



Create a vibrant regional activity center enlivened with high-quality pedestrian and environmental amenities, taking advantage of the region's light rail system.

AmberGlen Community Plan

CITY OF HILLSBORO, OREGON

Adopted by Ordinance No. 5933, January 19, 2010

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Ordinance No. 5933, January 19, 2010

Prepared by
the City of Hillsboro

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2007 OHSU/AmberGlen Concept Plan
Prepared for the City of Hillsboro by
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Cover Illustration Credit: Sabrina Henkhaus, 2009

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INTRODUCTION

Purpose

The AmberGlen Community Plan establishes coordinated goals, policies, and implementing actions to guide development and implement the community’s vision. Adoption of the AmberGlen Community Plan establishes the policy framework required to amend land use regulations for higher intensities and densities, establish capital improvement projects, and pursue funding mechanisms.

Concept planning established a vision, guiding principles and development concept for:

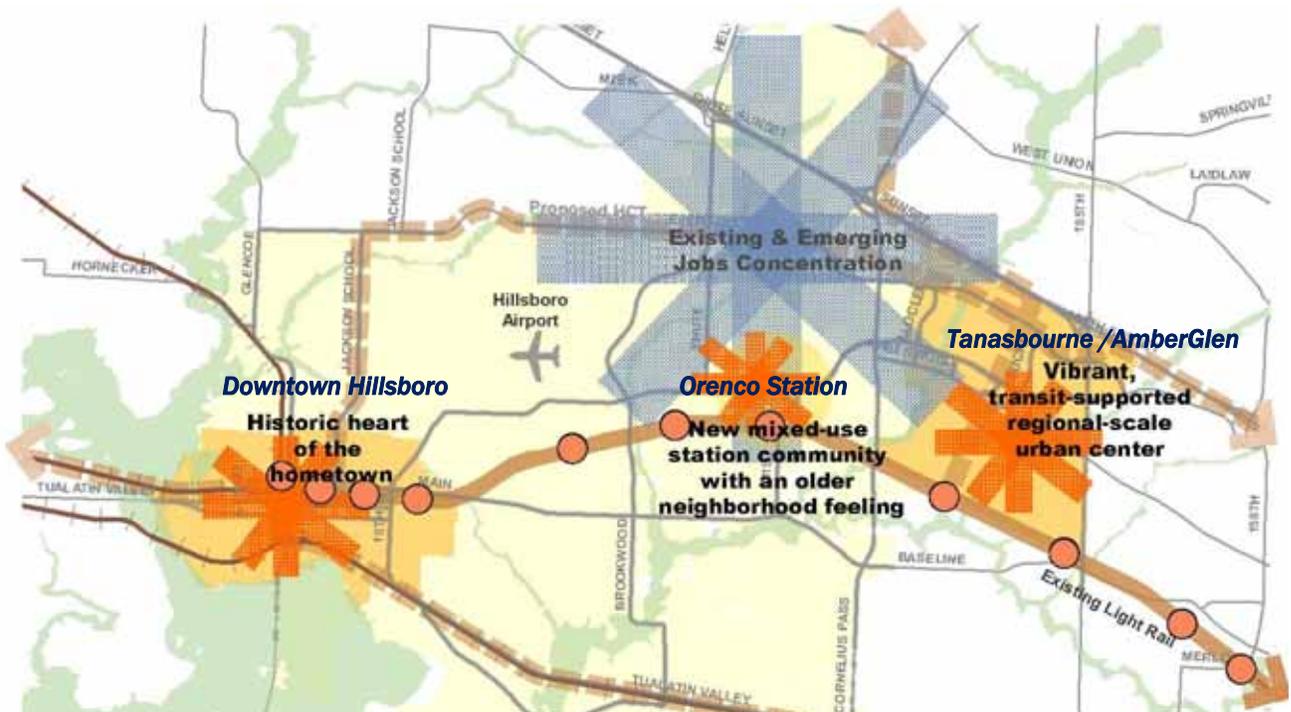
- Creating intensive, mixed-use development and achieving higher levels of density close to major employers;
- Providing high quality amenities and an urban, pedestrian environment; and
- Supporting regional transportation infrastructure.

The AmberGlen plan area provides a unique opportunity for transforming suburban development. Development of the area as an urban community connects the adjacent Tanasbourne Town Center to the region’s Westside Light Rail line and creates a vibrant, mixed-use regional center in a suburban location. Served by US Hwy 26, close to the region’s intensive high-tech industrial cluster and major retail and service industry employers, the AmberGlen area is an ideal location to plan for intensive urban development.

The AmberGlen Community Plan provides a comprehensive guide for land use decisions necessary for accomplishing the vision for an urban regional center.

WHY HERE? WHY NOW?

- Strong interest by developers & owners of several large properties
- Vacant, underdeveloped land
- Regional growth trends
- National lifestyle trends
- Market demographic trends
- Adjacent to major Westside employers
- Access to transportation infrastructure - Highway 26 and light rail
- The Right Place – successful Tanasbourne Town Center has achieved Regional Center scale



Transit, jobs and Metro Urban Centers within the City of Hillsboro

Plan Organization

The AmberGlen Community Plan contains the following sections:

Background - Identifies the plan area, context, planning process and public involvement.

Vision and Concept Plan - The vision statement and guiding principles embody community aspirations, and provide the basis for development of the Concept Plan.

Chapter I: Parks and Open Space

Chapter II: Land Use

Chapter III: Transportation

Chapter IV: Infrastructure

Chapter V: Economic Development

Plan Chapters

Each chapter contains the following sections:

- Existing Conditions
- Plan Concepts
- Goals, Policies and Actions

Goals, Policies and Actions

Goals and policies capture concepts embodied in the vision. Goals indicate a desired end. Policies state what must be done to achieve a desired end by identifying the City's position. Action statements outline projects or standards which implement goals and policies. The goals, policies and actions are interrelated, and work together to guide implementation of the vision.



AmberGlen Community Plan area viewed from the west looking east

BACKGROUND

Context

Plan Area

The plan area encompasses approximately 606 acres located near Hillsboro's growing residential and employment populations. The plan area is bounded by NW Cornell Road to the north, NW 206th Avenue to the west, NW 185th Avenue to the east and the Westside Light Rail line to the south. The Bronson Creek corridor traverses the plan area creating two distinct subareas. The western area includes the AmberGlen Business Center and the Oregon Graduate Institute. The eastern area includes the Oregon Health Science University (OHSU) West Campus and a mix of emerging multi-family residential, education and commercial uses. The Willow Creek Transit Center and Quatama light rail stations are located at the southern boundary. The plan area features significant sites of vacant or under developed land.

Regional Context

The City of Hillsboro is one of the fastest growing cities in the Portland metropolitan region and currently has a population nearing 90,000 people, making it the 5th largest city in the state. Hillsboro has become the center of high tech investment in Oregon, with nearly 25,000 employed in this industry. Growth has been spurred by the City's availability of developable industrial land, employment opportunities, desirable neighborhoods, quality schools, and regional transportation infrastructure. This success in employment growth has resulted in a jobs-to-housing imbalance, creating a need for additional residential development.

Located adjacent to the plan area, the Metro 2040 Growth Concept designated the Tanasbourne area as a Town Center in 1995. Suburban in form, "Tanasbourne" grew to become one of the largest mixed-use centers in the region. In 1999, the City adopted the Tanasbourne Town Center Plan to direct new mixed-use growth toward regional allocations for housing and jobs, and to support Metro 2040 Growth Concept goals for a balanced mode split and compact, efficient development. In contrast to the AmberGlen plan area and Hillsboro's other Town Centers, the Tanasbourne Town Center is not supported by light rail transit.

Recent Tanasbourne development features a mix of urban, pedestrian-oriented business and open space amenities. In 2007, Town Center commercial development totaled nearly 3.5 million square feet including over one million square feet of retail. Multi-family residential development totaled approximately 4,000 dwelling units according to the *OHSU/AmberGlen Concept Plan*, Plan Summary, March 2007 provided in Appendix A. Recent retail projects such as the Streets of Tanasbourne and Tanasbourne Market Center strengthen the focus on urban amenity businesses and feature popular anchors like REI and Whole Foods Market. Growth continues with Kaiser Permanente's Westside Medical Center (one-million square feet) currently under construction. Tanasbourne Town Center is the largest in the region at 469 acres with densities of 8 people/acre compared to the regional average of 5 people/acre.¹ In February 2009, City and regional leaders and stakeholders affirmed a commitment to pursue designation of the combined Tanasbourne Town Center and AmberGlen Community Plan areas as a Metro 2040 Regional Center.



Quatama Light Rail Station



AmberGlen Business Center Park



The Streets of Tanasbourne



Magnolia Park

¹ STATE OF THE CENTERS REPORT. METRO, JANUARY 2009.

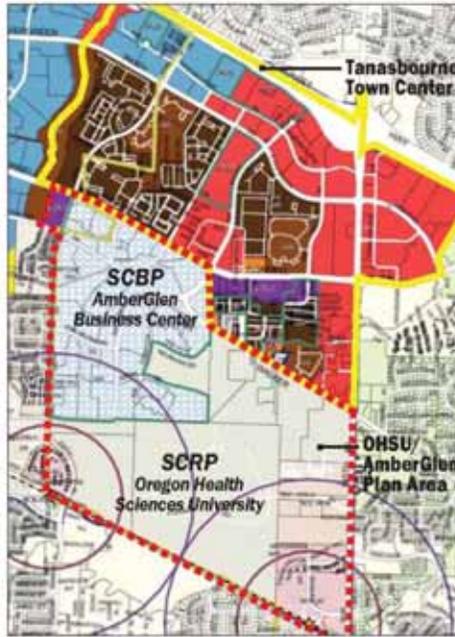


Figure A: AmberGlen Study Area and Context Map

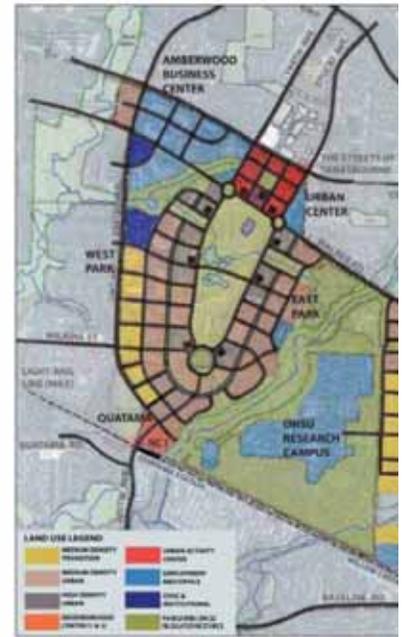
TANASBOURNE | AMBER



Tanasbourne/AmberGlen Planning Areas Aerial Photo, 2005



Current Plans/Zoning: Tanasbourne Town Center, Station Community Campus Areas (OHSU/AmberGlen)



Land Use Development Plan OHSU AmberGlen Concept Plan, 2007

Early 1980's



Standard Insurance creates "Tanasbourne"

Standard Insurance begins development of 850 acres, the initial phase of the master plan for "Tanasbourne." It was to become one of the region's largest, horizontal mixed-use developments.

1991



AmberGlen Business Center breaks ground

Birchler Development & Investments and State Farm Insurance, in a development agreement with Amberjack, break ground on the AmberGlen Business Center. The master plan identifies a multi-tenant, 26 building, 1.25 million square-foot research and development facility on 217 acres adjacent to OHSU.

1996

City adopts Station Community Plans and Campus Zones for OHSU/AmberGlen

Zoning supports existing "campus" uses and is intended to foster transit-oriented, pedestrian-sensitive, and auto-accommodating development. AmberGlen Business Center is designated: Station Community Business Park (SCBP), Oregon Health Sciences University designation: Station Community Research Park (SCRCP).

1998

City initiates Parks & Open Space Investments

Rock Creek Trail construction in 1998 begins the City's ongoing investment in parks and open spaces. With additional funds from Metro, 1.5 miles of paved nature trail connects residential, commercial and industrial neighborhoods.

1999 / 2004

City adopts Tanasbourne Town Center Plan & Zones

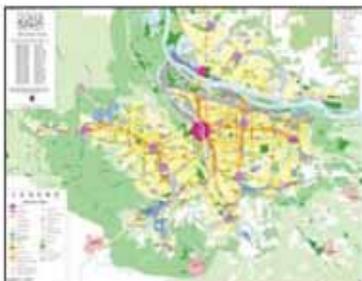
City of Hillsboro adopts Tanasbourne Town Center Plan (1999) and designates Mixed Use Commercial zones (2004) to direct new mixed-use growth in support of Metro 2040 Growth Concept goals and allocations for housing and jobs.

2006 / 2007

City completes Concept Plan for OHSU/AmberGlen area

The City of Hillsboro initiated the OHSU/AmberGlen 2006 to achieve higher levels of density close to metro provide high quality amenities & a pedestrian orient environment; support regional transportation infras transform all of Tanasbourne to a major regional ac Completed in 2007, the Concept Plan was a collab between property owners, Tanasbourne area stake County, Metro and State officials.

The Concept Plan identifies a vision, guiding princ program and implementation tools for creating a vi mixed-use development. The center is close to ma dynamic Tanasbourne Town Center, and regional tr including Highway 26 and the Westside Light Rail, community is envisioned to be a regional landmark sustainability.



1995 Metro adopts 2040 Growth Concept

The Metro 2040 Growth Concept was adopted in the Region 2040 planning and public involvement process in December 1995. The Growth Concept defines the form of regional growth and development for the Portland metropolitan region. The concept is intended to provide long-term management of the region.



1998 MAX Westside Light Rail Opens

Planning for a light rail system on Portland's west side began in 1979. In 1989, the local jurisdictions asked to add an extension to the Westside project to extend the line to Hillsboro due to rapid development. Environmental studies for this 6.2-mile addition, mostly located on an abandoned rail right-of-way, progressed rapidly, and in 1994, Hillsboro became the western terminus of the Westside project. The Westside MAX line connecting Hillsboro to





PLAN IMPLEMENTATION NEXT STEPS

The Concept Plan is the product of the initial phase of planning, intended to establish the vision to compel and guide the project through the Implementation Process...



AmberGlen Community Plan

The following implementation tasks will be addressed in following months during the AmberGlen Community Plan process:

- Assess Market Feasibility
- Establish Phasing Strategy
- Refine Development Plan
- Analyze Transportation System; Identify projects/funding
- Create Memorandum of Understanding
- Analyze feasibility of Urban Renewal District
- Develop AmberGlen Community Plan
- Adopt AmberGlen Community Plan as part of the Comprehensive Plan

Refinement of the Development Plan concept was initiated by motivated property owners to compare the physical Concept Plan against existing property holdings. Additional refinement to address public and private objectives will be accomplished during the Community Plan process.



The City of Hillsboro in partnership with stakeholders is preparing an AmberGlen Community Plan for inclusion in the City's Comprehensive Plan. Adoption of the area plan establishes the regulatory framework required to:

- Amend land use regulations for higher intensity uses and densities
- Implement capital improvement projects
- Pursue funding mechanisms (tax increment financing, SDC's, & others)

Concept Plan in major employers; mixed, urban structure; and to activity center; cooperative effort; stakeholders and City.

Principles, development vibrant, intensive major employers, the transportation. The complete, urban form and model of urban



Potential Metro 2040 Regional Center designation for Tanasbourne/AmberGlen



Potential extension of a High Capacity Transit Line along NW 194th Avenue with service to Tanasbourne/AmberGlen



Planning Process

A summary of planning for the Tanasbourne/AmberGlen area is provided in the Area Planning Timeline on the preceding pages.

The City of Hillsboro initiated concept planning for the AmberGlen plan area in 2006 to achieve higher levels of density close to major employers, provide high-quality amenities, support regional transportation infrastructure, and to transform the combined Tanasbourne/AmberGlen areas into a regional center. Public goals included meeting ongoing demand for jobs and a variety of housing, improving the jobs/housing balance, relieving pressure on established neighborhoods, planning for an uncertain energy future, fully supporting the region's investment in light rail, and providing a model development for urban sustainability.

Completed in 2007, the *OHSU/AmberGlen Concept Plan (2007 Concept Plan)* was a collaborative effort between property owners, Tanasbourne area stakeholders and City, County, Metro and State officials. The Plan Summary for the *2007 Concept Plan* is provided in Appendix A. The *2007 Concept Plan* identified a vision, guiding principles, development program, and implementation tools for creating a vibrant, mixed-use district.

In 2009, the City initiated a process to refine the *OHSU/AmberGlen Concept Plan* for adoption as a Community Plan within the City of Hillsboro Comprehensive Plan. Refinement of the development concept was initiated in 2007 by motivated property owners to compare the *2007 Concept Plan* to existing property holdings. In February 2009, City and regional leaders and stakeholders discussed and affirmed a shared commitment to the vision and aspirations established in the *2007 Concept Plan*. They also agreed to pursue designation of the combined Tanasbourne Town Center and AmberGlen plan areas as a Metro 2040 Regional Center, and a high-capacity transit link such as light rail through the AmberGlen plan area to connect to employment centers to the north and west. Additional plan refinements were made to address market feasibility, design of the central park and open space, and additional input received from the public and plan area stakeholders. The AmberGlen Community Plan process included transportation system analysis, identification of potential projects, and analysis of funding mechanisms including tax increment financing.

Public Involvement

Stakeholder Interviews

In July of 2006, staff conducted 50 stakeholder interviews – with major property owners, real estate professionals, public agency representatives, residents and other key representatives. The interviews offered a unique opportunity for stakeholders to speak candidly about the project and give staff a wealth of perspective and knowledge to guide the planning efforts.

Steering Committee & Technical Advisory Committee

Throughout the entire process, plan development was guided by a City-formed Steering Committee composed of property owners and residents within and surrounding the plan area and other key stakeholders, and a Technical Advisory Committee consisting primarily of public agency representatives. Both the Steering Committee and Technical Advisory Committee were heavily engaged in the planning process, attending seven meetings and providing staff with valuable technical guidance and perspective.

Design Process

An intensive design charrette was held over six days in August of 2006 and provided the basis for the development program and plan concepts. Steering Committee members and stakeholders created several design alternatives for the plan area and developed guiding principles. Discussions were held with developers who had worked on similar projects in the Portland area to give attendees further guidance. This design process produced a preliminary concept plan that was later reviewed and refined for adoption by the Steering Committee and Technical Advisory Committee.

Open Houses

Public open houses were held during the concept plan phase in August, 2006 and September 2006 to solicit input from citizens on the vision, guiding principles and development concepts. The public was once again invited through area mailings, email distribution and local press releases to public open houses held in April, June and September, 2009 during plan refinement. During plan refinement, public participant's comments focused on the parks and open space framework, sustainability features, potential high-capacity transit, and transportation.

Public Work Sessions

Throughout the planning process, the Hillsboro City Council and Planning Commission held four joint work sessions and one additional Planning Commission work session to review the plan's progress. Additionally, a tour of the plan area and the Pearl District in Portland highlighted important design elements of the AmberGlen Community Plan such as the value of open space, transitions between public and private spaces, and density.

Website & Communication

A project website provided updated information on public meetings, meeting materials and summaries, plan documents and contact information throughout the planning process. Feedback was received via email or phone calls by project staff and an email list was maintained to ensure all interested citizens and stakeholders were kept informed on the plan's progression and upcoming events. Comments received throughout 2009 informed refinements to plan concepts and the Goals, Policies and Action items presented in this Community Plan.

Documentation of stakeholder interviews, public meetings and comments received are provided in Appendix B.



April 1, 2009 Open House



October 10, 2009 Tour



June 25, 2009 Open House

Public Involvement Summary

Stakeholder Interviews – 7.26.06 to 7.27.06

The project team conducted 50 stakeholder interviews with individuals invested in the outcomes of the planning process.

TAC & SC Meeting – 8.2.06

Attendees discussed the project description, and schedule. An overview of existing conditions and stakeholder interviews was also covered.

Open House – 8.21.06

Over 30 residents and interested parties were introduced to the strategies, objectives and tasks proposed in the OHSU/AmberGlen plan process.

Design Process – 8.24.06 to 8.29.06

The intensive design charrette entailed groups creating several design alternatives for the plan and developing guiding principles. The design charrette defined the scope of the concept.

TAC & SC Meeting – 8.30.06

The meeting included a discussion of two alternatives created during the charrette design exercise.

Open House – 10.9.06

Nearly 25 area residents and interested citizens were introduced to the Draft Concept Plan for OHSU/AmberGlen.

TAC & SC Meeting – 11.15.06

Concept Plan refinements, transportation analysis, and infrastructure and public services were discussed.

City Council / Planning Commission Work Session – 8.2.07

OHSU/AmberGlen vision was presented and land use concepts were discussed.

Transportation Metropolitan Advisory Committee – 9.7.07

The project team presented the OHSU/AmberGlen vision, land use concepts and transportation issues.

City Council & Planning Commission Work Session – 11.1.07

A progress report and discussion regarding the OHSU/AmberGlen plan updates was given.

Stakeholder Meeting – 2.13.08

Key stakeholders and property owners met to discuss future plans and a revised concept plan that acknowledges current development.

Stakeholder Meeting – 6.17.08

Attendees reviewed the revised stakeholder's Refinement Plan and discussed the possibilities of public funding.

Stakeholder Meeting – 10.22.08

The Concept Plan and the Refinement Plan were discussed and a review of the project work scope and transportation work scope were covered.

Stakeholder Meeting – 11.19.08

Future project plans were discussed and an economic study and transportation study work scope was presented to attendees. A request for steering committee member volunteers was made.

City Council / Planning Commission Work Session – 2.17.09

The meeting included special guests Metro Councilors David Bragdon & Katherine Harrington, Rick Van Beveren of Tri-Met, and selected members of the Steering Committee. Attendees reviewed

OHSU/AmberGlen Concept Plan & Stakeholder Preferred Alternatives and requested direction for the refinement of the AmberGlen Community Plan.

TAC & SC Meeting – 3.31.09

Attendees reviewed direction provided at the City Council /Planning Commission Joint Work Session. Staff presented alternative plan maps that combined the OHSU/AmberGlen Concept & Stakeholder Preferred Alternative Maps.

Open House – AmberGlen Business Park – 4.1.09

Information about the AmberGlen planning area and draft concept plan refinements were presented to the public. Approximately 45 local residents, employees, and other interested parties attended.

TAC & SC Meeting – 4.15.09

A presentation on urban amenity values and public park space was given by Johnson-Reid. Attendees discussed refinements of the plan alternative.

TAC & SC Meeting – 6.24.09

Johnson-Reid provided preliminary information regarding retail capacity and the viability of proposed residential development. Draft land use polices and transportation modeling updates were also presented and discussed

Open House – AmberGlen Business Park – 6.25.09

Information regarding the market feasibility analysis, plan refinements, transportation planning, and draft land use policies were presented. Approximately 25 local citizens attended to offer feedback.

City Council / Planning Commission Joint Work Session – 8.4.09

Review of the outcome of the February 17, 2009 work session was covered as well as AmberGlen Plan progress and refinements.

City Parks Commission Presentation – 8.25.09

The overall Plan with an emphasis on Parks and Open Space was presented to attendees.

TAC & SC Meeting – 9.10.09

AmberGlen concept plan map refinements, draft Goals Policies and Actions, urban renewal feasibility analysis, and preliminary transportation findings were presented and discussed.

Public Open House – AmberGlen Business Park – 9.17.09

A draft of the AmberGlen Community Plan and Map were reviewed by attendees. Approximately 12 interested citizens attended.

AmberGlen and Pearl District Tour – 10.10.09

A tour of the AmberGlen area and Pearl District in Portland highlighted some of the important design elements of the AmberGlen Community Plan: open space, transition between public & private spaces, etc.

Planning Commission Work Session – 10.28.09

An in-depth review of the Draft AmberGlen Community Plan and Map was covered, as well as transportation modeling results.

Meeting with Citizen Participation Organization 7 – 11.2.09

Attendees discussed and offered feedback on the Draft AmberGlen Community Plan and relating transportation issues.

VISION AND CONCEPT PLAN

Public and private stakeholders have repeatedly affirmed enthusiastic support for the vision developed at the outset of the planning process. The vision is intentionally big and focused on creating a vibrant regional center with a unique and widely recognizable identity.

Vision Statement

“Create a vibrant regional activity center enlivened with high-quality pedestrian and environmental amenities, taking advantage of the region’s light rail system.”

Guiding principles were also developed to define the recommended overall theme and identity for the community, and to guide concept plan design and refinement. The guiding principles serve as a “touchstone” against which plan concepts and program details are “tested” to ensure consistency with the vision.

Guiding Principles

1. ***Urban/Green***
2. ***Third Places***
3. ***Regional Landmark***
4. ***Big: Create catalyst at outset***
5. ***Connectivity***
6. ***Market Flexibility***
7. ***Model Development***
8. ***Economic Vitality***



Concept Plan

The Concept Plan implements the vision through the creation of a mixed-use urban community focused on a dramatic central park. Residential, employment, shopping, education, and recreation are integrated throughout a high-quality urban and natural environment. The Concept Plan calls for over 6,000 new medium- to high-density residential units, 3,000,000 square feet of office, 500,000 square feet of retail including shops, restaurants and entertainment, and over 170 acres of parks, greenways and protected natural areas.

The AmberGlen Community Plan Concept Map (Figure B) identifies key concepts integrating land use, open space, transportation, and urban design elements:

- **A mix of uses**
Mix housing, retail, open space, and employment throughout the site and often within individual blocks, with the intention of creating lively, varied, and walkable urban environments.
- **Urban green landmark**
Organize high-density residential and mixed-use blocks around the “central park” and natural resource areas.
- **Housing density and variety**
Provide housing that is significantly denser than the average Washington County product. Taper height and density to provide a transition to adjacent established townhouses and multi-family residences.
- **Urban shopping and a “Community Activity Center”**
Establish a shopping and community focus that will create a lively urban environment containing shops, restaurants, cultural and civil facilities, and other amenities.
- **A range of different districts**
Design a community plan with a strong overall identity comprised of distinct neighborhoods and districts, each with their own unique places and character.
- **Strong urban form**
Require high-quality design consistent with a distinctive design theme to strengthen community identity and sense of place.
- **Integrate existing development**
Coordinate plan features with existing development to allow flexibility in development phasing without jeopardizing the vision.

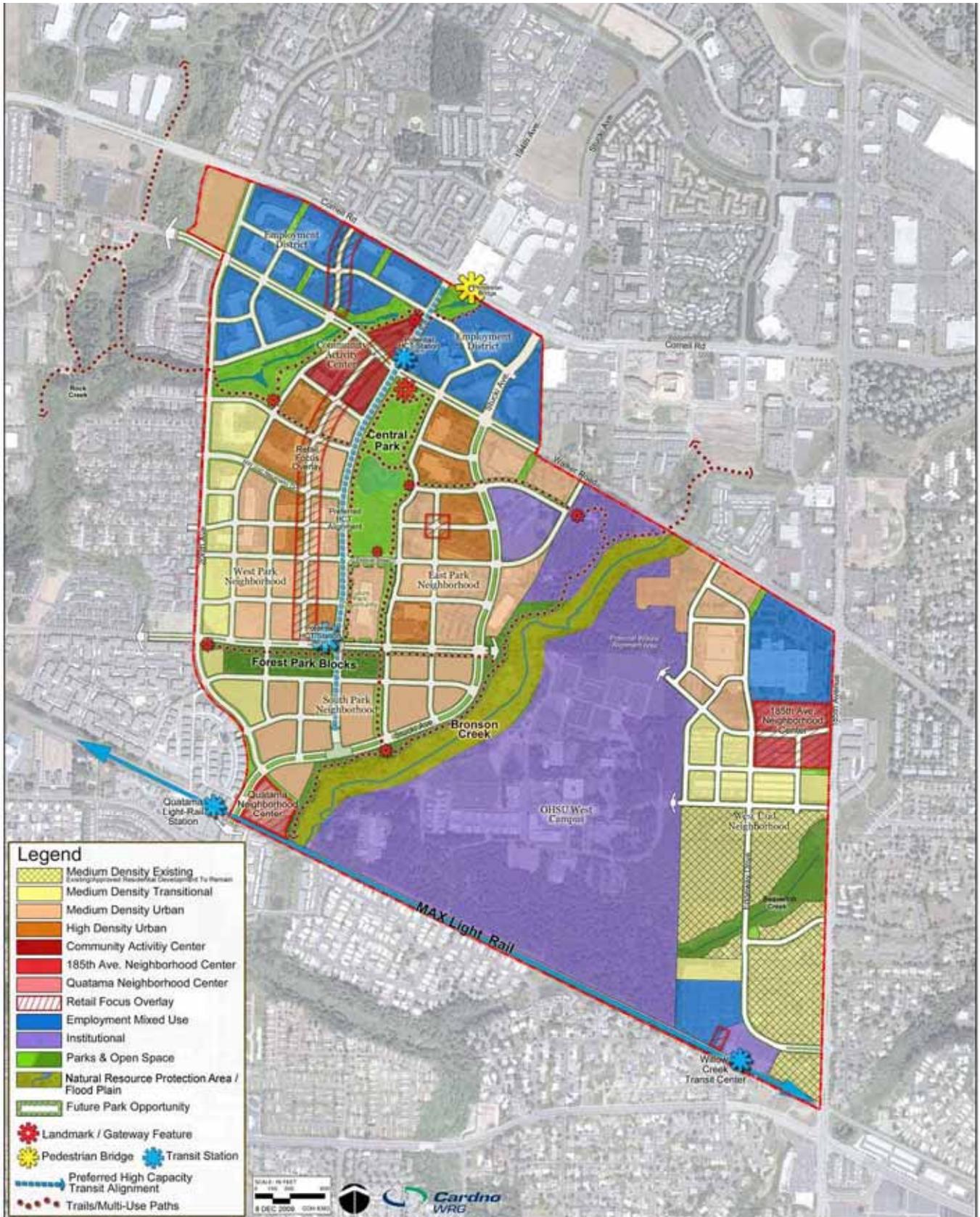


Figure B: AmberGlen Community Plan Concept Map

CHAPTER I – PARKS AND OPEN SPACE

Existing Conditions

The AmberGlen plan area's character is derived from three creeks that traverse the gently rolling topography, mature groves of trees, and a private central park that allows expansive views of the hills, sky and distant mountains. Riparian corridors and forest areas connect the plan area to regional natural systems and support deer, owls and other wildlife within the city. Future enhancement of existing open space and natural areas present an important opportunity to improve ecological functions, provide access to nature and recreation, and establish a community identity.

Parks, Greenways and Trails

Existing and planned public and private parks, trails and other facilities are identified in Figure 1-1.

A private park located central to the AmberGlen Office Park campus features a developed pond and fountain, outdoor amphitheater, soccer field, pathways, lawns and mature trees. The park is currently included in 32 acres of dedicated open areas owned and maintained by AmberGlen LLC for use and enjoyment by AmberGlen Office Park tenants. Nearby residents and others attracted to the quiet beauty of the area regularly visit the park area. A small private playground is located in the southeast corner of the plan area along Edgewood Drive for use by the Heron Creek condominium community.

No public parks or connecting greenways are located within the plan area. However, the City of Hillsboro has developed a variety of parks, greenways and trails within a 5 to 10 minute walking distance ($\frac{1}{4}$ to $\frac{1}{2}$ mile). Evergreen Neighborhood Park, Magnolia Neighborhood Park, and Bronson Creek Nature Park (with private partners) serve mixed-use neighborhoods north of the plan area. Orchard Nature Park and disc golf course and the Rock Creek Trail Greenway located directly to the west of the plan area serve as community and regional facilities. The Beaverton Creek Greenway preserves natural resources to the south of the plan area. Planned regional trails along creek corridors include extensions to the Rock Creek Trail and development of the Bronson Creek Trail to connect to the Beaverton Creek Trail to the south.

In keeping with the established City of Hillsboro goal of providing each resident with a park within $\frac{1}{2}$ mile and a community scale park within 2 miles, a new community park ranging in size from 12 to 30 acres has been identified for the Tanasbourne/AmberGlen area (Draft Parks and Trails Master Plan, City of Hillsboro, May 2009). Community parks provide both active and passive recreation opportunities that appeal to the entire community. Community park features may include a performance area or amphitheater, community gardens, natural areas, trails, water features, and other facilities with community draw. Special park areas may include urban plazas, unique gardens, concessions or vendor space. Commercial lease space for third place uses such as a restaurant, bookstore or coffee house may also be provided. The City has also identified the need for a signature indoor recreation center to meet the full range of health and wellness needs of the community.



Images of AmberGlen Business Center Park.



Figure 1-1: Existing and Planned Parks & Facilities

Natural Resources

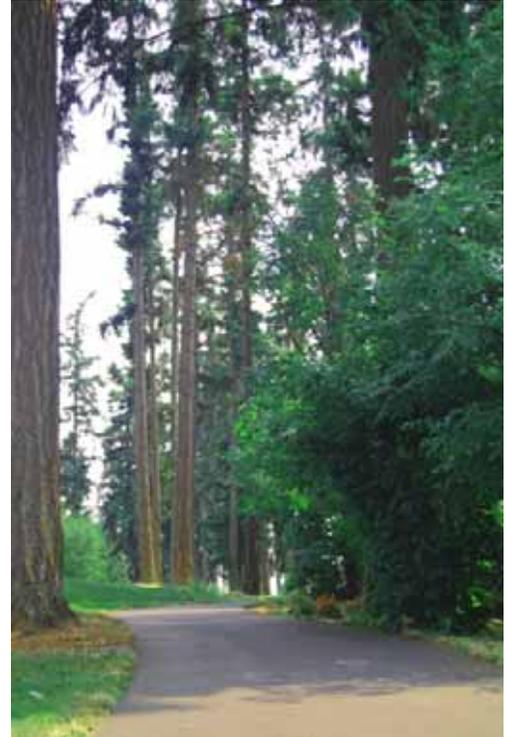
Streams, slopes, flood plains (Comprehensive Plan Map designation), and Significant Natural Resources Overlay areas (Hillsboro Zoning Map designation) are identified in Figure 1-2.

The plan area is located in the Rock Creek drainage basin. Rock Creek is located off-site and flows south parallel to the west plan area boundary. The main hydrologic feature in the plan area is Bronson Creek which flows southwest through the central portion of the site, primarily on OHSU's West Campus, to expansive wetland communities to the south. Bronson Creek is a tributary to Beaverton Creek, and Beaverton Creek joins Rock Creek approximately 1.25 miles southwest of the plan area. The site also contains two smaller streams: a tributary to Rock Creek traversing the northwest corner of the plan area and a tributary to Beaverton Creek located in the southeast corner of the plan area. Wetlands and natural resources were mapped in the plan area in the City of Hillsboro Goal 5 Natural Resources Inventory and Assessment in 2001. Rock Creek, Bronson Creek, and the Beaverton Creek tributary, and the Rock Creek tributary were identified and mapped as having locally significant stream associated wetlands and riparian corridors in the City's natural resource inventory. Dominant native wetland vegetation within the significant natural resources includes Oregon ash, Pacific willow, red-osier dogwood and wild clustered rose. Fish resource information indicates an opportunity to improve the quality of habitat for fish identified upstream of plan area creeks. A mature Douglas fir stand located south of NW Wilkins Street is mapped as a locally significant upland wildlife habitat reserve. Additional native trees in mapped resource areas include grand fir, western red cedar, Oregon white oak and big-leaf maple. Native shrubs include vine maple, oceanspray, cascara, western flowering dogwood, Oregon grape, and salal. Sword fern is common in the understory. Observed wildlife includes owls, hawks and deer.

The City of Hillsboro has adopted a Significant Natural Resources Overlay (SNRO) District to provide protection for significant Goal 5 resources. Approximately 169 acres or 27% of the plan area has the SNRO designation. SNRO districts vary levels of protection and identify permitted and prohibited uses. There are three levels of SNRO protection. Development within the SNRO district requires a Significant Natural Resources Permit from the City of Hillsboro. Requirements include on-site delineation of resources present on the site and identification of proposed adverse impacts and any necessary mitigation. A Clean Water Services environmental review approving delineated vegetated corridors adjacent to streams and wetlands is also required.

Opportunities and Constraints

- There are opportunities within the plan area to improve ecological functions, provide access to nature, and strengthen the area's identity by enhancing existing natural resources and park areas.
- Providing linkages to local and regional natural resources, parks, greenways and trail systems further enhances ecological and community benefits provided by existing parks and open space.
- A new community park is recommended for the Tanasbourne/AmberGlen area with active and passive features and special uses that hold appeal to the entire community.
- Slopes associated with creeks present challenges as well as opportunities to provide development over parking, ensure expansive views and to develop open space adjacent to natural areas to leverage amenity values.



Rock Creek Regional Trail.



Heron and ducks enjoying the pond at AmberGlen Business Center Park.

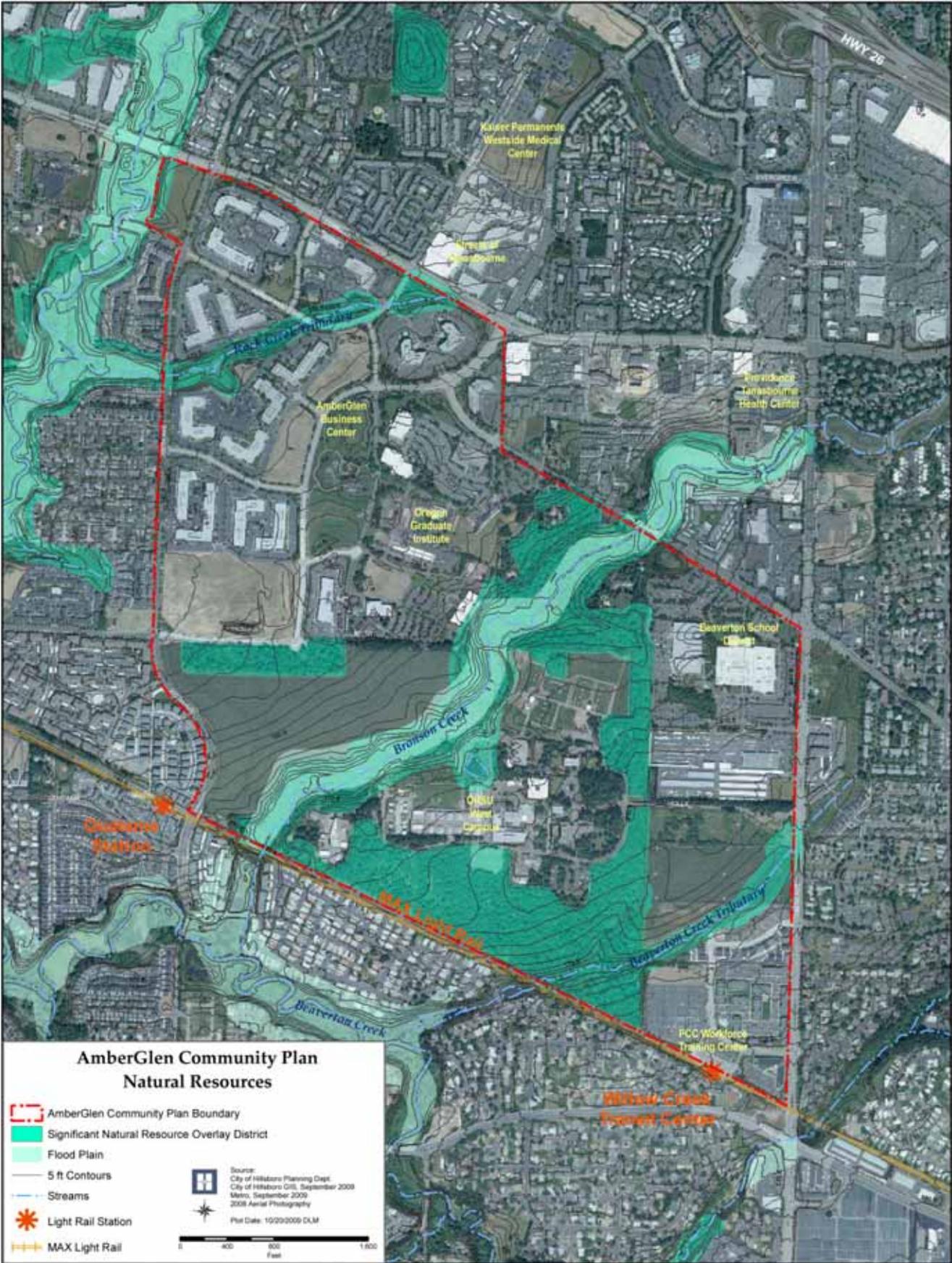


Figure 1-2: Natural Resources

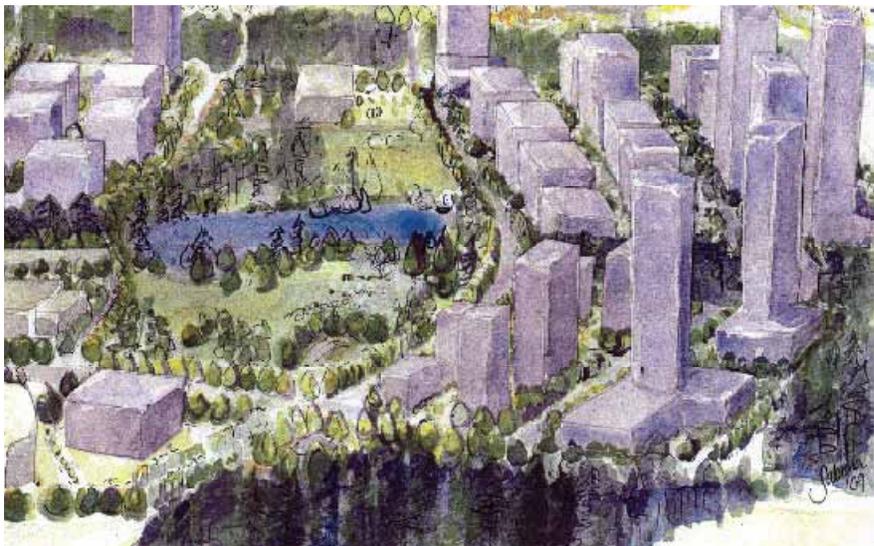
Parks and Open Space Concept

A guiding principle for the AmberGlen Community Plan is that it combines an intense urban development form with the natural environment. The Concept Plan organizes mixed-use urban development sites around a signature central park, natural corridors, habitat areas and developed open spaces. Pocket parks and connecting green streets and parkways knit open space into an “urban green” framework. This green framework provides recreation amenities, enhances ecological functions, and fosters a strong connection to nature in the heart of an urban neighborhood.

A key element of the Hillsboro 2020 Vision and a guiding principle for this plan is to promote the creation of “third places”. The Concept Plan identifies plazas and other locations where people will naturally gather. The central park provides a range of opportunities for public gatherings, both in intimate settings such as a sitting area next to a pond or within special gardens, or in an open meadow for larger group activities.

The green framework identified in the Concept Plan is critical to creating a landmark identity as envisioned for the community. In terms of economic vitality, a developed network of parks and open space provides an amenity level necessary for high-density development. Residents and employers are more likely to locate in a higher-density environment if a rich mix of amenities is close at hand. The central park and network of open spaces identified in the Concept Plan ensure places of compelling quality.

Green framework elements also link natural systems to further enhance ecological functions throughout the plan area. Greenway trail corridors, boulevards and streets will be designed to improve water quality, manage stormwater efficiently, support wildlife and showcase the natural beauty of the area. The parks and open space concept reflects a commitment to the ecological health of the area and recognizes that people’s physical and mental well being is related not only to the quality of the built environment, but also to having access to functioning natural systems.



*Central Park and Forest Park Blocks beyond viewed looking south from above Cornell Road.
Illustration credit: Sabrina Henkhaus, 2009.*



Figure 1-3: AmberGlen Parks and Open Space Concept Map

Green Framework Elements

Elements of the urban green framework are identified on the AmberGlen Parks and Open Space Concept Map (Figure 1-3) and discussed in the following sections.

Central Park

The central park is the major community amenity, organizing feature and focal point for the Concept Plan. The public park is designed to optimize pedestrian, bike and transit access. It will serve as the main area for recreation for local residents and employees and enables people who live or work nearby to walk to a major recreation facility. The central park also offers special programs and features that appeal to the broader community.

Park elements include natural landscaped areas, pathways, courtyards, water features and gardens in combination with active programmed uses. A multi-use pathway loops around the central park perimeter and connects to regional greenway trails along Rock Creek and Bronson Creek. Potential community uses include a signature indoor center focused on health and wellness programs potentially enhanced by partnerships with local health organizations such as Kaiser Permanente, Providence Health Care and Oregon Health Sciences University.

Unique park uses also strengthen the identity of the AmberGlen community. These may include urban plazas, sculpture or other special gardens, concessions or vendor space and even commercial lease space for third place uses such as cafes, bookstores or museums. A “festival street” is envisioned in the southern portion of the park to extend park uses while also providing local street connectivity. The design creates a street without curbs that can be closed to traffic for festivals, markets and other community events.

The character of the park incorporates features and materials that reflect the area’s natural and agriculture heritage reinterpreted for a modern urban context. Native trees and vegetation support urban wildlife. Materials and design features emphasize water, stone and reflect expansive views. The central park is configured as a long rectangle to maximize edges and proximity to residential development. It will form a dramatic foreground view for adjacent high rise residences and office buildings. The amenity value of the park is enhanced by ensuring residential views and emphasizing natural features.

A range of opportunities to enhance ecological functions and capture local efficiencies are addressed in the design of the park for stormwater management, water and habitat quality, energy production and local food production. The central park provides a “green” connection between the employment areas, the community activity center and planned residential development. It offers numerous opportunities for AmberGlen residents, employees and the broader Hillsboro community to come together in a place of exceptional beauty.

Forest Park Blocks

This linear public park features a protected stand of mature Douglas fir trees extending along the south side of NW Wilkins Street. The forest park blocks provide a significant east-west organizing feature dividing plan area districts, and a green connection to the central park, Rock Creek to the west and Bronson Creek to the east protecting wildlife habitat. Trails adjacent through towering fir trees and provide immediate access to a relatively pristine natural area within a highly urbanized community.



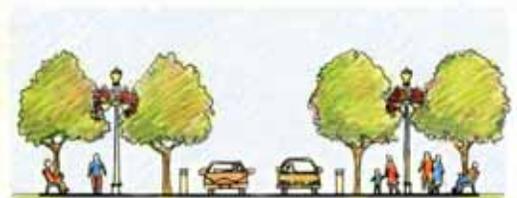
Laurelhurst Park, Portland, OR. Photo courtesy of City of Portland Parks & Recreation.



Teardrop Park. Photo courtesy of Battery Park City Authority, New York City, NY.



Laurelhurst Park, Portland, OR. Photo courtesy of City of Portland Parks & Recreation.



The Festival Street provides a plaza area for community events.



Green access lane, Vancouver, B.C.



Stucki Avenue provides green street features and signature boulevard design.



Green Connector Streets provide off-street pedestrian and bicycle routes to trails and natural areas.



Orchard Park boardwalk, Hillsboro, OR.

Pocket Parks and Green Access Lanes

The Concept Plan identifies pocket parks within walking distance of all residential development. The exact location of these parks is not specifically dictated. These small, urban green spaces provide light and open space, and a place in every part of the neighborhood where people may enjoy nature. Some pocket parks may provide small play areas for children while others feature benches, landscaping and a water feature. Green access lanes provide pedestrian and bicycle access through a block and strengthen connectivity. They also provide opportunities for landscape areas and may be designed with green street features to manage stormwater runoff.

Green Streets and Boulevards

Local streets throughout the plan area will be assessed for their capacity to limit stormwater runoff and allow transpiration and infiltration through collection of runoff in parking strips, curbside planting areas, medians and other pervious areas. Low Impact Development Approaches (LIDAs) have been developed by Clean Water Services to replace conventional stormwater infrastructure (catch basins, pipes, and curbs) with vegetated swales, vegetated retention planters or basins, and pervious pavement that mimic an areas' natural hydrology. Green streets enhance the experience of people walking and bicycling, support wildlife, cool ambient temperatures and provide views of nature from above.

Aesthetics and functionality combine to create multi-modal boulevards on arterials and on NW Wilkins Street. Signature streetscape treatment on NW Stucki Avenue features double rows of trees and landscaped medians, extending the iconic identity established by NW Evergreen Parkway to the north. The boulevards are envisioned to function in the conveyance, treatment and infiltration of stormwater where practicable. Landscaped medians and rows of trees buffer pedestrians and bicyclists from arterial traffic, intercept stormwater, reduce ambient heat, and provide beauty at the street level as well as when viewed from residences above.

Green Connectors

Green connector streets have been designed to provide off-street bicycle and pedestrian paths connecting the central park to greenway trails and natural areas. The green connector streets extend east, west and south to create a continuous green pathway network. Green connectors provide attractive, off-street routes for pedestrians and bicyclists and ensure safe, comfortable access to open space throughout the plan area. Tall conifers and native vegetation distinguish these greenway routes from other streets assist in wayfinding. Green connectors provide opportunities for stormwater management and habitat creation by mimicking the natural processes of a location. The design of green connectors and all stormwater management accomplished in the right-of-way and within public open space will be coordinated and informed by development of a Stormwater Master Plan to ensure water and habitat quality by treating stormwater prior to discharge into vegetated corridors.

Natural Corridors

Bronson Creek and two tributary streams comprise three riparian corridors traversing the plan area. The Concept Plan takes advantage of the attributes of these resources, preserving them from development while allowing passive recreation uses. The natural corridors consist of water quality sensitive areas (streams and wetlands) as well as associated upland vegetated corridors. They are an important natural conveyance of surface water and also provide habitat for wildlife. A continuous off-street pedestrian and bicycle network connects the central park and forest park blocks to the natural corridors and regional greenway trail systems. The trails skirt the edges of the vegetated corridors that protect wetlands and streams, allowing access for walking and wildlife viewing without adversely affecting ecological functions.

Parks and Open Space Goals, Policies and Actions

Goals and Policies

Goal 1 Design high-density urban development to fit within, complement and enhance the natural environment to create a landmark identity and to provide community and ecological benefits.

Policy 1.1 Organize development sites around the central park and protected natural resource areas.

Policy 1.2 Design parks and open space to create a landmark identity and to provide a significant, natural amenity for high-density urban development.

Policy 1.3 Enhance the local amenity value of parks and open space by maximizing residential views and ensuring distinctive, quality design highlighting natural features and beauty.

Goal 2 Provide a range of recreation opportunities for residents, employees and community members.

Policy 2.1 Provide a public community park compatible with plan area development to serve a range of ages and interests. Feature a variety of places, active and passive programs, and “third place” opportunities. Provide park uses for the local neighborhood including landscaped areas, pathways and trails, seating and picnic areas, playground uses, and open lawns. Consider special gardens and water features, urban plazas and promenades, concessions, and commercial lease space for “third place” uses that appeal to the broader community.

Policy 2.2 Provide a continuous off-street pedestrian and bicycle trail system within parks and adjacent to protected natural resource areas with connections to local and regional greenway trail systems.

Policy 2.3 Develop unified designs for off-street pedestrian and bicycle facilities to enhance wayfinding, ease of use, and plan area identity.

Policy 2.4 Ensure access to a public or private park within a short walking distance of approximately ¼ mile.

Policy 2.5 Pursue development of a signature indoor recreation center focused on health and wellness programs for the broader community.

Goal 3 Protect natural resources and enhance opportunities for people to be in contact with natural systems.

Policy 3.1 Provide opportunities for walking and wildlife viewing within protected natural resource areas, and for bicycles adjacent to protected natural resource areas. Avoid environmental impacts or if avoidance is not possible, minimize impacts to the greatest extent practicable.

Policy 3.2 Design parks, trails and streets to ensure stormwater runoff is treated prior to discharging to riparian corridors and natural resource areas.

Policy 3.3 Incorporate sustainable features, methods and materials in the development of parks and open space to enhance energy efficiency, environmental health and plan area identity.

Policy 3.4 Develop guidelines, regulations, or other incentives to preserve the existing mature tree canopy within the plan area thereby avoiding loss of environmental and visual amenity benefits.

Actions

- Action 1 Develop a strategy for acquiring land for key green framework elements including the central park, forest park blocks, and green connectors.
- Action 2 Sponsor a competition for the design and programming of the central park and key green framework elements. The intent is to establish world-class urban and sustainable design, and to raise awareness of the plan area vision.
- Action 3 Develop and adopt public area design standards consistent with the urban and sustainable design concepts established in Action 2. Elements addressed include gateways, treatments for landmark locations, plazas, transit stops, and streetscape elements.
- Action 4 Complete a signature recreation center study to identify programs, building requirements, locations, costs, and funding sources. Explore potential partnerships with plan area healthcare stakeholders such as Kaiser Permanente, Providence Healthcare and Oregon Health Sciences University.
- Action 5 Investigate the feasibility for local food distribution and community gardens in the plan area focusing on food quality, creation of gathering places and a shared civic identity, support for the local economy, and marketing to local restaurants.
- Action 6 Identify parks and open space facilities, programs, costs and funding sources for inclusion in the City of Hillsboro Parks and Trails Master Plan.
- Action 7 Based on the Stormwater Master Plan identified in Infrastructure Actions 32 and 33, identify opportunities to coordinate with Clean Water Services, private development and others to improve stormwater system efficiencies, water quality and to identify design features for public open space and right-of-way.
- Action 8 Capture and reuse stormwater run-off from development in a public detention facility for use in irrigating parks and landscaped areas.
- Action 9 Encourage the use of native and drought tolerant landscape material in public and private parks to reduce irrigation requirements, intercept rainfall, improve wildlife habitat and to enhance aesthetics and connections to nature.
- Action 10 Require existing landscaping material and/or organic waste to be composted to the greatest extent practicable for reuse in new parks proposed within the plan area.
- Action 11 Encourage the use of locally produced and available materials in the design and construction of park and open space areas to reduce transportation costs and support the local economy.
- Action 12 Site and design park facilities to take advantage of solar exposure to reduce energy costs related to lighting and heating.

CHAPTER II – LAND USE

Existing Conditions

Current Comprehensive Plan and Zoning Ordinance designations were developed prior to the opening of the Westside Light Rail in 1998. The intent of the Station Community Plan Area (SCPA) designations was to support existing office and research campus development while also fostering a more transit-oriented, pedestrian-supportive environment. With the exception of recent residential development and the Work Force Training Center near the Willow Creek transit station, plan area development form has remained primarily auto-oriented and suburban office park in character. Approximately 3.4 million square feet is currently developed within the plan area, comprising 57% of the approximately 6.0 million square feet of development allowed under current zoning. For the remaining land controlled by Oregon Health Science University (OHSU) and AmberGlen Business Park stakeholders, a number of sites are underdeveloped and approximately 100 acres remain undeveloped.

AmberGlen Business Center

AmberGlen Business Center development began in 1991 in the plan area west of Bronson Creek. The multi-tenant, 217-acre campus master plan features 1.25 million square feet of research and office facilities, park areas and an attractive park and pond amenity. Several retail and service businesses lease NW Cornell Road frontage to the west. The Oregon Graduate Institute (OGI) campus has been integrated into the AmberGlen Business Center south of Walker Road. The OHSU Department of Science and Engineering Department took over the campus. The 270,000 square-foot facility was developed in the 1960's to provide graduate-level training to support a burgeoning high-tech industry.



Entrance to AmberGlen Business Center at NW Cornell Road and NW AmberGlen Parkway.

AmberGlen Business Center development generally features one- and three-story office structures with the exception of a pair of four-story signature office buildings that provide a distinctive gateway to the AmberGlen Business Center at NW Cornell Road. Surface parking, landscaped open space, and relatively low-scale, auto-oriented development characterize the office campus. The suburban development form does not fully support light rail transit ridership and access to the Quatama and Willow Creek transit stations located along the south boundary of the plan area. Planned for 1.25 million square feet of research and development facilities, the AmberGlen Business Center campus features several large, undeveloped parcels.



View to the west along Compton Avenue and the AmberGlen Business Center Park.

NW Cornell Road provides vehicular and transit access, and also presents a barrier to pedestrian access to retail uses to the north and east. Recent retail development adjacent to the plan area includes the Streets of Tanasbourne “lifestyle shopping center” and Tanasbourne Market Center. Restaurants and popular anchors retail such as REI and Whole Foods Market provide “urban amenity businesses” adjacent to the plan area that are especially important for higher density development. Kaiser Permanente’s future Westside Medical Center and corporate office development along NW Evergreen Parkway are located less than one-half mile north of the plan area.

OHSU West Campus

The Oregon Health Science University west campus occupies the eastern side of Bronson Creek and supports approximately 700 employees. In 1994, the Oregon National Primate Institute joined OHSU as an affiliate research institute. The Neurological Sciences Institute and the Vaccine Gene Therapy Institute are also located on the 260-acre research campus. State-of-the-art research facilities are buffered from adjacent uses by dense forests to the north, east and south and by Bronson Creek and vacant land to the west.



View to the east of the OHSU West Campus, hills and Mount Hood.

East Plan Area

The area between the OHSU West Campus and NW 185th Avenue is partially developed with office, retail and education uses near NW Walker Road. The school is a magnet high school for the Beaverton School District. Recent development near the Willow Creek transit center features medium-density housing and a new 100,000 square foot Work Force Training Center developed by Portland Community College (PCC) in partnership with TriMet.

School District Boundary

The plan area is served by the Beaverton School District. Schools that would serve the plan area have been over capacity and include McKinley Elementary located at 1500 SW 185th Avenue, Five Oaks Middle School located at 1600 NW 173rd Avenue and Westview High School located at 4200 NW 185th Avenue. The Beaverton School District boundary extends west to NW 206th Avenue with the Hillsboro School District serving development to the west. This condition results from the boundary along 185th Avenue shared by the City of Hillsboro and the City of Beaverton not corresponding with long-established school district boundaries.

Opportunities and Constraints

- Redevelopment of vacant and underdeveloped land with a more intensive mix of uses would leverage public investment in transit and address the City's jobs-housing balance by increasing residents close to major employers.
- A relatively small number of property owners control land within the plan area.
- The opening of Kaiser Permanente's Westside Medical Center in 2013 will bring people and jobs to the area, and will likely strengthen demand for housing and medical office space.
- Stakeholders require redevelopment timeline flexibility to ensure the viability of existing holdings while allowing redevelopment thresholds to be determined by the market.
- Cornell Road presents a barrier and discourages pedestrian access to the Streets of Tanasbourne and other area retail.
- The plan area is located in the Beaverton School District rather than the Hillsboro School District, even though it is entirely located within Hillsboro City Limits.
- Existing open space and natural features contribute to an attractive character. There is an opportunity to strengthen the area's identity and vitality with a more intensive mix of uses and the creation of community gathering places.



View of AmberGlen Community Plan area looking north from above the MAX light rail transit line.

Land Use Concept

The Land Use Concept identifies intensive urban development close to major employers, the economically dynamic Tanasbourne Town Center, and major transportation facilities including the Westside Light Rail line and US Highway 26. Housing, retail, open space, education and employment are mixed throughout the plan area to create a variety of interesting, attractive urban places. The AmberGlen community is envisioned to be a model for transforming suburban development that allows residents to live close to work and have access to neighborhood businesses, recreation and nature within walking distance.

The Land Use Concept incorporates and expands the existing central park to provide a focal point and amenity for high-density residential development with a mix of employment and neighborhood-serving commercial uses. The Land Use Concept respects existing buildings and their individual redevelopment timelines while providing for new, higher density development on vacant parcels and redevelopment on underutilized sites.



*Concept illustration of AmberGlen Community Plan built out at full development capacity, viewed looking south down the Central Park.
Credit: Sabrina Henkhaus, 2009.*



AmberGlen Business Center and park with view of Macy's and The Streets of Tanasbourne to the north.

Transit and Land Use

Regional light rail transit is planned to run through the plan area along the central park to NW 194th Terrace, connecting to Kaiser Permanente's Westside Medical Center and employment centers to the west. A local transit circulator system within the combined Tanasbourne/AmberGlen areas provides convenient access between commercial, institutional, residential and recreational uses and strengthens connections to bus and regional transit.

Identity

The City of Hillsboro has a prominent civic presence throughout the plan area strengthened by the Hillsboro Parks & Recreation Department's signature parks, trails, and programs. A potential library and indoor community center also serve to establish the community as part of the City. High quality streetscapes feature updated signature street lights, banners and other signs of civic care. The area's history is celebrated in the names of streets and districts. The streetscape concept for NW Stucki Avenue creates a green boulevard that identifies the plan area with NW Evergreen Parkway and the Tanasbourne/AmberGlen regional-scale center.

Gathering Places

Ultimately, the plan area's identity is established through community relationships. The Land Use Concept provides gathering places in parks, plazas and along streets at sidewalk-oriented, neighborhood-serving businesses. A community activity center is strategically located across from the north plaza at the central park at the crossroads of NW Walker Road and the NW 194th Avenue light rail transit street. Shops, neighborhood-serving businesses and a potential branch library activate the street with office and residential development located at upper levels. The center serves as the "heart" of the AmberGlen community and will be designed to strengthen community identity. It is also a destination at the north end of a street designated for active retail and commercial uses. An enhanced pedestrian route links the central park and community activity center across NW Cornell Road to the Streets of Tanasbourne to further support area vitality.

Sustainability

Plan area architecture is modern and humanistic featuring warm, natural materials, and reflecting high standards for sustainable design. Water is integrated throughout the design of the community in a number of ways. Stormwater is intercepted on roofs and in open space areas for reuse in irrigation and non-potable uses. Attractive landscaping is used in basins and swales to detain and filter runoff. Trails and green streets connect neighborhoods to the central park and forest park blocks, and to regional greenway trails adjacent to Bronson Creek and Rock Creek. A distinctive sense of place is further strengthened by featuring the area's natural ecology, native vegetation and wildlife in the design of streets, stormwater facilities and open space.

Housing Affordability

The Concept Plan envisions residential opportunities for a broad range of households, ages and income levels. The Hillsboro Comprehensive Plan contains provisions intended to ensure that a full range of housing opportunities are available to residents throughout the City. A formal affordable housing program intended to assist working families and people on fixed incomes is currently under consideration. Three possible programs types being looked at: Program #1 would create a formal partnership with the Community Housing Fund, a nonprofit that currently receives \$1 per capita annually from the City; Program #2 would create a grant fund to offset the cost of building permit and land use application fees for affordable housing; Program #3 would establish a 20-year property tax exemption for new mixed-use developments containing both affordable and market rate housing units.



Urban lofts in Portland's Pearl District feature porches and landscaped transition to street.



Mixed-use community activity center, Port Moody, B.C.

Development Program

The plan's vision is implemented by the land use development types identified on the AmberGlen Community Plan Concept Map (Figure 2.1). Each development type represents a mix of land uses and varying levels of density and intensity achieved through thresholds and targets. Thresholds and targets provide a basis for estimating impacts from planned development. They will be tested and refined for adoption as regulatory standards as part of Community Plan implementation. The overall intensity of the community is such that most buildings require structured parking solutions. The standard plan area parcel size is approximately 1.5 acres though many parcels are larger. This configuration is an efficient development template for parking structures, yet it also maintains an urban-scale, walkable environment.

Table 2-1 identifies development capacity for the AmberGlen Community Plan at target densities identified in the development program. Land use mix allocations for the AmberGlen Community Plan Land Use Concept are provided in Table 2-2. Land use mix allocations provide targets for a given development type for the entire plan area, and may not reflect development for an individual property.

**Table 2-1:
Total Development Capacity Summary**

Developed Land Area	299	acres
Parks, Open Space, Protected Areas	174	acres
Residential Units	7,184	du's du's/net
Net Residential Density	24	acre
Land Uses by Floor Area:		
Residential	7,902,400	sq. ft.
Employment (Office)	3,091,715	sq. ft.
Retail	551,284	sq. ft.
Institutional	1,375,189	sq. ft.
Structured Parking	<u>2,695,275</u>	sq. ft.
Total Gross Floor Area	15,615,863	sq. ft.

The development program for the AmberGlen Land Use Concept indicates the following:

- A mixed-use urban community with residential uses comprising the greatest floor area. While the primary uses of residential, retail, and office are mixed in almost every district, residential areas predominate, and are dispersed throughout most of the plan area.
- The greatest areas of residential concentration are in the East and West Park Neighborhoods, where mid-rise and high-rise residences take full advantage of the project's open-space centerpiece. With the addition of approximately 7,000 residential units, the AmberGlen Community Plan would rival the population of the Pearl District in downtown Portland.
- Retail is concentrated at the Community Activity Center and West Park Neighborhood, and is also permitted in limited amounts throughout the plan area. A concerted effort was made to target retail development at a level that could be supported by the market. Retail is strategically located to leverage critical amenity values throughout the plan area.
- Employment uses are primarily concentrated in the Employment District and OHSU West Campus, but are also present throughout the plan area, contributing to a lively, urban atmosphere. The Institutional development type includes the OHSU West Campus.
- The Institutional and Medium Density Transition development types are the only single-use districts.

Table 2-2: Land Use as Percentage Gross Floor Area

Development Type	Res.	Office	Retail	Parking	Target FAR	Target du/ac
Medium Density Transition	0.85	0	0	0.15	1	34
Medium Density Urban	0.72	0.06	0.02	0.2	1.5	43
High Density Urban	0.62	0.16	0.02	0.2	3	74
Quatama Neighborhood Center	0.11	0.14	0.45	0.3	1	4
185th Ave. Neighborhood Center	0.15	0.2	0.65	0	0.65	4
Community Activity Center	0.24	0.14	0.32	0.3	2	20
Employment Mixed Use	0	0.77	0.03	0.2	1	0
Institutional	0	1	0	0	0.41	0

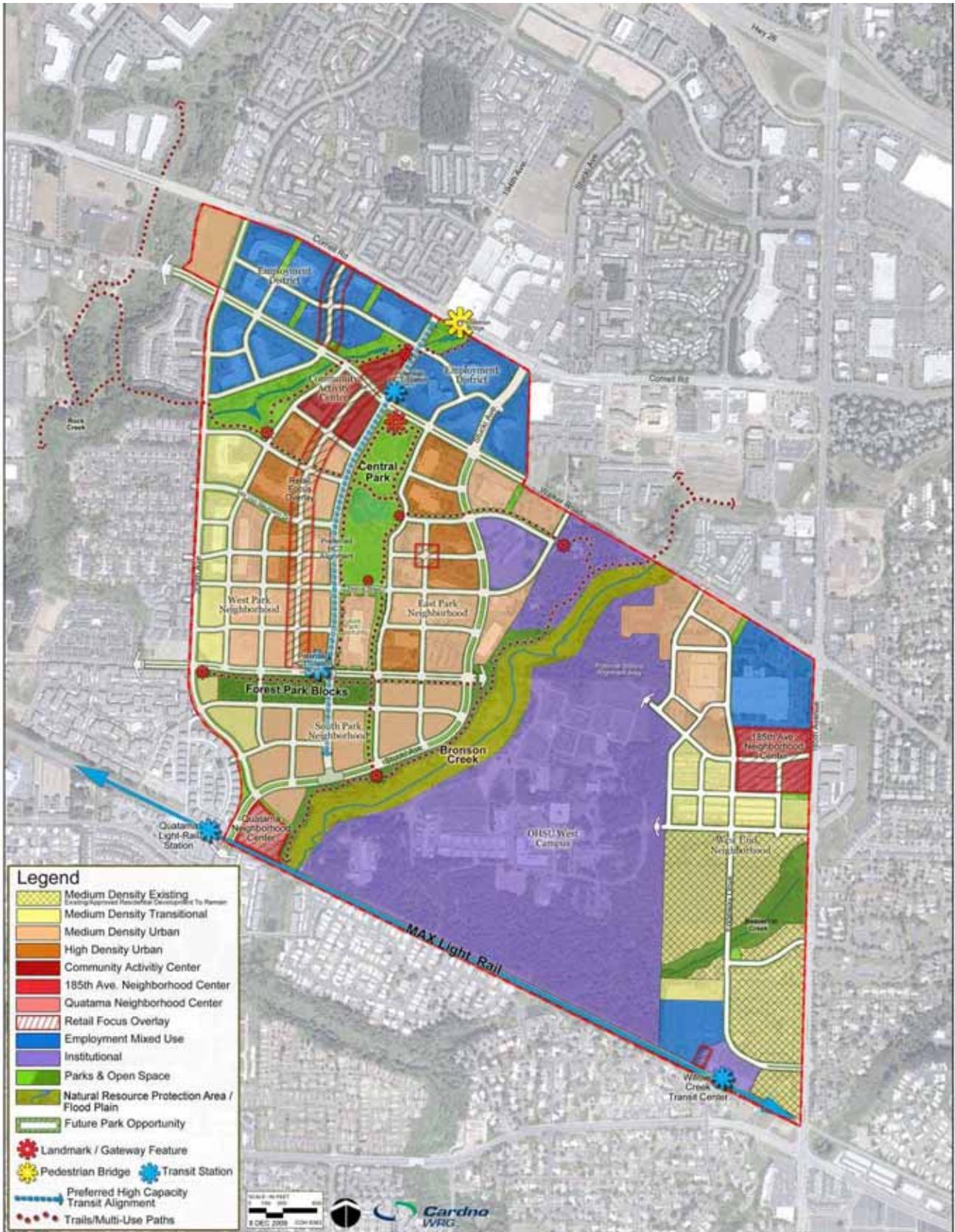


Figure 2-1: AmberGlen Community Plan Land Use Concept Map

Note: This map is presented in the Vision and Concept Plan Section as “Figure B”

Medium Density Urban

The Medium Density Urban (MDU) development type supports multi-family and attached residential development with density targeted for approximately 43 dwelling units per acre. Complementing uses such as office and retail are permitted with limits on size and location. The intended building form is urban in character with buildings constructed at or near the edge of the sidewalk with exterior walls that include architecture detail, generous window glazing, and common building entries. Appropriate building types include mid-rise condominiums and apartments, and urban-scaled townhomes. Vehicular parking may be planned with a combination of covered, structured, and/or surface parking.

Development Thresholds

Minimum FAR	1.00
Target FAR	1.50
Minimum Height	3 Stories
Maximum Height	6 Stories

Mixed Land Use Allocation Targets

Residential	72%
Commercial Retail	2%
Office	6%
Structured Parking	20%



Example of Medium Density Urban development type, Portland, OR.

High Density Urban

The High Density Urban (HDU) development type is composed of intensive, mixed use development with a residential emphasis. Density is targeted for approximately 74 dwelling units per acre. The district is intended to support and encourage office and retail commercial complementing uses. The building form is urban in character with mid- to high-rise structures built out to the street. Residential towers are oriented to retain views and for solar energy production. Exterior walls project strong architectural interest, generous window glazing, and common building entrances oriented to the street. Ground floor facades facilitate an active streetscape with retail, restaurant, and service-oriented office space. Vehicular parking is accommodated in covered and/or structured parking.

Development Thresholds

Minimum FAR	2.00
Target FAR	3.00
Minimum Height	3 Stories
Maximum Height	none

Mixed Land Use Allocation Targets

Residential	62%
Commercial Retail	2%
Office	16%
Structured Parking	20%



Examples of Medium (left) and High Density (right) Urban building types, Portland, OR.



Example of Medium Density Transition building type, Portland, OR.



Example of Medium Density Transition building type, Vancouver, B.C.

Medium Density Transition

The Medium Density Transition (MDT) development type supports residential development that provides a transition from higher density areas within the plan area to existing and planned residential development at its periphery. This designation supports townhomes, condominiums and apartments, and other multi-family units. Target densities are approximately 34 dwelling units per acre. The intended building form may provide open space areas in the form of shared courtyards or porch areas. Vehicular parking would be primarily provided in private garages and structured parking lots.

Development Thresholds

Minimum FAR	0.65
Target FAR	1.00
Minimum Height	2 Stories
Maximum Height	4 to 5 Stories

Mixed Land Use Allocation Targets

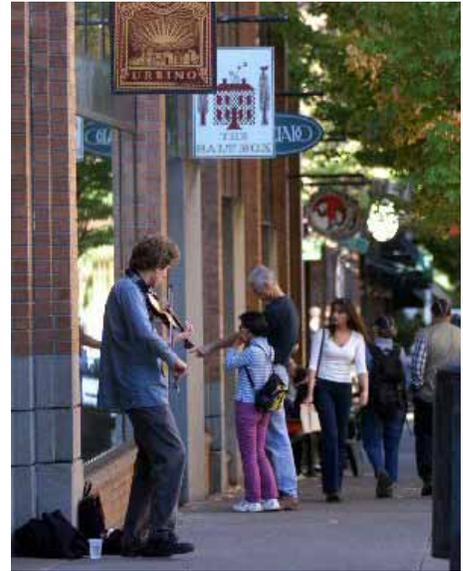
Residential	85%
Structured Parking	15%

Retail Focus Overlay

The Retail Focus Overlay is not a development type but has been created to focus retail uses allowed in mixed use development types to specific locations. The Retail Focus Overlay requires ground-floor retail commercial development at specific locations to serve residential development throughout the plan area and to achieve an orchestrated retail strategy. Focusing smaller, urban amenity retail types common to urban residential districts at strategic locations complements and supports existing commercial retail development in the area.

Development Thresholds

- Commercial Retail is required at street level consistent with the retail allocation identified for the underlying zone for locations designated as Retail Focus Areas.
- Retail Focus Areas designated along select street frontages will require ground floor commercial retail uses.
- Additional commercial retail may be provided at locations not designated as Retail Focus Areas consistent with the retail allocation identified for the development type.



Desired street character for retail focus overlay areas, Portland, OR.

Community Activity Center

The Community Activity Center (CAC) is intended to provide an area of focused activity at a strategic location within the Community Plan area. The Community Activity Center is located at the northwest corner of the central park at the crossroads of NW Walker Road and a potential high capacity transit route along NW 194th Street. It is connected visually and physically by active street frontages and enhanced pedestrian routes to Cornell Road and to the Streets of Tanasbourne. The district is located between the central park and a tributary of the Rock Creek corridor where it is served by complementing urban, park and natural amenities. Shops and restaurants are featured at street level with office and residential development above. Civic, cultural and entertainment uses are encouraged to provide vitality and strengthen community identity.

The CAC is intended for development of mid- to high-rise buildings with residential densities targeted for approximately 20 dwelling units per acre. Street level facades facilitate active streetscape by providing retail, restaurant, and service-oriented office space. Civic, cultural and entertainment uses are encouraged in this district to strengthen community activity. Vehicular parking is accommodated in covered and/or structured parking.



Commercial uses at plaza in Houston, TX. Photo courtesy of Discovery Green.

Development Thresholds

Minimum FAR	1.50
Target FAR	2.00
Minimum Height	3 Stories
Maximum Height	none

Mixed Land Use Allocation Targets

Residential	24%
Retail/Civic	32%
Office	14%
Structured Parking	30%



Example of 185th Avenue Neighborhood Center development type, Orenco Station, Hillsboro, OR.

185th Avenue Neighborhood Center

The 185th Avenue Neighborhood Center is planned for mixed use development providing neighborhood-oriented retail and services. Residential and office uses are permitted as complementary, secondary uses. The neighborhood center follows a traditional town form characterized by multi-storied buildings with surface or podium parking provided behind building facades.

Development Thresholds

Minimum FAR	0.40
Target FAR	0.65
Minimum Height	2 Stories
Maximum Height	6 Stories

Mixed Land Use Allocation Targets

Residential	15%
Commercial Retail	65%
Office	20%
Structured Parking	None



Example of Quatama Neighborhood Center development type, Lake Oswego, OR.

Quatama Neighborhood Center

The Quatama Neighborhood Center development type is intended primarily for neighborhood-serving retail development. Residential and office uses are permitted as complementary, secondary uses in this retail-focused design type. This neighborhood center follows a traditional town form characterized by multi-storied buildings along the street frontage with surface and structured parking provided behind building facades.

Development Thresholds

Minimum FAR	0.70
Target FAR	1.00
Minimum Height	2 Stories
Maximum Height	6 Stories

Mixed Land Use Allocation Targets

Residential	11%
Commercial Retail	45%
Office	14%
Structured Parking	30%

Employment Mixed Use

The Employment Mixed Use development type features office uses with supporting retail and commercial services businesses. This development type is consistent with existing multi-story office buildings within the AmberGlen Business Park, thereby providing market flexibility to allow existing office development to remain until the market presents opportunities to redevelop to a more intense, urban form. The Employment Mixed Use development type is characterized by mid-rise buildings. New development or redevelopment would be required to orient to the street frontage. Development is service by surface or structured parking.

Development Thresholds

Minimum FAR	0.60
Target FAR	1.00
Minimum Height	2 Stories
Maximum Height	8 stories

Mixed Land Use Allocation Targets

Commercial Retail	3%
Office	77%
Structured Parking	20%



Existing AmberGlen office development.

Institutional

The Institutional development type provides opportunities for education, research, health-related, and other institutional and employment uses. The area is characterized by minimum two-story buildings with surface or podium parking. This designation is intended to provide flexibility for existing institutional stakeholders including the OHSU West Campus and Oregon Graduate Institute.

OHSU West Campus facilities will continue to be developed according to the OHSU Master Plan emphasizing significant open space buffers and security provisions. The area is bordered by Bronson Creek on the west and mature stands of trees to the south and east, which serve to visually and spatially buffer sensitive research from adjacent uses.



Oregon Health Sciences University (OHSU).

Development Thresholds:

Minimum FAR	0.40
Target FAR*	0.41
Minimum Height	2 Stories
Maximum Height	None

* Note: Minimum FAR and Target FAR is based on development approvals for the OHSU West Campus Master Plan.

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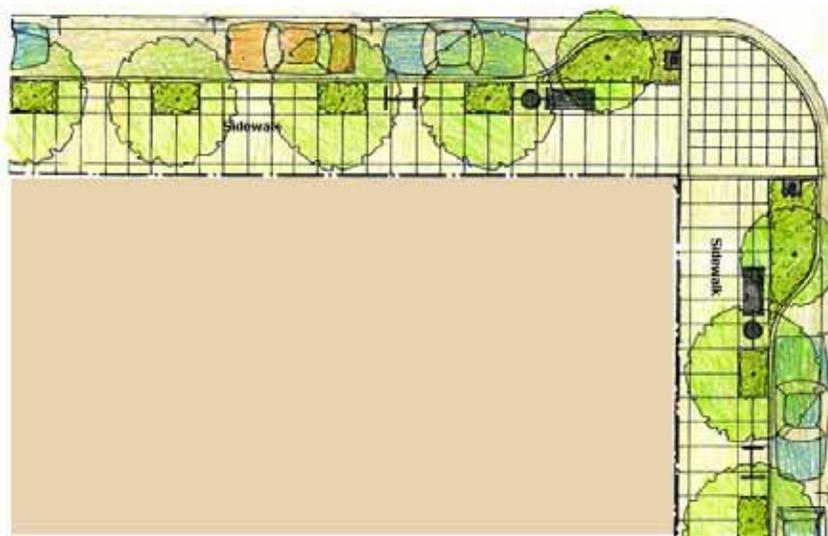
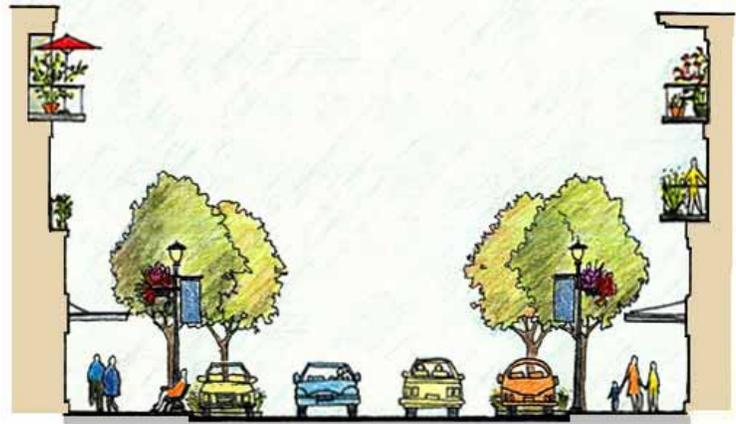
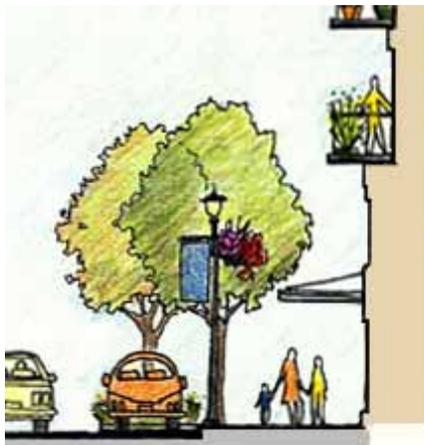
Community Character

Active Retail Streets

Development is coordinated with streetscape elements to create the character of the public realm. Development on select streets in locations designated with the Retail Focus Overlay will be designed to foster activity and provide the character experience people seek in an urban environment. The section and plan below illustrates how proposed development will provide transitions in scale and between public and private realms to ensure livability with increased densities. The height of building cornices at the street establish a human scale with additional levels stepped back to admit light and provide views. They provide a sense of what the Community Activity Center, West Park shopping street, and other retail focus areas may be like.

The sense of urban community is enhanced by balconies and porches used by residents for urban gardens and outdoor rooms. Awnings protect pedestrians and allow light to pass through. Landscaped curb extensions break up curb lengths and allow for additional landscaping and the management of stormwater.

Active Neighborhood-Serving Commercial Areas



Residential Streets and Districts

The majority of the plan area will be characterized by residential development. Density is tapered down to the central park to maximize views and also at plan area edges to respect the scale of adjacent established neighborhoods. Buildings are stepped back in height from streets and access lanes provide access to light, air and nature. The transition between the sidewalk and actual residences provides an area for landscaping, porches, and stairs that adds to privacy yet provides transparency and allows people to feel comfortable and neighborly, even with higher densities. The section below illustrates Medium Density Transition development adjacent to Medium Density Urban development.

Residential Emphasis Areas



Park Streets

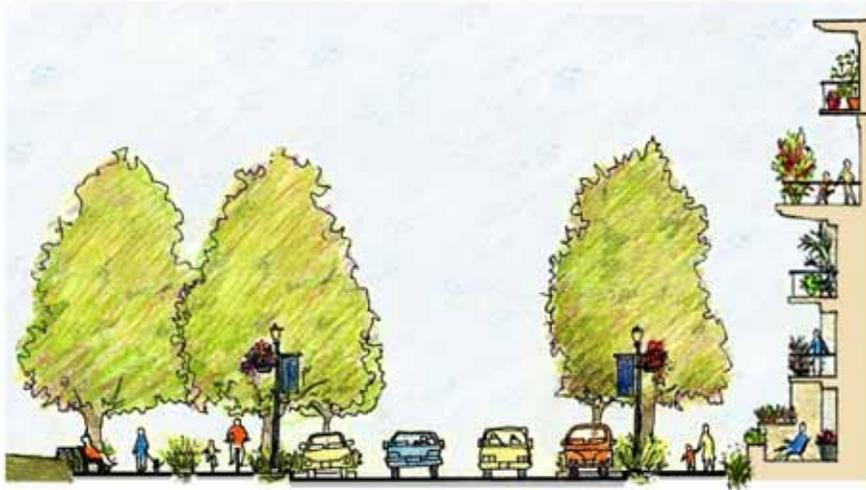
The East and West Park Neighborhoods border the eastern and western edges of the central park, and are the highest-density residential neighborhoods in the plan area. They will be densely developed with mid- and high- density residential blocks and towers staggered to maximize views and solar exposure. Restaurants are envisioned along park frontage. A high-capacity transit route is planned on the west side of the central park.

Although very densely developed, these neighborhoods are closely associated with green amenities including the central park, green streets, pocket parks, the Rock Creek Tributary, and Bronson Creek. In addition, green connectors will pass through the neighborhoods linking them to the central park and the Bronson Creek and Rock Creek Tributary natural corridors. The multi-use path running along the edge of the central park forms continuous loop and safe route for young and old alike.

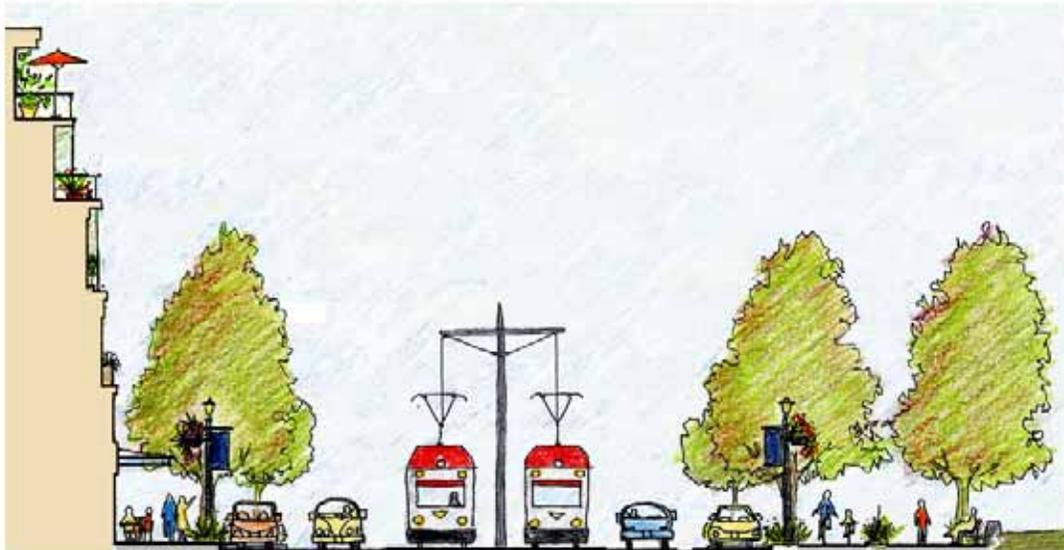


Multi-use path loop around Central Park.

East Park



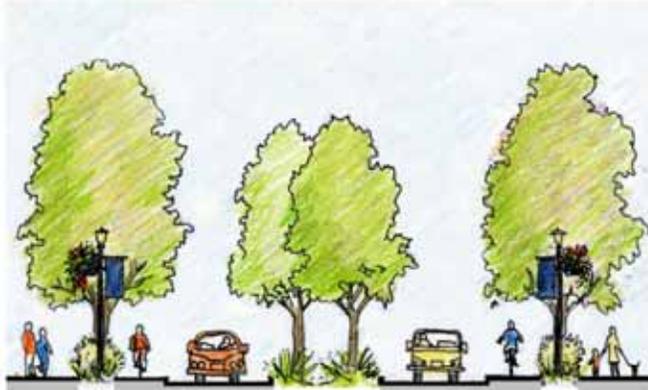
West Park / 194th Avenue



Green Boulevards

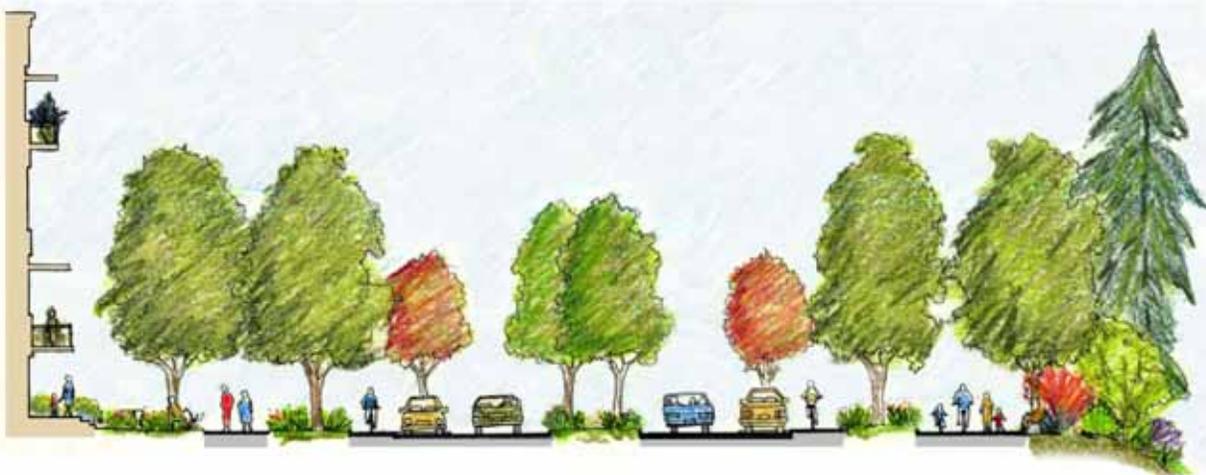
Major streets provide gateways and require strong design features to announce the plan area and orient people. The streets should also provide a wonderful experience for people whether they are biking, walking, strolling on the multi-use path or driving on plan area arterials. The multi-use path shown adjacent to NW Stucki Avenue provides access to the planned Bronson Creek regional trail.

Walker Road



Protected bicycle lane and sidewalk, Copenhagen. Photo courtesy of Bikeportland.org.

Stucki Avenue



Boulevard treatment extends signature streetscape established at NW Evergreen Parkway.



Multi-use path provides access to the planned Bronson Creek Regional Trail.

Green Access Lanes

Green Access Lanes will be required to provide connectivity through longer development sites to ensure access to light, nature, and provide a park-like area at an intimate scale. They may also play a role in managing stormwater runoff and improving water quality.



Stormwater Management at access drive, South Waterfront, Portland, OR. Photo courtesy of Nevue-Ngan Associates.



Vancouver, B.C.



Third Places

One of the key elements of the Hillsboro 2020 Vision is to foster the creation of “third places”, those that are neither home nor work, but community gathering places. It also is a guiding principle for this plan.

Intense Mix of Uses

Encouraging a strong mix of uses in a structured, urban environment is a prerequisite for the creation of effective third places. The Community Activity Center and the West Park shopping street provide the most active and intense mix of uses in the plan area, creating energy needed to generate cafes, bars, restaurants, bookstores, and other businesses where people gather. The 185th Avenue Neighborhood Center and the Quatama Neighborhood Center offer similar opportunities on a smaller scale. The mixed-use approach identified in the Land Use Concept allows third place businesses to occur throughout the plan area.

Active Public Realm

The other key element to creating third places is providing outdoor spaces where this type of activity can readily occur. Wide sidewalks, especially adjacent to active uses, are critical. Plazas and other carefully sited urban, public spaces like pocket parks are important features. The central park provides significant opportunities for public gatherings, both in intimate settings such as a seating area next to a pond, or an open meadow for large public events.

Civic Uses

Approximately 3,000 new students are projected to be added to schools from AmberGlen development built out at targeted capacities. New schools may need to be accommodated within the plan area, preferably using an urban rather than a suburban footprint. Tentative sites have not been designated in the plan since the actual site could be in a number of different locations within the area.

A new library is not necessarily required for this area, however a library, community center and other similar facilities and services should be provided as part of a complete urban community. The Community Activity Center is a logical location for these types of facilities. Opportunities to redevelop an existing, quality building adjacent or within the central park for use as a community center, museum, or other public use should be explored.



Discovery Green. Photo courtesy of City of Houston, TX.



The Pearl District, Portland, OR.

Land Use Goals, Policies and Actions

Goals and Policies

Goal 4: Create a vibrant, mixed-use urban community with a landmark identity.

- Policy 4.1 Create a mix of residential, retail, employment, civic, and open space uses at urban densities.
- Policy 4.2 Provide a variety of urban housing design types, densities and heights to serve a range of households, ages and income levels.
- Policy 4.3 Organize development around a signature central park and open space framework amenity to ensure views and access to recreation and nature.
- Policy 4.4 Focus and design retail uses to activate plan districts, leverage high density residential development, and complement and connect to existing retail centers.
- Policy 4.5 Develop land use requirements based on development types representing a mix of land uses and varying levels of density and intensity to encourage a mix of uses within buildings, blocks and districts.
- Policy 4.6 Provide “third places” or gathering places designed to foster social interaction and strengthen community relationships throughout the plan area.
- Policy 4.7 Promote high quality design and strong urban form to create a compelling community identity.
- Policy 4.8 Ensure a rich, varied urban environment by creating a range of neighborhood districts.
- Policy 4.9 Provide flexibility when implementing land use concepts to support existing development until the time that redevelopment becomes economically viable.
- Policy 4.10 Amend the Metro 2040 Growth concept to designate the combined Tanasbourne Town Center and AmberGlen Community Plan areas as a Metro 2040 Regional Center.
- Policy 4.11 Reference the cultural and natural history of the plan area in design themes and in the naming of streets, districts and landmarks to strengthen a distinct and meaningful sense of place.

Goal 5: Create a model for environmentally sustainable community development.

- Policy 5.1 Design development to encourage people to walk, bike and use transit.
- Policy 5.2 Promote the use of building materials, construction and landscaping methods, and energy systems to enhance efficiencies and ecological functions.
- Policy 5.3 Identify opportunities to integrate private development with public infrastructure and open space to maximize efficiencies related to stormwater management, irrigation, energy production, bio-waste, and local food production.

Actions

- Action 13 Develop and recommend amendments to zoning and development standards to implement the development program identified in the AmberGlen Community Plan Land Use Concept.
- Action 14 Develop and adopt design standards and guidelines for Districts and Neighborhoods identified in the AmberGlen Community Plan Land Use Concept. Coordinate with public area design standards project identified in Parks and Open Space Action 3.
- Action 15 Develop sustainability standards, guidelines and incentives for public and private development. In the interim, require development to exceed the state’s minimum energy conservation requirements.
- Action 16 Develop design concepts for the Community Activity Center, including a pedestrian connection through the Employment District to the Streets of Tanasbourne, to identify opportunities, constraints, and recommendations for access, parking and other key requirements.
- Action 17 Identify potential public uses and partnerships that could serve as catalysts to leverage private investment.
- Action 18 Collaborate with regional agencies to achieve the combined Tanasbourne Town Center and AmberGlen Community Plan areas as a Metro 2040 Growth Concept Regional Center with full multi-modal support.
- Action 19 Conduct an analysis projecting price ranges and housing types that are likely to be built in accordance with the AmberGlen Community Plan Development Program. Include affordability estimates for both owner-occupied and renter-occupied housing.

CHAPTER III- TRANSPORTATION

Existing Conditions

Street Network

Primary access to the Plan Area is provided via US Highway 26 and arterials: NW 185th Avenue, W Baseline Road and NW Cornelius Pass Road. Adjacent streets providing direct access include NW Cornell and NW Walker Roads (north), NW 185th Avenue (east), and NW 205th and NW 206th Avenues (west). Access to Westside Light Rail transit (LRT) is provided by the Quatama and Willow Creek transit stations. The existing street network is identified on Figure 3-1. Functional classification, improvements, and jurisdictional authority for AmberGlen area streets are provided in Table 3-1.

Figure 3-1
EXISTING STREETS - AMBERGLEN PLAN AREA



Bicycle and Pedestrian Facilities

Recently improved arterials and collectors feature sidewalks and bicycle lanes. Relatively high traffic volumes and speeds make the environment somewhat adverse to bicycle use, especially at peak hours. The City of Hillsboro has identified “active transportation projects” within the plan area to promote and encourage bicycle, pedestrian and transit travel. The projects specify improvements to key routes connecting existing residential neighborhoods to the south to current and future employment areas located in the AmberGlen and Tanasbourne areas. These projects have been included in Metro’s Regional Transportation Plan.

Urban Character

Streetscapes generally convey an attractive, park-like character featuring rows of street trees combined with clusters of sizable deciduous and evergreen trees. A water quality swale is provided along NW 206th Avenue. Landscaped setback areas ranging from 28 feet to 60 feet adjacent to rights-of-way within the AmberGlen Business Park feature distinctive landscaping at intersections and at berms to visually buffer surface parking areas.

The existing transportation system is dominated by facilities designed for the automobile. Kittelson & Associates, Inc. has noted that the plan area is an “auto-oriented suburb with poor public infrastructure to promote walking, bicycling, or transit” (*Transportation Existing Conditions Report, OHSU/AmberGlen Concept Plan, 2007*). Though sidewalks and attractive landscaping are provided, commercial destinations and transit access are located outside the plan area and require people to cross wide, busy intersections and traverse along high speed arterials. Ample surface parking provides direct access to existing development and lack of connectivity contributes to high traffic speeds on NW AmberGlen Parkway and major streets. These factors serve to discourage walking, bicycling or transit use.

**Table 3-1
EXISTING STREETS - AMBERGLEN PLAN AREA**

Street Name	Functional Classification	Design Improvement	Jurisdiction
US 26 Sunset Hwy	Freeway	6 lanes	ODOT
NW 185th Avenue	Arterial	5/7 lanes	County
NW Cornell Road	Arterial	3/5 lanes	County
NW Evergreen Parkway	Arterial	5 lanes	County
NW Cornelius Pass Road	Arterial	5 lanes	County
NW Walker Road	Arterial	3/5 lanes	County
NW Stucki Avenue	Arterial/Collector	5 lanes	City
NW 206th Avenue	Collector	3 lanes	City
NW AmberGlen Parkway	Collector	3/5 lanes	City
NW Amberwood Drive	Collector	3 lanes	City
NW Wilkins Street	Collector	2 lanes	City
NW 194 th Terrace	Collector	2 lanes	City
NW Compton Drive north of AmberGlen Drive	Local	2 lanes	City
NW Compton Drive south of AmberGlen Drive	Local	2 lanes	Private
NW Von Neumann Drive west of AmberGlen Drive	Local	3 lanes	Public
NW Von Neumann Drive east of Compton Drive	Local	3 lanes	Private
NW Gibbs Street	Local	2/3 lanes	Private
NW Holly Street	Local	2 lanes	Private
SW Edgeway Drive	Local	2 lanes	City
NW Heritage Parkway	Local	2 lanes	City

Transit

Tri-Met bus service is provided by lines 52, 48 and 47. Bus line 52 runs along NW 185th Avenue connecting north to Portland Community College (PCC) Rock Creek and south to SW Farmington Road, continuing east to the Beaverton transit center. Line 52 headways average approximately 15 minutes between buses. Bus line 48 runs from the Willow Creek / SW 185th transit center, north to NW Cornell Road, continuing east along NW Cornell Road to Tuality Hospital in downtown Hillsboro. Line 48 headways between buses average approximately 35 minutes. Bus line 47 runs north along NW 185th Avenue from the Willow Creek transit center, continuing from NE Cornell Road to NW Evergreen Parkway west en route to Hillsboro transit center. Line 47 headways average approximately 40 minutes between buses. No service is currently provided within the plan area.

The Westside Light Rail Transit (LRT) line forms the southern boundary of the AmberGlen plan area with two stops and park and ride locations adjacent to the site. The Willow Creek / SW 185th transit center located at SW 185th Avenue near W Baseline Road includes a park and ride lot and bus service connections. The Quatama / NW 205th transit station features a park and ride lot. Much of the plan area is located beyond a convenient, ¼-mile walking distance from the light rail stations. Metro has identified a Red Line LRT extension through the plan area to Evergreen Parkway to serve employment centers in Tanasbourne and to the west as a “Next Phase Regional Priority Corridor” (level 2 tier) in the Regional High Capacity Transit Plan (Resolution 09-4052). The ranking notes that regional transit investment combined with local land use actions and investments will influence future capacity for housing and jobs at the regional level.

Mobility

Several key streets currently operate near or over capacity:

- US Highway 26 east of NW 185th Avenue,
- NW Walker, NW Cornell and W Baseline Roads near NW 185th Avenue;
- NW 185th Avenue intersections from W Baseline Road to US Highway 26;
- NW 185th Avenue in the vicinity of US Highway 26 to NW Evergreen Parkway;
- and
- NW 206th Avenue as a three-lane arterial south of the site.

There is consensus that additional connectivity is necessary in the area to enhance the transportation network and reduce congestion on existing collector and arterial connections in and around the plan area.

Opportunities and Constraints

- Access to existing development should be maintained and incorporated into the proposed street network to provide flexibility for future development and redevelopment.
- Existing street right-of-way is adequate to serve existing uses and designed to create an attractive park-like character. The streetscape is further enhanced by required, adjacent setback areas featuring mature street trees and tree clusters, landscaped berms, and accents at intersections.
- The existing transportation system is characterized by low connectivity, wide roadways, relatively high travel speeds and ample surface parking. In general the environment is dominated by facilities designed with the automobile as the priority mode, and serves to discourage widespread walking, bicycling and transit use for non-recreational trips.
- A high capacity transit corridor (LRT Red Line extension) has been identified through the AmberGlen plan area extending north through the Tanasbourne Town Center to NW Evergreen Parkway.
- With significant streets in the vicinity of the plan area currently approaching capacity, additional connections, intersection improvements and demand management strategies are necessary to reduce congestion and increase capacity on primary mobility streets in and around the plan area.
- There is an opportunity to incorporate improved “active transportation” facilities to promote walking, biking and transit use when planning for additional capacity within the plan area.
- Balancing peak hour travel patterns by increasing residential uses within the plan area could help mitigate additional future traffic impacts to adjacent arterials and interchanges.

Transportation Concept

A guiding principle for the AmberGlen Community Plan is that connectivity be provided to support walking, bicycling, and transit use while accommodating vehicles. The transportation concept enhances access within the plan area by incorporating existing streets into an urban grid system. The transportation concept is shown on the Transportation Concept Map (Figure 3-2).

Consistent with guiding principles for market flexibility and economic vitality, the proposed street network allows for flexibility and coordination in the transition from current land uses and existing development to an urban, mixed use community. The street pattern allows phasing over time to preserve viable commercial development while creating a complete and functional system. The street and pedestrian network is planned to provide a high level of connectivity to promote an active pedestrian environment and efficient development pattern. Typical block faces are approximately 225 feet to 400 feet long. Frequent bicycle, pedestrian and solar access will be ensured by access lanes through larger blocks.

Pedestrian comfort and convenience is a priority. In addition to safe, convenient access by foot, design concepts emphasize wider sidewalks, human-scale streetscape elements, special paving and reduced crosswalk lengths. Street designs will encourage active street life and enhance the pedestrian and the investment environment. Street trees, seasonal landscape, art, street furnishings and paving work together to create memorable streets and special places.

The transportation concept envisions a “green” network of vegetated landscaped stormwater facilities, pervious surfaces and landscape to reduce and improve the quality of stormwater runoff. Incorporating low impact development approaches (LIDAs) in the design of streets and green access lanes will provide a green landscaped environment that improves water quality and habitat and cools the air and water. At the same time, the streetscapes will be pleasing to pedestrians, provide access to nature and enhance the value of the area.

Enhanced transit under consideration includes the extension of a light rail transit through the plan area to serve industrial employment centers to the north and west. The transportation concept focuses on improving connections to the existing and planned LRT line, and encouraging more intense development within walking distance of a transit station in order to take full advantage of the regions light rail system. The planned LRT line extends from the Willow Creek transit center located at the southwest corner of the plan area and turns up through the plan area at the Bronson Creek crossing. The line travels up NW 194th Avenue crossing through the Community Activity Center heading north to the Streets of Tanasbourne and the Kaiser Permanente Westside Medical Center. A transit circulator facilitates quick connections to transit stations. The local circulator connects the plan area approximately as indicated on the Transportation Concept Map (Figure 3-2). Eventually, a street car, personal rapid transit system (PRT) or other local circulator could serve to focus area investment near transit corridors. PRT's use an automated fleet of electric vehicles moving along a network of concrete channels.

In the intense, mixed-use environment envisioned for the plan area, a high proportion of trips people make are naturally by foot because the places people use in their daily lives (home, work, shopping, recreation, and transit stations) are close to one another. Convenient pedestrian system connectivity is emphasized to ensure that as many people as possible walk to their destinations. Continuous on- and off-street bicycle facilities and enhanced transit choices further increase the attractiveness of non-motorized transportation options. The Plan's emphasis on residential uses serves to balance travel direction at peak hours. The approach serves to minimize impacts of significant increases in density and intensity on the arterial road system by internalizing trips and balancing peak hour demand.

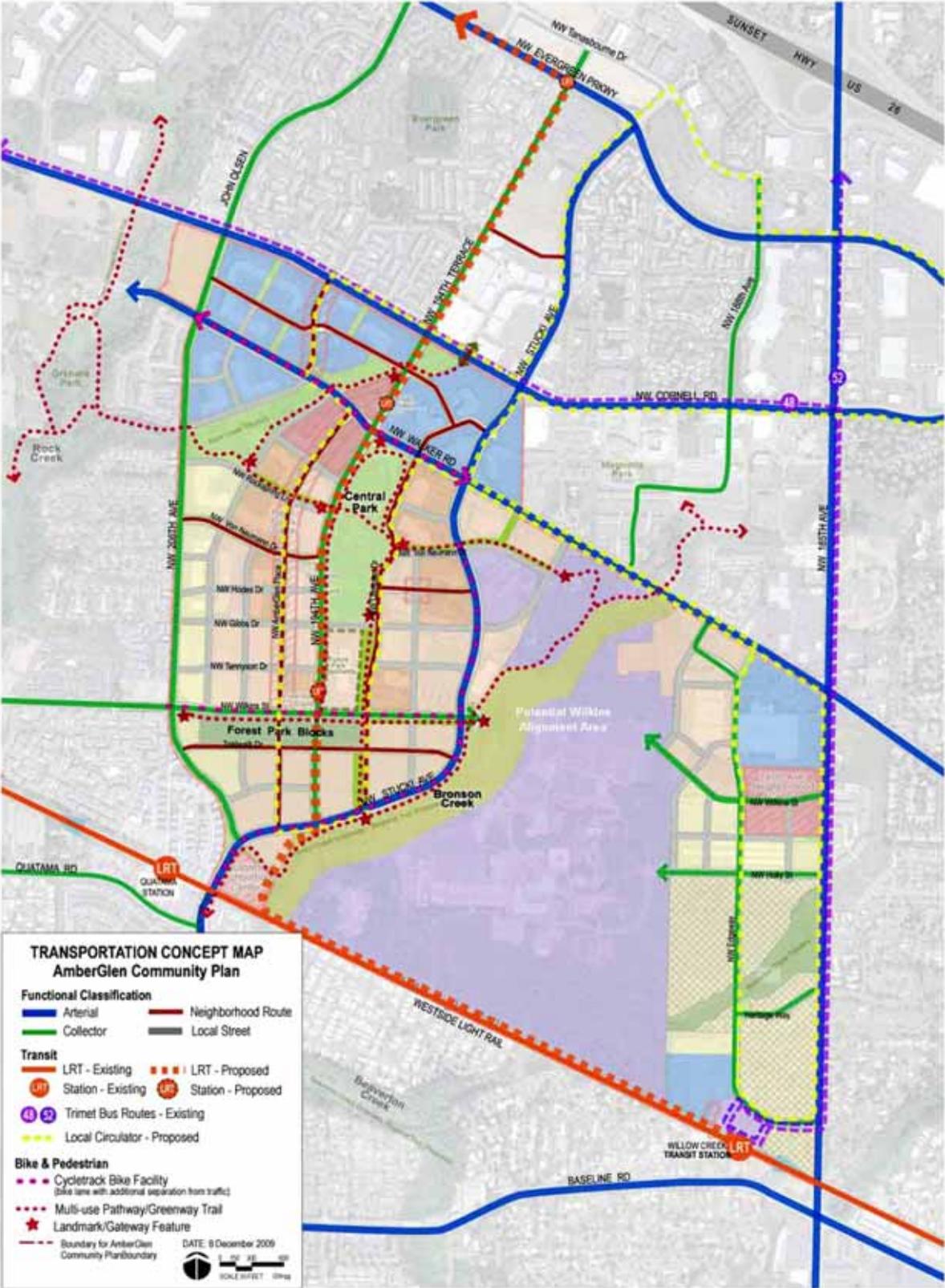


Figure 3-2: Transportation Concept Map

Street Design

AmberGlen plan area streets and accessways will be developed to create a distinctive, high-quality environment, and to address multiple objectives for multi-modal balance and access, mobility, community identity and sustainability.

Street classifications identified in the Transportation Concept Map for the plan area and corresponding “street cross-section design standards” are provided in Section 13: Transportation and Section 21: Transportation System Plan (TSP) of the Hillsboro Comprehensive Plan. Classifications are based on traffic volumes and modal functions. Issues addressed by the standards include access spacing, right-of-way width, number of travel lanes, sidewalk width minimums and on-street parking to provide a basis for the development of specific street design requirements.

Street-design types have been developed for elements of the AmberGlen plan area street network. They are intended to provide additional design direction to address multi-modal mobility requirements, plan area identity, economic vitality and sustainability. AmberGlen street design types are consistent with functional classifications and features identified in the Comprehensive Plan. They provide a conceptual basis for developing regulations such as a detailed street plan and street design standards. AmberGlen street-design types are identified on the Streetscape Concept Map (Figure 3-3) and conceptual cross-sections are illustrated on pages 52 through 55.

Character

In addition to providing a high level of connectivity within the plan area, the street and pedestrian grid will be designed to create a distinct sense of place. Streetscape concepts have been developed to address specific functional requirements and also, to reinforce placemaking opportunities. The varied scale, function and character of AmberGlen streets help to define neighborhoods and orient people within the plan area. For example, NW Stucki Avenue is envisioned as a grand, curving boulevard designed to accommodate higher volumes of through traffic while also providing off-road pedestrian and bicycle paths. Distinctive rows of London Plane trees provide a visual reference to NW Evergreen Parkway and serve to strengthen the identity of the plan area as part of a larger Tanasbourne/AmberGlen regional-scale center. In contrast, “green connectors” are quiet, local streets recognizable by tall conifers, native vegetation, and water elements that link the central park to greenway trails and natural areas.

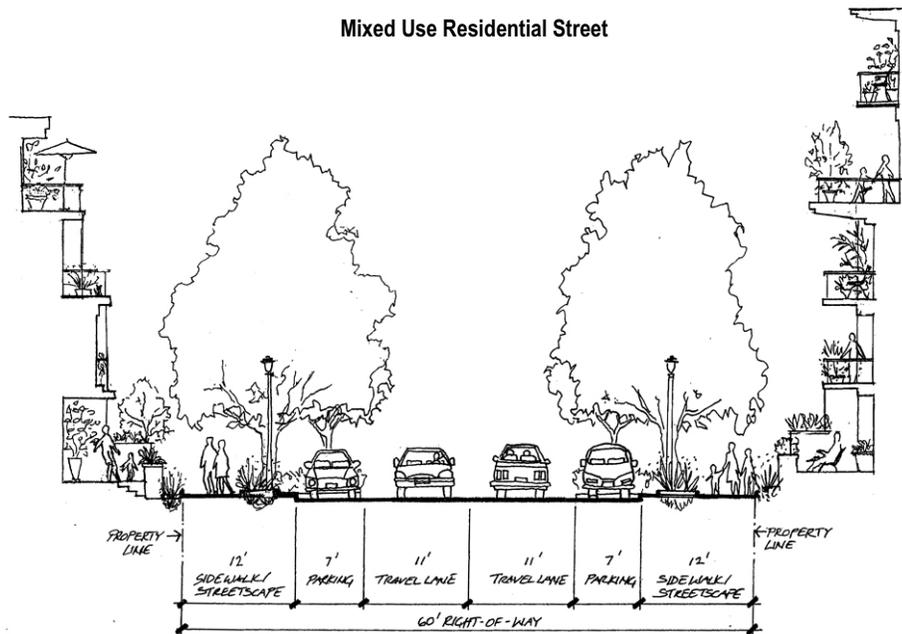
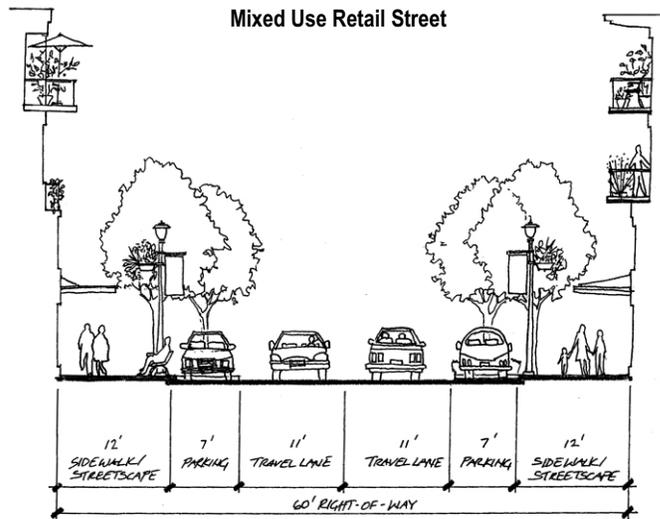
Green Streets

The Transportation Concept requires existing streets to be augmented by newly constructed streets to provide an urban grid. This presents a unique opportunity to establish grades and elevations to integrate a “green street” approach for much of the proposed road network. Preliminary soil studies, surveying and a Stormwater Master Plan should be completed to provide a basis for a comprehensive, district-wide approach to stormwater management.

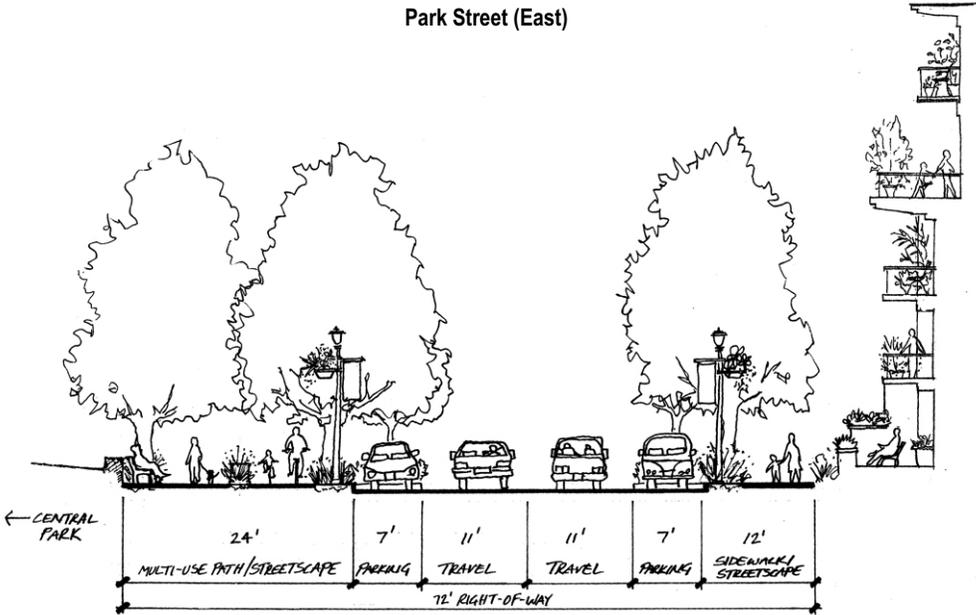
Green street facilities enhance watershed health by helping to reduce impervious surfaces, replenish groundwater, and treat and filter stormwater at its source. Clean Water Services allows effective green facilities to support regulatory compliance. Green streets have the potential to reduce the cost of underground infrastructures. Green street facilities that may be appropriate for AmberGlen included vegetated curb extensions, vegetated infiltration basins and stormwater sidewalk planters. Even with somewhat impermeable soils, “flow through” stormwater facilities still provide watershed benefits by slowing and filtering stormwater.

Street Design Types

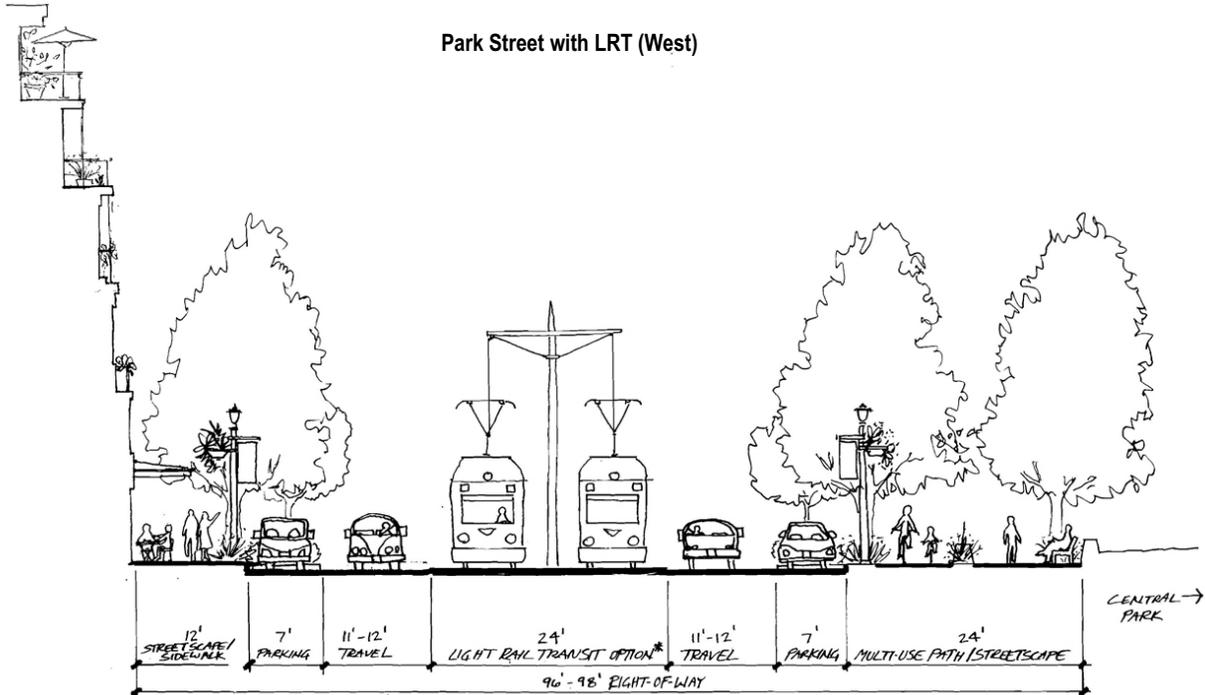
Conceptual cross-sections for each street design-type are provided below:



Park Street (East)

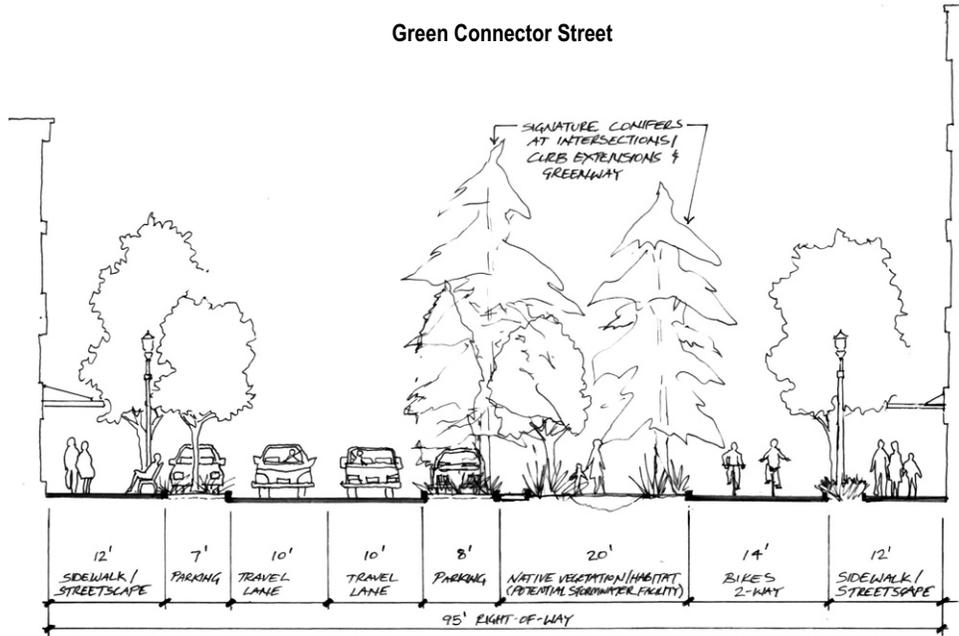


Park Street with LRT (West)

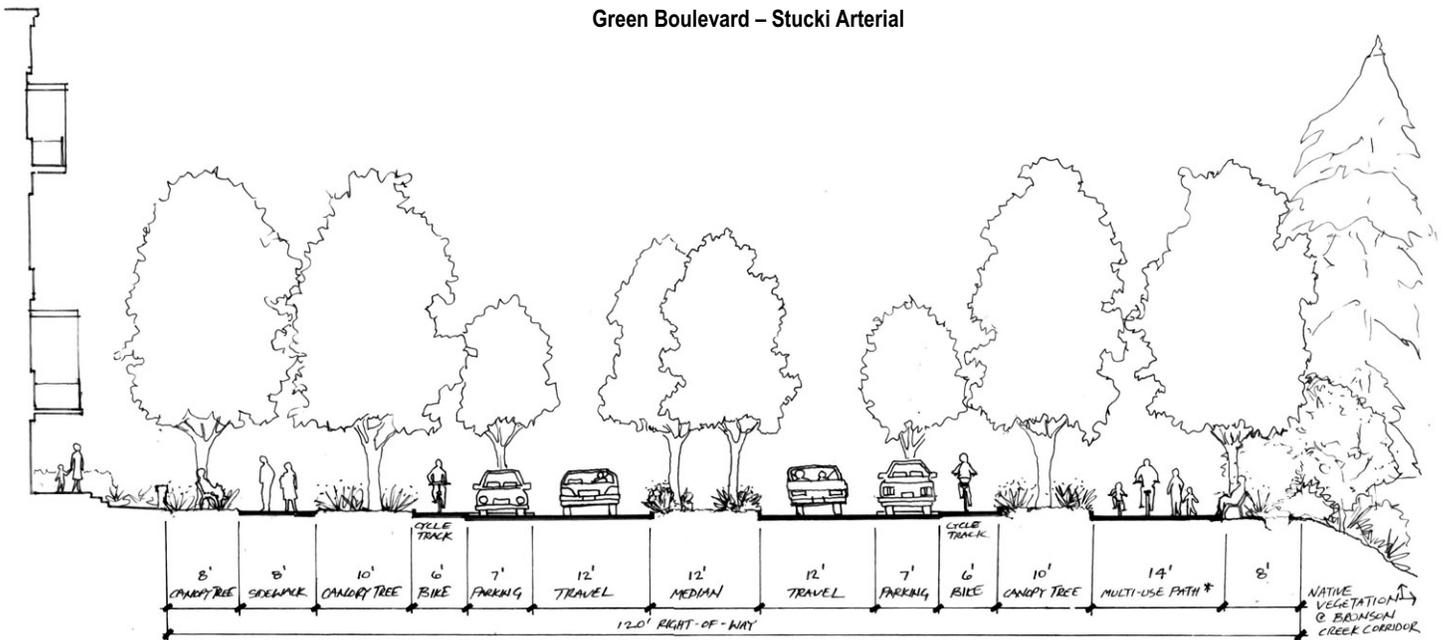


*POTENTIAL LIGHT RAIL TRANSIT ROUTE AND CONFIGURATION TO BE DETERMINED BY TRI-MET AND REGIONAL PARTNERS.

Green Connector Street

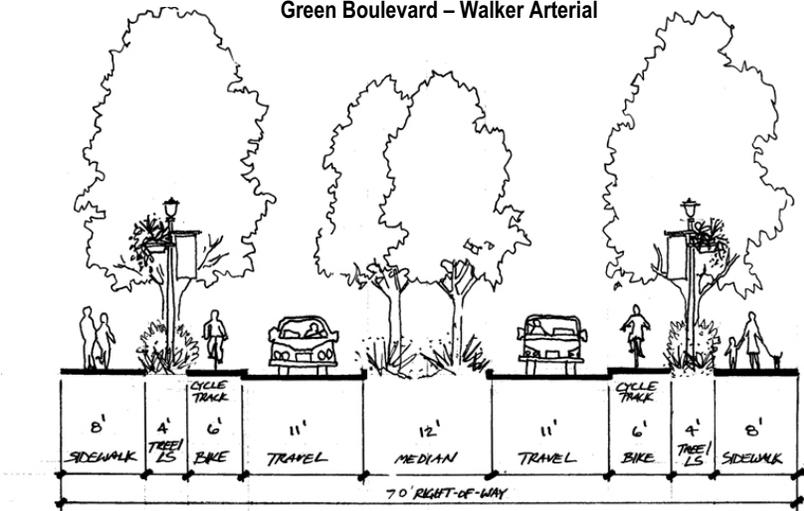


Green Boulevard – Stucki Arterial

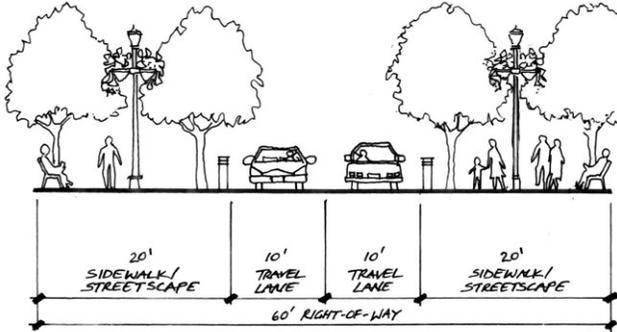


* BRUNSON CREEK GREENWAY REGIONAL TRAIL

Green Boulevard – Walker Arterial



Festival Street



Green Access Lane



Traffic Analysis

The following condensed summary is based on the AmberGlen Community Plan Traffic Analysis and Summary prepared by Scott Harmon, P.E. and Joshan Rohani, E.I.T., David Evans and Associates, Inc., November, 2009. The full AmberGlen Community Plan Traffic Analysis and Summary are provided in Appendix C.

This section provides a condensed summary of the effects on trip generation resulting from land use changes identified in the AmberGlen Community Plan based on the transportation analysis completed to address Transportation Planning Rule (TPR). TPR compliance requires study of proposed changes to land uses to determine significant effects on the planned transportation system, adoption of measures to maintain system performance at levels consistent with those estimated under current zoning, and identification of likely sources for funding capacity improvements.

The analysis compares traffic impacts in the forecast year 2035 associated with development capacity under existing Comprehensive Plan designations with impacts from development capacity under proposed Comprehensive Plan amendments that reflect land uses identified in the AmberGlen Community Plan. AmberGlen Community Plan land use concepts change the existing emphasis on employment land uses to a high density mix of uses emphasizing housing with employment and retail. Planned land uses are identified in the AmberGlen Community Plan Land Use Concept Map (Figure 2-1) and Development Program provided on page 28.

Study Area

The study area for the transportation analysis extends beyond the AmberGlen boundaries, going as far west as NW Cornelius Pass Road, north across US Highway 26 to NW Rock Creek Boulevard, east to NW 173rd Avenue and south to W Baseline Road. The intent in establishing the project's transportation Study Area was to evaluate key intersections which may experience traffic demand increases of 10% or more due to the Proposed Comprehensive Plan Amendment. A total of 32 intersections were included in the AmberGlen transportation analysis.

A comparison of PM peak hour traffic impacts with and without the proposed plan amendments indicates that the influence area remains relatively unchanged.

Methodology

The source of the traffic demand estimates is the 2035 Regional Travel Demand model (VISUM software), supported by Metro, and utilized by Hillsboro and consultant staff for this analysis. The modeling analysis included a full -step process performed by Metro, in conjunction with oversight on land use assumptions and modeling parameters provided by Metro, Tri-Met, City of Hillsboro, County, and ODOT staffs. Mode choice, internal versus external trip patterns, directional (enter/exit) splits, and trip origins/destinations were estimated using this process. This modeling maintained the Metro model's limited expansion in assumed transit service within the study area. As such, it could be construed by critics as a "vehicular-mode focused" analysis. This approach was used intentionally. In order to remain conservative, the analysis has principally focused on travel demand estimated without a significantly increased investment in transit. Had the analysis assumed a rigorous investment in transit while evaluating the TPR implications of the Proposed Comprehensive Plan Amendment, it would have created uncertainty as to the availability of capital funding to implement new transit system enhancements (Light Rail and buses), and uncertainty as to the revenue necessary to maintain ongoing transit operations and maintenance costs.

Performance Standards

Operational thresholds used for determining traffic deficiencies and required mitigation varies by jurisdiction. Washington County, City of Beaverton and City of Hillsboro have an intersection capacity threshold of 99 percent of capacity, which is represented by an overall intersection volume to capacity (v/c) ratio of 0.99. The Oregon Department of Transportation (ODOT) has a threshold of 85 percent of capacity, or a 0.85 v/c ratio for ODOT ramp terminal intersections. In certain cases ODOT may allow the v/c ratio to be as high as 0.90 if an Interchange Area Management Plan (IAMP) is undertaken and approved and a detailed analysis is completed to show the increased v/c ratio would not pose a safety concern on ODOT's facilities.

Refine Regional Model and Roadway Network

City of Hillsboro staff reviewed the land use and roadway network coding in Metro's 2005 and 2035 regional travel demand model and provided calibrations to better reflect City of Hillsboro and Washington County existing and future land use plans and Transportation System Plan (TSP) roadway network assumptions. The Transportation Analysis Zone (TAZ) land use coding was modified to better reflect planned land use patterns in key areas such as the Bethany area, West Bull Mountain, Helvetia/Evergreen area, South Hillsboro area, Downtown Hillsboro, and the AmberGlen/Tanasbourne area with Metro's regional land use control totals maintained. The final model is referred to as the City of Hillsboro 2035 "Model Merge". Prepared in cooperation with Washington County, ODOT, and Metro, it provides the best consolidation of all planning efforts in this portion of the Tualatin Valley, and allowed Metro to run a new 4-step model to reassess travel patterns and origin-destination trip tables.

The roadway network in and around the AmberGlen area was also calibrated to better reflect the existing and planned TSP roadway system. The existing 2035 Metro model network is based on the recently updated Federal financially constrained Regional Transportation Plan (RTP), which has been labeled R-1 in this analysis. The base network for this transportation analysis, R-2, contains all elements of R-1 plus forthcoming Hillsboro TSP amendments including these projects that are included in the in-process Metro State versions of the RTP. R-2 also includes a higher degree of network refinement including several neighborhood routes and collectors that are not represented on the original Metro model network (R-1).

Factoring Transit Investments

A transit-robust 4-step model run was conducted which evaluated an extensive array of enhanced transit investments in the Hillsboro area to determine whether identified roadway and intersection improvements could be avoided through investment in transit. This scenario included an extension of Light Rail into the AmberGlen/Tanasbourne area, an express bus on US-26, and frequent bus service on area arterial roadways. The conclusion was reached that enhanced transit service would increase overall mobility and reduce Vehicle Miles Traveled and System Delay, but it would not eliminate the need for intersection improvements necessary to meet City, County, and ODOT current operational performance standards.

Traffic Analysis

The Tanasbourne area has been experiencing excessive traffic congestion as development has moved toward full buildout under the Existing Comprehensive Plan. This has heightened local awareness that past Transportation System Plans were based upon only about 65% of buildout conditions. This analysis has committed to evaluating transportation system needs to meet buildout conditions, both under the Existing Comprehensive Plan and under the Proposed Comprehensive Plan Amendment. Employment and housing estimates for buildout under the Existing Comp. Plan have been based upon an inventory of what is already built, coupled with a review of previously approved Master Plans for properties within the AmberGlen/Tanasbourne boundary. These totals are shown in Table 3-2 on the following page. The proposed AmberGlen Community Plan and associated Comprehensive Plan amendments and future zone designations provide a better balance of jobs and housing than under the existing zoning, which is employment based with little allowance for housing. Table 3-2 shows how the resulting mixed-use zoning yields a better balance of uses within the planning area, and in total reduces employment by 4,941 jobs while boosting housing units by 6,729. The combination of these land use changes carries over to trip generation as it effects the direction of travel for generated afternoon peak hour traffic.

Trip Generation for the proposed AmberGlen zoning would also be more balanced than under the existing zoning. Table 3-3 on the following page shows how proposed zoning would generate 5,487 more trips during the PM peak two-hour period than under the existing zoning. However, 40 percent (2,034 trips) of the additional trips would be internal to the AmberGlen Community and would have minimal impact on the surrounding neighborhoods and adjacent regional arterials. The remainder of the traffic growth (3,453 trips) over the PM peak two-hours would be almost entirely trips returning to housing in AmberGlen, when compared against trips generated under buildout of the existing Comprehensive Plan. These housing based trips would generally be in an off-peak or non-critical direction in the surrounding AmberGlen/Tanasbourne area, which has a primarily employment and shopping/service based traffic pattern.

Converting the new AmberGlen PM peak two-hour trips into PM peak one-hour trips, and distributing the trips using the regional travel demand model, results in PM peak hour total entering volumes at each of the 32 study area intersection increasing by less than 8 percent. The peak movement volume increase for any intersection movement due to proposed AmberGlen Comprehensive Plan amendments would be 215 vehicles westbound at the intersection of NW 173rd Avenue and Nw Walker Road.

No external intersections would experience an increase in Total Entering Vehicles during the PM peak hour of more than 8%. In fact, only one intersection (NW 206th Avenue at NW Amberwood Drive) would experience an increase in excess of 5% (7.3% estimated). Of the 32 intersections studied, 14 would experience traffic volume increases estimated between 1% and 5%. Subsequent traffic operations analysis finds that only two intersections within the study area will require additional capacity improvements to mitigate traffic increases attributable to the proposed Comprehensive Plan amendments.

That said, most study area intersections were found to require capacity improvements simply to accommodate build out capacity under existing Comprehensive Plan designations.

Table 3-2: Summary of 2035 Housing and Employment

Land Use at Full Build Out	Housing Units	Employees	Housing/Employee Ratio
AmberGlen Plan Area			
Existing Comp. Plan	2,639	13,588	16%/84%
Amended Comp. Plan	7,184	10,968	40%/60%
Delta	+4,454	-2,620	
AmberGlen/Tanasbourne Area			
Existing Comp. Plan	10,974	36,247	23%/77%
Amended Comp. Plan	17,703	31,306	36%/64%
Delta	+6,729	-4,941	

Table 3-3: Summary of 2035 PM Peak Two-Hour Vehicle Trip Generations

Trip Generation at Full Build Out during PM Peak Two-Hours	Internal Trips	Leaving AmberGlen Area	Entering AmberGlen Area	Total
AmberGlen Plan Area				
Existing Comp. Plan	3,599 (16%)	11,659 (51%)	7,809 (33%)	23,067 (100%)
Amended Comp. Plan	5,633 (20%)	11,752 (41%)	11,169 (39%)	28,554 (100%)
Delta	+2,304 (42%)	+93 (2%)	+3,360 (56%)	+5,487 (100%)

Base Mitigation to meet Operational Standards Existing Comprehensive Plan

It has been identified that 12 of the 32 study intersections would fail to perform within current roadway standards ($V/C = 0.99$). Additionally, 7 other intersections were found to perform between 95% and 99% of capacity. These results highlighted the need to identify some additional capacity improvements to ensure all 32 intersections would meet the threshold of 99% capacity. These improvements are referred to as the Base Mitigation. **They are required to meet performance standards notwithstanding the Proposed Comprehensive Plan Amendment.**

The analysis of existing Comprehensive Plan buildout traffic operations at the study area intersections established the need for significant additional mitigation improvements above those presently identified through the City of Hillsboro TSP and planned TSP spot amendments. These include:

- Widening NW 185th Avenue to provide an additional northbound lane from NW Evergreen Parkway to NW Bronson Road;
- Widening NW Walker Road to provide seven lanes of capacity from NW 185th Avenue through NW 173rd Avenue (or alternatively work with ODOT to adjust ramp meter rates);
- Widening of NW 173rd Avenue at NW Cornell Road to 5-lanes;
- Widening of NW 173rd Avenue at NW Walker Road to 5-lanes;
- Construct a third eastbound left-turn lane on NW Evergreen Parkway at NW 185th Avenue (or a fourth northbound through lane on NW 185th Avenue). Alternatively, consider one of the Alternative Road Network Scenario improvements to reduce traffic demand through the intersection; and
- Make capacity improvements at a total of 13 intersections.

The widening of NW Walker Road may not be needed in 2035 if the ramp meter rate at the NW 185th Avenue on-ramp to eastbound US-26 increases by 500 to 600 vehicles per hour (vph). The third eastbound left-turn lane on NW Evergreen Parkway at NW 185th Avenue (or fourth northbound through lane on NW 185th Avenue) would also not be needed if an additional crossing of US Highway 26 is constructed somewhere between NW 206th Avenue and NW 185th Avenue to provide another option for drivers to cross US Highway 26.

The existing double eastbound left-turn lanes on NW Evergreen Parkway at NW 185th Avenue would also benefit significantly from improved channelization on NW Evergreen Parkway and NW 185th Avenue to facilitate easier flow of traffic to the US Highway 26 eastbound on-ramp. This would occur through the extension of the existing northbound right-turn lane at the US Highway 26 eastbound on-ramp back to NW Evergreen Parkway and the re-striping of the existing northbound through lane at the westbound on-ramp to provide a shared through and right-turn lane, thereby providing two lanes of right-turn capacity on to the US Highway 26 eastbound on-ramp. These channalization improvements would significantly improve the efficient use of the existing eastbound left-turn capacity on NW Evergreen Road to northbound NW 185th Avenue.

Additional Mitigation to meet Operational Standards Proposed Comprehensive Plan Amendments

The analysis of traffic operations at the study area intersections found the need for a limited amount of additional mitigation to supplement the R-2 Base Roadway Network in order to meet the 99% of capacity acceptance threshold. Specifically, capacity deficiencies were identified at two intersections where the following improvements were identified as needed to meet performance standards:

NW Walker Road at NW 173rd Avenue:

Add a second northbound through lane; Add a southbound right turn lane.

NW 185th Avenue at NW Evergreen Parkway:

Add either the third eastbound left turn lane or convert the existing northbound right turn lane into a through-right lane.

Evaluate the merits of Alternative Road Network Scenario improvements

Throughout the analysis, traffic demand volumes, intersection operational performance, and recommendations on required lane improvements to meet the appropriate jurisdictional operational standards were evaluated for a range of scenarios identified in Table 3-4 on the following page.

Of the alternatives studied, the most promising Alternative Road Network Scenario identified would be the crossing of US Highway 26 via NW 194th Avenue to NW Rock Creek Boulevard. The new crossing of US-26 would provide another option for drivers trying to cross US Highway 26 and provide access from NW Evergreen Parkway to eastbound US Highway 26 via the NW 194th crossing, NW Rock Creek Boulevard and the underutilized (in the PM peak hour) southbound NW 185th Avenue to eastbound US Highway 26 loop on-ramp. The additional accessibility provided by the NW 194th crossing of US Highway 26 eliminates the need for the third eastbound left turn lane on NW Evergreen Parkway at NW 185th Avenue (or a fourth northbound through lane on NW 185th Avenue). The NW 194th Avenue crossing would also provide local access across US Highway 26 to the proposed future alignment of the Red line LRT extension, while (based on travel demand model results) not attracting regional traffic to the local roadway system.

The NW 194th Avenue Overcrossing scenario would trigger the following mitigation needs above those identified for the Base Mitigation package of improvements:

NW Walker Road at NW 173rd Avenue:

Add southbound right-turn lane; Add second northbound through lane

NW 185th Avenue at NW Evergreen Parkway:

Add eastbound right-turn lane.

City staff is cognizant of the community's expectation that transportation mobility solutions will be identified with or without proposed Comprehensive Plan amendments to include the AmberGlen Community Plan. The Alternative Road Network Scenarios seek to identify an array of alternatives which could be further pursued in a subsequent Interchange Area Management Plan (IAMP), which would be undertaken subsequent to adoption of the proposed Comprehensive Plan amendments.

Table 3-4: Alternative Road Network Scenarios & Improvements

<p>R-3 Scenario (Less Wilkins Extension): The evaluation of scenario R-3 (No future Wilkins Extension) was provided due to the expense of the new bridge crossing of Bronson Creek, and due to the uncertainty of its future timing in light of the implications on security at the OHSU Primate Center. It was determined that the Wilkins Extension is necessary to preclude exceeding capacity at W Baseline Road and NW 205th Avenue, and the need to construct 7 lanes on NW Walker Road at NW 185th Avenue (even if the ramp meter flow rate could be improved).</p>
<p>R-4 Scenario (With 206th Crossing): This scenario tests a local overcrossing between NW Evergreen Parkway and NW Rock Creek Boulevard. It was found that this improvement would attract more than the 2% added traffic from the NW 185th Avenue interchange which resulted from the Proposed Comprehensive Plan Amendment. It was found to add a small amount of traffic through the Rock Creek neighborhood on NW Neakahnie Avenue. It also was found to attract more traffic away from the NW Cornelius Pass Road interchange than from the NW 185th Avenue interchange. This scenario appears to be worthy of further study in the IAMP process.</p>
<p>R-5 Scenario (Less 173rd Overcrossing): The removal of this overcrossing from the future TSP roadway network would send approximately 500 additional vehicles onto NW 185th Avenue in the afternoon peak hour. This would require provision of another travel in the northbound direction (a fourth through lane). It was not found to significantly relieve the need for capacity improvements on NW 173rd Avenue from NW Cornell Road through NW Walker Road.</p>
<p>R-6 Scenario (Braided Interchange Stucki to US-26): This concept would provide a direct connection from northbound NW Stucki Avenue onto US Highway 26 eastbound, and a direct offramp from US Highway 26 westbound to NW Stucki Avenue southbound. Modeling identified that it would attract such a significant amount of traffic from NW 185th Avenue and NW Cornelius Pass Road that it would cause NW Stucki Avenue to fail without widening to 7-lanes. ODOT expressed concerns as to whether this alternative would be able to be constructed given tight spacing of ramps. This scenario is not recommended for further study in the IAMP.</p>
<p>R-7 Scenario (5-lane Stucki through the plan area): This scenario tested whether widening NW Stucki Avenue through the AmberGlen study area would attract sufficient traffic volumes from NW 185th Avenue that it could preclude the requirement for extending the 7-lane widening on NW 185th Avenue south to the NW Walker Road approach. It was found that it would not relieve any roadway improvements along NW 185th Avenue and is thus not recommended due to its cost and its negative implications as a barrier to a walkable AmberGlen district.</p>
<p>R-8 Scenario (Split Diamond Interchange with Stucki and 185th): This scenario appears to have merit for further study in the IAMP process. As modeled, it would attract too much traffic away from particularly NW Cornelius Pass Road. Further refinement testing would look at reducing its capacity to identify whether it can benefit NW 185th Avenue sufficiently to justify its expense. It has the added benefit of providing direct access to the AmberGlen district.</p>
<p>R-9 Scenario (5-lane 173rd Avenue Overcrossing of US-26): This scenario was found to attract too much traffic to NW 173rd Avenue, resulting in the need to widen NW 173rd Avenue from NW Parkview Boulevard south to beyond W Baseline Road. It was not found to relieve the need for other improvements identified on other roadways in the network and is thus not recommended for further study.</p>
<p>R-10 Scenario (194th Overcrossing of US-26): This scenario appears to warrant further study in the IAMP process. It would provide relief to NW 185th Avenue well in excess of the 2% added traffic attributable to the AmberGlen Proposed Comp. Plan Amendment. Coupled with a potential future light rail extension into Tansasbourne on NW 194th Avenue, it would provide an attractive multi-modal access for the Rock Creek neighborhood to the transit station without using the NW 185th Avenue interchange. It would also provide an alternate route for traffic travelling between the Tanasbourne and Rock Creek districts without traveling through the NW 185th interchange. This would improve access for shopping and commute trips.</p>

Conclusions and Next Steps

Transportation Planning Rule requirements can be feasibly met to accommodate the Proposed Comprehensive Plan Amendment for the AmberGlen planning area. Cost estimates for the two intersections requiring mitigation above that required under buildout under existing Comprehensive Plan designations are underway, but preliminary indications indicate that they are feasible when compared to revenue which would be generated by Transportation Development Tax collections from future development in AmberGlen.

Specific improvements identified to the intersection of NW Walker Road/NW 173rd Avenue and NW 185th Avenue/NW Evergreen Parkway should be conditioned upon AmberGlen plan amendment. Capacity improvements at NW 173rd Avenue and NW Walker Road would be complicated by the limited right-of-way available. It is noted that some or all of these may become unnecessary depending upon the results of the recommended Interchange Area Management Plan.

It is recommended that an Interchange Area Management Plan (IAMP) for the NW 185th Avenue interchange with US Highway 26 be completed by City of Hillsboro in conjunction with ODOT, City of Beaverton, and Washington County. The scope of the IAMP would need to consider the effect of increasing ramp dispersal rates on relieving traffic demand along NW Walker Road. The identified need to widen NW Walker Road to 7-lanes, as required regardless of the Proposed Comp. Plan Amendment, is inconsistent with regional and local objectives for that arterial. Consistent with the Regional Transportation Plan, the IAMP should evaluate the overall “Corridor” of US Highway 26 as it relates to the role of NW Walker Road and the implications of ramp meter rates.

It is further recommended that the IAMP provide further evaluation of various Alternative Road Network Scenarios recommended by this study for advancement. The IAMP would also need to address morning peak hour operations, and evaluate recommended acceptable performance standards and their implications on resulting infrastructure improvements.

Transportation Goals, Policies and Actions

Goals and Policies

Goal 6: Support the development of a balanced, multimodal transportation system serving residents, employees, and visitors.

- Policy 6.1 Improve access to and within the plan area and create a pedestrian-scale environment by incorporating an urban grid system comprised of streets and landscaped access lanes.
- Policy 6.2 Design and prioritize transportation projects to serve existing development, stimulate new development and attract people to the area.
- Policy 6.3 With regional partners, pursue the extension of High Capacity Transit (HCT) connecting the existing Westside Light Rail line to the plan area and to employment centers to the north and west.
- Policy 6.4 Support a local transit circulator system within the combined AmberGlen plan area and the Tanasbourne Town Center to provide convenient access between commercial, institutional, recreational and residential uses, and to strengthen connections to light rail, HCT and bus transit.
- Policy 6.5 Provide strong pedestrian and bicycle connections throughout the plan area, and to adjacent retail centers, health providers, employers, parks and natural areas, and transit. On key major streets, provide increased separation between vehicles and pedestrians and cyclists to encourage walking and biking as viable, alternative travel modes.
- Policy 6.6 Ensure livability and access for neighborhoods adjacent to the AmberGlen plan area by maintaining mobility functions on major streets commensurate with travel demand created by plan area development, and by preventing encroachment of parking for plan area uses into adjacent neighborhoods.
- Policy 6.7 Create and maintain an environment where there is less reliance on motor vehicle trips by coordinating public and private trip reduction strategies and pursuing a comprehensive travel demand management program.

Goal 7: Incorporate sustainable features, methods and materials into the design and construction of the transportation system.

- Policy 7.1 Incorporate stormwater management functions into the design of streets, pathways and access lanes by providing green street features to reduce runoff, increase stormwater system efficiency, and reduce negative impacts of development on water quality and stream habitat.
- Policy 7.2 Provide green street features to enhance the urban street environment, strengthen area identity, and effectively address stormwater management and water quality in light of infiltration potential. Green street features include, but are not limited to, use of pervious pavement, street trees, permeating curbs, vegetative filters, swales, and linear detention and infiltration basins.
- Policy 7.3 Consider paving materials with a high Solar Reflectance Index (SRI) to minimize the amount of urban heat island effect generated by heat gain through impervious surfaces.
- Policy 7.4 Reuse demolished roadway material as available for bedrock foundation of new streets in cases where there are no associated negative environmental impacts.

Actions

- Action 20 Initiate and fund development of an Interchange Area Management Plan (IAMP) or equivalent public multi-jurisdictional process for the NW 185th Avenue interchange with US Highway 26 for adoption by the City of Hillsboro, Washington County, other local governments as appropriate, and the Oregon Department of Transportation (ODOT) to address, among other things, issues outlined in the AmberGlen Traffic Analysis and Summary and to identify improvements to the state and local street network needed to protect interchange and local street network functions based on adopted local land use plans. Ensure a transparent public process as identified by ODOT in the IAMP Guidelines.
- Action 21 Amend the City's Transportation System Plan to include street improvements and access management policies identified in the Interchange Area Management Plan or equivalent multi-jurisdictional process for the NW 185th Avenue interchange with US Highway 26 (Action 20), and functional classifications identified in the AmberGlen Transportation Concept. Coordinate with Washington County to ensure consistency with the Washington County Transportation Plan, and with Metro to ensure consistency with the Regional Transportation Plan.
- Action 22 Develop a detailed street plan, design criteria and standard details for adoption in the Hillsboro Zoning Ordinance. Coordinate for consistency with the urban and sustainable design concepts established by Parks and Open Space Actions 2 and 3.
- Action 23 Fully assess opportunities, constraints, costs and benefits associated with incorporating green street features in the design of streets, greenways, and green access lanes as part of the development of the comprehensive stormwater strategy identified in Infrastructure Actions 32 and 33.
- Action 24 Based on Action 23 green streets feasibility findings, develop design standards for "green streets" and determine maintenance programs, and adopt "green street" standards into the City's Transportation System Plan.
- Action 25 Develop a strategy for acquiring land for critical rights-of-way identified in the AmberGlen Transportation Framework.
- Action 26 Work closely with Tri-Met to develop new regional transit options and to enhance existing transit options within and adjacent to the plan area.
- Action 27 Prepare a transit service strategy for the combined AmberGlen plan area and Tanasbourne Town Center that includes analysis of costs and benefits associated with a local transit circulator. Compare fixed-route systems such as a street car or personal rapid transit with a bus-based system.
- Action 28 Study the potential for providing improved pedestrian access to connect the plan area to adjacent retail centers and employers to the north.
- Action 29 Work with employers, transportation agencies, the Westside Transportation Alliance, and other transportation partners to develop a comprehensive travel demand management program.
- Action 30 Develop a district parking strategy including parking requirements to foster non-auto trips. These may include development of a paid parking district, and standards that establish maximum parking rations and limits on surface parking spaces or area.

CHAPTER IV – INFRASTRUCTURE

Existing Conditions

Water, sanitary sewer, stormwater, utilities and public safety services are currently provided to the AmberGlen plan area. The following summary is based on information provided by Clean Water Services (CWS) and the existing conditions analysis for the *AmberGlen/OHSU Concept Plan* completed in 2007.

Water

The Tualatin Valley Water District (TWVD) provides water to the plan area as illustrated in Figure 4-1. Existing public water lines north of the plan area include a 20-inch water main in NW Cornell Road and a 12-inch water line in NW Walker Road. To the east is an existing 16-inch water main in NW 185th Avenue. Some existing development has private water line loops, for fire suppression and irrigation, located on private property. These water lines have the capacity to serve additional development and growth but significantly higher future demands may warrant a system upgrade.

Sanitary Sewer

The AmberGlen plan area receives sanitary sewer service from both the City of Hillsboro and CWS as illustrated in Figure 4-2. The City of Hillsboro maintains sewer lines less than 24 inches in diameter. The local system under the City's jurisdiction is mainly comprised of 8-inch diameter lines with some 12- and 15-inch lines. CWS is responsible for major facilities including large conveyance lines (trunk lines), pump stations, and wastewater treatment facilities that service the area. CWS operates a 27-inch trunk line which runs through the plan area from NW Walker Road southwest to the Westside Light Rail line. A 48-inch trunk line is located approximately 500 feet to the west of the site, and a 27-inch line is located approximately 150 feet east from the intersection of the Westside Light Rail tracks and NW 185th Avenue. All sanitary sewer lines in the plan area are gravity flow and convey sewage to the CWS's Rock Creek Advanced Wastewater Treatment Facility.

Stormwater

The AmberGlen plan area is part of the Rock Creek Drainage Basin, which is part of the Tualatin River Watershed. The predominant soil type includes somewhat poorly draining soils. Additionally, the slope of the land toward riparian corridors generally drains the plan area. CWS manages water quality for the Tualatin River Watershed and establishes Design and Construction Standards (Standards) detailing requirements for design and construction of stormwater facilities. CWS's *Standards* identify approvable Low Impact Development Approaches (LIDAs). LIDAs manage stormwater near the source, provide additional options for compliance with the Standards, and complement water quality facilities and vegetated corridors established as part of the Standards. LIDAs "reduce and mitigate the environmental impacts of conventional development by mimicking hydrology instead of replacing it with imperviousness" (*Low Impact Development Approaches Handbook*, CWS, July, 2009).

Existing stormwater facilities are concentrated in the northwest portion of the plan area and consist of stormwater piping, swales and other natural treatment systems as illustrated in Figure 4-3. Two prominent stormwater features include a tributary to Rock Creek and a large pond located in the green area between NW AmberGlen Parkway and NW Compton Drive. The creek is the terminus point for a portion of the stormwater piping and swales. Because it is very slow moving, the riparian area may provide additional water quality benefits. The pond located between NW AmberGlen Parkway and NW Compton Drive is privately-owned and intended to detain stormwater transported by site drainage through swales and water quality structures for use and re-use in landscape irrigation, thereby mitigating flows to Rock Creek for quality and quantity (*AmberGlen Corporate Center Engineering Facilities Master plan*, January 1992).

Private Utilities

NW Natural Gas provides the AmberGlen plan area with gas service and will continue to provide future infrastructure and service. Comcast provides digital phone, cable and broadband services. Existing lines are installed in SW 205th Avenue, NW 206th Avenue, NW Cornell Road, NW Walker Road, SW 185th Avenue, NW Von Neumann Drive, NW Amberbrook Drive, NW Bragg Drive, and several lines extending into the site from NW 185th Avenue. The only aerial routing of lines exists on NW Walker Road, SW 185th Avenue, and on NW 207th Avenue. Comcast will continue to provide infrastructure and service to all residential clients as development occurs. Future commercial and office infrastructure and services will be provided as requested. Verizon would continue to provide future telecom service within the plan area.

Public Safety

Fire Protection Services

The City of Hillsboro Fire Department provides fire and EMS service to properties within the city limits. The Fire Department has been challenged to meet target response times due to population increases absent commensurate increases in fire personnel. A new fire station is being developed west of the AmberGlen plan area at NW Cornelius Pass Road and NW Cherry Lane.

Police Services

The AmberGlen plan area is served by the City of Hillsboro Police Department from the NE Precinct located on NW Cornell Road in the business park east of NW Cornelius Pass Road (20795 NW Cornell Road). The NE precinct provides “full service” with officers, supervisors and equipment stationed at this location.

Opportunities and Constraints

- Existing infrastructure can be utilized and expanded as required to serve future development at a considerably lower cost compared to providing infrastructure and services to development located outside of the urbanized area.
- Increases in public safety services personnel and equipment would be required to serve a significantly larger population.
- Existing stormwater infrastructure and treatment will need to be expanded in conjunction with increased impervious area created by new development and an expanded street network.
- Comprehensive use of LIDAs for development of structures, streets and open space may reduce demand for piped stormwater infrastructure and associated costs by minimizing imperviousness and directing runoff from impervious to pervious areas.
- There is an opportunity to coordinate with CWS in the development of Stormwater Basin Master Plans to identify options for facilities located downstream of streets and development sites prior to stormwater discharge into a natural receiving water body such as Bronson Creek.
- The existing strategy of conveying site drainage through a series of ponds, swales and water quality structures and detaining is for use and re-use in landscape irrigation could be expanded to improve water quality and reuse water for non-potable uses by public and private development on a district-wide basis.
- There may be opportunities to create district energy systems based on a range of carbon-neutral power sources to enhance efficiencies and take advantage of economies of scale.

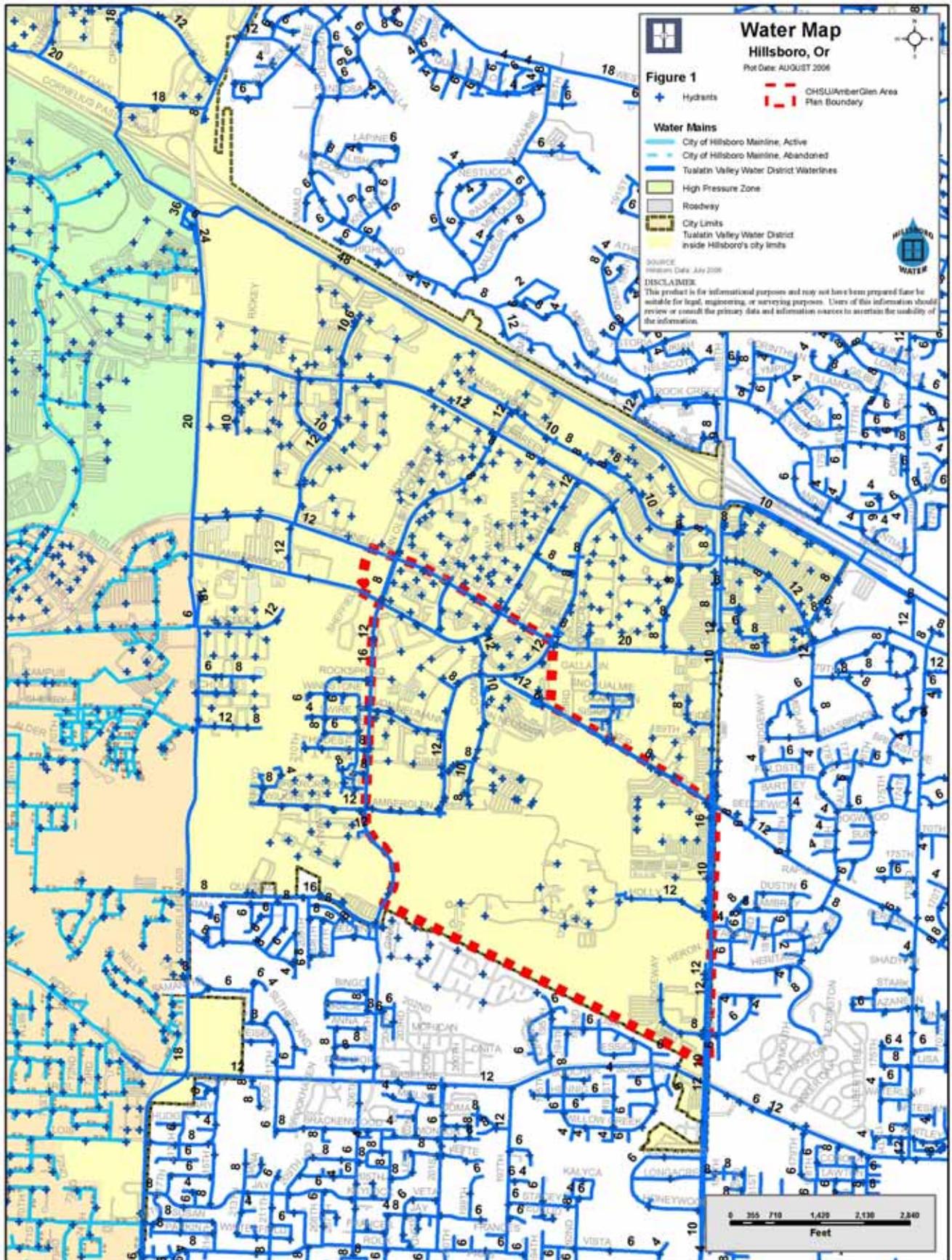


Figure 4-1: Water Map

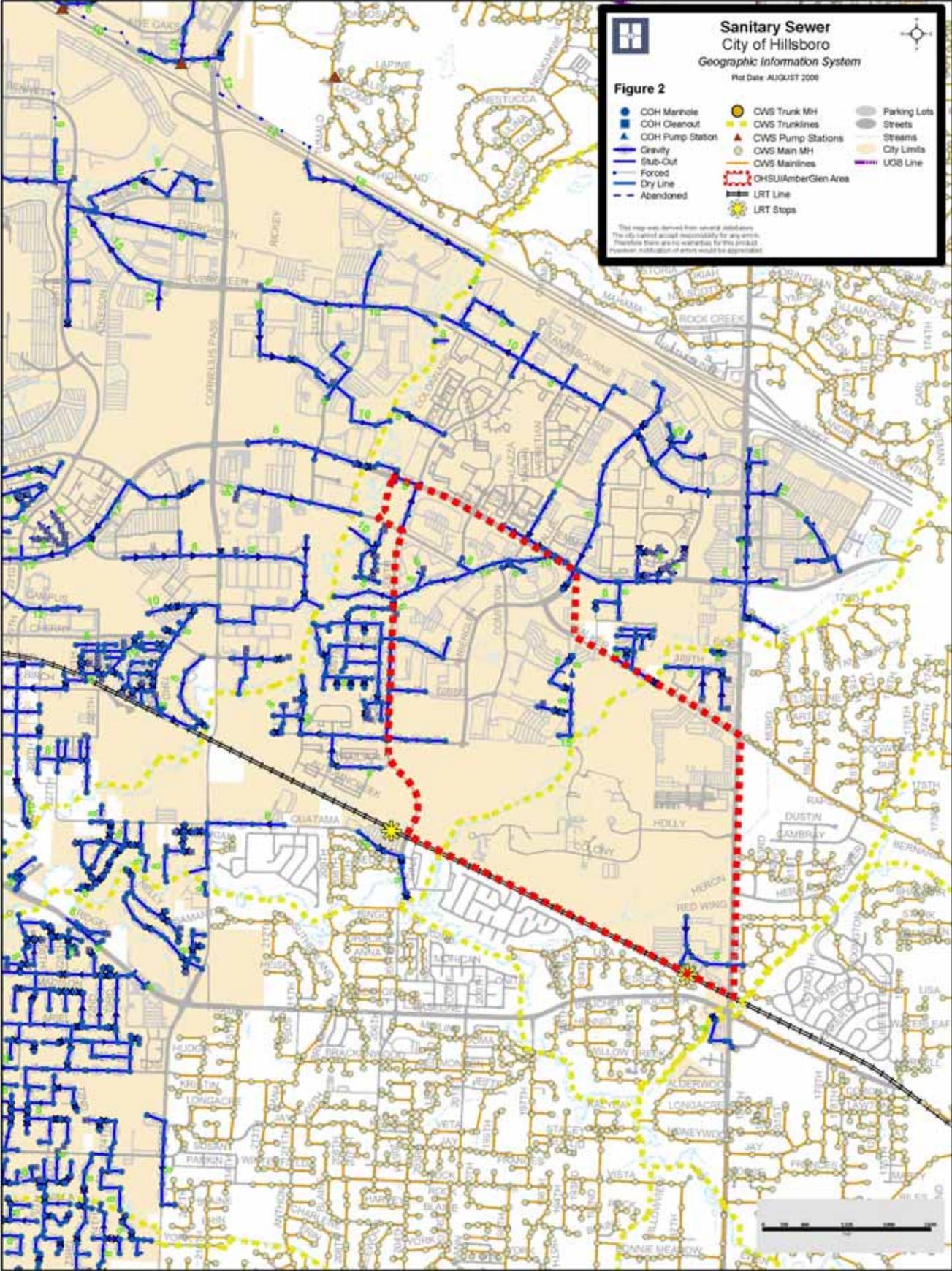


Figure 4-2: Sanitary Sewer Map

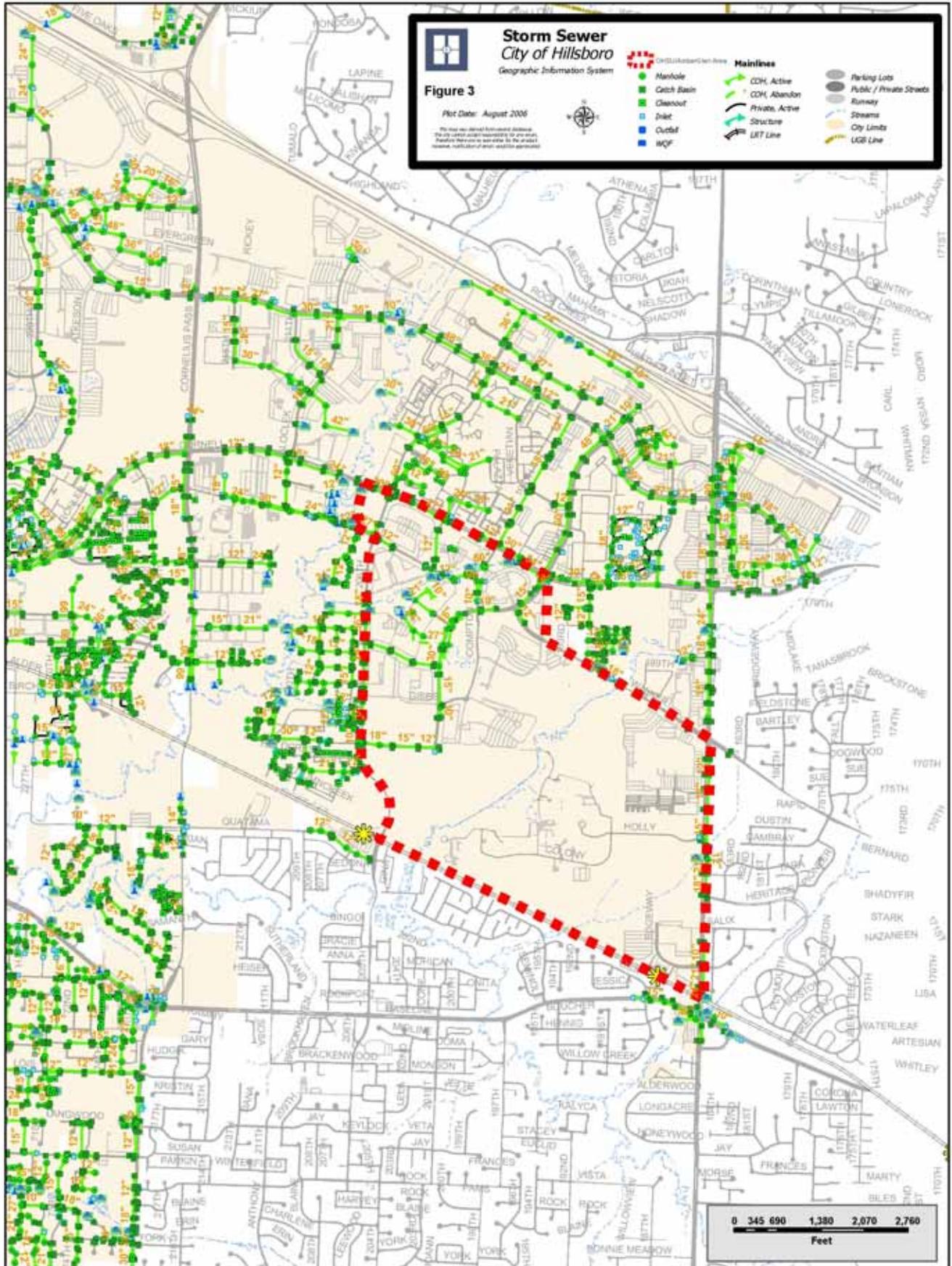


Figure 4-3: Storm Sewer Map

Infrastructure Concept

All urban facilities and services will be provided to the AmberGlen plan area and sized to accommodate planned uses and densities. Existing facilities are incorporated to the extent practicable. Proposed system improvements and related cost estimates are based on impact analysis reports provided with the *2007 OHSU/AmberGlen Concept Plan*. Subsequent refinements during development of the AmberGlen Community Plan have increased residential capacity by 2,344 dwelling units and reduced employment capacity by 1,227 employees. Proposed system improvements and order of magnitude cost estimates identified in this section remain instructive at a concept level. More detailed engineering plans and related cost estimates should be completed based on the refined development program and target densities identified in this Community Plan.

Water

TVWD will provide water to future development in the AmberGlen plan area. The existing 20-inch water main in NW Cornell Road and 12-inch water line in NW Walker Road illustrated in Figure 4-1 currently meet water demands for existing development but have little additional capacity. According to TVWD, a system upgrade could be avoided by tapping into the nearby existing 16-inch water main located in NW 185th and NW 206th Avenues and providing connections to the proposed water distribution system for individual properties.

Sewer

Sanitary sewer service will be provided by both the City of Hillsboro and CWS based on the existing system illustrated in Figure 4-2, with the City maintaining sewer lines less than 24 inches in diameter, and CWS responsible for operation and maintenance of the major conveyance system or trunk lines at least 24 inches in diameter, pump stations, and waste water treatment facilities. Service Level Agreements are in place between the City and CWS for maintenance of these facilities.

The local system would be gravity flow and typically comprised of 8-inch diameter sewer lines with additional 12-inch and possibly 15-inch lines connecting to the existing CWS 27-inch diameter sanitary sewer trunk line running roughly parallel to Bronson Creek. Based on preliminary calculations by CWS, proposed increases in density would exceed capacity of the existing 27-inch diameter trunk line and require upgrading to a 30-inch or 36-inch trunk line.

Per conversations with CWS, the 27-inch sewer line is subject to System Development Charges (SDC) funding where upgrades and associated costs are typically covered by district capital projects. However, the AmberGlen plan area would be responsible for portions of the cost if development required installation prior to agency plans to upgrade. Any new development upstream of the plan area would also share portions of the cost. According to CWS, it is not possible at this time to quantify how much the AmberGlen plan area would be required to contribute, but potential costs would be shared between CWS and future development. Cost factors that should be included as part of the OHSU/AmberGlen site development costs are the sewer line upgrade and any upgrades to the downstream treatment facility due to increases in flows.

Water and Sewer Preliminary Cost Estimates

The following impact analysis and cost estimate for water and sewer service was prepared by Laurie Line, P.E., of PB Engineering for the OHSU/AmberGlen Concept Plan, 2007.

The estimated cost of water and sewer improvements is approximately \$4.8 million. The cost estimate is an order of magnitude budget level cost: more detailed cost estimates should be completed once more detailed engineering plans are developed. Additional contingency should be included to cover the uncertainty in the overall scope of the project.

The cost estimate detailed below includes three basic improvements:

1. 27-inch sewer trunk line upgrade
2. Water main relocations for NW Walker Road, NW Stucki Avenue (extension), and NW 194th Street (extension)
3. Sewer main relocations for NW Walker Road, NW Stucki Avenue (extension), and NW 194th Street (extension)

The sewer trunk line upgrade cost estimate is based on projected pipe length/size and planning level unit costs associated with assumed installation work. Costs for water and sewer main relocations are based on measured length of the new roadway segment from planning level graphic. The cost estimate does not include onsite development sewer collection or water distribution systems.

Table 4-1: Sewer and Water Cost Estimate

UNIT	ITEM	SIZE	QUANTITY	UNIT COST	TOTAL
LF	Sewer Trunk Line				\$ 3,100,000
	Upgrade 27" to 36" (15 - 18 ft deep)	36"	5,350	418 \$ 2,237,242	
	<i>40% Design & Construction Mgmt</i>			40% \$ 894,897	
	Sewer (arterial rdwy)				\$ 930,000
LF	Relocate sewer main (Walker)	15"	1,200	150 \$ 180,000	
LF	Relocate sewer main (Stucki ext)	15"	2,400	150 \$ 360,000	
LF	Relocate sewer main (194th)	12"	1,050	120 \$ 126,000	
	<i>40% Design & Construction Mgmt</i>			40% \$ 266,400	
	Sewer (arterial rdwy)				\$ 780,000
LF	Relocate water main (Walker)	12"	1,200	120 \$ 144,000	
LF	Relocate water main (Stucki ext)	12"	2,400	120 \$ 288,000	
LF	Relocate water main (194th)	12"	1,050	120 \$ 126,000	
	<i>40% Design & Construction Mgmt</i>			40% \$ 223,200	

PROJECT TOTAL: \$ 4,810,000



Restored habitat, Tanner Creek Park, Portland, OR.



Flow-through planter at street, Portland, OR.



Rain garden at Magnolia Park, Hillsboro, OR.

Stormwater

The Concept Plan organizes high-density urban development within an “urban green” open space framework comprised of protected natural resource areas, parks, greenway trail corridors and green streets. Existing stormwater facilities will be utilized to the extent practicable. However, the proposed increase in development and streets and related increase in impervious area will require new facilities.

Clean Water Services (CWS) Standards

Design and construction of stormwater facilities come under the jurisdiction of CWS and are detailed in Clean Water Services Design and Construction Standards (Standards). Proposed development will need to meet the requirements of this document as it relates to both stormwater and sanitary sewer systems. The Standards include requirements to ensure downstream capacity, provide adequate conveyance during storm events, mitigate for stormwater quantity, and provide facilities to reduce contaminants.

Low Impact Development Approaches (LIDAs)

The Standards were amended in August, 2009 to update the LIDA section to reflect the unique physical characteristics and development processes of urban Washington County. LIDAs help to manage stormwater runoff near the source by putting stormwater back in the ground and reducing the volume of stormwater runoff that requires management. Approvable LIDAs reduce impervious area and include porous pavement, green roofs, infiltration planters, flow-through planters, vegetated swales and vegetated filter strips.

LIDAs are most effective when multiple LIDAs are used for a given development site. Given plan area soil characteristics, LIDAs may not be capable of infiltrating all of the stormwater for the area. CWS has noted that in such cases, LIDAs could be used to infiltrate runoff from smaller, more frequent storm events that are the largest contributors to erosion and degradation.

A detailed analysis and coordinated designs for green streets will be needed as a component of the AmberGlen Master Plan. The stormwater facilities plan and cost estimate provided in this section acknowledges the use of LIDAs in the design of a major green street boulevard but may not factor in potentially significant reductions to impervious area and related system requirements resulting from widespread use of LIDA's for interior streets and site development.

Watershed Basin Planning and Regional Facilities

Ultimately, stormwater management must protect water quality of creeks and wetlands associated with plan area watershed basins. The AmberGlen plan area presents an opportunity to address stormwater management in a comprehensive manner to mitigate water quality and downstream water quantity impacts, protect natural resources, and protect development from flood damage through coordinated Watershed Basin Plans. According to CWS, the use of regional treatment facilities results in more uniform designs, simplifies maintenance, and consolidates the operations of a stormwater facility under a single owner. In such cases, stormwater from individual developments could be routed to a linear system of swales parallel to a natural drainage feature such as Bronson Creek. Swales would overflow into vegetated corridors or convey stormwater for detainment by regional flow control facilities.

Detention and Re-use for Non-potable Uses

As previously noted, the existing pond and park feature is intended to mitigate flows to Rock Creek for water quality and quantity by detaining stormwater transported by site drainage through swales and water quality structures for use and re-use in landscape irrigation. Opportunities to treat and direct stormwater to detention facilities for use and re-use for irrigation and non-potable uses should be enhanced and expanded on an area basis.

Stormwater Facilities Preliminary Cost Estimate

The following impact analysis and cost estimate for stormwater facilities was prepared by Ronald Horres, P.E., of PB Engineering for the OHSU/AmberGlen Concept Plan, 2007.

The estimated cost of stormwater improvements is approximately \$4.3 million. The cost estimate is an order of magnitude budget level cost: more detailed cost estimates should be completed once more detailed engineering plans are developed. Additional contingency should be included to cover the uncertainty in the overall scope of the project.

As detailed in Table 4-2, the cost estimate includes: site demolition, trench excavation, excavation material hauling, trench shoring, pipe, manholes, catch basins, bedding, backfill, site restoration, and a 25% contingency factor to account for miscellaneous construction items not covered in the costs, such as utility relocations. The estimate does not include: Green streets swale construction, construction costs for stormwater system(s) within individual development parcels, engineering, right-of-way acquisition, permitting, and owner administration costs. Costs are based on costs developed for the City of Portland in their Beech/Essex and Oak Basins Pre design Report, June 2004, prepared by CH2MHill using Means 2002 Costing Manuals.

Table 4-2: Stormwater Cost Estimate

Pipe Diam (in)	Pipe Length (ft)	Av. Depth (ft)	Direct Construct.. Cost (\$ /LF)	General Conditions @10% (\$/LF)	Waste Allowance @ 5% (\$/LF)	Total Direct Construct. Cost (\$/LF)	Construct. Contingency @ 25% (\$/LF)	Total Direct Construct. Cost (\$2002/LF)	Escalation @ 4%/year	Total Direct Construct. Cost (\$2006/LF)	Total Cost
10	1000	10	\$117.08	\$11.71	\$6.44	\$135.23	\$33.81	\$169.04	\$28.71	\$197.75	\$197,748
12	1200	12	\$132.92	\$13.29	\$7.31	\$153.52	\$38.38	\$191.90	\$32.60	\$224.50	\$269,400
15	4000	12	\$143.57	\$14.36	\$7.90	\$165.82	\$41.46	\$207.28	\$35.21	\$242.49	\$969,940
18	1500	15	\$173.57	\$17.36	\$9.55	\$200.47	\$50.12	\$250.59	\$42.57	\$293.16	\$439,736
24	5000	15	\$198.01	\$19.80	\$10.89	\$228.70	\$57.18	\$285.88	\$48.56	\$334.44	\$1,672,175
30	1500	18	\$292.54	\$29.25	\$16.09	\$337.88	\$84.47	\$422.35	\$71.74	\$494.09	\$741,135
										TOTAL:	\$4,290,134

Methodology:

The proposed development plan (OHSU/AmberGlen Concept Plan, 2007) was reviewed and a preliminary stormwater collection plan was developed based on the parcel distribution and proposed road network presented in this plan. Estimates of peak runoff for a 25-year storm from each development parcel were made using the "rational method" (peak flow = rain intensity x area x runoff coefficient). Using these peak runoff values and the assumed stormwater collection plan, an estimate of the size and quantity of stormwater conveyance was made.

It should be noted that this estimate is intended to provide an order of magnitude number only, and significant additional design will be required as the development progresses before more accurate numbers can be determined. The estimate includes the following assumptions:

- There are no effects downstream of the AmberGlen plan area requiring new stormwater facilities outside of the plan area.
- The estimate includes piping installed in the right-of-way only. It does not include piping within each parcel or connections from the parcels to the right-of-way.
- Parcels located along either side of the proposed “green street” will pipe their stormwater directly to the stormwater swale included in the street system. Piping to the swale, or supplementary piping to augment the swale is not included.
- Parcels located directly adjacent to the existing stream corridors within the plan area are assumed to discharge directly to the stream.
- The stormwater system within the existing OHSU facilities is adequate and will not require additional stormwater piping.
- Assumes new piping is required in all areas (i.e. existing pipe is not considered). From this preliminary analysis it does appear, however, that existing piping along NW 185th Avenue to the east of the plan area may not be sufficient to meet the requirements of the adjacent parcels without on-site quantity reduction. Existing piping along NW 206th Avenue to the west of the plan area and existing piping in the north portion of the plan area may be sufficient to meet the requirements with perhaps only minor on-site quantity reduction.

With the incorporation of the proposed “green street” system within the interior portion of the plan area, it is recommended that additional natural quantity/quality stormwater treatment systems be incorporated both as part of the development right-of-way facilities and within the individual development parcels. These types of facilities lessen impacts on the existing stormwater/surface water system; improve the aesthetics of the development; and provide a focal selling point for the area.

Public Safety

Fire Protection Services

With a targeted increase of over 6,000 households and additional commercial development, the Hillsboro fire department will require additional resources to serve the plan area. As a general rule, a population increase of 12,000 people means that the demand for services would typically increase to 1,000 responses per year. Using this as an approximation of the demand for new services in the plan area, the increase in emergency responses would require additional staffing (approx. 21 personnel). In addition to staffing, specialized training and equipment (truck and rescue units) would be needed for new structures over 110 feet high.

Police Services

The NE Precinct on NW Cornell Road located in the business park east of NW Cornelius Pass Road (20795 NW Cornell Road) would continue to serve the plan area in the future. It is a “full service” precinct, with officers stationed out of that precinct, as well as supervisors and equipment. The projected increase in residents may require the NE Precinct to add personnel to provide the same level of service as it provides today.

District Energy Production

A guiding principle for the AmberGlen Community Plan is to serve as a model for urban sustainable development. The infrastructure concept proposes the creation of a neighborhood or district energy utility using renewable, carbon-neutral sources of power to deliver heating and cooling services. Incorporating clean, renewable energy sources such as solar and wind will be encouraged for AmberGlen plan area development on a project by project basis. District energy systems deliver heating and cooling services in the form of steam, hot water and chilled water through thermal piping networks to multiple buildings within a localized area. District energy systems serve the aggregated thermal loads of an entire neighborhood to achieve an economy of scale where it is feasible to utilize surplus heat and local or renewable resources. The district energy systems approach results in increase in energy efficiency by effective use of renewable resources.

According to the Environmental and Energy Study Institute (EESI), eighty-five downtown utilities and 330 campuses in the United States currently use district energy to reduce costs and greenhouse gas emissions, increase efficiency, and improve reliability. District energy enables flexibility with regard to fuel source once the distribution system is in place, and provides opportunities to use local renewable resources for thermal energy. Two-thirds of the fuel used to produce power in conventional power plants is wasted and released as heat exhaust. Capturing this waste heat and utilizing it through a combined heat and power system can improve this efficiency rate to 80 percent or higher. District energy systems often require large initial investments which are recouped in subsequent years through lower energy costs. (Source: EESI, 2009, <http://www.eesi.org/>. EESI is a non-profit organization established in 1984 by members of Congress to provide timely information and develop innovative policy solutions.)

A range of potential models should be reviewed and evaluated for feasibility, costs and benefits in partnership with public, stakeholder and local corporate partners. An example in St. Paul, Minneapolis and two examples being developed in the northwest are summarized below:

District Energy St. Paul: Biomass-fueled Hot Water Heating

District Energy St. Paul is the country's foremost example of municipal district heating. It was initiated in 1983 as a public/private partnership among the City of Saint Paul, State of Minnesota, U.S. Department of Energy and the downtown business community to investigate the viability of hot water district heating and provide customers with energy efficient heating and stable rates. District Energy St. Paul began offering district cooling service to downtown building owners ten years after the startup of the district heating system. Ten years later in 2003, District Energy St. Paul became a "green" energy service provider following construction of an affiliated combined heat and power plant fueled by clean, urban wood waste. The plant simultaneously produces about 65 megawatts of thermal energy for District Energy and 25 megawatts of electricity for Xcel Energy.

District Energy St. Paul currently heats more than 185 buildings and 300 single-family homes (31.1 million square feet) and cools more than 95 buildings (18.8 million square feet) in downtown Saint Paul and adjacent areas. Customers enjoy stable rates, unsurpassed reliability and energy efficient heating and cooling service. In the district energy field, District Energy St. Paul is considered the most successful in the United States in terms of using renewable energy sources and energy conservation.

Source: District Energy Saint Paul, 2008 <http://www.districtenergy.com/>

DISTRICT ENERGY PRODUCTION

St. Paul's District Energy system uses multiple fuel sources to produce hot and cold water that is distributed to a range of users.

Portland District Cooling Company: Brewery Blocks, Portland, Oregon

Portland District Cooling Company (PDCC), an affiliate of Marubeni Sustainable Energy, Inc., operates a high-efficiency district cooling system for downtown Portland serving the Brewery Blocks, a five-block development of retail, commercial and residential space. The system was built in 2001. Through a distribution piping network running underground and in the Brewery Blocks parking garage, PDCC offers on-demand chilled water for air conditioning and cooling. The system allows building owners and tenants to avoid the capital, energy, operating, and maintenance costs associated with owning and operating their own chilled water system. It also provides energy savings and net reductions in water and sewer usage and charges for its customers. In 2008, PDCC began its expansion of this distribution network to also serve other buildings outside of the Brewery Blocks in the surrounding Pearl District.

Source: *The Brewery Blocks*, PREM Group, <http://www.breweryblocks.com/>

Olympic Village, Vancouver, B.C.: Recovered heat from sewage

Vancouver's 2010 Olympic Village features a unique heat recovery system from spent sewage developed as a district energy utility. Heat recovered from raw sewage is directed back into a community energy system to supply heat and hot water to the Olympic Village site and then to all Southeast False Creek development at full project build-out. The utility's three main components are the thermal energy center, hot water distribution pipes looping the site to buildings and back to the energy center, and energy transfer stations located in each building's basement used to draw in heat from closed loop hot water system. The system utilizes raw sewage upstream of the treatment facility, rather than recovering heat at distant sewage treatment facilities because recovering heat closer to the sewage source makes heat capture easier and increases efficiencies.

In the False Creek system, sewage flows by gravity pipes to a pumping station which lifts it into another main towards a treatment center. Raw sewage is screened to remove solids and pumped through a heat exchanger where heat is drawn from liquids. The solids go into a self-cleaning wet well, where they are rejoined with the spent liquid later and returned to the pump station. The sewage recovery system has the ability to generate about 2.7 megawatts of energy and will be supplemented by the energy center's three natural gas fired boilers. The sewage recovery system will supply 70 percent of the energy needs for the False Creek neighborhood. Most of the district energy utility is located below grade underneath a bridge. Five flue stacks have been designed as a public art piece and extend into a sculpted hand with fingernails featuring LED panels that change color to reflect the amount of green energy being produced.

Source: *City of Vancouver, B.C.*, 2009 <http://vancouver.ca/olympicvillage/>



Vancouver's Southeast False Creek development recovers heat from raw sewage to supply the district with heat and hot water. Photo credit: Imageshack Corp.

Infrastructure Goals, Policies and Actions

Goals and Policies

Goal 8 Ensure adequate capacity, quality, and efficient delivery of water, sanitary sewer, stormwater and public safety services to support planned development.

Policy 8.1 Reuse existing infrastructure facilities to the extent practicable.

Policy 8.2 Provide infrastructure in substantial conformance with the AmberGlen Community Plan Infrastructure Concept. Alternative improvements may be identified to support uses and densities identified in the AmberGlen Community Plan Development Program.

Policy 8.3 Investigate the feasibility of establishing a “zero net impact” objective for stormwater quantity and quality. City owned facilities should strive to meet the Clean Water Services Low Impact Design Guidelines for “zero net impact” stormwater quantity and quality.

Policy 8.4 Promote district-based strategies for heating and/or cooling based on carbon-neutral power sources to increase efficiencies, reduce costs and provide ecological benefits not available through conventional or site-by-site development approaches.

Policy 8.5 Identify opportunities to capture and reuse sewage, stormwater or other infrastructure discharge to provide heating, non-potable water, and other services to public and/or private development.

Policy 8.6 Feature innovative infrastructure improvements and district-based strategies in the planning and design of public and private catalyst projects to strengthen community identity and to serve as demonstration projects for future development.

Policy 8.7 Ensure that the Police Department and Fire Department have the equipment, staff and expertise required to provide a safe and healthy environment given the larger scale and density of planned development.

Actions

- Action 31 Complete detailed engineering plans and cost estimates for infrastructure system improvements to support uses and densities identified in the AmberGlen Community Plan Development Program.
- Action 32 Complete a comprehensive strategy for stormwater management based on development of a Stormwater Master Plan for the AmberGlen area and the use of Low Impact Development Approaches for sites, streets and where required, regional stormwater facilities. Work in partnership with Clean Water Services, Washington County, City of Hillsboro Parks and Recreation, Engineering and Planning Departments, property owners and other public and private partners.
- Action 33 Complete a detailed analysis and coordinated designs for managing stormwater within streets and public open space based on the Stormwater Master Plan for the AmberGlen area identified in Action 32. Coordinate designs with the development and adoption of “green street” standards into the City’s Transportation System Plan identified in Transportation Actions 23 and 24.
- Action 34 Address innovative and integrated infrastructure improvements in the City-sponsored competition for design and programming of the central park and key green framework elements identified in Parks and Open Space Action 2.
- Action 35 Amend Hillsboro Public Facilities Maps as needed to incorporate infrastructure system improvements identified in Action 430.
- Action 36 Identify staffing, training, equipment and other Police Department and Fire Department resources required to effectively serve the larger scale and density of planned development.
- Action 37 Initiate a district energy strategy which would seek to evaluate, identify and begin to develop energy production for planned development.

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CHAPTER V – ECONOMIC DEVELOPMENT

Existing Market Conditions

The AmberGlen Community Plan presents an ambitious vision to create a vibrant, mixed-use regional center located in a suburban context. Implementing the vision will require public and private partnerships and strategic investments in civic projects and infrastructure.

The AmberGlen plan area occupies a unique and desirable location a short distance from major employers including Intel, Epson, Maxim, Nike, Columbia Sportswear, Solarworld, and Genentech and many other employers within the “Silicon Forest”. The plan area is also directly adjacent to the Tanasbourne Town Center which is one of the region’s most successful 2040 Town Centers. The Streets of Tanasbourne, a highly successful retail center, and the future build-out of the Kaiser Permanente Westside Medical Center and The Standard Insurance, which is anticipated to continue to build out its Tanasbourne campus, all continue to attract jobs to the immediate area.

Demographic characteristics of the area support further intensification of economic development because they reflect the types of households that will choose higher-density housing coupled with high-quality urban amenities. These characteristics include a high percentage of two-income households, well-educated work force, significant foreign-born populations, and high-tech employees. The demographic who works in Hillsboro and Washington County’s high-tech cluster desires the low-maintenance and walkable access to the amenities provided by a vital urban environment. AmberGlen residential offerings support a lifestyle choice that is not currently available in Washington County, but is desirable because it allows people to live close to where they work while enjoying urban level amenities. Capturing this demographic by providing a unique live and work environment increases the competitiveness of both the City of Hillsboro and Washington County to attract and retain business.

The time is right for the AmberGlen Community Plan to affect of more intensive economic use of the AmberGlen plan area by taking advantage emerging market trends. Major market trends demonstrate that people are seeking more mixed-use centers where the physical boundaries between living, working and playing are deliberately blurred. These market trends are a result of increasing energy costs, higher demands of employee productivity which leads to blended time between work and play. These trends combined with the location of the AmberGlen plan area provide an excellent opportunity for a unique, synergistic, walkable plan that will be economically successful. The AmberGlen plan area has been the center of a significant amount of existing investment, and this investment will be the foundation for the next phase of economic investment in the AmberGlen plan area.

For high-rise residential development to be successful in Hillsboro, significant urban amenities will need to be provided to cover the increased design and construction costs associated with high-rise development. Premium amenities that will add value to the area include proximity to significant parks, convenient and desirable neighborhood shopping, and enhanced transit options. These amenities are expected within the planning horizon of the AmberGlen Community Plan.

Economic Approach

The successful implementation of the AmberGlen Community Plan will rely on a unique mix of assets within the plan area and on strategic phasing of public and private investments over the next twenty years. It is widely recognized that building compact mixed-use urban form can be complicated due to the construction premiums that are required for vertical construction. The AmberGlen Community Plan intends to leverage the significant private investment in the plan area and immediate surrounding area and combine it with public/private partnerships and financing to match the latent and future demand for urban development form in a suburban context. To catalyze development components of AmberGlen that can be realized in the near term, key public/private partnerships will need to be extended to achieve the multiple plan goals of a “Big First Phase” and “Economic Vitality”.

Project Phasing

Both public decision makers and members of the AmberGlen Steering Committee have stressed the need to ensure proper development phasing to respond to market trends.

The AmberGlen Community Plan places greater emphasis on mid-rise residential and mixed-use development forms in earlier phases of the plan. In order to reduce the economic risk and maximize economic vitality, mid-rise residential, mixed-use buildings have been located adjacent to the Community Activity Center and central park in what is anticipated to be the first major phase of development. There are two objectives with initiating development in this manner. This development provides the first phase of a more immediately marketable product, but also will be of scale sufficient to support the initial public investments necessary to create the first “big phase” of the development called for by the plan. High-rise residential development and locations have been redirected within the plan to sites with existing improvements. This approach focuses development expectations to those areas that can be made readily developable in the short term. As mid-rise residential and mixed-use developments occur, existing structures situated in areas targeted for high-rise development will depreciate in value relative to increased property values. The combination of the improved land values, additional amenities provided to the area, and an expected decrease in relative value of the existing improvements will allow these areas to redevelop into dense, high-rise residential towers in later development phases.

This approach will require a strong public/private partnership in order to identify an equitable plan for funding necessary improvements, and ensuring the amenities necessary to add value to the plan area are included. Many of the capacity enhancement improvements will be provided as each property within the plan area develops. Catalyst projects represent a primary initial investment in the area to provide the necessary infrastructure and desired amenities that will guide the growth and development of the plan area. Additional projects integral to the development of the plan area are identified as “far term” projects.

This early development will assist in building the momentum and establishing the initial investment necessary to fund the public investments, as well as provide some of the internal transportation improvements. The investment could provide the opportunity to utilize tax-increment financing to assist with additional transportation improvements and right-of-way acquisition, and the development of the civic functions of the plan. The provision of public structured parking will also be a key phased improvement. Parking can be accommodated in surface lots as an interim way to control the costs of early high-rise development, with the ability to convert to structured parking over time.

The overall development concept hinges on the ability for the plan area to increase densities as the area redevelops over time, providing the critical mass that supports the addition of desirable amenities that will add value to the plan area such as a community park or enhancement of transit options. This phasing approach also allows for the slow conversion of existing office structures and respects their existing value, without leaving large undeveloped parcels.

Economic Vitality

City leaders and Steering Committee members agreed at initiation of the AmberGlen Community Plan in February 2009, to add economic vitality as one of the key guiding principles, because without economic feasibility it would be difficult to accomplish the vision for AmberGlen. Real Estate consultant, Johnson Reid, described the key components to maintain market feasibility as those that will include an emphasis on improving the AmberGlen plan area for commercial/retail/entertainment and employment. Portland's Pearl District has been cited as an example of providing the strong assortment of commercial amenities that are necessary to make high density residential successful. Proximity to primary employment has been measured to be secondary to commercial amenities in order of importance to create an economically vital place. Through the Johnson Reid analysis, the AmberGlen Community Plan has evolved to move the Community Activity Center, the heart of commercial, retail, and civic functions, to the south of NW Walker Road to place it in closer physical proximity to the proposed residential portions of the project.

Urban Amenities

Throughout the planning process there has been recognition by public decision makers and members of the Steering Committee that place making will need to include significant investment in quality urban amenities. Johnson Reid analysis for the pricing premium for parks and commercial/retail amenities uses the analogy of a three-legged stool, which include jobs, housing, and retail/commercial and public amenities. Johnson Reid analysis concludes that AmberGlen will need each of the legs of the stool to be successful and that there should not be an over reliance on any one leg to ensure economic success within the AmberGlen plan area. Key findings of the Johnson Reid report include:

- **Commercial Amenities** are so valuable to households, that having them within walking distance allows them to pay more for a high-density type home. A specialty grocer where specialty foods, deli, flowers, gifts, and café under one roof and within two blocks has been measured to achieve a nearly 18% price premium.
- **Park and Open Space Amenities** in close proximity to urban density residential forms can provide a residential development between a 10% to 15% price premium.

Public Financing

Successful implementation of the AmberGlen Community Plan includes the need to understand how to finance the capital cost of the proposed plan. The “toolbox” includes a list of financial tools that have been successfully used in Hillsboro and by other jurisdictions for developing mixed-use center and other major projects contemplated in the AmberGlen Community Plan. The list includes the following tools and methods:

- **Public / private partnerships:** Development agreements that could provide assurances for financing mechanisms that reduce initial risk, catalyze initial development phases, or maintain momentum.
- **Urban Renewal District:** The investigation of an urban renewal district to provide tax-increment (TIF) financing has been broadly supported by the City Council and the Steering Committee. An analysis for the potential viability was completed by Johnson Reid. The key findings found that there is the potential for significant TIF revenues to help pay for the investments in parks, transportation, and transit that are identified by the plan.
- **Local Improvement Districts (LIDs):** LIDs are special taxing districts that can be created to pay for specific capital improvements that benefit the district in which they are created. Creation of LIDs are approved by the City Council.
- **Vertical Housing Program:** This State administered program was created to allow local jurisdictions to provide tax abatements for encouraging vertical mixed use development by providing up to a 10-year property tax abatement between 20 to 80 percent, depending on the intensity of the proposed development. The program provides flexibility for a local jurisdiction to apply the tax abatement to either designated areas or to a single project.
- **Special System Development Charges (SDC):** The City currently collects SDCs as allowed by Oregon law for Parks, Transportation, Water, and Storm and Sanitary Sewers. An additional tool is to include a special SDC assessment for a plan area that may incur unique capital costs associated with development in that plan area.
- **General Obligation and Revenue Bonds:** Municipal Bonding is also in the toolbox, and may be appropriate for consideration as a mechanism to finance large scale community-supported projects. Typically, General Obligation Bonds are long term debt instruments backed by the “full faith and credit” of the City and are typically paid by a property tax assessment. Revenue Bonds receive their source of revenue for debt service from the project that was financed. For example, a parking garage could be financed by revenue bonds, and the bond is paid back by parking fees in the garage.
- **Grants:** The City has successfully received grants and will continue to pursue other Federal, State, METRO, and County grants as appropriate.

Catalyst Projects

- Design and development of the Community Activity Center
- Development of medium-density, mixed-used buildings
- The realignment and construction of NW Stucki Avenue from NW Cornell Road south of the Westside Light Rail line
- The realignment and construction of NW 194th Avenue from NW Cornell Road south to NW Stucki Avenue
- Realignment and construction of NW Walker Road from NW Stucki Avenue west to NW 206th Avenue
- Design and construction of a central park
- Design and construction of green connections to Rock Creek and along Bronson Creek
- Preliminary High Capacity Transit Alignment and Engineering Study

Mid and Far-Term Projects

The exact timing of these improvements will be dictated by the rate at which the plan area is developed. The mid and far-term projects identified are:

- Split Diamond Interchange at NW Stucki Avenue and NW 185th Avenue and US Highway 26
- Full build out of NW Stucki Avenue
- Extension of NW Wilkins Road from NW Stucki Avenue east to NW 185th Avenue
- Public Parking Structure(s)
- Riparian Corridor Improvements

Economic Development Goals, Policies and Actions

Goals and Policies

Goal 9: Support a vital and sustainable economy within the AmberGlen Community Plan area.

Policy 9.1 Pursue economic development strategies that build on the AmberGlen plan area's unique mix of assets.

Policy 9.2 Develop flexible regulatory structures that combine a range of incentives and performance measures to achieve an economically vital district.

Policy 9.3 Provide mechanisms to support new development, redevelopment, and adaptive re-use of existing structures and sites.

Policy 9.4 Create a branding strategy that establishes and promotes the AmberGlen plan area as a distinct, desirable Hillsboro location.

Policy 9.5 Identify public/private partnerships that support financing of economically vital mixed-use development.

Goal 10: Identify and implement funding strategies to support creation of an economical vital, mixed-use district.

Policy 10.1 Pursue diverse funding strategies that include, but are not limited to: tax-increment financing (urban renewal), System Development Charges (SDCs), Local Improvement Districts (LIDs), Vertical Housing Tax Credits, General Obligation and Revenue Bonds, Grants, and other public and private funding sources.

Goal 11: Identify strategic public investments to leverage widespread and sustained private investment.

Policy 11.1 Accelerate development with strategic public investments consistent with the plan's guiding principles.

Policy 11.2 Support the removal of regulatory barriers without jeopardizing the AmberGlen vision.

Policy 11.3 Enhance coordination between public and private partners to facilitate timely decision making.

Goal 12: Expand economic activity and the jobs base within the AmberGlen plan area through the recognition that quality of life issues are critical to successfully attracting and retaining professional and support jobs in a global marketplace.

Policy 12.1 Provide opportunities to retain and expand existing AmberGlen businesses.

Policy 12.2 Identify and recruit businesses that are complementary to existing "Silicon-Forest" business clusters.

Policy 12.3 Work with local, state, federal, and private trade organizations to identify and recruit businesses to the AmberGlen plan area.

Policy 12.4 Create a system of performance measures to support a healthy and efficient business climate and ensure that the AmberGlen Community Plan retains its economic vitality.

Actions

- Action 38 Conduct an urban renewal feasibility study and adopt a plan to support infrastructure and other investments necessary to create an urban-scale, mixed-use center.
- Action 39 Complete a comprehensive public/private funding strategy to support the plan.
- Action 40 Develop and use SDC incentives to implement the AmberGlen Community Plan.
- Action 41 Identify potential TOD funding.
- Action 42 Establish methods of financing the development and ongoing maintenance of public amenities such as parks, open spaces, community center, and other similar public amenities.
- Action 43 Develop an implementation strategy and schedule for catalyst projects.
- Action 44 Provide incentives for developers to provide targeted public and private amenities and services that add substantial value within the plan area.
- Action 45 Encourage the creation of an AmberGlen business association to develop and implement private business marketing strategies.
- Action 46 Identify potential market barriers and employ economic development strategies to ameliorate barriers.
- Action 47 Develop a business recruitment strategy.
- Action 48 Develop and implement a parking strategy that supports market driven parking solutions.

ORDINANCE NO. 5933

HCP 4-09: AMBERGLEN COMMUNITY PLAN

AN ORDINANCE AMENDING THE COMPREHENSIVE PLAN ORDINANCE NO. 2793 AS AMENDED, ADDING A NEW SECTION 28, AMBERGLEN COMMUNITY PLAN, TO ESTABLISH GOALS, POLICIES, AND ACTIONS; AND A NEW SECTION 29 TO INCORPORATE BY REFERENCE THE AMBERGLEN COMMUNITY PLAN IN ITS ENTIRETY; AND AMENDMENTS TO SECTION 2, URBANIZATION; SECTION 14, COMPREHENSIVE PLAN MAPS; SECTION 15, STATION COMMUNITY PLANNING AREA; AND SECTION 21, TRANSPORTATION SYSTEM PLAN.

WHEREAS, the City of Hillsboro has identified an opportunity to create a regional scale mixed-use center enlivened with high-quality pedestrian and environmental amenities taking advantage of the regional light-rail for the AmberGlen Plan Area; and

WHEREAS, the City initiated a planning process with local and regional partners to create a vibrant regional activity center, with a strong sustainable environment, that reflects proximity of high value jobs, housing, and transit; and

WHEREAS, the Planning Commission adopted Order No. 8016 initiating the proposed Comprehensive Plan amendments on August 26, 2009; and

WHEREAS, the Planning Commission held two (2) public hearings on November 12 and 23, 2009 to consider the AmberGlen Community Plan, received the staff report and public testimony; and

WHEREAS, at the conclusion of the public hearing, the Planning Commission adopted Order No. 8020 on November 23, 2009, recommending City Council approval of the subject Comprehensive Plan and Map amendments based on the testimony, the Record, and Exhibits A, B and C attached hereto; and

WHEREAS, the City Council considered the Planning Commission recommendation, received the staff report, and held its own public hearing on December 15, 2009 on the subject Comprehensive Plan and Map amendments pursuant to Comprehensive Plan Section (1) (III) (9) to receive additional public testimony.

WHEREAS, the City Council closed the public hearing and considered the Planning Commission recommendation, staff report, and additional testimony at their meeting on December 15, 2009, and hereby adopts the findings of the Planning Commission as their own in regard to this matter attached hereto as Exhibit B.

NOW, THEREFORE, THE CITY OF HILLSBORO ORDAINS AS FOLLOWS:

Section 1. Comprehensive Plan Ordinance No. 2793 is amended by adding a new section 28 AmberGlen Community Plan, establishing goals, policies and actions, as set forth in Exhibit A.

Section 2. Comprehensive Plan Ordinance No. 2793 is amended by adding a new section 29 AmberGlen Community Plan incorporating the AmberGlen Community Plan document in its entirety into the comprehensive plan, attached hereto as Exhibit C.

Section 3. Comprehensive Plan, Section 2, Urbanization is amended to make reference to the AmberGlen plan area as set forth in Exhibit A.

Section 4. Comprehensive Plan, Section 14, Comprehensive Plan Maps is amended to include a reference to the AmberGlen Community Plan Map as set forth in Exhibit A.

Section 5. Comprehensive Plan, Section 15, Station Community Plan Areas, Quatama SCPA Policies is amended as set forth in Exhibit A.

Section 6. Comprehensive Plan, Section 21, Transportation System Plan is amended as set forth in Exhibit A and to incorporate the AmberGlen Community Plan Traffic Analysis which identifies transportation system facilities and improvements to be incorporated into the Hillsboro Transportation System Plan; and

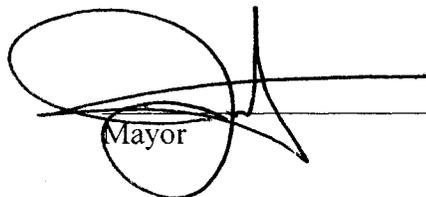
Section 7. Except as herein amended, Comprehensive Plan Ordinance No. 2793, as amended, shall remain in full force and effect.

Section 8. This ordinance shall be effective from and after 30 days following its passage and approval by the Mayor.

First approval of the Council on this 15th day of December 2009

Second approval and adoption by the Council on this 19th day of January 2010

Approved by the Mayor this 19th day of January 2010



Mayor

ATTEST: Della Werner
City Recorder