Redland Road between Swan Avenue and Highway 213 is expected to require four travel lanes of capacity (unless a smaller cross section is proven adequate). All other roadways only require two travel lanes, one in each direction.

Tables 3-1 and 3-2 summarize proposed functional classification of each roadway in the Park Place Concept Plan and list features and the range of right-of-way to

Table 3-3. Functional Classification of Park Place Roadways

Roadway	Functional Classification
Redland Road	Minor Arterial
Holly Lane: South of Redland Road	Collector
Holly Lane: North of Redland Road	Collector
Swan Avenue: South of Holcomb Boulevard	Collector
Livesay Road: Holly Lane to Swan Avenue	Neighborhood Collector
Donovan Road: Holly Lane to Ogden Middle School	Neighborhood Collector

Functional Classification	Total ROW (Feet)	Standard Widths of Features (Feet)					
		Each Side				Other	
		Travel Lanes	Bike Lanes	Sidewalks	Planter Strips	Median	Parking
Minor Arterial	64-114	12-24	6	7	0-10	0-12	0-8
Collector	60-86	11	6	6	0-10	0-12	0-16
Neighborhood Collector	52-81	11	0 or 5	5	10	0-11	8-16
Local Street	42-54	8	0	5	5	0	0-8

Table 3-4. Right-of-Way Required for Each Functional Class

accommodate the street. The City's typical cross section requirements have flexibility, with many features being optional. The City has final authority over determining the appropriate cross section features and right-of-way width to require for all roadways constructed within the city limits.

Typical Cross Sections

Figures 3-A through 3-J correspond with the recommended cross sections for key facilities within the Park Place Concept Plan area. These figures correspond to the Concept Sizing Map (Figure 3-6) and illustrate the desired features for different street segments within the plan area. (It should be noted that Figure 3-B is not located on Figure 3-6 due to the streets being located outside of the study area.) Planter strips and medians are anticipated to work as water quality mitigation features where they are depicted. A brief description of each is provided below.

Minor Arterial

Figure 3-A, Redland Road 5-Lane Cross Section, illustrates an example cross section for Redland Road. The combination of regional and Concept Plan growth results in travel demands on Redland Road potentially requiring a typical five-lane cross section from the Abernethy-Holcomb intersection to Swan Avenue. Redland Road follows the Abernethy Creek corridor and is constrained by gentle to moderate slopes of adjacent hills. As such, widening of this corridor will be difficult. However, there is an opportunity to accommodate bicyclists and pedestrians on a shared use trail that parallels Abernethy Creek, in lieu of being in the Redland Road right-of-way. All reasonable efforts to minimize the typical cross section, while providing a safe and multi-modal facility, are encouraged.

While it is reasonable to pursue sufficient right-of-way to accommodate a 5-lane cross section, a Redland Road Corridor study to evaluate the impacts of widening the existing roadway should be completed prior to construction of any major improvements in this area



Figure 3-A: Redland Road 5-Lane Cross Section

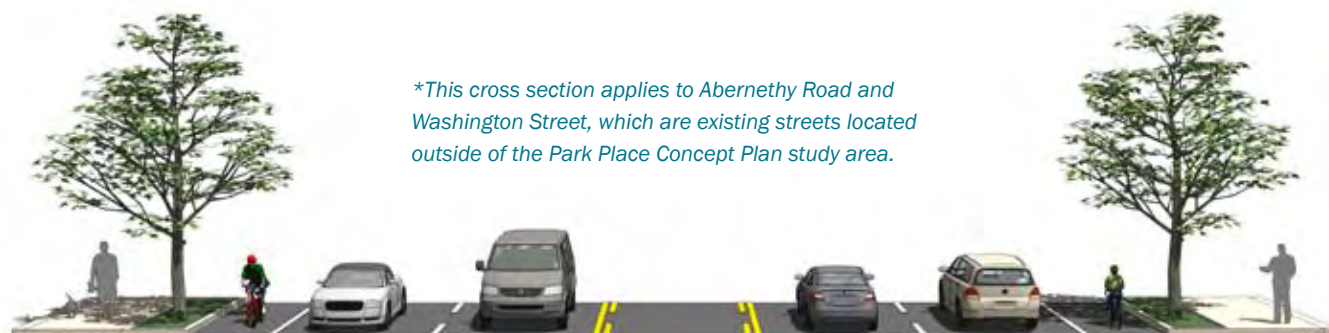


Figure 3-B. Minor Arterial 5-Lane Cross Section*

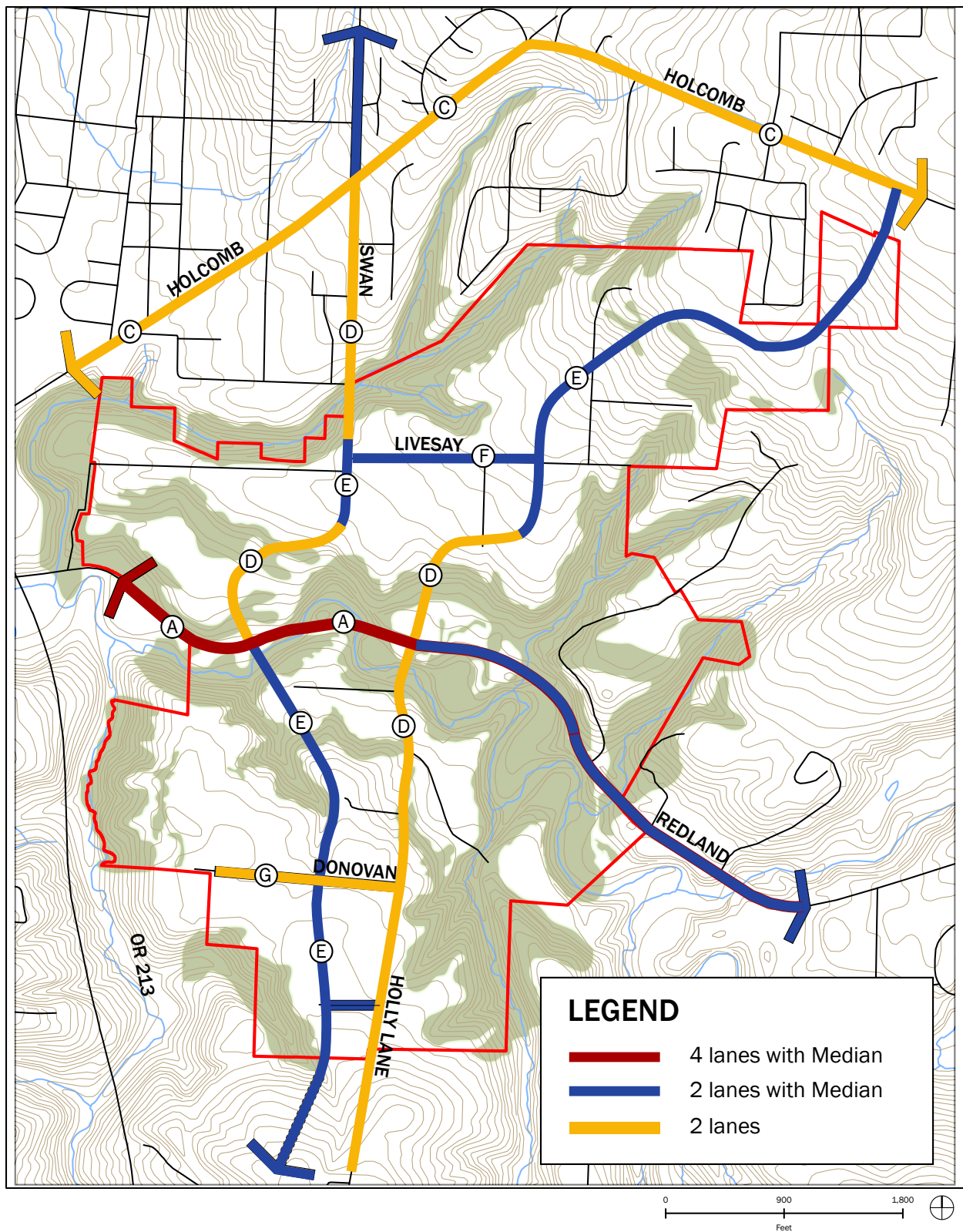


Figure 3-6. Concept Plan Street Sizing Map with Proposed Cross Section Designations

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due to the sensitivity of the Abernethy Creek and Newell Creek Watersheds. Further widening should be phased only as capacity needs are confirmed through future analyses.

Figure 3-B, Minor Arterial 5-Lane Cross Section, represents the type of cross section anticipated for Abernethy Road and Washington Street. Each is expected to be a five-lane roadway, with on-street bike lanes and sidewalks on both sides.

Figure 3-C, Minor Arterial 2-Lane Cross Section, illustrates a cross section that would be appropriate for Holcomb Boulevard and Anchor Way. The rights-of-way for both facilities are narrow and each must overcome grades, therefore, it is appropriate to keep the cross section as narrow as possible, without compromising safety or functionality.

Collector

Several sample cross sections illustrate the range of options considered for



Figures 3-C and 3-D. Narrow Minor Arterial 2-Lane Cross Section and Collector 2-Lane Cross Section

The major differences between a narrow 2-lane Minor Arterial and a 2-lane Collector are its functional classification, the width of the bicycle lanes and the width of the sidewalks.

this area. Figure 3-D, Collector Narrow 2-Lane Cross Section, provides a very narrow cross section; devoid of planter strips, medians, and on-street parking; for use in areas with steep grades and/or in a bridge section. This cross section may be appropriate for the climbing segments of Swan Avenue from Redland toward Livesay and of Holly Lane from Redland toward Donovan and Redland toward Livesay.

Collector segments occurring on flat to gentle grades afford the opportunity to provide several cross section amenities. Figure 3-E, Collector 3-Lane Cross



Figure 3-E. Collector 3-Lane Cross Section

Section, includes the planter strip and median and represents a cross section desired for Swan Avenue south of Redland and for Holly Lane north of Redland. The planter strip and median better integrate the street with adjacent land uses and provide for the necessary storm water management features.

Neighborhood Collector

Sections of Livesay and Donovan are designated as Neighborhood Collector and Figures 3-F and 3-G represent cross sections desired for these streets. The designated section of Livesay is anticipated to function like a main street in the mixed-use commercial node, as shown in Figure 3-F, Neighborhood Collector as Main Street. As such, on-street parking and wide sidewalks with plantings and other pedestrian amenities are desirable. Traffic speeds and vehicle volumes would be low enough that bikes can safely share the road with vehicles.

Figure 3-G, Neighborhood Collector with Bike Lanes, illustrates a potential treatment that may be appropriate for Donovan. Because Donovan connects to Ogden Middle School, there is a greater need for a delineated bicycle facility. Therefore, this cross section provides on-street bike lanes and only one lane of on-street parking.



Figure 3-F. Neighborhood Collector as Main Street



Figure 3-G. Neighborhood Collector with Bike Lanes

Local

Many local streets are anticipated in the Park Place Concept Plan. A variety of cross sections is available and should be used to fit the character of the development, creating the strongest integration of land use and transportation. Figures 3-H through 3-J represent different ways in which the Local street integrates with the neighborhood it serves and accommodates pedestrian, bicycle, and motor vehicle travel. The local street system provides an excellent opportunity to comprehensively integrate innovative stormwater facilities and systems. These systems are discussed in greater detail in the next section.



Figure 3-H. Local Street with On-Street Parking



Figure 3-I. Hillside Local Street With Stormwater Swale

Transit

TriMet is the transit agency responsible for providing public transportation services to the Park Place planning area. Figure 3-7 shows proposed transit routes within the planning area. The routes provide bus service to the following locations:

- along Holcomb Boulevard between its intersection with Redland Road and the Holly Lane extension;
- along Holly Lane from Holcomb Boulevard to Maplelane Road;
- along Swan Avenue from Holcomb Boulevard to Donovan Road, and
- along Redland Road west of Holly Lane.



Figure 3-J. Local Street with No On-Street Parking

Ideally, buses would travel along these routes at 15-minute headways during the peak hours and at lesser frequencies during the rest of the day, depending on demand. This plan would provide Park Place residents with a viable alternative to driving their own cars to reach destinations that are too far for bicycling or walking.

Achieving this level of transit service is dependent on the amount of transit demand generated by the planning area. Transit service to the area can be expected to evolve over time, as growth occurs and is accommodated in transit-supportive development densities. The evolution would likely start with increased service on the existing route to better serve the commuter peaks and provide a longer span of service. As the transportation network is expanded and population densities increase, improvements could include extensions of existing routes and increased service frequencies. Finally, transit demands reach the point where new routes are justified for better coverage to this newly developed area, as illustrated in Figure 3-7.

Pedestrian and Bicycle

Area residents will be able to travel throughout the Park Place planning area by walking or biking on a system of trails and on-street facilities that are seamlessly interconnected with the local and regional trails system.

Trails

Figure 3-8 illustrates the trail system throughout the planning area. Local, community, and regional trails connect to the Park Place Concept Plan trails that link to parks, open space, and community destinations. Many of these trails could include a soft-surface to accommodate equestrian activity, while others would have an all-weather surface. (The Park Place Concept Plan is aspirational with respect to equestrian facilities. Equestrian facilities are likely to occur outside of public street rights-of-way.) These trails provide recreational opportunities in addition to providing safe routes of travel for bicyclists and pedestrians. The following trail types and standards are described in greater detail in the Oregon City Trails Master Plan.

Regional Trails: These trails are part of a larger trail system and may be identified in the Metro Regional Trails map. They provide access to areas within and outside the City of Oregon City. Regional trails typically are paved and wider than community or local trails, providing access to multiple types of users, including people walking, bicycling, jogging or roller-blading.

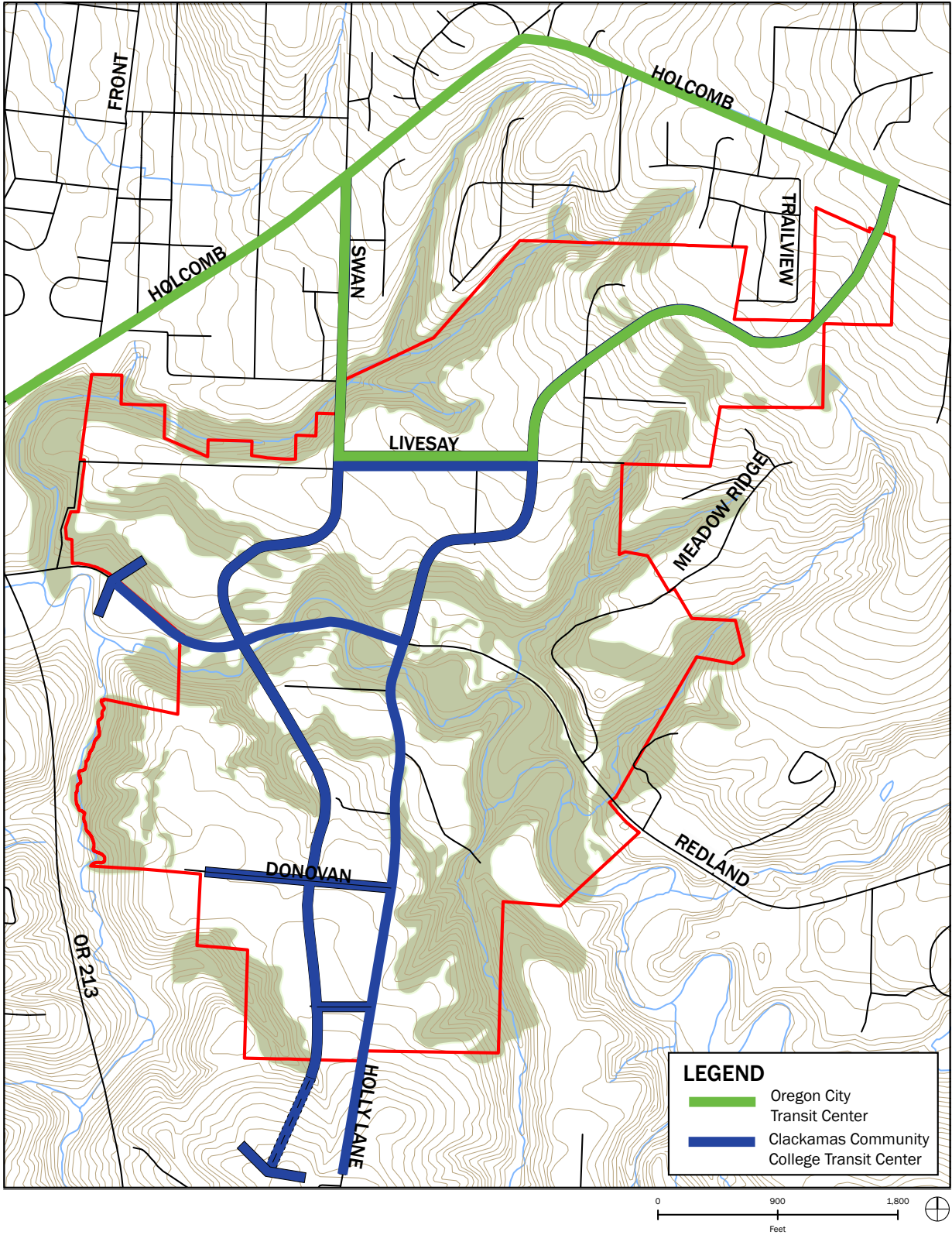
Community Trails: These trails serve residents throughout the community and provide links both within and between different neighborhoods and community destinations within the city. They are designated as community trails in the Oregon City Trails Master Plan map. Community trails typically are wider than local trails and provide access to multiple types of users, similar to regional trails. Trails surfaces (paved or unpaved) and widths may vary depending on topography, other environmental conditions and level of use.

Local Trails: Local trails primarily serve residents within a single neighborhood or portion of the city. They provide links within neighborhoods to or between local destinations such as schools, parks or shopping areas, or within natural areas or parks. Trails surfaces (paved or unpaved) and widths may vary depending on topography, other environmental conditions and level of use. Due to the constrained Redland Road corridor, pedestrian and bicycle facilities will occur as a part of the typical cross section, or shall be separated and treated as a multi-use, accessible all-weather trail system.

On-Street Bicycle and Pedestrian Facilities

Figure 3-9 depicts the on-street facilities for bicycles and pedestrians. Sidewalks will be constructed on both sides of all new roads and will be added to both sides of all collector- and arterial-level roadways within the planning area, in order to accommodate pedestrians. On-street bike lanes are anticipated for Holly, Swan, and Donovan. Livesay will operate as a shared-use facility, equal in treatment to all Local streets. Due to the constrained Redland Road corridor, pedestrian and bicycle facilities may occur as a part of the typical cross section, or separated and treated more like an all-weather trail system.

These two systems of bicycle and pedestrian facilities will connect Park Place residents to parks, open spaces, centers of commercial activity, and the regional transportation system without requiring them to step into a car. The robustness of these systems is in response to the desires of the community and the quality of the natural environment.



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Figure 3-7. Proposed Transit Routes

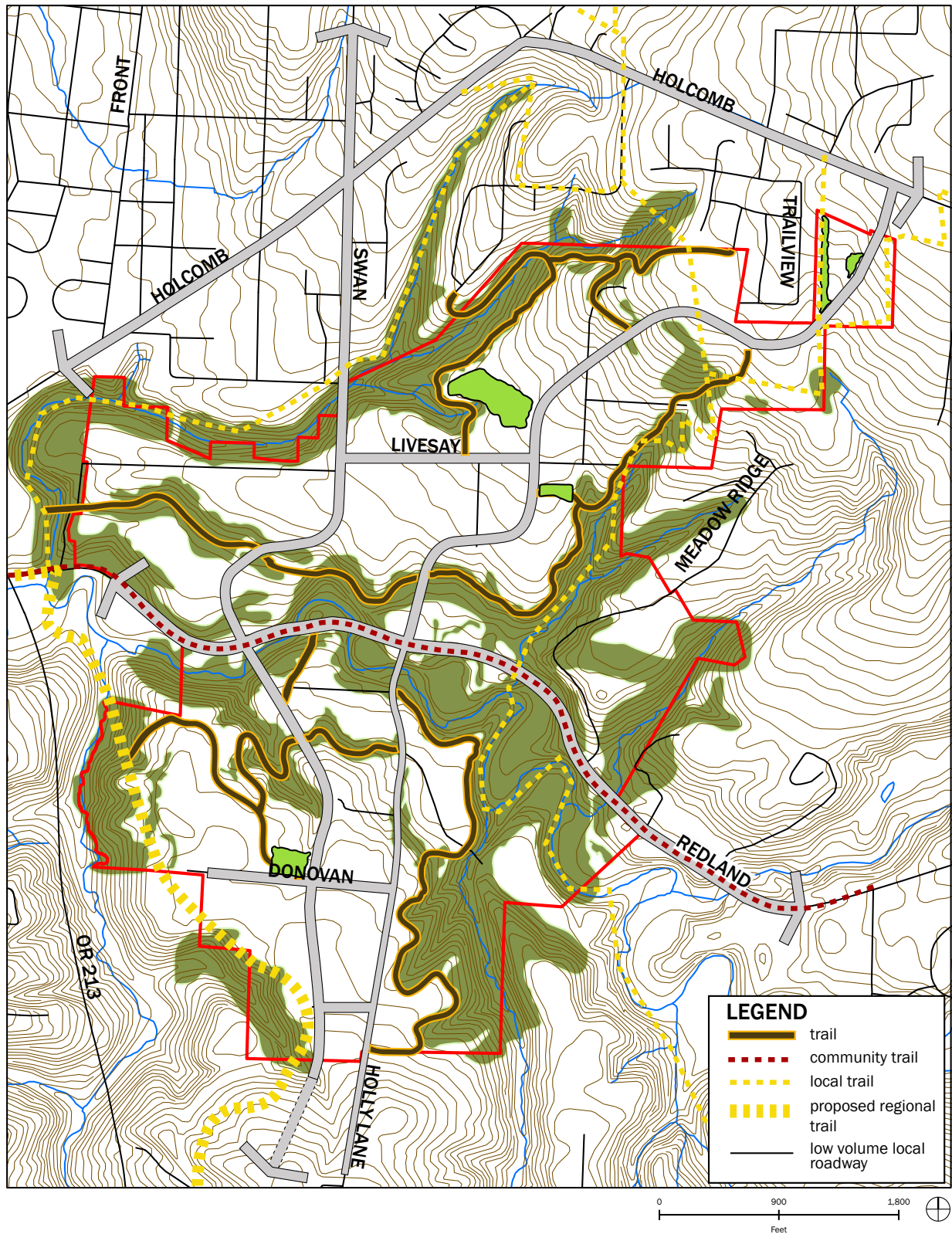


Figure 3-8. Proposed Trail System

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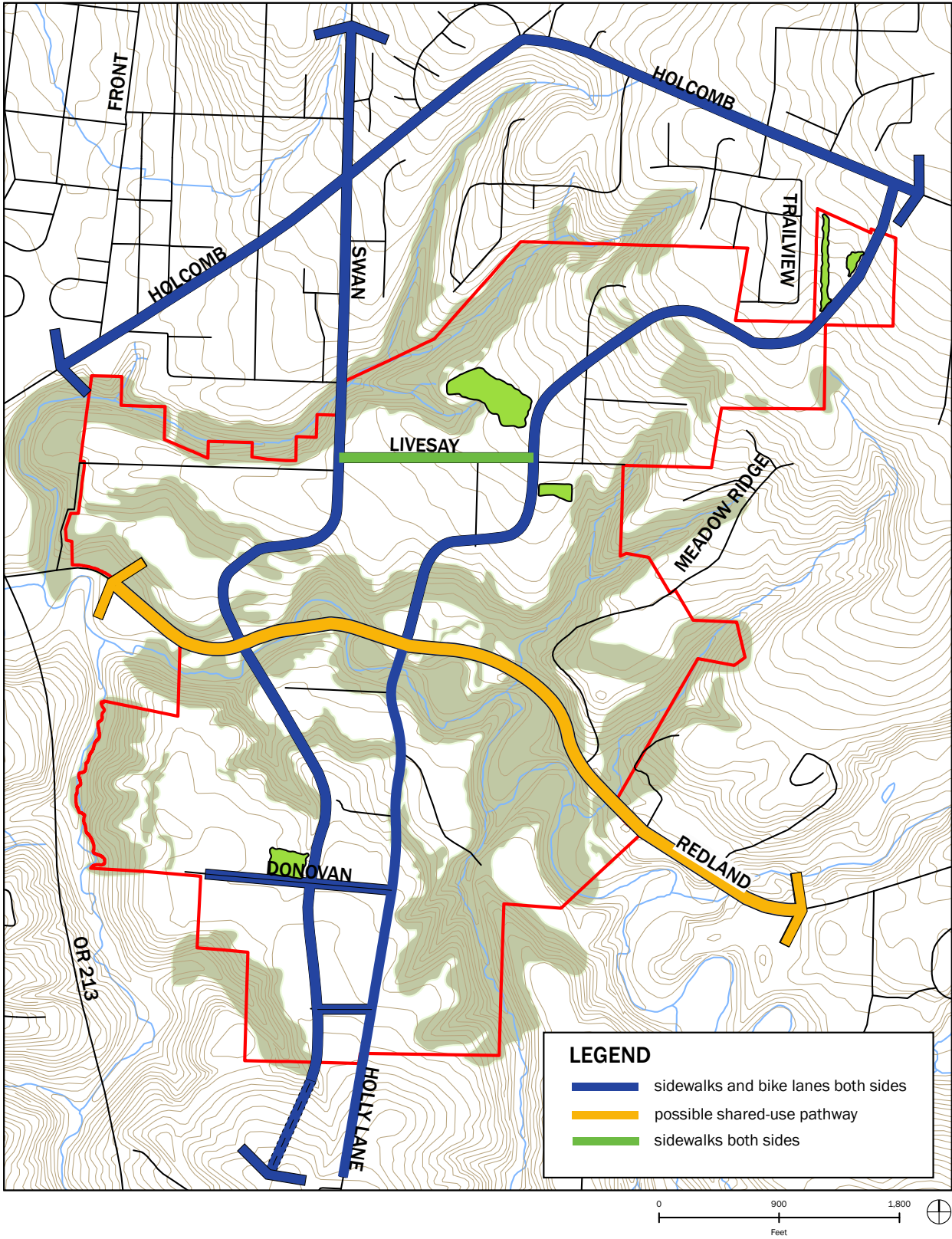


Figure 3-9. Proposed Bicycle and Pedestrian System

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Water, Wastewater, Stormwater Improvements

As described in the existing conditions chapter, water infrastructure is limited within the concept plan area. Of the water infrastructure that does exist, there are two systems. The existing water system located in the area of the future North Village is owned and operated by the City of Oregon City. The existing water system located in the area of the future South Village is owned and operated by Clackamas River Water (CRW). The CRW system should be preserved to continue to provide water transmission to areas outside of the concept plan area.

Based on these existing conditions, it is recommended that the existing City of Oregon City water system be expanded to serve the entire Park Place Concept Plan area. This system should be constructed, owned and operated by the City of Oregon City. The existing CRW system should be preserved to continue to provide water transmission to the customer areas outside the UGB. A future study is needed to analyze CRW/OC systems to assure maximum efficiency.

Water Supply Improvements

Based on the existing conditions review, there is limited capacity in the existing water system to serve the Park Place Concept Plan area.

According to the Oregon City Water Master Plan the current water demand in the Park Place Lower Zone is split between Barlow Crest Reservoir and Mountainview Reservoir. While Mountainview has ample storage capacity (10.5 million gallons) to satisfy both existing and future demand, Barlow Crest reservoir (1.75 million gallons) will ultimately require expansion. According to the master plan, complete buildout of the whole area will require 3.23 million gallons of capacity at Barlow Crest. Expansion is needed to include additional storage capacity within the Park Place Lower Zone. As development may occur outside the concept plan area, additional reservoir capacity may be needed. A potential location for this reservoir has been shown on the water system concept plan; however, it is for reference only and has not been included in design and cost estimate activities. The location of this reservoir is consistent with the City's Water Master Plan. The location and size of this future reservoir should be established based on future concept plan refinement.

Distribution Improvements

The proposed water system improvements are based on future system improvements assumed in the City of Oregon City Water Master Plan and modified to fit the Park Place Concept Plan. The Water Master Plan shows the future system as an expansion of the City water system that currently exists to the north of the concept plan area.

The proposed water main system improvements are shown in Figure 3-10. Water main improvements consist of new water mains ranging from 8-inches to 16-inches. Four connections are recommended to the existing water system to

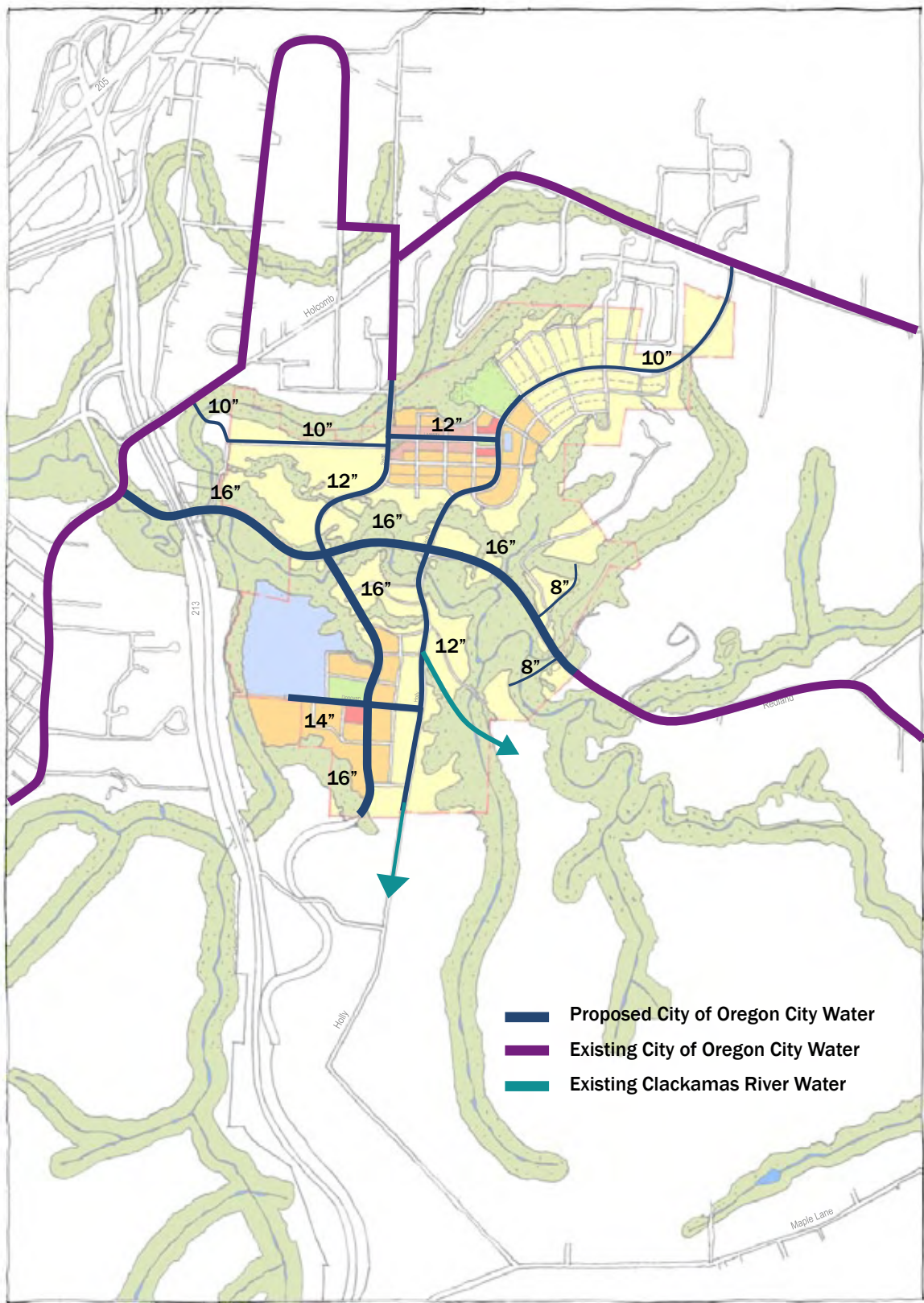


Figure 3-10. Proposed Water System Improvements

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provide sufficient system looping and redundancy. A new 16-inch water main should be provided along Redland Road. A new water main, with pipe sizes varying from 10-16-inches, should be provided along Holly Lane and the Holly Lane Extension. A new 16-inch water main should be provided along the new Swan Road. A new water main, with pipe sizes ranging from 10- to 12-inches, should be provided along Livesay Road. Smaller water mains will be needed to serve development within each Village. These pipes are generally anticipated to be a minimum of 8-inches, as established by City of Oregon City standards, however larger sizes may be required to meet fire flow requirements.

Preliminary pipe size estimates were developed based on fire flow requirements and demand flows. The fire flows used were 3,000 gpm for 3 hours applied to both new and existing buildings. The existing school was assumed to require the new school fire flow rate of 5,000 gpm for 4 hours. In most cases pipe sizes are controlled by the sum of Maximum Daily Demand (MDD) and fire flow. MDD was determined based on housing densities shown on the "Preferred Alternative" dated 10/19/06 showing the Swan Avenue Extension. All pipe size estimates are preliminary and should be revised with detailed flow modeling. Size calculations assume that flow velocities should be kept at or below 10 ft per second.

The grid network created by this new system should alleviate existing system pressure issues. As such, the existing pump station located along Livesay Road should be able to be removed. The existing CRW water transmission mains, located along Holly Lane and Redland Road, should remain as the concept plan area develops in order to provide continued water service to CRW customers.

Wastewater Infrastructure System Improvements

Existing public wastewater services within the concept plan area is limited. As such, new wastewater infrastructure will need to be developed to service future development within the concept plan area. A new 36-inch interceptor should be constructed along Redland Road to service the entire concept plan area. This interceptor should serve both the concept plan area and existing service areas. An additional wastewater collection system will need to be constructed to serve future development within the North and South Villages.

Ownership of the new 36-inch interceptor should remain with TCSD as it conveys wastewater from both the Park Place Concept Plan area and areas outside the Park Place Concept Plan area. The existing TCSD wastewater system should remain and continue to provide wastewater conveyance to areas outside of the Park Place Concept Plan area. For areas inside the Park Place Concept Plan area boundary, these areas should transition to the new City of Oregon City wastewater system.

Wastewater Treatment Improvements

Improvements to the existing TCSD treatment plant are not expected to be required as the capacity of the existing plant is adequate to meet additional

flows generated by future development within the concept plan area. In addition, adequate capacity exists in the TCSD conveyance system to convey wastewater from the concept plan area to the treatment plan.

Wastewater Collection System Improvements

The proposed wastewater system improvements are shown in Figure 3-11. Due to the topography of the concept plan area, the future areas of the North Village and South Village should be easily conveyed to Redland Road. The existing 12-inch wastewater system, currently owned and operated by TCSD, should be upgraded to a 36-inch interceptor. This upgrade should occur from the existing point of connection at Redland and Highway 213 and continue to the eastern edge of the Park Place Concept Plan area. The upgraded interceptor should serve both the Park Place Concept Plan area and the existing areas currently managed by the existing 12-inch pipe.

The North Village should be served with three wastewater trunks. A new 10-inch wastewater line should be provided along Livesay Road and connect to the new 36-inch Redland Road wastewater at the intersection of Redland Road and Livesay Road. A new 12-inch wastewater line should be provided from the North Village main street down the Swan Avenue extension to the new 36-inch Redland Road wastewater system. A new wastewater system, ranging from 10- to 12-inches, should be provided along the Holly Lane extension to convey wastewater from the upper reaches of the North Village.

The South Village should be served with two wastewater trunks. A new 12-inch wastewater system should be provided from the South Village down the Swan Avenue extension to the new 36-inch Redland Road wastewater interceptor. The existing Holly Lane wastewater line should be upgraded to a 10- to 12-inch system to convey wastewater from the South Village.

Stormwater Infrastructure System Improvements

The area is comprised of three drainage basins: Abernethy Creek, Newell Creek and Livesay Creek. As noted in the existing conditions, no major stormwater infrastructure exists within the Park Place Concept Plan area other than roadside ditches and natural drainage channels. It is recommended that a low-impact stormwater approach be developed with a goal of mimicking the natural hydrological conditions of the three watersheds of the Park Place Concept Plan area. These three drainage basins should be used to delineate the stormwater approach for the Park Place Concept Plan.

Stormwater Management Approach

The general approach of the stormwater management system for the Park Place Concept Plan is to establish a system that mimics the natural hydrology of the site to the extent practicable. In pursuing this design goal, the Park Place Concept Plan area has been separated into three distinct systems based on the boundaries of the existing watersheds. The stormwater system within each drainage basin should utilize the combination of centralized and

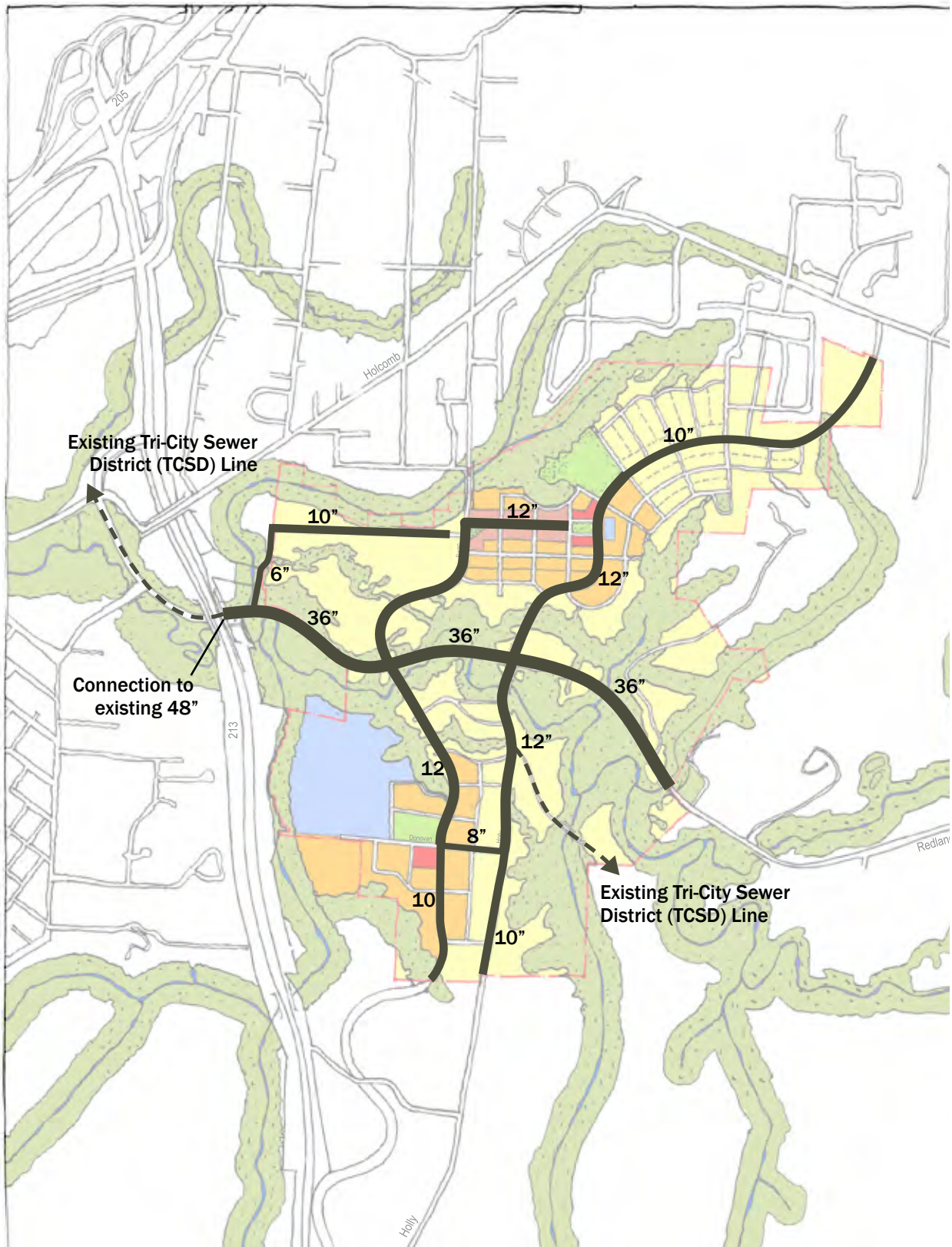


Figure 3-11. Proposed Wastewater System Improvements

This map is for concept planning purposes only. The specific locations of natural resource boundaries, open space, parks, land uses, roads, trails, infrastructure and related improvements may change and is subject to on-site verification and design at the time of development.

decentralized low-impact stormwater best management practices to manage stormwater generated from the Park Place Concept Plan area.

Central to the stormwater approach of the Concept Plan, is a stormwater hierarchy focused on managing stormwater in a naturalistic manner at three separate scales: **site**, **street** and **neighborhood** (vs. a one-size fits all approach).

Tier 1 – Site Specific Stormwater Management Facilities (Site)

All private property within the study area should utilize site specific (or on-site) low-impact stormwater facilities to manage stormwater on-site to the extent practicable. The objective of these facilities is to reduce the quantity (flow and volume) through detention and retention/infiltration of stormwater generated from private property as well as improve the water quality of stormwater.

These facilities are comprised of three types: impervious area reduction facilities, stormwater management facilities, and infiltration only facilities.

Impervious area reduction facilities are focused on preventing the generation of stormwater in the first place and include porous pavement and ecoroofs.

Stormwater management facilities are focused on managing the stormwater in stormwater planters, stormwater swales, and vegetated infiltration basins.

These facilities may be used for single-family residential, multi-family residential, commercial, and open space. Most site specific facilities should be privately owned and maintained except facilities located within public open space.

Tier 2 – Green Streets Stormwater Management Facilities (Street)

In urban environments, much of the stormwater quantity and pollution issues are attributed to streets. An innovative, low-impact manner in which to address this reality is through the use of Green Streets. Green Streets are streets that integrate the management of stormwater into the street design itself to provide a stormwater management benefit as well as an urban design element and they may potentially reduce the need for downstream stormwater facilities such as large stormwater ponds.



Capturing stormwater run-off from buildings in landscaped swales



Ecoroof



Examples of Tier 1 and Tier 2 stormwater facilities



Example of a Tier 3 stormwater facility

Green streets can serve as both stormwater management facilities and stormwater conveyance facilities. As a stormwater management facility, their objective is to minimize stormwater runoff generated from streets and reduce pollutants. As a stormwater conveyance facility, their objective is to convey stormwater from both private property and streets to regional stormwater management facilities. Green Streets typically take the form of vegetated swales located along the street with curb cuts to allow street runoff to enter them. In more urban areas, stormwater planter boxes mimicking the look of street tree wells may be used. Most Green Street stormwater facilities should be publicly owned and maintained.

Tier 3 – Regional Stormwater Management Facilities (Neighborhood)

Regional stormwater management facilities are focused on managing large stormwater flows and volumes that may be passed through Tier 1 and Tier 2 facilities. Moreover, they provide additional water quality benefits prior to discharging stormwater to the existing creeks. These stormwater facilities are typically to be located adjacent to the existing streams and should take on a more naturalistic form such as a wetland pond. Most regional stormwater management facilities should be publicly owned and maintained.

The stormwater system concept plan (Figure 3-12) shows generally how this stormwater approach should be implemented for the Park Place Concept Plan area.

Stormwater Conveyance Approach

Surface conveyance, in the form of swales and ditches, should be provided as a means to convey stormwater via gravity from private property and streets to the existing creeks to the extent practicable. Piped conveyance will be required but should be kept to a minimum if possible.

Natural Resources and Hazards

Significant natural resources exist within the Park Place Concept Plan area and are generally located adjacent or near Abernethy Creek, Livesay Creek and Newell Creek. In order to protect these natural resources, an inventory map, which delineates natural resource areas of greatest significance (including riparian areas, wildlife habitat, and parks and open spaces) and a habitat conservation area map, which identifies the highest value riparian areas, were utilized to help determine where to build, where to build with restrictions, and where not to build within the Park Place Concept Plan area (Figure 3-13).

The Park Place Concept Plan was significantly shaped by the existing natural resources of the concept plan area. The vast majority of development within the Park Place Concept Plan area is targeted outside all habitat conservation areas (HCA) except for infrastructure improvements such as roads and very low-density housing. As such, regulations and restrictions associated with development within HCAs may be avoided. Voluntary best management

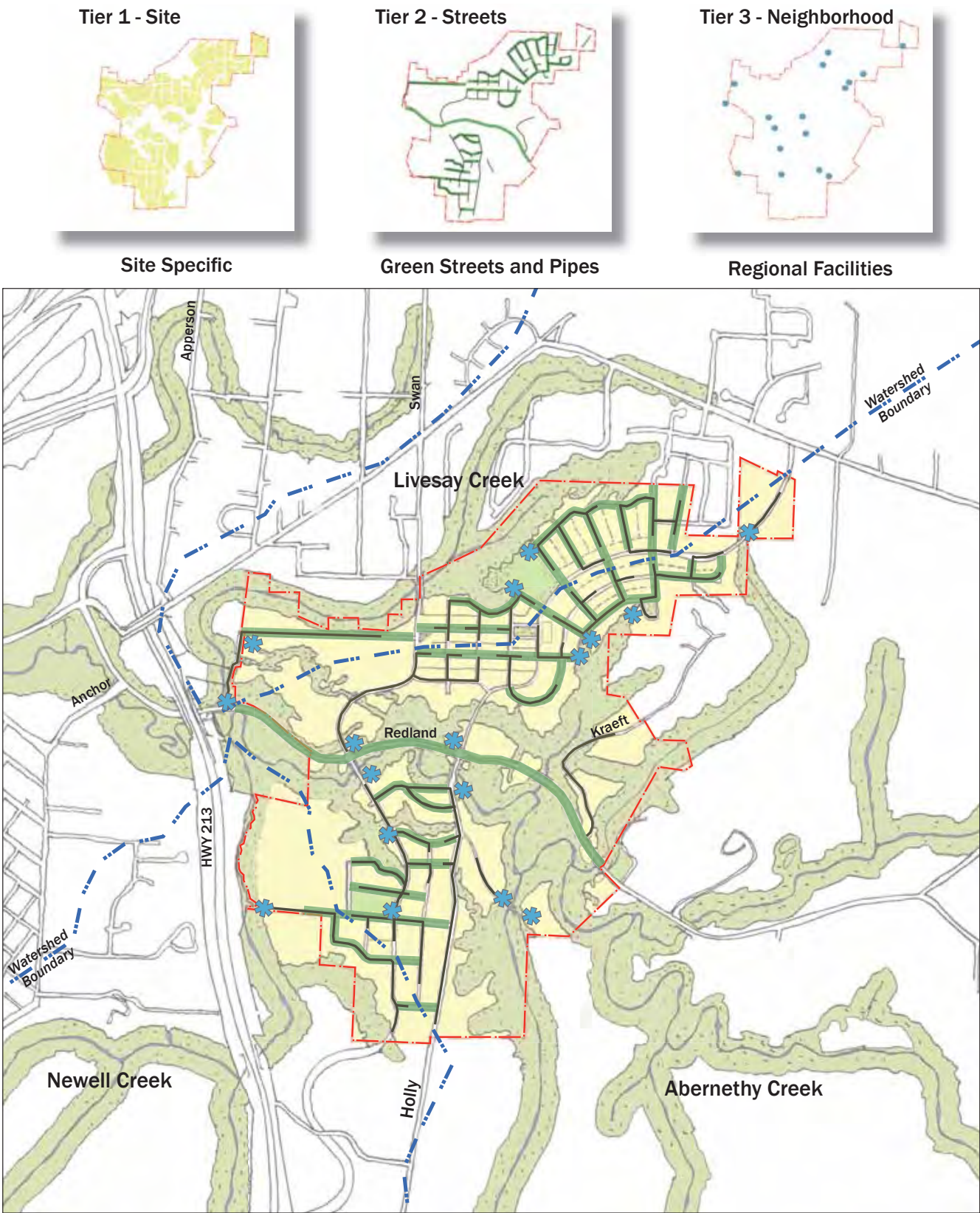


Figure 3-12. Proposed Stormwater Management

This map is for concept planning purposes only. The specific locations of natural resource boundaries, open space, parks, land uses, roads, trails, infrastructure and related improvements may change and is subject to on-site verification and design at the time of development.

The Nature in Neighborhoods program is an effort to protect clean water and health natural areas for fish, wildlife and people. Much of the Concept Plan has been developed to meet Nature in Neighborhood design goals including:

- *Conserving and improving streamside, wetland and floodplain habitat and their connections*
- *Conserving large areas of contiguous habitat and avoid habitat fragmentation*
- *Conserving and improving connections between riparian corridors and upland habitat*
- *Conserving and improving unique and at-risk habitats*
- *Promoting habitat-friendly development practices*

practices (Chapter 4) have been identified however to help guide development in a manner that further protects existing natural resources within the study area.

Metro has inventoried and classified much of the study area. They will only regulate the “high” and “medium” quality habitat. This habitat is generally riparian in nature. As such, upland areas, which are considered a low quality habitat area, are generally not regulated as HCA's. Regarding what to do with the “No HCA” areas, it is recommended that the City of Oregon City continues to try to apply voluntary standards - Nature in Neighborhoods - where applicable. These regulations will not mandate that we protect the “No HAC” areas. However, it is our hope that they supply sufficient guidance.

In general, it is recommended that the City incorporate Best Management Practices including reducing paved, impermeable surfaces, using permeable pavement, providing fish and wildlife crossings of roadways, and landscaping adjacent to Habitat Conservation Areas (HCAs) into its code and criteria for all development in Park Place. The code sections that could potentially be updated to incorporate these practices are included with the implementation measures in Appendix J.

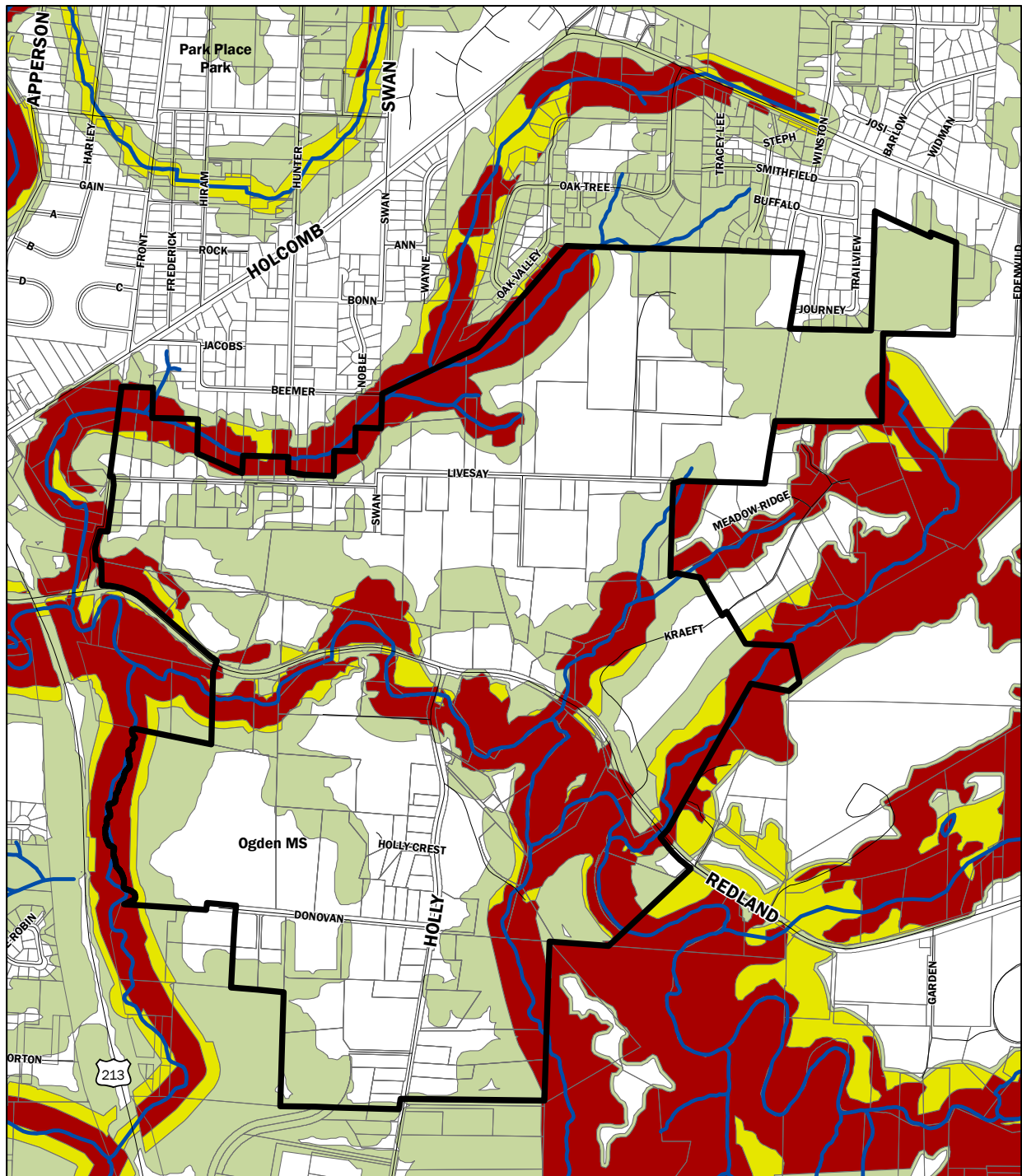
The City currently has three environmental overlay zones that would apply to areas in Park Place: the Flood Management Overlay Zone, the Geologic Hazards (Steep Slopes) Overlay Zone, and the Water Resource Overlay Zone. It is anticipated that these areas will be primarily zoned with the City's lowest density residential plan designation and zoning (R-10 zone). Density transfers are already allowed in the City's Water Resources Overlay Zone. Measures recommended for implementing the Park Place Concept Plan include extending density transfer provisions to the other two overlay zones, as well as encouraging the use of conservation easements and other incentives to protect natural areas and trail corridors. (See Appendix I.) Further, a composite environmental overlay zone is being proposed to comprehensively manage natural resources in Park Place.

Slope Instability

Landslides have occurred within the study area and in adjacent areas with similar topography, geology, and groundwater conditions. With regard to slope instability, most of the known slope instability has occurred on the steeper slopes on ravines along streams and drainages. The Park Place Concept Plan identifies areas with slopes of 25% or more as open space that will remain undeveloped. Limiting development in these areas is an appropriate measure to limit the risk of slope instability and landslides impacting future development. In addition, for the purpose of this Concept Plan, it is recommended that further site-specific study be conducted for future developments, in accordance with the City's municipal code Chapter 17.44, for managing geologic hazards and in accordance with the following recommendations.

Additionally, the City should expand the definitions included in the City of Oregon City Municipal Code, Chapter 17.44.020, to include the Portland State University

Figure 3-13. Habitat Conservation Areas

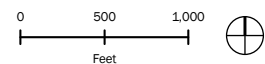


Source: Oregon City GIS, 2006; RUS 2006

- High
- Moderate
- Low
- Non-Regulated Goal 5 Resources - (No HCA designation)

Park Place Concept Plan

Habitat Conservation Area (HCA) Values



This map is for concept planning purposes only. The specific locations of natural resource boundaries, open space, parks, land uses, roads, trails, infrastructure and related improvements may change and is subject to on-site verification and design at the time of development.

study, “Landslides in the Portland, Oregon, Metropolitan Area Resulting from the Storm of February 1996: Inventory Map, Database and Evaluation” (Burns and others, 1998); the DOGAMI Open File Report O-06-27, “Map of Landslide Geomorphology of Oregon City, Oregon, and Vicinity Interpreted from LIDAR Imagery and Aerial Photographs” (Madin and Burns, 2006); and the upcoming “Preliminary Geologic Map of the Oregon City Quadrangle, Clackamas County, Oregon” (Madin, in press), as references for identifying mapped landslides and landslide materials, “landslide areas,” “unstable slopes,” “unstable soils,” and debris fans.

It is also recommended that the City require a geotechnical evaluation/investigation as part of any future development in areas with slopes of 25% or steeper and within a 200-ft setback of the crest and toe of these slopes, and in areas previously mapped as landslides. This would include all new construction, including additions to existing homes such as swimming pools and retaining walls, installation of underground utilities, new access driveways and/or roadways, and similar types of projects that require significant earthwork. The geotechnical evaluation/investigation should address the slope hazards in the development and specifically address how the proposed development will limit the risk of future slope instability, prior to issuing a building permit. The geotechnical evaluation/investigation should also address setbacks from existing slopes and recommendations for cut and fill and on-site stormwater management, as described in more detail below. In addition, the City should require special inspection by the geotechnical engineer during construction of soil- and foundation-related elements and a summary letter of compliance upon completion of the work.

The actual scope of the geotechnical evaluation/investigation will depend somewhat on the location within the study area and the proposed development. For example, for development in areas that will likely require little if any earthwork, a reconnaissance-level site evaluation may be adequate prior to issuing a building permit. However, if the new development requires cuts deeper than about 5 ft into the existing hillsides, the geotechnical engineer may need to consider performing subsurface explorations, such as test pit excavations and/or shallow borings, as part of their evaluation/investigation. For any development within or adjacent to mapped landslide areas or debris fans, or any development that requires excavations deeper than about 10 ft into the existing hillside, it would be prudent to perform a more-detailed, comprehensive geotechnical investigation prior to issuing a building permit. An engineering geologist should provide site-specific geologic input for any development with proposed cuts deeper than about 10-feet and all evaluations within the limits of mapped landslide areas and debris fans. Implementation strategies for these recommendations follow in Chapter 4.

4. Implementation

1. Compliance with Title 11

Concept Plans are regulated by Title 11 in Metro's Urban Growth Management Functional Plan. Title 11 and the Park Place Concept Plan are intended to lay a foundation for urbanization of areas added to the region's Urban Growth Boundary (UGB) in a way that reasonably provides public facilities and services, offers transportation and housing choices, supports economic development, and protects natural resources.

Concept Plans must address the following elements:

- Annexation
- Housing (density, diversity, and affordability)
- Commercial and industrial land
- Transportation
- Natural resources
- Public facilities
- Public schools
- Funding and Finance Sources

The Park Place Concept Plan strives to provide the Park Place plan area with development flexibility, housing choices, transportation choices, natural resource protection, access to open space and recreation, educational opportunities, and economic activity. To support these goals, it is recommended that the set of policies addressing housing, parks, schools, economic development, natural resources, transportation, and other public facilities included in the Park Place Concept Plan be adopted by reference into the City's Comprehensive Plan. The following sections provide overviews of these elements and their associated goals, policies, and implementation strategies. For more detailed descriptions of these elements and their compliance with Title 11, please refer to the Appendices.

Annexation

Chapter 14 of the City's existing code establishes regulations for annexation. These regulations require an application process, hearings, and review by the Planning Commission and City Commission before the annexation is decided by Oregon City voters.

In addition to a legal description of the proposed annexation area, written consent of property owners, site plans, and an application fee, an annexation

proposal must provide statements addressing the following:

- availability, capacity and status of existing water, wastewater, drainage, transportation, park and school facilities;
- increased demand for such facilities to be generated by the proposed development, if any, at this time;
- additional facilities, if any, required to meet the increased demand and any proposed phasing of such facilities in accordance with projected demand;
- method and source of financing required to provide additional facilities, if any;
- overall development concept and methods by which the physical and related social environment of the site, surrounding area and community will be enhanced;
- potential physical, aesthetic, and related social effects of the proposed, or potential development on the community as a whole and on the small subcommunity or neighborhood of which it will become a part; and proposed actions to mitigate such negative effects, if any; and
- the type and nature of any comprehensive plan text or map amendments, or zoning text or map amendments that may be required to complete the proposed development.

The Planning Commission's recommendation to the City Commission and the City Commission's decision as to whether to advance the proposal to the voters for a decision depend on whether adequate access and public facilities and services can be provided; impacts to Goal 5 resources, natural hazard areas, and the overall economic, social, and physical community are avoided or are minimal; and the proposal complies with goals and policies in the City's Comprehensive Plan.

Annexation of Park Place should be guided by the ability to serve subareas with public facilities such as roads, water, wastewater, and storm water. For these reasons, subareas of Park Place that are adjacent to existing city boundaries, facilities, and services are likely to be annexed first. The northern portion of Park Place was brought into the City's Urban Growth Boundary (UGB) in the 1980s, long before the rest of Park Place was in 2002, and is particularly primed for annexation, due to existing development and property owners' interest in developing.

Annexation Goals, Policies, and Implementation Strategies

Goal

Ensure that annexation of land within the planning area is consistent with other goals, policies and strategies in this Plan and meets overall city and regional requirements for annexation.

Policies

- Ensure that public facilities and services can be provided to serve

proposed development prior to annexation of any portion of the Park Place Concept Plan area, consistent with existing City and regional requirements.

- Provide residents within and adjacent to areas proposed for annexation with opportunities to review and comment on annexation proposals.

Implementation Strategies

- Adhere to existing city regulations and procedures in accepting, reviewing and approving proposed future annexations of the planning area or portions of it.
- Review annexations proposals for adherence to the goals, policies and core values identified in the Park Place Concept Plan.
- Provide adequate notice of and opportunities for comment on proposed annexations pursuant to existing City notice requirements.

Land Use

Following are land use policies related to housing, commercial, and industrial developments. Other land uses (e.g., schools, parks, and public facilities) are addressed separately.

Housing

The following steps have been taken in the concept planning process to comply with Title 11 as it relates to housing.

- Zone adequate land to allow for a variety of housing types and densities as outlined in more detail in Chapter 3. The zoning mix allows the City to meet Metro targets for housing based on average densities required in the two different portions of the planning area.
- Create opportunities for mixed residential and commercial uses through amendments to and application of the city's mixed use zone.
- Locate denser housing types adjacent to commercial areas and civic uses.
- Zone land in a way that allows for housing types and densities typically more affordable to households with low and moderate incomes (see Chapter 3 for an assessment of this issue).

While the Park Place Concept Plan allows for opportunities to meet affordable housing needs without subsidy, the reality of the housing market in Oregon City and the Portland Metropolitan region is that some subsidy by public agencies and non-profit organizations will be required to achieve affordable housing goals for this area. The following goal, policies and implementation strategies can be used to meet affordable housing objectives, as well as more general housing goals.

Housing Goals, Policies, and Implementation Strategies

Goal

The concept planning area should incorporate Comprehensive Plan and zoning designations that allow for a wide range of housing types and densities that meet the needs of households with a range of incomes.

Policies

- Apply zoning designations that allow for achievement of the goal above.
- Create flexibility in development standards to allow for alternative housing types such as zero lot-line development, cluster housing, and accessory dwelling units.
- Ensure connectivity of residential areas to commercial areas and parks and open space by creating regular street grid patterns where topography allows and providing a complete sidewalk network.
- Ensure that residential neighborhoods are bordered by parks and/or open space. Streets should be integrated with a network of bikeways, trails and/or pedestrian paths where possible.
- Orient residential streets to maximize solar exposure for energy conservation where possible.
- Link the density of housing to the hierarchy of the street network.
- Work with other public agencies, non-profit organizations and developers to encourage production of affordable housing that meets the needs of residents with low and moderate incomes.
- Provide a transition or buffer between existing and new residential development.
- Support architectural integrity and variety in residential and mixed-use neighborhoods.

Implementation Strategies

- Work with local groups to develop affordable housing strategies for Park Place, including incentives for developers to build affordable housing and for moderate-income home ownership.
- Update city and county zoning ordinances and development codes as needed to allow for innovative development and zoning mechanisms that will add to the affordable housing stock, including establishing minimum densities, allowing for density bonuses, reducing minimum lot sizes, and establishing other provisions in the zoning code to reduce housing costs associated with the price of land while protecting community character.
- Create design standards for Park Place in order to ensure diverse, compact, attractive, and community-oriented residential development and compatibility with existing and surrounding neighborhood character and scale.
- Allow for a variety of lot sizes within a subdivision by permitting average density calculations for subdivisions over 25 units.

Table 4-1. Affordable Housing in Oregon City

Percentage of MHI	Percentage of Households	Percentage Difference	Affordable Rent/ Mortgage
0-30% MHI	11%	-	\$341
0-50% MHI	20%	9%	\$569
0-80% MHI	38%	18%	\$911

- Consider density bonuses for developers who provide affordable housing units.
- Provide a gradual transition in zoning and allowed densities between existing residential development and new or future residential development and/or require larger setbacks between existing and new residential development.
- Consider adopting additional architectural design standards for residential development and consider developing and adopting architectural variety requirements for subdivision development.
- Create flexibility in development standards to allow for alternative housing types such as zero lot-line development, cluster housing and accessory dwelling units.
- update the City's zoning ordinances to allow for master planning of developments of 10 acres or more in Park Place.

Affordability

Affordable housing is typically defined as housing which does not cost more than 30% of a household's income. For rental units, housing costs include rent and utilities, while housing costs for homeowners includes mortgage payments, taxes and insurance.

Extremely low income households are typically defined as those earning less than 30% of median household income; very low income households as those earning less than 50% of median household income; and low income households are those making between 50% and 80% of median income. These income ranges have been used to estimate the cost of housing that would be considered

Household size	Area Median Income	Affordable monthly housing costs (100%)	Household Income (80%)	Affordable Monthly Housing Costs (80%)	Household Income (50%)	Affordable Monthly Housing Costs (50%)	Household Income (30%)	Affordable Monthly Housing Costs (30%)
1	47,500	1,188	38,000	950	23,750	594	14,250	356
2	54,313	1,358	43,450	1,086	27,150	679	16,300	408
3	61,125	1,528	48,900	1,223	30,550	764	18,350	459
4	67,875	1,697	54,300	1,358	33,950	849	20,350	509
5	73,313	1,833	58,650	1,466	36,650	916	22,000	550
6	78,750	1,969	63,000	1,575	39,400	985	23,650	591
7	84,188	2,105	67,350	1,684	42,100	1,053	25,250	631
8	89,625	2,241	71,700	1,793	44,800	1,120	26,900	673

Table 4-2. Affordability by Income, Portland Metro Area (HUD), 2007

affordable to households with very low, low, and moderate incomes. Table 4-1 shows the results of this analysis for Oregon City.

According to the 2000 Census, the median household income (MHI) for Oregon City is \$45,531. Table 4-2 shows the area median income (AMI) by household size, and corresponding affordable housing costs. Census data for the Park Place Concept Plan area is not available since its boundaries do not correspond to census block boundaries.

Title 11 requires that the planning area allow for development of affordable housing without public subsidy. The zoning proposed for the planning area theoretically provides opportunities to develop housing that would be affordable to residents with a full range of incomes, assuming a similar mix of income levels to the city as a whole. As a result, the concept plan meets the requirements of Title 11 and ORS related to housing. However, some form of public subsidy is expected to be necessary to meet the affordable housing goals of the Park Place Concept Plan. Its goals call for a range of housing types to meet the needs of renters at all income levels and to provide opportunities for home ownership for moderate-income households. Without some subsidy and/or actions by local governments or non-profit organizations, it is unlikely that the desired range of housing products will be developed. Given the rate of housing price increases in the area, many of the multi-family units, attached and detached single-family homes will be built for market rate home ownership.

Proposed land use designations for the Park Place plan area allow for a range of housing types (described in Chapter 3). Typically, the types of housing most affordable to people with low and moderate incomes are single-family homes on small lots, attached single family homes, duplexes and multi-family housing, as accessory dwelling units, and single-family rental homes. Extremely low and very low income households typically reside in multi-family housing. These types of housing are expected to account for a significant portion of all housing units in the plan area – 370-500 units (25%-35%), depending on the proportion of higher density detached single-family homes that fall into affordable price ranges. This range is consistent with the percentage of lower income households that could be expected to need housing units in the area, if they are representative of the City as a whole.

In order to meet the affordable housing goals, it is anticipated that the City will work with other public agencies, non-profit groups and developers to identify funding opportunities to further increase the supply of affordable housing in the area. Potential partners include Clackamas Community Land Trust, Northwest Housing Alternatives, Housing Authority of Clackamas County and Clackamas County Social Services.

Table 4-3. Proposed Area of Commercial Uses in Park Place

Type of Commercial Use	Proposed Zone	Land Area (SF)	Floor Area (SF)
Retail	Neighborhood Commercial (NC)	79,191	39,595

Commercial and Industrial Development

Commercial Development

The Neighborhood Commercial (NC) zone recommended in the North and South Villages will accommodate commercial development. The NC zone will be targeted for primarily retail use. Table 4-3 identifies the amount of land proposed for each of this zone and targeted uses.

Assuming an approximately 50% lot coverage, the NC zone yields about 0.91 acre (39,595 sq. ft.) of building area and the same for parking and landscaping. This falls within the range of retail building area that market consultant Johnson Gardner estimated that Park Place could support.

Industrial Development

Potential industrial uses in the area would be constrained by limited access and suitable buildable land (large sites with little or no slope). Land zoned industrial to the north of Park Place focused around an I-205 interchange and land with existing and planned industrial zoning (as part of a concept plan) for the Beavercreek area directly south of Park Place provide suitable and adequate industrial land for the City. No industrially zoned land is recommended or planned for Park Place.

Economic and Commercial Development Goals, Policies, and Implementation Strategies

Goal

Establish opportunities to create neighborhood commercial and mixed use centers which provide area residents with opportunities to shop and work, consistent with the core values of this plan.

Policies

- Establish two neighborhood commercial/mixed use centers that allow for small scale, neighborhood oriented commercial development, as well as mixed residential/commercial development and public buildings and gathering places.
- Locate neighborhood commercial and mixed use centers in close proximity to denser residential development, as well as parks and community facilities.

- Ensure that roads, pathways and other transportation facilities are designed in a way that supports mixed use/commercial areas and provides adequate access to them by all modes of travel.

Implementation Strategies

- Implement and update design standards for neighborhood commercial and mixed use areas, including storefront windows, street-level entrances, streetscape elements such as weather protection and street trees, and restrictions of mid-block driveways, to ensure they are developed in an attractive, walkable and efficient manner and promote.
- Work with existing and future neighborhood residents, as well as community business groups to identify and attract an appropriate mix of businesses to commercial and mixed use centers in the planning area.
- Identify small-scale food production as an allowed use in commercial and possibly residential zones.

Transportation

The Park Place Concept Plan includes a multi-modal transportation system that complies with city, regional, and statewide transportation plans and ensures a safe and adequate multi-modal transportation system to meet the forecast travel needs of the planning area. The Conceptual Transportation Plan comprises street, transit, bicycle, and pedestrian facilities and services that make each mode viable to meet certain travel needs, while minimizing the need to travel in single-occupant motor vehicles. Plan components include the following:

1. A functionally classified set of streets that provide appropriate connections within and across the planning area and adequately serve local and longer-distance vehicular travel (Figure 3-4). An emphasis of the Plan is to expand the City's functionally classified network such that it protects the Highway 213 corridor as a regional facility of critical importance.
2. A network of local and higher-order streets that provides redundancy for emergency access, appropriate ventilation to neighborhoods and commercial nodes of activity, and efficient connections to minimize travel distances (Figure 3-5).
3. A variety of street cross sections that reflect the needs of adjacent land uses and respond to the constraints of topography, limited rights-of-way, and the costs of construction (Figures 3-A through 3-J).
4. A network of on-street and off-street pedestrian and bicycle facilities that meet the needs of commuters, recreationalists, residents, and employees (Figures 3-8 and 3-9). These facilities are planned to provide safe routes to schools and other key pedestrian/bicycle generators in the planning area. In addition, they provide seamless connections to anticipated transit service in the area. Finally, the comprehensive nature of this network promotes these modes as viable options for a variety of trip purposes.
5. A conceptual routing of future transit service that connects the planning area to major transit centers in the Oregon City area, as well as key destinations within Oregon City (Figure 3-7).

Construction cost estimates for the planned transportation improvements have been prepared and a conceptual financing plan has been developed. These estimates are located in the following chapter: Funding and Finance.

Transportation Goals, Policies, and Implementation Strategies

Goal

Plan for and implement a safe, interconnected system of roads and other transportation facilities that allows people to move freely within the neighborhood and connects them to other parts of the city and region.

Policies

- Support and encourage Metro and ODOT to construct improvements to regional and state facilities (e.g., I-205, Highway 213 and the Sunrise Corridor) to accommodate proposed growth inside and surrounding the planning area.
- Develop and apply basic road standards based on transportation analysis and land use goals adequate to serve area residents and businesses.
- Require that needed improvements to transportation facilities necessitated by new development be made or funded as part of the development process; condition development approval on construction of or financial commitments for improvements.

Implementation Strategies

- Identify updates to City, County and regional transportation plans to incorporate proposed improvements to major facilities.
- Include proposed transportation improvements in the city's Capital Improvement Plan (CIP).
- Apply appropriate road standards as development occurs and facilities are designed and constructed.
- Coordinate with Clackamas County in planning for improvements to existing county facilities (e.g., Holly Lane and Redland Road).
- Update the city's System Development Charge for transportation, consistent with the need and cost for future improvements in the planning area.
- Evaluate and minimize or mitigate environmental impacts of future transportation improvements.
- Update City standards for green streets as needed to implement the Park Place Concept Plan.

Natural Resources and Hazards

A key part of protecting existing natural resources is to use the best development practices available in these areas. For the Park Place Concept Plan development, Metro's *Nature in Neighborhood* design guidelines were followed. These guidelines, though voluntary, are very applicable to achieving the environmental protection goals of the Park Place Concept Plan. As the Park Place Concept Plan develops, the Table 4-4 provides a list of best development practices that should

be considered. The implementation measures described in Appendix I identify the City code sections which could incorporate these best development practices.

Natural Resources and Hazards Goals, Policies, and Implementation Strategies

Goals

Manage and conserve natural resources and values within the planning area, including riparian areas, woodlands, wetlands and wildlife and plant habitat.

Minimize impacts to areas that pose hazards to personal property and the natural environment, including steep slopes, areas potentially susceptible to land slides and other such areas.

Policies

- Distinguish between areas where development will not be allowed and where development can occur but with lower densities or other limitations as documented on concept area maps and refined during more detailed mapping that may occur as part of the development process.
- Apply existing city regulations related to stream buffers, trees preservation, restrictions on steep slope development and other issues.
- Reference most recently available geological maps in Oregon City zoning ordinance provisions.
- Require geotechnical evaluation for new construction and future development in areas with slopes of 25% or greater and within 200 feet of the crest and toe of such slopes.
- Require geotechnical evaluation for new construction and future development in areas mapped as landslides or landslide materials
- Require development-specific investigation related to slope stability be conducted by a qualified professional engineer (PE) and certified engineer geologist (CEG).
- Manage and protect archeological and historic resources within the planning area, consistent with the City and state requirements and policies.
- Conserve and improve streamside, wetland, and floodplain habitat and their connections.
- Conserve large areas of contiguous habitat and avoid habitat fragmentation.
- Conserve and improve connections between riparian corridors and upland habitat.
- Conserve and improve unique and at-risk habitats.
- Promote habitat-friendly development practices.
- Apply implementation code particularly relating to geologic hazard and tree protection, and significant fish and wildlife habitat, shall be approved prior to development of property located in the concept plan area. Tree protection should include provisions to protect trees in area within the city's UGB but not yet annexed. Protection of fish and wildlife habitat should address riparian and upland areas. Methods to protect these

Table 4-4. Best Management Practices for Non-Habitat Conservation Areas¹

Part (a): Design and Construction Practices to Minimize Hydrologic Impacts
1. Amend disturbed soils to original or higher level of porosity to regain infiltration and stormwater storage capacity.
2. Use pervious paving materials for residential driveways, parking lots, walkways, and within centers of cul-de-sacs.
3. Incorporate stormwater management in road right-of-ways.
4. Landscape with rain gardens to provide on-lot detention, filtering of rainwater, and groundwater recharge.
5. Use green roofs for runoff reduction, energy savings, improved air quality, and enhanced aesthetics.
6. Disconnect downspouts from roofs and direct the flow to vegetated infiltration/filtration areas such as rain gardens.
7. Retain rooftop runoff in a rain barrel for later on-lot use in lawn and garden watering.
8. Use multi-functional open drainage systems in lieu of more conventional curb-and-gutter systems.
9. Use bioretention cells as rain gardens in landscaped parking lot islands to reduce runoff volume and filter pollutants.
10. Apply a treatment train approach to provide multiple opportunities for storm water treatment and reduce the possibility of system failure.
11. Reduce sidewalk width and grade them such that they drain to the front yard of a residential lot or retention area.
12. Reduce impervious impacts of residential driveways by narrowing widths and moving access to the rear of the site.
13. Use shared driveways.
14. Reduce width of residential streets, depending on traffic and parking needs.
15. Reduce street length, primarily in residential areas, by encouraging clustering and using curvilinear designs.
16. Reduce cul-de-sac radii and use pervious vegetated islands in center to minimize impervious effects, and allow them to be utilized for truck maneuvering/loading to reduce need for wide loading areas on site.
17. Eliminate redundant non-ADA sidewalks within a site (i.e., sidewalk to all entryways and/or to truck loading areas may be unnecessary for industrial developments).
18. Minimize car spaces and stall dimensions, reduce parking ratios, and use shared parking facilities and structured parking.
19. Minimize the number of stream crossings and place crossing perpendicular to stream channel if possible.
20. Allow narrow street right-of-ways through stream corridors whenever possible to reduce adverse impacts of transportation corridors.
Part (b): Design and Construction Practices to Minimize Impacts on Wildlife Corridors and Fish Passage
1. Carefully integrate fencing into the landscape to guide animals toward animal crossings under, over, or around transportation corridors.
2. Use bridge crossings rather than culverts wherever possible.
3. If culverts are utilized, install slab, arch or box type culverts, preferably using bottomless designs that more closely mimic stream bottom habitat.
4. Design stream crossings for fish passage with shelves and other design features to facilitate terrestrial wildlife passage.
5. Extend vegetative cover through the wildlife crossing in the migratory route, along with sheltering areas.
Part (c): Miscellaneous Other Habitat-Friendly Design and Construction Practices
1. Use native plants throughout the development (not just in HCA).
2. Locate landscaping (required by other sections of the code) adjacent to HCA.
3. Reduce light-spill off into HCAs from development.
4. Preserve and maintain existing trees and tree canopy coverage, and plant trees, where appropriate, to maximize future tree canopy coverage.

¹Table 3.07-13c in Exhibit C or Ordinance No. 05-1077C, Title 13 (Nature in Neighborhoods) of the Urban Growth Management Functional Plan (Metro Code Chapter 3.07)

areas should include an evaluation of conservation easements and density reductions.

Implementation Strategies

- Identify and explore the use of incentives such as conservation easements to protect natural resources.
- Extend existing density transfer provisions from the Water Resource Overlay Zone to the Flood Management and Geologic Hazards Overlay Zones.
- Identify potential new ordinance requirements related to protection of environmental resources.
- Identify and encourage use of best management practices related to erosion control, wildlife management, landscaping, tree preservation, etc. (e.g. Metro's Nature in Neighborhoods guidelines).
- Update the city's zoning ordinance to incorporate the policies related to slope stability above.
- Work with the Oregon Department of Geology and Mineral Industries (DOGAMI) to complete and incorporate a landslide susceptibility map for Oregon City.
- Review geotechnical reports as well as final grading, drainage and foundation plans by a geotechnical engineer.
- Require peer review of geotechnical report by peer reviewers selected by the City of Oregon City.
- Conduct special inspections in areas with steep slopes or mapped as landslide susceptibility areas with a geotechnical engineer during construction processes.
- Require applicants geotechnical engineer to field verify during construction to ensure that the subsurface conditions/assumptions made as part of their geotechnical evaluation/investigation are appropriate.
- Require the applicants geotechnical engineer to prepare a summary letter stating that the soils- and foundation-related project elements were accomplished in substantial conformance with their recommendations.
- Conduct specific environmental studies and apply environmental standards as required during planning and construction of public improvements (e.g., roads and bridges) as the Park Place Concept Plan is implemented.
- Update the City's zoning ordinance to establish "night sky" protection provisions. Incorporate associated lighting standards in the City's requirements.
- Refine Buildable Areas Map - perform a GIS evaluation of the City of Oregon City water quality overlay zone with existing topography.
- Field verify existing natural resources to ensure that important natural resources have not been overlooked.
- Identify regulations and/or restrictions associated with infrastructure impacts on Habitat Conservation Areas (HCAs).

Public Facilities and Services

Conceptual public facility plans have been developed for the provision of wastewater, and storm drainage. These plans have been developed to comply with goals of the local community, City of Oregon City, Metro and the following documents:

- City of Oregon City Water Master Plan
- City of Oregon City Sanitary Sewer Master Plan
- City of Oregon City Drainage Master Plan
- City of Oregon City Draft Stormwater Management Plan
- City of Oregon City Stormwater and Grading Design Standards

The City of Oregon City Water Master Plan was referenced to determine anticipated water demands within the Park Place Concept Plan area. Average daily demand as well as peak demand and fire demand were evaluated at a preliminary level. In general, water demand from planned development within the Park Place Concept Plan area is consistent with demands anticipated in the Water Master Plan.

The City of Oregon City Sanitary Sewer Master Plan was referenced to determine anticipated wastewater generation within the Park Place Concept Plan area. In general, similar wastewater flows were developed. As a result, wastewater flows generated by development within the Park Place Concept Plan area are consistent with those found in the Sanitary Sewer Master Plan.

All three stormwater documents emphasize minimizing the amount of post-development stormwater runoff to pre-development conditions and reducing pollution loads. The Park Place Concept Plan stormwater approach was developed to meet these goals (Appendix J).

Public Facilities and Services Goals, Policies, and Implementation Strategies

Goal

Plan for and provide adequate facilities for water, wastewater and stormwater service.

Policies

- Ensure that water, wastewater and stormwater facilities have adequate capacity to meet public facility and service needs within the planning area.
- Plan and pay for needed improvements in an equitable manner with the costs of new growth borne by future developments
- Identify and implement best practices for on-site treatment of stormwater, water conservation and other practices to reduce service needs and impacts.

Implementation Strategies

- Prepare stormwater, water system, and wastewater master plans to further refine the systems and approaches outlined in the Park Place Concept Plan. (The existing Oregon City stormwater standards should be evaluated and refined to improve performance of the stormwater master plan).
- Perform further water evaluation to ensure that the Clackamas River Water District and the City of Oregon City maximize efficiency - City of Oregon City should provide water service to all urban customers within the UGB.
- Identify areas within the Park Place Concept Plan planning area for slope stability hazards and infiltration areas to determine if stormwater should be allowed, limited, or restricted.
- Incorporate estimate water, wastewater and stormwater needs in capital facility master plans and capital improvement plans.
- Expand city wastewater mains and other collection facilities within and adjacent to the planning area to ensure adequate wastewater collection capacity; preserve TCSD trunk lines.
- Expand city water mains and other distribution facilities within and adjacent to the planning area to ensure adequate water distribution capacity; preserve the existing Clackamas River Water transmission system.
- Establish a stormwater management system that mimics the natural hydrology of the planning area.
- Develop a stormwater management system that utilizes a combination of regional detention facilities, green streets and on-site stormwater detention and filtration to minimize runoff and impacts on local waterways.
- Coordinate with other service providers to plan for and provide fire protection, law enforcement, school, library and other public services as specific developments are planned and implemented.

Parks

The Concept Plan includes two neighborhood parks, each located in a neighborhood center adjacent to commercial, civic, and medium and/or higher density residential land uses. The parks are intended to provide basic recreational opportunities for residents and may include amenities such as play equipment, athletic fields picnic table or shelters, walking trails and other features. The North Village neighborhood includes an 8-10 acre neighborhood park; the South Village park is about 3-5 acres.

Parks needs are consistent with those generally identified the City of Oregon City's existing Parks and Open Spaces Master Plan. That plan identifies a community park and a neighborhood park service area within the Park Place Concept Plan study area. Local and national guidelines for these types of parks indicate a need for about 10 – 30 acres of developed park land in the planning

area. The City is currently updating its Parks and Open Spaces Master Plan, which may provide more specific guidance on the size of future parks in the area and/or needed amenities within them.

The open spaces identified in environmentally constrained portions of the study area are also expected to provide extensive opportunities for outdoor recreation including an extensive trail system.

Parks and Open Spaces Goals, Policies and Implementation Strategies

Goal

Provide parks, open space, and trails consistent with City or national standards, including trail or open space connections between centers.

Policies

- Plan for neighborhood parks that are intended for low-impact active and passive recreational activities.
- Locate neighborhood parks within comfortable walking distance (e.g. one-half mile) of most residences and easily accessible to pedestrians and bicyclists.
- Develop and maintain a system of neighborhood trails to provide a variety of recreational opportunities, such as walking, bicycling and jogging.
- Design the trail system to connect parks and open spaces and provide connections to established neighborhoods where possible.
- Promote the location of neighborhood parks adjacent to higher-density residential housing to provide outdoor recreational opportunities for residents of attached housing and to enhance the quality of the neighborhood.
- Allow for flexibility in the siting of future parks while ensuring that locations meet the criteria identified in the Park Place Concept Plan.
- Support joint uses of community facilities such as schools and parks.
- Conserve and protect natural areas, including environmentally constrained areas unsuitable for development.

Implementation Strategies

- Amend parks and recreation, open space and trails master plans as necessary to be consistent with the goals and policies of the Park Place Concept Plan.
- Coordinate with the Parks and Recreation Master Planning process to identify appropriate amenities for new neighborhood parks.
- Communicate with the school district to determine if school facilities in such areas have the capacity for greater community use.
- Explore the feasibility of joint use of Ogden Middle School land and facilities for community-based recreational needs.

- Evaluate natural areas for capacity to support recreation uses, such as hiking or biking. Limit or protect human activity as appropriate.
- Coordinate with private property owners regarding development of the trail system.
- Establish and implement an equitable approach to funding acquisition of park lands and development of park and recreational facilities through a mix of system development fees, user fees and other available revenue sources. Ensure that property owners or developers pay their share of these costs in an equitable manner.

Public Schools

No new school sites are identified for Park Place. There are two existing elementary schools near the study area — Park Place Elementary and Holcomb Elementary. They have a combined capacity for an additional 300 students. Future enrollment projections for these elementary schools are relatively flat, as new households in their service areas are projected to be less likely to include young children than they have in the past. However, it is critical that all families in the Park Place neighborhood can safely access existing school sites and other educational facilities.

Public Schools Goals, Policies, and Implementation

Goal

Ensure that residents of the planning area have access to school facilities, consistent with school enrollment projections, and efficient provision of school facilities and educational services.

Policies

- Ensure that children and families can safely access their area schools.
- Identify and encourage additional educational opportunities for area residents.
- Encourage creation of physical and educational linkages between elementary, middle and high school students through programs like tutoring and mentoring.
- Promote connections between schools and the surrounding community, particularly community members without school-age children.

Implementation Strategies:

- Continue to coordinate with the Oregon City School District to identify school needs for area residents and ensure that the District meets them.
- Identify needed safe routes for walking and biking to school for area residents and children and incorporate them into planning and construction of transportation facilities in the area.
- Work with the School District to ensure that school bus routes provide for a high level of safety.
- Participate in efforts by the school district and residents to identify strategies for achieving educational linkages among schools in the

area and between schools and the community. Examples could include tutoring, mentorship programs and other educational programs, especially between neighboring schools.

- Explore the potential to locate an environmental educational facility in the planning area, preferably co-located with parks, open space or trails facilities in the area.
- Continue to coordinate with the Oregon City School District to identify school needs for area residents and ensure that the District meets them. If enrollment and development projections and trends differ from those identified in this Plan, work with the School District to identify appropriate locations) for school(s) within the planning area, if warranted.
- Encourage the Oregon City School District to continue to work with local families and other residents to develop and implement educational plans that meet the educational needs of children and families within the planning area.
- Organize programs like community gardens and school parades for strengthening the connection between schools and the surrounding community.

Financing

Metro's Title 11 requires concept plans to identify approximate costs of public infrastructure and potential sources of funding to pay for its development as the area is developed. Costs and funding sources are described in Chapter 5. The following goal policies and strategies will be used to ensure equitable and cost-efficient use of funding as the plan is implemented.

Goal

Provide funding and financing in a manner that each development pays it proportional share of the overall cost with Park Place.

Policies

Ensure that residents and businesses within Park Place will be treated equitably with respect to the City as a whole

Implementation Strategies

- Identify existing funding sources and their ability to pay for the cost of future facilities and services.
- Identify and recommend additional, innovative methods for paying for facilities and services.
- Use a combination of system development charges, density bonuses, land dedication, fees-in-lieu and public acquisition to pay for park land and facilities.
- Use a combination of user fees, system development charges, land dedication and public acquisition for right-of-way and other local, regional and state funding sources to fund transportation improvements.
- Use a combination of system development charges, user fees, general fund tax revenues and other funding sources to pay for water, wastewater and stormwater facilities and services.

2. Next Steps

As described by Metro, concept planning is an interim set of measures meant to prepare an area for comprehensive planning. The outline below provides the general process and process elements that follow adoption of a concept plan.

1. Development and adoption of comprehensive plan designations, comprehensive plan amendments, and development code amendments, based on the Park Place Concept Plan (legislative procedure)
 - a. Transportation System Plan (TSP) amendments
 - b. Amendments to other public facilities plans
 - c. Goal 5 inventory and implementation measures
 - d. Amendments to other comprehensive plan goals and policies (see Implementation section below)
 - e. Comprehensive plan designation mapping
 - f. Code amendments, including potential land division, zoning, and system development charge (SDC) regulations (see Implementation section below)
2. Applications for annexation (Type III/IV procedure)
3. Adoption of zoning designations upon annexation (Type I or Type IV procedure)
4. Development review

In the case that updates to the Park Place Concept Plan itself needed to be made, those amendments would be subject to the same legislative procedures as when the plan was originally adopted. See Oregon City Municipal Code, Chapter 17.50, Administration and Procedures, for descriptions of the different decision types.

5. Funding and Finance

Introduction

The available public infrastructure currently in Park Place is insufficient to serve development proposed in the Park Place Concept Plan. Though Park Place does not have existing infrastructure, it is adjacent to existing service providers. The key public services that need to be developed are: transportation, drinking water, wastewater, stormwater, and parks.

1. Infrastructure Requirements

Transportation

To handle the traffic generated by future development in Park Place and in the surrounding urbanizing area, roadways will have to be improved inside and outside of Park Place. The construction costs for transportation improvements needed to indirectly or directly serve the area amounts to approximately \$137-187 million in 2007 dollars. Table 5-1 indicates that approximately \$52 million of roadway and intersection improvements are likely needed as a result of the Concept Plan.

Table 5-1 also summarizes the cost of improvements by type of roadway: Expressway, Minor Arterial, and Collector. These types of roadways imply different jurisdictional ownership and funding responsibilities.

Table 5-2 shows a preliminary distribution of ownership and funding responsibilities. ODOT owns the express roadways and is primarily responsible for their construction and maintenance. ODOT and the regional, county, and city governments share in the cost of improvements to ODOT's roadways based on regionally negotiated percentages approximately: ODOT, 60%; Metro 20%; County, 15%; and City, 5%. In Table 5-2, these percentages are applied to the construction costs to allocate the funding responsibilities to each government.

The minor arterials are Clackamas County roadways that will eventually revert to City ownership after annexation and as agreed upon between the City and County. Generally, County roadways are brought up to "standard" before the transfer occurs. For this analysis, the County is assumed to fund 60% of the construction costs, and the City 40%. These roadways - Redland Road and Holly Lane - primarily benefit a larger county-wide population than will live in Park Place.

The new collector roadways to be built in Park Place, and as Park Place develops, are 100% the responsibility of the City. These roadways primarily benefit local traffic.

Those improvements or parts of improvements allocated to Oregon City are identified as No-Build and Build improvements. Regardless of the development of Park Place, the No-Build improvements will have to be constructed as the City grows outside of Park Place. Metro is listed as a possible funding source but no allocation of project costs is shown for it. Metro may participate in some of the regional roadway projects, but at this time none of the projects is in Metro's Regional Transportation Funding Plan.

Table 5-1: Summary of Estimated Needs for Transportation Improvements (for concept planning purposes only)

Roadway	No Build	Build	Total
HWY 213 Corridor Improvements (I-205 to Oregon City UGB)	75-125,000,000	0	75-125,000,000
Redland Road: Abernethy/Holcomb to Swan Ave		11,500,000	11,500,000
Holly Lane: Redland to Maplelane Road	3,000,000	0	3,000,000
Livesay Road: Swan Ext to Holly Ext		1,800,000	1,800,000
Donovan Road: Holly Lane to Ogden Middle School		1,200,000	1,200,000
Swan Ave Extension: Existing Swan Ave south to Holcomb Blvd		1,100,000	1,100,000
Swan Ave Extension: Livesay canyon to Redland Road		9,300,000	9,300,000
Swan Ave Extension: Redland Rd to Holly Ln		9,300,000	9,300,000
Holly Lane: Redland to Holcomb Blvd		17,400,000	17,400,000
Total	78-128,000,000	51,600,000	130-180,000,000

Intersections	No Build	Build	Total
Anchor Way/Redland	2,900,000		2,900,000
Holly Ln/Redland Rd	2,000,000		2,000,000
Holly Ln/Maplelane Rd	1,600,000		1,600,000
Swan Ave/Holcomb Blvd		300,000	300,000
Total Intersection Improvements	6,500,000	300,000	6,800,000
Grand Totals	85-135,000,000	51,900,000	137-187,000,000

Table 5-2: Facility Ownership and Estimated Construction Costs (for concept planning purposes only)

Roadway	ODOT	Clackamas	City of Oregon City		Totals
			No Build	Build	
Highway 213 Corridor Improvements (I-205 to Oregon City UGB)	75-125,000,000			0	75-125,000,000
Redland Road: Abernethy/Holcomb to Swan Ave.		6,900,000	0	4,600,000	11,500,000
Holly Lane: Redland to Mapelane			3,000,000	0	3,000,000
Livsey Road: Swan Ext to Holly Ext			0	1,800,000	1,800,000
Donovan Road: Holly Lane to Ogden Middle School			0	1,200,000	1,200,000
Swan Ave Extension: Existing Swan Ave south to Holcomb Blvd			0	1,100,000	1,100,000
Swan Ave Extension: Livesay canyon to Redland Road			0	9,300,000	9,300,000
Swan Ave Extension: Redland Rd to Holly Ln			0	9,300,000	9,300,000
Holly Lane: Redland to Holcomb Blvd		10,400,000	0	7,000,000	17,400,000
Total Roadway	75-125,000,000	17,300,000	3,000,000	34,300,000	130-180,000,000

Intersections	ODOT	Clackamas	No Build	Build	Totals
Anchor Way/Redland		1,700,000		1,200,000	2,900,000
Holly Ln/Redland Rd		1,200,000		800,000	2,000,000
Holly Ln/Mapelane Rd		1,000,000		600,000	1,600,000
Swan Ave/Holcomb Blvd		200,000		100,000	300,000
Total Intersection		4,100,000	0	2,700,000	6,800,000
Grand Totals	75-125,000,000	21,400,000	3,000,000	37,000,000	137-187,000,000

Source: Kittelson & Associates

To summarize, Oregon City will have to fund approximately \$40 million of the identified \$137-187 million of needs. Approximately \$3 million will be funded city-wide, regardless of the Park Place Concept Plan. The Park Place area will be responsible for approximately \$37 million.

The funding mechanisms for these improvements cannot be predicted with great accuracy, but the mechanisms can be identified and used to plan the improvements. As a part of the process to adopt the Park Place Concept Plan, the City and County will have to amend their Transportation System Plans to include all of the improvements identified above. The updated TSP also addresses funding by source of revenues. Once that is amended, the City and

County would update their transportation System Development Charges (SDCs) to include some portion of each capital improvement for eventual SDC funding. The projects in Park Place will then be ranked and scheduled for construction along with all of the other transportation projects in the City. These updates may or may not increase the amount of the current transportation SDC.

Outside of the Federal, State, County, and City funding sources for transportation improvements, the City and County may look to other financing mechanisms. The City may require developers to pay for or construct some of the improvements. The City may also accept applications to fund some projects as local improvement districts (LIDs) or advance financing arrangements with developers.

Water

Park Place will be served by the South Fork Water Board, which is a regional water utility owned by the Cities of Oregon City and West Linn. The Park Place area will be served by the SFWB's ample supply of water, treatment, reservoirs, and transmission lines to Park Place. The planned capital improvements build an internal distribution system at an approximate cost of \$3.8 million in 2007 dollars for approximately 26,306 lineal feet of water pipes and associated appurtenances.

Once the Park Place Concept Plan is accepted, the City's water master plan will have to be amended to include these projects. The water SDC will have to be amended to include these projects and perhaps to increase the City-wide water SDC (currently \$4,445 for a $\frac{3}{4}$ x $\frac{5}{8}$ inch water meter, varying by meter size). The update of the City's SDC would include the new projects and account for new users, and may or may not increase the amount of the SDC. It would make some parts of the water improvements in Park Place eligible for SDC funding. These costs will be absorbed by developers either through SDCs or construction of water system improvements as a condition of development approval.

Wastewater

The Tri-City Sewer District (TCSD), which includes Oregon City, West Linn, Gladstone provides the wastewater treatment plant (WWTP) and interceptor wastewater lines from Park Place to the WWTP. The planned capital improvements provide the collection system within Park Place. Only the 36-inch wastewater lines along Redland Road will provide service to areas outside of Park Place. The total cost of these improvements is approximately \$5.52 million in 2007 dollars. The cost per EDU is approximately \$2,483.

After adopting the Park Place Concept Plan, the City and TCSD will amend their SDCs to include these projects and perhaps increase the wastewater SDC, which is currently \$3,716 (sum of City and TCSD) per single-family residence on a $\frac{5}{8}$ x $\frac{3}{4}$ inch water meter.

Table 5-3. Summary of Water System Improvements

Water System Improvement	Size	Length (ft)	Cost/ft	Total Cost
North Village:				
Livesay Rd - E of Swan	12"	1,500	\$106	\$159,000
Swan Ave - Livesay Rd to Redland Rd.	12"	1,969	106	208,714
Livesay Rd W of Swan	10"	1,888	90	169,920
Livesay Rd W. to Holcomb Rd.	10"	784	90	70,560
North Village to Redland Rd.	16"	1,981	126	249,606
North Village to Holcomb Rd.	10"	3,576	90	321,840
Subtotals		11,698		1,179,640
Redland Road:				
SFWB connection to Swan Ave	16"	2,805	\$126	\$353,430
Swan Ave to Holly Lane	16"	1,245	126	156,870
Holly Lane to UGB Boundary	16"	2,448	126	308,448
Subtotals		6,498		\$818,748
South Village:				
Swan Ave - Redland Rd to Donovan Lane	16"	1,962	\$126	\$247,212
Swan Ave - Donovan Lane to UGB Bndry	10"	1,353	90	121,770
Holly Lane - Redland Rd to Donovan Lane	12"	1,906	106	202,036
Holly Lane - Donovan Lane to UGB Bndry	10"	1,244	90	111,960
Donovan Lane - Swan Ave to Holly Lane	16"	610	126	76,860
Donovan Lane - Swan Ave to School	16"	1,035	126	130,410
Subtotals		8,110		\$759,838
	10"	8,845		
	12"	5,375		
	16"	12,086		
Total Lineal Feet of Water Lines		26,306		
Construction Cost				\$2,758,226
Design Costs (20% of construction cost)				551,645
Construction + Design Cost				3,309,871
Contingency (15%)				496,481
Total Cost				\$3,806,352

Source: David Evans & Associates

Funding of these improvements may be borne directly by developers either through payment of SDCs or construction of wastewater system improvements as a condition of development approval. The City also may pay for part of these improvements through its own investments by issuing debt and paying debt service from user fees or SDCs. Updating the City's wastewater SDC to include the Park Place projects and the numbers of new users may result in both new revenues to the City and qualify some of the Park Place wastewater improvements for SDC funding or credits. The updated SDC may or may not be greater than it is currently. Formation of LIDs or advance financing agreements also may be used to pay for some of the improvements.

Wastewater System Improvement	Size	Number	Length (ft)	Cost/ft	Total Cost
North Village:					
Livesay Rd - E of Swan	12"		1,500	\$100	\$150,000
Manholes	4'	5		\$4,000	\$19,000
Swan Ave - Livesay Rd to Redland Rd.	12"		1,947	\$100	\$194,700
Manholes	4'	6		\$4,000	\$23,470
Livesay Rd - W of Swan	10"		1,894	\$95	\$179,930
Manholes	4'	6		\$4,000	\$22,940
Livesay Rd - W to Redland Rd.	8"		839	\$90	\$75,510
Manholes	4'	3		\$4,000	\$12,390
North Village to Redland Rd	12"		1,964	\$100	\$196,400
Manholes	4'	6		\$4,000	\$23,640
North Village to Hilltop	10"		3,568	\$95	\$338,960
Manholes	4'	10		\$4,000	\$39,680
Subtotals		25	11,712		\$1,276,620
Redland Road: *					
48" connection to Swan Ave	36"		1,891	\$335	\$633,485
Manholes	6'	6		\$7,200	\$41,238
Swan Ave to Holly Lane	36"		1,245	\$335	\$417,075
Manholes	6'	4		\$7,200	\$29,610
Holly Lane to UGB Boundary	36"		2,448	\$335	\$820,080
Manholes	6'	7		\$7,200	\$51,264
Subtotals		17	5,584		\$1,992,752
South Village:					
Swan Ave - Redland Rd to Donovan Lane	12"		1,995	\$100	\$199,500
Manholes	4'	6		\$4,000	\$23,950
Swan Ave - Donovan Lane to UGB Bndry	10"		1,353	\$95	\$128,535
Manholes	4'	4		\$4,000	\$17,530
Holly Lane - Redland Rd to Donovan Lane	12"		1,910	\$100	\$191,000
Manholes	4'	6		\$4,000	\$23,100
Holly Lane - Donovan Lane to UGB Bndry	10"		1,244	\$95	\$118,180
Manholes	4'	4		\$4,000	\$16,440
Donovan Lane - Swan Ave to Holly Lane	8"		610	\$90	Use Extg
Manholes	4'	3		\$4,000	\$10,100
Subtotals		23	7,112		\$728,335
	8"		1,449		
	10"		8,059		
	12"		9,316		
	36"		5,584		
Total Lineal Feet of Wastewater Lines			24,408		
Construction Cost					\$3,997,707
Design Costs (20% of construction cost)					\$799,541
Construction + Design Cost					\$4,797,248
Contingency (15%)					\$719,587
Total Cost					\$5,516,836

Table 5-4. Summary of Wastewater System Improvements

Source: David Evans & Associates

Stormwater

The stormwater system will in part be constructed as an element of the transportation system and in part from those improvements listed in Table 5-5. These improvements would not be constructed as part of a roadway. These non-roadway stormwater improvements will cost approximately \$765,845 in 2007 dollars.

Once the Park Place Concept Plan is adopted, the stormwater master plan and SDC would be amended to include these improvements. These improvements will likely be constructed by developers as a condition of development approval. Updating the stormwater SDC will have the same possible effects as updating the wastewater and water SDCs.⁵

Parks

The Park Place Concept Plan identifies two parks: an 8- to 10-acre community park and a 3- to 5-acre neighborhood park. The development cost is estimated at \$1.82 million in 2007 dollars. The current price of vacant residentially-zoned land in Park Place ranges from a low of approximately \$30,000 per acre for undeveloped un-served to \$125,000/acre for land adjacent to services. For this analysis, an average price for land with services is used that ranges from \$100,000 per acre to \$125,000 per acre. The community park in the North Village would serve a larger area than Park Place, while the neighborhood park in the South Village would serve only Park Place.

Once the Park Place Concept Plan is adopted, the City will have to update its Parks and Open Space Master Plan to include these projects, and revise its

Stormwater System Improvement	Quantity	Units	Cost/ft	Total Cost
Livesay Creek Basin				
Ponds - Assumes approx 10,000 cu ft	5	EACH	\$15,000	\$75,000
Pipe - Assumes 12"	1,200	LF	\$68	\$81,600
Subtotals				\$156,600
Holcomb Creek Basin				
Ponds - Assumes approx 10,000 cu ft	1	EACH	\$15,000	\$15,000
Pipe - Assumes 12"	260	LF	\$68	\$17,680
Subtotals				\$32,680
Abernethy Creek Basin				
Ponds - Assumes approx 10,000 cu ft	13	EACH	\$15,000	\$195,000
Pipe - Assumes 12"	2,510	LF	\$68	\$170,680
Subtotals				\$365,680
Total Ponds	19			
Total Pipe	3,970			
Construction Cost				\$554,960
Design Costs (20% of construction cost)				\$110,992
Construction + Design Cost				\$665,952
Contingency (15%)				\$99,893
Total Cost				\$765,845

Table 5-5. Summary of Stormwater System Improvements

Source: David Evans & Associates

Table 5-6. Summary of Park Improvements

Park Type	Acres		Acquisition		Development		Total
	Range	Assumed	\$/Acre*	\$'s	\$/Acre	\$'s	
Community	8 to 10	9	\$100,000	\$900,000	\$140,000	\$1,260,000	\$2,160,000
Neighborhood	3 to 5	4	125,000	500,000	140,000	560,000	1,060,000
Total Cost				\$1,400,000		\$1,820,000	\$3,220,000

*The Clackamas County Office of Assessment and Taxation reports current market values for vacant unimproved land without services ranges as low as \$33,000/acre. We assume a developable acre of land with services will be purchased for parks.

park SDC, currently \$3,056 per residential unit. This amount may or may not increase with the inclusion of the proposed parks in Park Place.

2. Development and Timing

Park Place is composed of about 109.1 acres of net buildable land and 368.5 acres in un-developable wetlands, steep slopes, or other physically constrained land. It provides upwards of 1,458 housing units and approximately 8 acres of land zoned for a mix of retail and office uses. The land area is divided into 138 parcels of private ownership that range from less than 1 acre in size to more than 30 acres. It also requires the investment of \$50.3 million for public improvements. Assuming that planned housing and commercial development occurs, the development will provide 1,458 dwelling units (single and multiple housing developments) and commercial development that equates to about 162 equivalent dwelling units (EDU). Using the EDUs of 1,620, and assuming the park development costs are only to be paid by residential development, the cost per average EDU is approximately \$31,300.

The public infrastructure improvements illustrated in Table 5-7 will not be built all at one time; however, development of any one parcel will require roadway, wastewater, water, and stormwater improvements to be installed at the time of development. This proposition creates a need to invent financing arrangements that accommodate both the particular requirements of any one development, and the public's ability to build or cause to have built the necessary public improvements.

Vacant land in an urbanizing area such as Park Place is converted to urban uses on a nearly random basis. Urban vacant land conversion studies show the

Table 5-7. Improvements Summary

Service	Cost	Number of EDUs*	Cost per EDU
Transportation	36,980,000	1,620	\$22,827
Water	3,806,352	1,620	2,350
Wastewater	5,516,836	1,620	2,405
Stormwater	765,845	1,620	473
Parks	3,220,000	1,458	2,209
Total Cost	\$50,289,032		\$31,263

* An EDU for retail and office is assumed to equal about 10 percent of total trips, water usage, and wastewater production.

reason a land owner either develops the land himself or sells to a developer has more to do with the owner's personal circumstances than with the rational expansion of urban development. Lifestyle changes (e.g., change in career, retirement, the onset of disease, bankruptcy, divorce) often trigger the sale of vacant land at the urban fringe. The likelihood of land adjacent to parcels with a full range of infrastructure is very small. The cost of building public improvements is minimized when they are built only when needed, and only as much as a proposed development would require. These circumstances rarely coalesce. Since the public lacks the authority and so many parcels exist in Park Place, neither the public nor a single private owner can orchestrate its sequential and timely development. Each development proposal will have to be evaluated for private and public feasibility, and any excess capacity in the public improvements likely will have to be financed by the private developer or the public.

Development in Park Place, as in all other similar areas, is more likely to include some vacant parcels. This development process gives rise to the need to extend linear public services like roadways, wastewater and water lines, and storm drainage facilities through vacant parcels. Financing of improvements would be easier if the leapfrogged property owners were willing to pay their share of the cost. Typically, the leapfrogged property owner does not want to pay his or her share of improvement costs until development of the property, when service becomes necessary.

3. Land Owner and Developer Financing Tools

If the developer has only to pay for public improvements directly related to their own property with no excess capacity built into the improvements, then the developer would likely build the improvements and pay systems development charges. This circumstance rarely occurs in fringe urban areas where transportation, water and wastewater improvements are needed.

In areas like Park Place, the developer will typically have to build roadways, wastewater and water lines, storm drainage and perhaps park improvements that have capacity in excess of the development's own use. Generally, the developer cannot recover the cost of the excess capacity from the final development it sells (finished lots or finished lots and houses or commercial buildings). The developer, as a rule, has to finance this excess capacity in hopes that other development will occur to use the excess capacity and to purchase the excess capacity from the original developer.

Size also matters. The larger the development, the more property sales the developer needs to spread the cost of the excess capacity. The original developer has two possible tools to finance the excess capacity—a local improvement district (LID) or an advance financing agreement.

Local Improvement District

A developer may organize a LID for those properties that will eventually benefit from the excess capacity. Once formed by concurrence or vote of a majority of the property owners within the specified district, the City assesses each property for its proportionate share of the cost of constructing the public improvements, including administration and financing costs. For those properties that do not pay their assessments in full and immediately, the City can issue a Bancroft bond to raise the rest of the cash needed to construct the improvements and pay the associated expenses. The City then assesses a tax each year on those properties that owe their assessments, plus interest and expenses, until the assessment is fully repaid. This form of borrowing—instigated by the developer and managed by the city—gives the developer a risk-free method of financing the excess capacity. It does, however, take agreement by a majority of the property owners in the LID to approve of the arrangement, and concurrence by the City to participate in the LID financing. If the property owners fail to make payment, the City has to foreclose on the non-paying properties and resell the property to recover the lost revenues. The City, in effect provides the security for the loan and takes the risks of default.

Advance Financing (Reimbursement) Agreement

The other tool is an advance financing agreement (also commonly referred to as a reimbursement agreement). This arrangement works similar to a LID except that the developer takes all of the financial risks of default. Cities in Oregon have adopted several variations on this type of agreement. But generally, the affected property owners do not have a direct vote in the formation of the agreement, and the city computes an assessment for each property or each type of development (e.g., a single family house, per square foot of commercial space). The assessment is not paid until the property owner chooses to develop the land and connect to the public improvements financed by the original developer. At that time, the assessment is due. Some cities insist on full payment at the time of assessment, while others may accept financing of the assessment. The city collects the assessed amount from the next developer, keeps a small amount for administration, and pays the rest to the original developer. The city's financial risk is limited to administrative costs. In the event the developer does not collect all of the assessments within the time frame set in the agreement (typically 10 to 20 years), the agreement is rendered null and void and the developer suffers the financial consequences.

4. Public Financing Tools

Size makes a difference to a developer's ability to absorb risk. When properties in an area are small and proposed developments are small, such as a series of small subdivisions for residential development or small commercial centers, the city may be the only financier available to absorb the financial risk of constructing the necessary public improvements. The city's risk is its ability

to collect systems development charges, charge user fees and, if authorized by voters, to assess specific property taxes to repay general obligation bonds. Generally the city has three possible sources of capital to build excess capacity into public improvements—cash reserves, revenue bonds or state loans where available, and general obligation bonds.

Cash Reserves

If the City has cash reserves from past collections of systems development charges or from the net operating revenues of user-fee based services (wastewater and water), then it can act as the financier in either a LID or advance financing agreement. It can also expect repayment from future payment of systems development charges. But the City must use its own cash to pay for construction of the improvements. No third-party lender would accept a promise of future SDC revenues to repay a debt because this stream of revenue is so unpredictable.

Revenue Bonds or Loans

Where the City charges monthly (or bimonthly) user fees for services, it has the ability to set those charges at a level that will pay all operating costs and pay the principal and interest (debt service) on a bond or loan. User fees provide a reliable stream of income that can be pledged to repay debts. Revenue collected for systems development charges can in part be applied to repay these debts. Specific laws guide the use of SDC revenues for this purpose. The City cannot levy a property tax to repay this debt.

General Obligation Bonds

Cities in Oregon can issue general obligation bonds only with the specific approval of voters at a general election and for a maximum specified amount and purpose. Revenue to repay this debt is primarily derived from a special property tax levy, though net income from user fees and SDC revenues may also be used to repay these debts.